THE LIABILITY FOR DAMAGE
CAUSED BY SPACE ACTIVITIES

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A B S T R A C T

THESIS:

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SUMMARY:

This study deals with the problem of liability for space damage. Following a review of the potentially hazardous conditions and situations giving rise to liability, the thesis offers a comparative study of the contemporary doctrines of liability as developed in the civil law and common law systems, as well as in some selected national legislations relating to air law and nuclear energy law.

Further consideration is given to the development of liability doctrines in international Treaty and customary law.

The inquiry is particularly devoted to an analysis of the three draft conventions on liability, now before the UN Legal Sub-Committee as well as the prospects for an appropriate regime of liability for space ground damage, collision damage and damage caused by contamination.

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S.T. Saleh

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INTRODUCTION

In the past ten years the possibility of space travel has passed far beyond the stage of imaginative fiction,[1] and the exploration and exploitation of space have become a reality. Man's interest in outer space is age-old, and his inquiries into the properties and objects of outer space have always been intense.[2] Since the rocket exploration of the upper atmosphere began in 1945,[3] both the development of rocket vehicles and the techniques of placing scientific equipment including artificial satellites in outer space advanced rapidly. Today, it is possible to explore outer space with many types of instrumentalities and millions of miles away from our planet. Numerous facilities for the launching of rockets, space ships, space probes, satellites, and other objects, have come into existence in recent years. In addition to the United States and the Soviet Union, the two original space powers, other countries (e.g. France, United Kingdom, Italy) are beginning to participate in major space projects. In fact, mankind today is entering into a new era of great discoveries. The

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1. Cyrano de Bergerac, Voyage to the Moon and the Sun (1656).
2. See Wells, H.G., The Outline of History, p. 11 vol. I Garden City Books, N.Y., (1961).
3. Report of the UN Ad Hoc Committee on the Peaceful uses of Outer Space, Doc. A/4141, July 14, 1959, Part II.

Russians, as well as the Americans, have already sent their space vehicles to land on the moon,[4] and, before long, man will land on the moon's surface.

In these circumstances it is of paramount importance that the rule of law should evolve "before 'de facto' situations have crystallised too far".[5] Certain steps in developing a regime of law for outer space already have been taken by the United Nations. By resolution 1472 (XIV) of 12 December 1959 the General Assembly established a Committee on the Peaceful Uses of Outer Space. This Committee then established two Committees: the Technical and Scientific Sub-Committee and the Legal Sub-Committee. In a report to the General Assembly, the Ad Hoc Committee itemized the "legal problems susceptible of priority treatment" and after recognizing the principle of the freedom of outer space for all the nations on the basis of equality, top consideration was given to the problem of liability for injury or damage caused by space vehicles.[6]

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4. Luna 9 and Surveyor I landed on the moon in February and June 1966 respectively.
5. Jenks, Wilfred, C., "International Law and Activities in Space", Legal Problems of Space Exploration, A Senate Symposium, p. 35, (1961).
6. See note 3 Supra, Part III & II.

The principle of international responsibility for space damage was first enunciated in the 1963 U.N. General Assembly Declaration of Legal Principles Governing the Activities of States in the Exploitation and Use of Outer Space.[7] Ever since, the Legal Sub-Committee of the U.N. Committee on the Peaceful Uses of Outer Space has been considering the question of liability for damage caused by the launching of objects into outer space in an attempt to prepare an international convention on the matter. It is hoped that such a convention will be agreed upon in the near future as the rule of Treaty Law has already been extended into the realm of outer space with the conclusion of the first Treaty of Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, concluded in December 19, 1966 under the auspices of the United Nations General Assembly.

The purpose of this thesis is to examine, in the light of a comparative study of the existing doctrines of liability in both national and international law - the three draft conventions on liability for damage caused by space activities now before the U.N. Legal

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7. U.N. Gen. Ass. Res. 1962 / XVIII / December 13, 1963.

Sub-Committee, as well as the various recommended solutions to the problem of space liability.

Chapter I, offers a review of the potentially hazardous activities in space as well as the situations giving rise to liability. A legal definition of the ultrahazardous activities in space is attempted as well.

Chapter II, deals with the contemporary doctrines of liability. This will be mainly a legal survey of the rule of liability in some selected national legal systems. The principal topics of the discussion are: First, a consideration of the concept and development of the idea of fault as well as the doctrine of abuse of right and the theory of risk in the civil law system. Second, a brief review of the regime of liability in the common law system, namely: the doctrines of nuisance, negligence, Res Ipsa Loquitur, and strict or absolute liability. Further consideration is given to some selected national legislations of the air and the nuclear energy.

In Chapter III an attempt is made to review the trends in the development of the international law of liability in both Treaty Law and customary law.

Chapter IV is devoted to the efforts of the United Nations in regard to the problems of space liability, and an analysis of the three draft conventions now before the U.N. Legal Sub-Committee is offered.

Chapter V deals with the prospects for an appropriate rule of liability for space damage. The principal topics are: Liability for damage to third parties on the ground, liability for collision damage and liability for damage caused by contamination.

C H A P T E R I

POTENTIALLY HAZARDOUS ACTIVITIES AND SITUATIONS GIVING RISE TO LIABILITY

Today we are witnessing only the beginning of many promises and challenges that space age is offering to mankind. Prediction about the future of space exploration is hazardous, for at the time of Columbus no one could foresee the wonders of the North Americans of our day. This is one side of the picture and it is important, however, to remember that there are also potential negative effects of space activities. One cannot exclude the possibility of damage caused by the potentially hazardous activities in space.

Although this chapter is concerned with factual circumstances, it seems appropriate, for the service of clarity, to consider at the outset the legal nature of the ultrahazardous space activities.

1- The Legal Nature of the Ultrahazardous Space Activities:-

The term ultrahazardous activity needs to be defined, and it should acquire a meaning in the law in addition to its original meaning in fact. In the general principles of international law there is no definition of such term or concept. In municipal law, the problem came into being with the growth of the machine age and became

more important in the early days of aviation when aircraft and balloon flights were held to be extremely dangerous activities. In the civil law doctrine, some French scholars observe that Article 1384 of the French civil code which reads: "one is responsible not only for the damage caused by one's own act, but also for that caused by the things which are in one's custody", should apply when a thing had caused the damage by itself, but not when it was in the hands of a man. Others give wider scope to the application of Article 1384 hence to the definition of dangerous things. They consider that the liability should apply to every dangerous thing that was subject to the necessity of custody by reason of the danger it created.[1] However, the French "Cour de Cassation" in full chambers in 1930 rejected - in a leading case - any kind of distinction and ruled that Article 1384 was to have general application in all cases of liability for damage caused by things.[2] In the common law systems, the distinction is made clear, and the general principle of liability for dangerous things is based on this distinction. The expression dangerous

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1. H & L Mazeaud and A. Tunc, Traité Théorique et Pratique de la Responsabilité Délictuelle et Contractuelle, Vol. 2, No. 1195, 1212, 5th ed., (1957 - 60).
2. Cass. ch. reunies, 13 Fevrier 1930, 57.

things is held to equate the words of Blackburn J. "things likely to do mischief if they escape" in the classic case of Fletcher vs Rylands.[3] One point of view[4] groups the cases with regard to dangerous things into three classes:-

a) Things dangerous in themselves.

b) Things dangerous by reason of their position.

c) Things dangerous because defective.

As a general proposition, Charlesworth formulates: "To constitute anything a dangerous thing, its power to cause damage must be:

a) inherent; the power to cause damage must be of the very essence of the thing.

b) invariable.

c) due to human agency.

The expression ultrahazardous activity has never been legally defined better than in the classic words of the American Restatement of Torts[5] which may be taken as valid in both the common and civil law systems. An ultra-

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3. 1868, L.R. 3 J.L. 330.
4. Charlesworth, D.J., Liability for dangerous things, p. 6 - 14, (1922).
5. American Law Institute, Restatement, Torts, No. 520 (1938).

hazardous activity is an act or course of conduct which "necessarily involves a risk of serious harm to the person, land or chattels of others which cannot be eliminated by the exercise of the utmost care" and which "is not a matter of common usage". Accordingly, an activity is considered ultrahazardous because of the instrumentality which is used in carrying it on, the nature of the subject matter with which it deals, or the condition which it creates.

Observe how perfectly the terse language of the Restatement covers all elements of hazard. However one can conclude that an ultrahazardous activity, as a matter of law, is a question of fact, for what is hazardous in law is in effect a certain particular set of factual circumstances.

2- Dangerous Instrumentalities:-

The completion of various space missions depends on special categories of tools and instrumentalities. The idea of using rockets to attain the very high velocities required for space travel is the key technology in space activities. Thus the rocket plays the major role in space flight and it is the most powerful and dangerous engine known to man.

The ascent of a giant rocket makes every space launching a dangerous adventure. A rocket engine is a device to convert chemical energy into kinetic energy, thus producing a propulsive effect or a thrust.

One source of hazard is the high energy propulsion systems needed to overcome the forces of gravity and air, and to accelerate the space vehicle to a high speed. Chemical liquids are the known substances which contain enough available chemical energy to be converted into kinetic energy. As these liquids are injected into the combustion chamber of a rocket engine under pressure, a great deal of heat is generated, thus forming a large amount of high-pressure, high temperature gas which is liable to explode and cause fire and great damage to life and property. Furthermore, scientists are looking forward to improve the payload capacity by developing high energy propulsion systems, including hydrogen - oxygen rocket engines.[6] Another promising method - though more hazardous - is the use of nuclear energy rather than the combustion process used in chemical rockets. Nuclear fission can produce about ten million times as much energy

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6. Gatland, K.W., ed., Spaceflight Today, p. 28, London Illife Books Ltd., (1963).

as the best chemical propellents.[7] One more source of danger is the launching vehicle itself, the booster which is a complex device. It consists of thousands of parts, systems and subsystems, including hydraulics, electrical and timing systems, explosive bolts, electronics, disconnectors, helium, nitrogen and air pressure. Each item of these parts and systems is critical and liable to explode or ignite and cause tremendous damage if it fails to operate in proper time with split second timing and in harmony with all the other systems and devices within the giant rocket booster. The launching process itself is a series of hazardous and complicated operations. Each time a huge rocket smears itself across the sky on a river of fire roaring in a titanic blast of blinding flame and smoke exploding downward with tremendous thunder, this is an event of great excitement and danger. The smallest and least powerful American launching vehicle is the great Mercury - Atlas booster which sent astronaut Gordon Cooper into orbit, stood 93 feet tall, 16 feet wide and weighed 265,000 pounds. Today, the Americans are building the Saturn V booster which will send the Apollo

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7. Ibid. The president of the United States recently asked the Congress for $ 91 million to begin development of a nuclear - powered rocket engine for deep space probes to be known as the "Rover", The Montreal Star, p. 1, Feb. 28, 1967.

spacecraft to the moon. It stands 362 feet tall, as tall as a 30 story building, having a lift-off thrust of 7,500,000 pounds. Each launch of the Saturn V with the Apollo is expected to cost the United States about 150 million dollar.[8] The Americans are designing another booster known as the rocket "Nova" which would require a minimum thrust of 9,000,000 pounds obtained by clustering six of the huge F - 1 engines develpped by the Rocketdyne Division of North American Aviation in order to achieve a two-way lunar mission.[9]

Spacecraft like Mercury, Gemini, Apollo, and the Russian Vostoks are flying instrumentalities as hazardous as the giant boosters launching them into space. Space capsules are but artificial meteors plunging into space. When they re-enter the earth's atmosphere rushing from space, a splashdown could be expected any where on the surface of the earth. If the astronaut miscalculates the timing of firing his retrorockets by few seconds, his capsule misses its landing point by hundreds of miles and will fall like a hurtling rock causing great damage in the area of the impact. The retrorockets must be pointed

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8. Caidin, Martin, Wings Into Space, p. 17, Holt, Rinehart & Winston, N.Y., (1964).
9. Gatland, Op. Cit. supra note 6 at 77.

exactly in the direction the capsule is moving and the astronaut should keep the heat shield, during the re-entry, pointed directly ahead of him or else if he enters the atmosphere sideways, the capsule will return to the earth as ashes and flaming fragments. The terrifying physical scale of damage by its impact on the surface can be easily envisaged. Because it plunges through the atmosphere in an extraordinary friction, the edge of the heat shield reaches temperatures of 3000° F and the temperature of its shock wave reaches 11,000° F, hotter than the surface of the sun.[10]

3- Situations Giving Rise to Liability:-

It is too much to hope that the perilous route to the moon could be travelled without a disaster. Although it was a national tragedy, the loss of life of the first three of the Apollo astronauts early this year[11] may result in accentuating the urgent need for an international convention on liability for damage caused by

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10. Caidin, Martin, Op. Cit. supra note 8 at 10.
11. On January 28, 1967 in a sudden searing flash of fire, the American Astronauts Gus Grissom, Edward H. White II and Roger B. Chaffaey, the first three of the Apollo I capsule, lost their lives only 218 feet off the ground on the launching-pad in Cape Kennedy while they carried on a routine training sequence. It is believed that the cause was a flaw in the electrical system of the capsule. The Montreal Star, p. 1, Jan. 28, 1967 and the Toronto Globe and Mail, p. 4, Jan. 31, 1967.

space operations. Not long ago, a disaster could have occurred in the United States because someone had forgotten to remove a two-cent protective plastic cap from a vital piece of tubing in a rocket engine. All signs indicated that a flaw in the Apollo I electrical system was the cause of its tragedy. Had the Apollo accident occurred in space, the consequences might have been even more serious. If a space vehicle were to crash, there would be damage from blast, fire, heat, and fragmentation. If the vehicle crashes within a short time after the launching, most of its fuel may still be unconsumed, and explosions with secondary fires would be probable. What will happen if a huge rocket veers off course because of malfunction or failure of guidance? As visualized by a commentator,[12] "The force of its impact could crush a building or any other object in its way. Its heat could cause burns and ignite inflammable materials over a wide area. The resulting damage might resemble the devastation left by a meteor." Veritable catastrophe can be occasioned if a nuclear powered booster or spacecraft exploded in the airspace over a populated area. Serious

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12. Beresford, S., "Liability for ground damage caused by spacecraft", Legal Problems of Space Exploration, A Senate Symposium, p. 540, (1961), (Hereinafter cited as Symposium).

consequences can be envisaged: large scale physical destruction through direct force of explosion, burns by the spread of fires over vast areas, injuries and loss of life by impact, fire and heat among the large number of human beings who may be involved, and contamination of the air and pollution of water.

Incidents on this scale may not happen, but the possibility that they may happen is a nightmare and should be provided against. In one of the early space flights, tragedy nearly took place when an American missile, launched from Cap Canaveral in 1959, went off course and landed in the Brazilian territory. In 1960 fragments of a U.S. spacecraft came to rest in a South African farm.[13] In the same year a U.S. rocket was reported to have fallen over Cuba as a result of malfunction.[14] The American Atlas booster that orbited Col. John Glenn on February 20, 1962 was disintegrated in the atmosphere and its fragments fell on South Africa but caused no damage.[15]

In addition to damage on the earth's surface, space activities may occasion collisions, radio interference, and contamination in airspace and in outer

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13. Schrader, G., "Space Activities and Resulting Tort Liability", 6th Space Law Colloquium, Paris (1963).
14. N.Y. Times, Dec. 2, 1960, p. 10.
15. N.Y. Times, March 2, 1962, p. 20.

space. Frequency of space flights is continuously increasing. Countless man-made objects are travelling unrestrained in space. These objects may cause harm to aircraft and people aboard. Collision may occur between spacecraft and aircraft in airspace, for every spacecraft must penetrate the airspace wherever its final destination may lie. Accidents may happen in airspace as well as outer space involving space vehicles, satellites, fragments of rockets, capsules, and many other flying objects, whether in the course of flight, while orbiting, or during the re-entry to the atmosphere. If radioactive material were released from a nuclear powered space ship, tremendous damage to life health and property might result, in case the earth's atmosphere or the water were contaminated. All human beings and other living organisms of the earth's environment would suffer extensive losses and irreparable damage.

One other major possible danger attributable to space activities is the interference with radio signals. Navigational aids, and safety and distress signals, are conducted by radio transmission in the sea and in the air. Spacecraft are guided, controlled and tracked by radio communications. In the course of the extensive use of radio communications as a basic element for the control

and safety of space travel, any interference with the radio signals or confusion of radio frequencies could very well result in extensive losses to life and property on the earth's surface as well as in airspace and outer space.

One important situation which may give rise to liability for damage is the possibility of weather modification. There are a variety of ways in which man can alter the conditions in the upper atmosphere. Serious effects may result according to the degree of such alteration.

In many instances the passage of a large rocket through the upper atmosphere was reported leaving a bright trail causing agitation of the ionosphere detectable by radio means. However this is a localized phenomena which has been judged as harmless.[16] On the other hand, although an atmospheric alteration that affects man's environment seems most unlikely, nevertheless, it is always possible that there might be dire

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16. "Statement on Upper Atmospheric Pollution by Rocket Exhaust and Chemical Injection Experiments", COSPAR Consultative Group on Potentially Harmful Effects of Space Experiments, UN Doc. A/AC. 105/20 Ann. III, p. 6, Florence, 16 May, 1964.

consequences of contamination such as "the removal of the ozone layer, thereby permitting for ultraviolet sunlight through to the ground; the removal of the free electrons in the ionosphere by introducing an electron 'getter' in large quantities, changing the temperature of the atmosphere by changing the water vapor or carbon dioxide content".[17] In any event, it has been reported[18] that the lithium content of the upper atmosphere may have been affected on a world-wide basis for few months in 1962 by man-made injections. And that the world-wide background of some radioactive traces (tritium, carbon - 14, etc.) has been charged by repeated injections, and this has interfered with certain studies of circulation and exchange rates between regions of the atmosphere. The use of nuclear-powered rockets and nuclear reactors in satellites may be of possible significance to the pollution of the upper atmosphere in future space activities.

Furthermore, biological contamination of Mars and other planets might be brought about by objects that land thereon, thereby jeopardizing the value of information that can be gained from studies of these planets about many crucial problems of biology and the evaluation

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17. Ibid.
18. Ibid.

of life. It may,on the other hand,cause biological contamination of the earth's environment from these planets.

Mention may also be made to another unlikely situation which might give rise to liability for damage in the far distant future. It is theoretically possible that intelligent life may be existing on other planets outside our solar system.[19] The inhabitants of these planets may be capable enough to travel in the interplanetary space, and, as there are no "traffic regulations"[20] for outer space, collision is liable to occur between earth's space vehicles and other interplanetary ships. Damage also may arise from collision on the celestial bodies themselves between different space ships launched from different planets or celestial bodies.

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19. For a scientific discussion of this theory see Gatland, Op. Cit. supra note 6 at 239 - 43.
20. See statement of Sir Francis Vallat, Former Director of the Institute of Air and Space Law, McGill University, The Montreal Star, Dec. 2, 1965, p. 13.

C H A P T E R II

CONTEMPORARY DOCTRINES OF LIABILITY

Despite the safeguards which have been developed, there still remains the element of peril in space activity. This is true because misfires of space rockets occur, and safety systems fail to operate. In every space flight, there exists the chance of a human error and the risk of an unknown factor, and hence the probability of damage.

As the exploration of outer space will continue regardless of such hazards, it is imperative that appropriate legal rules be formulated to cope with the problem of liability for personal and property damage caused by space activities.

In any review of the problem of liability from the point of view of international law, it is necessary to examine the solutions adopted in the mature legal systems, particularly in the two great legal systems of the world, the civil law and the common law.

1- The Civil Law System:-

A. The Concept of Fault:-

In the old primitive societies retaliation was the rule of liability. Great changes in the texture of human society and in the conditions of social relations

have been going on for several centuries before the rule of retaliation was replaced by the right of compensation when the concept of civil responsibility appeared in the structure of the Roman law.

Because the right of compensation was historically derived from the old habit of retaliation, it started with the same characteristics. Thus as retaliation arises in reaction to the injurious act, a right of compensation results automatically from the injury (injuria) irrespective of the fault (culpa) of the wrong doer. So far as we can know, there have been no provisions in the Roman Law, either in the Twelve Tables or in the law of Aquilia which required Culpa as a prerequisite in the obligation to redress the damage.[1]

Before the collapse of the Roman Empire, fault appeared to be adopted by the Roman jurists as a ground for the right of compensation and thus the concept was transferred to the old French civil law when the learned French jurist Domat started his research for a compromise basis in all cases which call for compensation. He was

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1. Marcos, S. "Fundamentals of Obligations: The sources of obligation", Vol. 1, p. 486, Cairo (1960) (in Arabic).

then successful in establishing the general principle of fault liability.[2]

The principle of fault liability had since then became widely accepted as the fundamental stone in the regime of liability in most of the civil law municipal systems. In particular, the modern French civil law adopted the principle in its Article 1382 which reads: "Tout fait quelconque de l'homme, qui cause á autrui un dommage, oblige celui par la faute duquel il est arrivé, á le réparer". Likewise, the Egyptian Civil Code, proclaims in Article 163 that: "Toute faute qui cause un dommage á autrui oblige celui qui l'a commise á le réparer". It is obvious that liability, according to these provisions, is based upon three fundamentals: fault, damage, and the relationship of cause and effect (causality) between fault and damage.

Preliminary mention should be made in this connection to the fact that fault is generally defined by civil law writers as a breach of the duty of care. This duty of care is not limited to certain groups of people as in the common law, but it is a general duty based on the general principles of liability for torts in the civil

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2. Id. at 488.

law (Responsabilité délictuelle). This duty of care is a duty to the public at large.[3] The criterion of fault is the behaviour of a reasonable, careful and prudent man under like circumstances of the defendant (le bon père de famille)[4].

So far, we have noted that the general principle in civil law is that if there is no fault, there is no liability, (pas de faute, pas de responsabilité).

B. The Development of the Idea of Fault and the Emergence of New Doctrines:-

By the end of the nineteenth century, the number of liability suits was increasingly growing due to several reasons and factors of which the following might be pointed

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3. See Tunc, A., "The Twentieth Century Development and Function of the Law of Torts in France", 14, Int. & Comp. L.Q., p. 1091, (1965).
4. In this connection, Dr. Marcos, the outstanding Egyptian civil law authority, points out a fundamental difference between the French and the Egyptian civil codes. Article 164 in the latter provides that "Toute personne répond de ses actes illicites, pourvu qu'elle ait agi avec discernement". The word "discernement" does not appear in the French code, thus the definition of fault according to the Egyptian civil code should in principle include two elements: The objective element which is the breach of a pre-existing legal duty (the duty of care), and the subjective element, which requires discrimination on the part of the actor. There is only one exception to this rule as provided by Article 164 (2). Marcos, Op. Cit. supra note 1 at 520 - 22.

out:-

i- Society became more complex and new risks were created with the application of modern science to industry and engineering.

ii- The expansion of materialism due to the progressive development of industry and commerce which resulted in immense increase of profits and fortunes, hence individuals tended to seize every opportunity to redress their damages and claim for compensation.

iii- The wide-spread practice of insurance against civil liability as a collective scheme to assure compensation for all cases. This resulted in the decline of individual liability and in a general carelessness on the part of those insured.

For such reasons and others, the legislation seemed to be unable to cope with the requirements of the modern society, and a great deal of legal research and debate centered around liability subjects in the civil law. The matter resounded deeply in both the French and Egyptian courts who attempted to fill the gap by adopting modern trends and creating new legal duties.

The most important outcomes were the doctrine of abuse of rights (théorie de l'abus du droit), and the theory of risk (théorie du risque).

Doctrine of Abus du Droit:

As has been previously mentioned, the general principle of liability in civil law is "pas de faute pas de responsabilité". In many cases, especially after the industrialization of the society, the proof of fault became the major obstacle in providing for compensation. Because liability in civil law arises from the breach of a pre-existing legal duty, and because legal duties, if not created by legislation, could be created by the Judge who has the power to create such duties according to each case, taking, as a criterion, the behaviour of a reasonable, careful, and prudent man. The courts tended in the first place to extend their powers in creating the legal duties as a means of controlling the element of fault and the breach of duties in order to provide for the protection of the injured persons.

Through this medium, the courts imposed new duties by which they restricted the exercise of various rights, and on such grounds the doctrine of abuse of rights was established in civil law.

Abuse of rights is based on the fact that all rights are relative and not absolute. The power granted through any particular right should be exercised within certain restrictions and limits according to the objectives

of such right. Traditionally, there is a distinction in the civil law between defined rights, (droits définis), and the simple faculties (simples facultés). A right is the power to act for realizing an interest which is protected by the law. For example, the rights of property, and the right of action at law. As for the faculty, it is a freedom. The freedom to do what is not prohibited by law, such as the freedom of speach, freedom of travelling on the public roads and highways, freedom of commerce, and so forth. The traditional theory of civil liability restricted the exercise of faculties, and not of the rights. There was no fault whatsoever in the exercise of a right, hence there could be no liability for any damage resulting therefrom, even if damage was caused intentionally.[5] A person who drives a vehicle on the road, in exercising such a simple faculty, is under a general legal duty to the public at large, to take reasonable care and not to cause damage to any person. But a landowner who is digging in, or building on his own land will not be viewed as responsible for any damage caused to the neighbouring properties as a result of his acts while making use of his rights of property, unless he exceeds the limits of his rights, then he will be

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5. Marcos, Op. Cit. supra note 1 at 557.

answerable, not for a wrong done while exercising his rights, but for exceeding the limits of his rights. Within such a narrow channel, the traditional theory of civil liability, limited the concept of fault. Abus du droit was then created to enlarge liability circle, and to formulate a new shape for the concept of fault which results from the misuse or abuse of rights.

The present doctrine of abus du droit is derived from more than one source. In particular, it has its origin in two distinct systems of law: the Roman law and the law of Islam.[6] At the time of the French Revolution, the theory vanished and disappeared due to the expansion of individualism, thus it did not appear in the Napoleonic Code. With the progress of society and the resulting complexity of interests, individualism began to fade, and socialism worked its way to the concepts of law. It was then, when the doctrine of abuse of rights was reinstated by the courts supported by a majority of the French jurists.[7] However, a great deal of criticism

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6. Concerning the origin of the theory in the law of Islam, see Dr. Elsaid M. Elsaid, "The extent of marital rights and their restrictions in Islamic law and the modern Egyptian law", thesis, Cairo (1936). Also Dr. Shehata, Shafik, "The theory of abuse of rights in the jurisprudence of Islam", 2, Review of the society of comparative legislation, Paris (1952).
7. Headed by Josserand and among them Charmont, Gény and Saleilles.

has been made against this theory on the ground that the abuse of right could not in fact be envisaged. For misusing a right means exceeding its limits and acting without right, because a right ceases to exist when its abuse commences. "Le droit cesse où l'abus commence".

The French and the Egyptian courts widely and liberally applied the doctrine of abuse of rights long before it was contained in their civil codes. Besides, the theory was adopted by modern civil codes of several countries such as Germany, Sweden, U.S.S.R. and Egypt.[8]

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8. According to Article 226 of the German civil code, no right can be exercised merely to cause harm to others. Article 2 of the Swedish Federal Code provides that each person should exercise his rights and fulfill his obligations in accordance with the rules of good faith "La bonne foi". But the apparent abuse of rights is not lawfully permissable. In the Soviet Civil Code the provision of Article 2, indicates that civil rights are protected by law unless they were exercised inconsistently with their economic and social objectives. The Egyptian civil code explicitly adopts the principle of the limitation and relativity of all rights whether real or personal. Article 4 proclaims that "He who legitimately exercises his right, shall not be held responsible for the damage resulting therefrom". The cases where an exercise of a right is viewed illicit, are expressed in Article 5 which reads: "The exercise of a right is regarded illegitimate when: i- If it is merely intended to cause harm to others. ii- If it tends to satisfy an interest of a minim importance in relation to the resulting harm suffered by the others. iii- If it tends to the satisfaction of an illicit interest".

In the foregoing pages, we have been much concerned with the details of the doctrine of abus du droit as developed in the civil law. This doctrine has enjoyed a wide generality of reception in many civil law states. Moreover, it has been applied by International tribunals,[9] taking municipal law developments as the analogy for an international situation.[10] Judge Alvarez, in the Fisheries Case, suggested that the doctrine of abus du droit must now be regarded as having been received into customary international law.[11] Such an internationally adopted doctrine may very well call for strict limitations upon the old claim that states are to be answerable only for their fault.

Accordingly, in the area of space liability, if state A launches a rocket into outer space causing damage to her neighbour state B, the launching state cannot escape liability on the ground that she was making use of her right of free access to outer space. Taking municipal developments, in the area of the doctrine of abus du droit, as analogy for an international situation,

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9. The Free Zones of Upper Savoy and the District of Gex (1929) P.C.I.J. Ser. A, No. 22; The German Interests in Polish Upper Silesia (1926) P.C.I.J. Ser. A, No. 7.
10. The case of the Anglo-Iranian Oil Company (1952) I.C.J. Rep. 93, 133 - 135.
11. The Fisheries Case (1951) I.C.J. Rep. 116, 149 - 153.

the right of free access to outer space and peaceful activity therein, is granted to each state only within the limits of an international duty not to cause damage to any other state.

The Concept of Risk:

In the early days of industrialization, a machine in the factory was in its nature a harmful potential. In many cases where a workman was injured by machinery, the general rules of liability failed to protect the victim, and to provide for compensation due to difficulties in obtaining evidence. In view of the complexity of the factory and its technical installations and organization it was almost impossible for a plaintiff to be able to prove, under all circumstances, the fault of his employers.

Such injustice called for a fundamental change in the traditional rules of civil responsibility, particularly as the old concept of fault appeared unable to cope with the dangerous conditions of modern life. Thus the concept of risk worked its way into some areas in the system of civil liability as a substitution of the idea of fault. The doctrine of risk was first declared by the French authority Labbé who, up to the year of 1890, devoted his works to the principle of fault liability. In 1890 he declared that the concept of risk should substitute

fault as a ground for liability and that he, who by his conduct creates a risk in the society, should bear the consequences. To provide for the contrary would be to require the injured person to bear the risk. It has been argued that, if the same activity had resulted in fruitful consequences, the producer would not have waived the benefits to others. Thus to render justice it should be recognized that he who carries on the dangerous activity must, according to the results, enjoy the fruits or bear the risks. (Qui a les profits doit supporter les pertes). On the other hand it is to be pointed out that every occurrence is caused by a combination of various reasons and the theory of risk is based on a practical balance between all these reasons, depending on the risk itself which originated the harm.

However, this theory of risk caused heated controversy in both the French and Egyptian jurisprudence. Those in favour of objective liability maintain that the innocent victim should have the right to repair his damages automatically and under all circumstances. Those advocating the principle of fault deplored such a doctrine as offending the Christian principle that liability should only rest on fault. The French authority Planiol led a strong opposition against the theory claiming that it is far from any progress in the art of law and that it is in

fact but a backward step to the primitive times.[12]

Finally, the theory of risk failed to replace the principle of fault as a ground for liability in civil law. It received little support in its struggle to achieve generality in the system of liability while fault liability remained in its dominant position. Nevertheless, the social policy has, with comparative ease, led to the adoption of objective liability in some specific areas as an exception to the general rule of fault liability. This is particularly true in the legislations of workmen's compensation, civil aviation, and nuclear energy. The development of liability insurance provided in this connection a strong argument for the support of the doctrine.[13]

To sum up, the concept of risk as applied in municipal law, appears to be one of the most appropriate

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12. See Saleh, Dia Eldin, International Comparative Air Law, Doctorate Course, Ein Shams University, Cairo, (1963), (in Arabic).
13. This doctrine is contained in the provisions of the French workmen's compensation Act of 1945, the Act of 1929 concerning the victims of war and the Air Navigation Act of 1924. In Egypt this doctrine is contained basically in the workmen's compensation Act of 1950 and the Act of 1942 concerning damage caused by war to the buildings and machinery of factories. The Draft Act of the Egyptian Air Law, now under consideration, adopts the doctrine of absolute liability based on the concept of risk.

analogies for assessing possible policies about losses caused by space activities.

2- The Common Law System:-

A. The Doctrine of Nuisance:-

Nuisance in common law is usually understood as a civil wrong. Some judicial decisions ruled that nuisance is the interference with the neighbour's enjoyment or use of his property.[14] In another definition, nuisance is considered as an "act or omission" which unlawfully annoys, disturbs, or interferes physically, or by any other means, with the enjoyment of any person of his land, profit, health, comfort, or convenience.[15] Some writers take the view that the law of nuisance is based on the Roman maxim: "Sic utere tuo ut a lienum non laedas", one should not use his property in such an unreasonably and unnecessarily way that may disturb his neighbour.[16] From the point of view of this thesis the doctrine of nuisance is unlikely to be applied in space operations involving an international situation. Even in aviation it had, but a limited application.[17]

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14. Salmond, The Law of Torts, p. 85, n. 10, (14th ed. Heuston ed. 1965).
15. The Digest of English Civil Law No. (819).
16. Salmond, Op. cit. p. 85.
17. Haley, Space Law and Government, p. 236, (1963).

B. Negligence and the Duty of Care:-

In the common law there is no general part as in the civil law. A duty to take care in civil law is a general duty to the public at large. By contrast, this duty of care in the common law is not universal, it does not extend to all situations and all persons and all modes of activities. A plaintiff in an action for negligence in common law must prove that the wrong-doer was under a legal duty to him to take reasonable care and that the harm he has suffered is the result of the defendant's breach of this particular duty.[18]

Negligence is usually defined as conduct[19] which involves an unintended act or failure to act as a reasonable man. The concept of reasonable foresight is the criterion of liability in the law of torts. It is the standard of conduct to which the actor must conform

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18. In Palsgraf v. Long Island R.R., 284, N.Y. 339, 162 N.E. 99 (1928), The Court ruled that there is no liability for negligence unless there exists in the particular case a legal duty to take care and this duty must be one which is owed to the plaintiff himself and not merely to others.
19. Salmond regards negligence as "a state of mind providing the essential condition of liability for recognized torts". Salmond, Op. cit. supra note 14 at 268.

to avoid being negligent.[20] The determination of the extent of reasonable foreseeability and who is the reasonable and prudent man, is a question of law. Generally the standard of reasonable conduct requires that the performance of care must be "proportionate to the apparent risk".[21] As the disproportion between risk and care exists, there enters into the conduct of the actor a degree of culpability.[22] However, it should be pointed out that neither negligence in common law, nor fault in civil law, should be classified in degrees. For negligence or fault exists at the very moment, when a legal duty is broken. Duties could vary in their importance, but there could be no varying degrees in the breach of a duty although variation might exist in the extent of the resulting harm.

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20. Professor Heuston declares (in Salmond on Torts) that the maxim usually cited in this connection namely "a man must be taken to intend the natural and probable consequences of his act" - this maxim "is misleading because it confuses the proposition to be proved with the means of proving that proposition". He further points out the difference between intention and negligence stating that "the wilful wrongdoer is he who desires to do harm, the negligent wrongdoer is he who does not sufficiently desire to avoid doing it". Salmond, Op. Cit. supra note 14 at 266 - 67, n. 4.
21. Haley, Op. Cit. supra note 17 at 241.
22. The word negligence is often used to denote the idea of social fault. It is defined in the Restatement of Torts as "any conduct, except conduct recklessly disregardful of an interest of others, which falls below the standard established by law for the protection of others against unreasonable risk of harm", Restatement, Torts, No. 282, (1934).

This explains why the Napoleonic code in civil law abandoned the Roman theory of classifying fault into degrees which was previously adopted by the old French civil code (faute légère and faute lourde).[23]

In an action for negligence, the existence of carelessness on the part of the defendant is undoubtedly a prerequisite. It is on the plaintiff to establish that the defendant has been careless in breach of a specific legal duty to him.

One seeming problem in the area of negligence is the onus of proof. If the plaintiff fails to produce reasonable evidence that the incident was caused by the defendant's negligence, the judgement shall be entered for the defendant. Such a burden might cause great hardship to an innocent defendant in a case of space incident. The plaintiff in such incident can prove the accident but he cannot prove how and why it happened because of the complexity of the techniques and engineering involved. Besides, if national security considerations were involved the true origin of the accident will undoubtedly lie

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23. This theory is still existing in some areas in civil law. In particular the Egyptian legislation concerning tutorship as regards the fault of the tutor.

solely within the knowledge of the government concerned and the plaintiff will thus be faced by an insurmountable hardship.[24]

Res Ipsa Loquitur:

In the Anglo-American jurisdictions procedural assistance was provided to help the innocent plaintiff to avoid such an intolerable position. In many cases where the thing speaks for itself, the panacea was the application of the Latin maxim Res Ipsa Loquitur. This maxim is not a doctrine of liability, it is merely a rule of evidence. It shifts the burden of proof from the plaintiff to the defendant so that it is for the defendant to disprove negligence while it is for the plaintiff to prove nothing more than the facts of the accident itself.[25]

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24. Haley gives an example stating that: "When a United States rocket lands on someone's property the military can be expected to block off the area immediately, to set up the strictest security measures and to be less than willing to make available to the complaining party a report on the accident". Haley, Op. Cit. supra note 17 at 242.

25. This doctrine is not a presumption. Being a procedural device it should not be confused with any doctrine imposing a strict standard of liability in cases of dangerous things. The maxim is defined in the Digest of the English Civil Law No. 1014 as follows: "When an object is under the control and management of the defendant and it causes harm to the plaintiff of a kind which, in the ordinary course of things, does not happen if the person having control or management of similar objects exercises proper care and the defendant is under a duty to exercise care to prevent it harming the plaintiff the harm will be presumed (in the absence of explanation) to have been caused by the defendant's negligence".

Familiar instances of applying this doctrine are accidents by trains and ships whenever the object causing the damage was entirely under the control of the defendant who is the sole source of explanation as to how and why the accident happened. In connection with aircraft accidents, the courts generally are reluctant to apply the doctrine in situations where it cannot be ascertained that the crash could not have occured "but for"[26] the negligence of the aircraft operator.

In Canada, in the case of Zerka Romby and Alex v. Lau - Goma Airways[27], the court applied the doctrine of res ipsa loquitur where the aeroplane crashed as the machine failed to function shortly after it had taken off. However, in the United States, in the case of Rochester Gas and Electric Corporation v. Dunlop[28], the court was reluctant to apply the principle to a situation where an aircraft damaged the plaintiff's property while landing in the dark due to the failure of an engine. The court held that aircraft frequently crash for unpreventable causes and that the failure of an engine raised no probability of negligence.

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26. Haley, Op. Cit. supra note 17 at 242.
27. 23 D.L.R. (2nd) 145 (1960).
28. 1933 U.S.A. Av. R. 511.

In the landmark case of Williams v. United States,[29] an Air Force jet aircraft exploded in mid-air causing damage as it showered flaming gasoline on the plaintiff's land. The decision was that res ipsa loquitur is not applicable to accidents involving unconventional aircraft like jets. The Court of Appeals reasoned that as a Judge can have no sufficient scientific knowledge of the ordinary course of things in a complex novel and specialized area, there could be no reasonable inference of negligence drawn from the facts of the case. Some writers criticised this decision pointing out that "the court may have usurped the function of the jury in holding that the rule could not apply".[30] Besides, the court was "unrealistic" in its finding because large numbers of jet aircraft are engaged in daily flights all over the world.[31] Furthermore, the court have treated the maxim "as if it were a presumption the application of which is a question of law to be determined by the Judge", whereas under the majority and the best view it is not a presumption at all.[32]

In the English case of Fosbroke - Hobbes v. Airwork Ltd., Judge Goddard J. declared:"In the first

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29. (1955) 218 F. 2d 473 (5th Cir.).
30. Haley, Op. Cit. supra note 17 at 243.
31. Ibid.
32. Id. at 244.

place I hold that the doctrine res ipsa loquitur applies. While it is unnecessary to decide whether this doctrine would apply to every accident occuring to an aeroplane in the course of a prolonged flight, here we have disaster at the very beginning just as the machine had taken off and well before it had attained the height at which the journey would be performed. It was an accident which I think all are agreed ought not to have happened. It was argued that I ought not to apply this doctrine to an aeroplane, a comparatively new means of locomotion and one necessarily exposed to the many risks which must encountered in flying through the air, but I cannot see that this is any reason for excluding it. Large numbers of aeroplane are daily engaged in carrying mails and passengers all over the world and as is well known they arrive and depart with the regularity of express trains. They have indeed become a common-place method of travel supplementing, though not superseding, rail and sea transport. Railways were just as great an innovation when they took the place of the stage coach, yet the courts found no difficulty in applying to them by the year 1844 the same doctrine that had formerly been applied to stage coaches: Carpus v. London and Brighton Ry".[33]

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33. Cited by McNair, The Law of the Air, p. 79, (3rd ed. Keer and Evans ed. 1964).

Under the circumstances of Williams v. United States, the maxim, in certain cases, provides no help for the innocent plaintiff to discharge the onus which lies upon him to prove negligence. For such a plaintiff this doctrine has proved a "broken reed".[34] In proposing the foundation for a regime of liability in the event of space damage we can learn much from the Williams case. Realizing that space operations will most probably be, for quite some time, uncertain and specialized activities, many courts may be reluctant to apply the doctrine of res ipsa loquitur. One is led to conclude that international lawyers will soon foresee the need for the establishment of an appropriate regime of liability for space damage with absolute liability being imposed. Some writers[35] believe that as space operations become less dangerous and more certain, the doctrine of absolute liability may cease to apply and be replaced by a less rigorous doctrine. However, it is to be noted that liability for damage caused by aircraft to third person on the ground is still up to the present time based on the doctrine of absolute liability.

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34. Goldie, "Liability for Damage and the Progressive Development of International Law", 14, I.C.L.Q., 1197 - 98 (1965).
35. Haley, Op. Cit. supra note 17 at 244 - 45.

C. The Doctrine of Strict Liability:-

In a certain period, in the history of the Anglo-Saxon law, the element of culpability or the wrongful intention seemed to be the corner stone of liability system. As Sir John Salmond expressed it: "When one man does harm to another without any intent to do so and without any negligence, there is in general no reason why he should be compelled to make compensation". He further states: "By compelling compensation the loss is merely shifted from the shoulders of one man to those of another but it remains equally heavy. Reason demands that a loss shall lie where it falls unless some good purpose is to be served by changing its incidence and in general the only purpose so served is that of punishment for wrongful intent or negligence. There is no more reason why I should insure other persons against the harmful results of my own activities in the absence of any (mens rea) on my part than why I should insure them against the inevitable accidents which result to them from the forces of nature independent of human actions altogether".[36] In another period, and in the course of the struggle between standardisation and individualisation, together with the growth of the machine age, there appeared a tendency to interpret the law in the way most

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36. Salmond, Op. cit. supra note 14 at 29.

favourable to the innocent victim. The security of such victims became predominant over the defendant's interest in freedom of action, thus liability became independent of intention or negligence and the doctrine of strict liability worked its way into the common law in certain areas.

The Rule in Fletcher v. Rylands:[37]

This is the classic case of strict liability where a landowner allowed water to overflow from a reservoir into the mines of Fletcher. The headnote reads: "It is a Tort for a landowner to cause damage by the escape (even without negligence of his) of any extraordinary source of danger which he has brough upon his land".

Blackburn, J. (in Court of Exchequer Chamber) declared: "We think that the true rule of law is that the person who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief, if it escapes, must keep it in at his peril; and, if he does not do so, he is prima facie answerable for all the damage which is the natural consequence of its escape. He can excuse himself by showing that the escape was the consequence of vis major or the act of God, but, as

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37. (1868), L.R. 3 H.L. 330.

nothing of this sort exists here, it is unnecessary to examine what excuse would be sufficient. The general rule, as above stated, seems on principle just".

The House of Lords entirely concurred Lord Chancellor Cairns adopting Blackburn's J. judgement as stated in the Exchequer Court. This case is viewed in the common law doctrine as a case of absolute liability. It should, however, be kept in mind that as long as defences such as vis major or the act of God are admitted, liability may be strict but never absolute.[38] There would seem to be no doubt that space rockets come under the heading of dangerous things which expression has come to be held to equate Blackburn's J. "things likely to do mischief, if they escape". Nevertheless, the doctrine of strict liability as traditionally understood in the case of Fletcher v. Rylands falls short of the requirements of liability which space activity calls for. The exceptions of vis major and act of God have been developed as part of the rule in this case and seem to be viewed by the common law jurisdictions as if they were a necessary element of the rule.[39] Such exculpatory rules are the

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38. Winfield, The Law of Torts, p. 444, (7th ed. Jolowicz and Lewis ed. 1963).
39. Id. at 449 - 463.

escape routes from liability if the cause of a space incident was ascribed to either of these defences with the result that the loss would lie on the shoulders of the innocent victims.

3- The Municipal Law of the Air:-

Trends in the municipal law of the air have analogies that may prove helpful in the process of formulating the rule of liability for damage caused by space activity. The question of liability for damage caused by aircraft to third persons on the ground shall be considered here in some selected national legislations of civil law and common law States, as well as socialist states.

A. Civil Law States:-

France:-

The story of the French Air law legislation begins with the Aerial Navigation Act of May 31, 1924 adopting the doctrine of absolute liability.

Prior to this Act, the general rule of liability governing this field was the provision of Article 1382 of the French civil code. In a case of an aircraft crashed in a public ceremony causing personal injuries, the court cleared the defendant's feet as the plaintiff failed to

prove fault on the part of the defendant.[40] In another case the Court held that there is a presumption of fault against the defendant and applied the provision of Article 1384 C. Civ.,[41] and ruled that: "Attendu que le ballon n'était plus sous l'action mais sous la garde de son pilote, que l'article 1384 C. Civ. est applicable dans l'espéce, qu'il y a présomption de faute contre Bacon".[42] Article 1384 has been interpreted by the French courts to the effect that the custodian of the thing is liable for damage caused by it, and that in order to rebut the presumption of liability established by this article it does not suffice to prove that the guardian did not commit any fault. He can excuse himself only by proving that the damage suffered was due to a vis major, an act of the plaintiff himself, or an act of a third party, and that these external circumstances could neither have been foreseen nor resisted.[43]

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40. Tribunal de la Seine, Revue Juridique Internationale de la Locomotion Aérienne, p. 184 (1910).
41. Article 1384 reads as follows: "On est responsable non seulement du dommage que l'on cause par son propre fait, mais encore de celui qui est causé par le fait des personnes dont on doit répondre, ou des choses que l'on a sous sa garde".
42. Tribunal de la Seine, January 24, 1906, Répert. Dalloz, p. 2 - 17, (1907).
43. H & L. Mazeaud and A. Tunc, Traité Théorique et Pratique de la Responsabilité Délictuelle et Contractuelle, Vol. 2, Nos. 1526 - 27, 1590, 1651 - 54, 5th ed., (1957 - 60).

As judicial decisions tended to interpret the civil law provisions in the way most favourable to the innocent victims, the French legislator along with this general judicial trend have made provision in the Air Navigation Act of 1924, to ensure compensation for damage caused by aircraft to third parties on the surface adopting the doctrine of absolute liability.

Article 53 in the fourth part of this Act (Dommage et Responsabilité) provides that: "L'exploitant d'un aéronef est responsable de plein droit des dommages causés par les évolutions de l'aéronef ou les objets qui s'en détacheraient aux personnes ou biens situées à la surface. Cette responsabilité ne peut etre attenuée ou écartée que par la preuve de la faute de la victime".

The most recent relevant French legislation, is the Decree No. 55 - 1590 of November 30, 1955 which provides for codification of the French aviation laws. Article 36 of this Decree reads exactly as Article 53 of the 1924 Air Navigation Act.[44]

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44. The English translation of Article 36 of the 1955 Decree reads: "The operator of an aircraft shall be liable as a matter of law for the damages caused by the flight of an aircraft or by objects detached from an aircraft to persons or property on the ground. Such liability may be mitigated or avoided only by proof of the fault of the injured person". Text in =

In his report, G. Ripert, the Chairman of the Committee which drafted the 1924 Act, justified the adoption of absolute liability by pointing out that liability for torts (Responsabilité délictuelle) primarily presumes a state of equality in the positions between the harm doer on one hand, and the victim on the other hand. An aircraft has an excellent position in the sky above the surface while it represents a great hazard to persons and properties on the surface, during its taking off, landing or in flight. The learned jurist declared: "L'aéronef est la partie active, dynamique, dangereuse... La victime au sol est dans l'impossibilité de se prémunir d'avance contre les dangers possibles, sa situation est nettement inférieure. De là, l'existence d'une responsabilité très sévère et quasi automatique".

He further states: "Il n'y a pas de réciprocité éventuelle de préjudice, pas d'égalité dans les situations respectives. A des pouvoirs exceptionnels doit correspondre une responsabilité spéciale".[45]

= Air Laws and Treaties of the World, U.S. Committee on Commerce, Doc. 89th Cong., 1st Sess., Vol. 1, p. 700-708, July 1, 1965, (Hereinafter cited as World Air Laws and Treaties).

45. Cited by Dia Eldin Saleh, International Comparative Air Law, Doctorate Course, Ein Shams University, Cairo, pp. 21, 74, (1963) (in Arabic).

Of important significance is the fact that the French authority is known as one of the leading supporters of the traditional theory of fault in civil responsibility. However, faced with the new hazards of air navigation in 1924 at the time of drafting the French law of the air, he strongly advocated the doctrine of absolute liability for damage caused by aircraft.

One possible objection may today be raised to Ripert's powerful argument by saying that with the improvements in the manufacture, maintenance and navigation of aircraft during the last thirty years, it seems inappropriate to maintain the application of such a rigorous standard of liability to the field of aviation in the nineteen-sixties.

It is true that Aeronautical engineering has made remarkable progress during the last thirty years. Nevertheless, safety in the air has not yet attained perfection despite all available skills and inventive capacities. It is worth remembering - though regrettable - that aircraft accidents still occur due to circumstances and situations over which the crew may have little or no control.

As Holmes expressed it: "The possibility of a great danger has the same effect as the probability of a

less one, and the law throws the risk of the venture on the person who introduces the peril into the community".[46] This explains why the French legislator after more than a quarter of a century kept the same text of the 1924 Act in the Decree of 1955.

Switzerland:-

The first regulation for safety and security in air navigation, was made in Switzerland by the Federal Decree of January 27, 1920 which was replaced by the Federal Law on Air Navigation of December 21, 1948.

In the Swedish legislation objective liability is imposed for any damage caused by aircraft and those who are made responsible cannot, under any circumstances, exonerate themselves, even if the victim's fault was involved. There is no escape route unless it is pronounced by the Judge. Thus Article 26 of the 1920 Federal Decree proclaims: "Le Juge peut prononcer l'exonération totale, ou partielle de la responsabilité civile en cas de faute du lésé".

The 1948 Act regulates the responsibility towards third parties in its Articles 64 to 74. The provision of Article 64 (1) reads as follows: "Le dommage causé par un

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46. Holmes, The Common Law, p. 154 - 55, (1881).

aéronef en vol aux personnes et aux biens qui se trouvent à la surface, donne droit à réparation, par cela seul qu'il est établi que le dommage existe et qu'il provient de l'aéronef".

It is clear that the Swedish legislator was-in the 1948 Act - influenced by the 1933 Rome Convention, for the Unification of Certain Rules relating to Damage Caused to Third Parties on the Surface, to the extent that the provision of Article 64 is almost a copy of Article 2 of this convention.

According to Article 64, it is sufficient for the victim to prove the damage and the relationship of cause and effect between the aircraft in flight[47] and the damage. Article 70 provides for compulsory guaranties and securities, to ensure compensation.

Italy:-

The general rules of liability for damage caused to a third party were first regulated in Italy by the provisions of the Decree promulgated in August 20, 1923.

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47. Aircraft in flight is defined in the law (Art. 64/3) as: "L'aéronef est considéré comme en vol du début des opérations de départ jusqu'à la fin des operations d'arrivée". Text in World Air Laws and Treaties, p. 2370, note 44 supra.

Article 38 of this Decree, relating to the damage caused by aircraft, caused much controversy in the Italian jurisprudence because of its ambiguity. The Article first prohibits the dropping of objects from an aircraft in flight with the exception of the case of clear necessity. However, the provision indicates that damage as such, and damage caused by objects falling from aircraft while in ascent or descent is always recoverable except in case of force majeure. The law was entirely silent in regard to damage caused by the crash of aircraft itself.

Prior to the 1923 Decree, liability in air navigation was covered by the Decree of November 27, 1919 which proclaimed in clear terms that the defendant in an aircraft accident is - under all circumstances - subject to a presumption of fault and that the only admissible defence in this respect is the force majeure, which was very restricted in practice.

Today the Italian legislation which is in force is the "Codice Della Navigatione" passed in March 30, 1942 (Decree No. 327). Part II covers the liability for damage caused by aircraft in Articles 965 to 973. It is based on the principle of absolute, but limited liability, with the right to a defence of contributory negligence. The operator of an aircraft is made liable upon proof by the injured party that damage exists and is attributable to the aircraft.

According to Article 965 the operator shall be liable, from the take-off until landing, for damages caused by the aircraft to persons and property on the ground, including those resulting from act of God.[48]

The United Arab Republic:-

The case of damage caused by aircraft in Egypt, is ruled by the general principles of liability as set forth in the Egyptian Civil Code enacted in July 16, 1948 and came into force October 15, 1949. Article 178 of this code reads: "He who has in his custody things which require special care or mechanical engines, is responsible for the damage caused by these things unless he proves that the damage was due to an external cause which cannot be imputed to him".

In the "exposé des motifs" the drafters of this provision pointed out that the doctrine of objective responsibility was not adopted because of the "present phase of the country's economy" and that the liability for damage caused by things is still in the Egyptian legislation subjective and not objective. Liability thus is based on fault with a presumption against the guardian.

It seems better to say that in Article 178 what

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48. World Air Laws and Treaties, p. 1359 - 61.

is presumed is not fault but liability itself. According to the provision, the guardian is responsible unless he proves the "external cause which cannot be imputed to him". A defendant in an action based on this Article cannot excuse himself simply by disproving his fault. For the only right of defence is the "external cause". Thus the Egyptian law in this respect is based on a presumption of liability (Présomption de responsabilité). In other words the guardian's obligation in the law is that of result and not merely of means (obligation de resultat pas une simple obligation de moyens). More precisely we can say that liability for damage caused by aircraft or any other mechanical engine which requires special care in its maintenance is based on the theory of fault. However, the fault of the guardian is not only presumed but it is proved (faute prouvée).[49] The only defence that can rebut this proved fault is to break its causal connection with the damage by proving the "external cause".

It remains to mention that the guardian in the Egyptian law is generally meant to be the owner or the person who is in control of the thing, and makes use of it for his own benefit. As from August 13, 1953 the operator of an aircraft within the definition contained in Article

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49. Marcos, S., Op. Cit. supra note 1 at 700.

2 of the 1952 Rome Convention, is the person responsible for the damage, by virtue of Act No. 396.

Finally, mention should be made to the fact that today the Egyptian legislator is concerned with a Draft Act for a national Air Law imposing absolute liability for damage caused by aircraft to third persons on the surface.

Common Law States

The United Kingdom:-

The British Air Law has in large measure been created by statute. The 1920 Act was the first to cover the question of liability for damage caused by aircraft with absolute liability being imposed in this respect. Then in 1949 the most comprehensive statute known as the Civil Aviation Act was enacted.

The principal provisions in the 1949 Act relevant to the question of liability for damage caused by aircraft are in section 40 which in fact re-enacted the provisions of section 9 of the Air Navigation Act of 1920. An absolute liability is imposed upon the owner of the aircraft to pay compensation for the damage caused by his aircraft irrespective of any negligence on his part. Thus in simple language section 40 (2) reads as follows: "Where material loss or damage is caused to any person or property on land or water by, or by a person in, or an article or

person falling from, an aircraft while in flight, taking off or landing, then unless the loss or damage was caused or contributed to by the negligence of the person by whom it was suffered, damages in respect of the loss or damage shall be recoverable without proof of negligence or intention or other cause of action, as if the loss or damage had been caused by the wilful act, neglect, or default of the owner of the aircraft".

It is clear that this provision is to the effect that the action lies without proof of negligence independent of intention or other cause. The available statutory defence is the contributory negligence of the plaintiff himself. Of course the wording of the section is clear enough to exclude the traditional defences of the inevitable accident and the act of God.

As a means of mitigating the rigorousness of the rule of absolute liability, limitation was placed on the amount of the compensation payable.[50] Moreover section 43 of the Act compels the persons responsible for the flight of an aircraft to take compulsory third party insurance.

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50. Section 42 contains the rules governing the limitation of liability which are fixed in the 5th schedule to the Act.

However, these two sections (42 & 43) have not been brought into force.

The United States:-

It is essential to realize at the outset that the United States is characterized by her own Federal philosophy. There is no uniform air legislation in the U.S. since many subjects do not fall within the Federal jurisdiction. However, there is an increasing tendency to unify all matters pertaining to the air through Federal legislations.

An action for damage caused by aircraft in the United States falls to be determined according to the law of the State in which the action is tried. As we have already seen, a number of doctrines have been discussed and applied in the Common law jurisdictions. According to Prosser,[51] the law began with little or no concern of personal culpability as an essential element in tortious liability. The foundation of liability then was quite objective: where there has been an injury there has to be remedy. Then the law as it grew tended to become more moralized until liability was connected with fault and then again with the growth of the machine age, the pendulum

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51. Prosser, Handbook of the Law of Torts, pp. 14, 16, 315, 2nd ed., (1955).

swung back once more toward the strict objective standards of liability.

At an early point in the development of the law of the air in the United States, aeroplanes were held to be ultrahazardous instrumentalities[52] and the owner of an aircraft was, in case of accident, made absolutely liable for any injury or damage caused by his aircraft. Thus a uniform statute was passed and adopted in the period from 1920 to 1930 by some twenty one states in the United States.[53] Section 5 of the Uniform Aeronautics Act reads as follows: "The owner of every aircraft which is operated over the lands or waters of this state, is absolutely liable for injuries to persons or property on the land or water beneath, caused by the ascent, descent or flight of the aircraft or the dropping or falling of any object therefrom, whether such owner was negligent or not, unless the injury is caused in whole or in part by the negligence of the person injured or the owner or bailee of the property injured".

States which did not apply the Uniform Aeronautics Act have also adopted the doctrine of absolute

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52. An ultrahazardous activity is defined in the Restatement of Torts, No. 520, (1938).
53. See states listed in Haley, Op. Cit. supra note 17 at 238.

liability in cases of aircraft damage on the surface.[54]

The progress attained in aeronautics in the United States have led to the abandonment of absolute liability and to its substitution in the laws of most of the states by either a provision that proof of injury or damage on the surface by aircraft shall be a "prima facie" evidence of negligence or by applying the traditional test of negligence, with variations as to the presumption of negligence or the doctrine of res ipsa loquitur.

Socialist States

The Union of Soviet Socialist Republics:-

The first Soviet regulations concerning civil aviation were enacted on January 17, 1921. In 1932 the scattered rules were unified in an Air Code which was revised and superseded by the Air Code of December 26, 1961 effective January 1, 1962.

The most important part of the new code are the provisions relating to liability for bodily injuries to passengers and for damages to cargo, luggage and mail im domestic and international transportation. However, the problem of damage caused by aircraft on the ground was not solved in this code which contains no special rules on

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54. Ibid.

this aspect of liability.

The Basic Principles of Civil Law enacted in December 8, 1961 and effective May 1, 1962 contain rules on general liability and on liability for particular hazards. The general rules of liability apply in all cases where the air code does not establish special rules.

The general doctrine of liability adopted by the Basic Principles of Civil Law is that liability for damages is conditioned upon fault. The pertinent article reads as follows: "Article 37: Fault as a condition of liability for breach of obligations: A person who does not perform his obligation or performs it in an improper way shall be liable only in case of fault unless it is otherwise established in law or in an agreement. The absence of fault shall be proved by a person who breaches his obligation..."

However, this general rule of fault liability was eliminated in the case of liability for particular hazards and replaced by the doctrine of strict or objective liability. Article 90 speaking about "liability for injury inflicted by the source of increased hazard" provides that: "Organizations and citizens whose activities involve hazard to persons coming into contact with them (transportation organizations, industrial or construction enterprises, owners of cars, etc.) shall be liable for injury caused

by the source of increased hazard unless they prove that the injury was the result of force majeure or of the intent of the injured person". The article mentions only "intent of the injured person" and omits "gross negligence" as was provided in section 404 of the old Civil Code. Nevertheless, it is to be pointed out that the exception of "gross negligence" was not omitted in section 101 of the 1961 Air Code where gross negligence in addition to intent may be taken into account only in the case of force majeure, where the carrier can reduce the amount of compensation or even deny it entirely if he can prove that intent or gross negligence of the injured person has contributed to the injury.[55]

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55. Section 101 reads: "The carrier shall be liable in accordance with the laws of the U.S.S.R. and the constituent republics for the death, bodily impairment of health or other injury to health, caused to a passenger at take-off, during the flight or at landing of the aircraft, or at boarding and disembarking of a passenger, unless the carrier proves that the injury occured as a result of an intentional act of the injured person. In the case where the passenger's death, impairment of health or other injury to health have been caused as a result of force majeure, the carrier shall be liable to the usual extent unless he proves that intent or gross negligence of the injured person has contributed to the injury or has aggravated it. In case where the carrier proves that gross negligence of the injured person contributed to the injury or has aggravated it, the amount of the compensation for damages must be decreased in accordance with the general rules of the civil law or compensation for damage must be refused". World Air Law & Treaties, p. 2561.

Section 101 is part of chapter VII dealing with the liability of the air carrier for bodily injuries to passengers, and for damage to luggage, cargo and mail.

However, section 140 of chapter IX regulating the uses of Civil Aviation and Civil Aeronautics in the Individual Branches of the National Economy, provides for the application of section 101 "For injury to persons and damage to property while performing any work indicated in this chapter". This provision of Section 140 may be interpreted as applicable to the case of injury and damage caused by aircraft to third persons on the ground.

To sum up, it is clear that the Soviet law tends to adopt a strict rule of liability based on the theory of risk in regard to the potentially hazardous activities and there would seem to be no doubt that space activities come under this heading.

Poland:-

The Polish Air Law enacted in March 14, 1928 was based on the doctrine of fault liability. A presumption of fault in any aircraft accident was established against the owner, and the defendant has so many available exculpatory circumstances that can easily frustrate this statutory presumption. The defendant may be discharged if he proves that he has taken all necessary measures. He

can even in the presence of his negligence clear his feet if he proves the absence of causal relation between his negligence and the damage suffered by the plaintiff. In fact all traditional defences such as the act of God, the inevitable accident, the act of a third party and the act of the plaintiff himself were available in the Polish Air Law of 1928. However, the new Polish Civil Code has eliminated all defences except the external cause which cannot be imputed to the defendant,[56] and the pertinent Article in the new Air Law enacted in 1962 (Statute of May 31, 1962 concerning Air Law) reads as follows: "The liability of operators of aircraft for damages caused by the traffic of these aircraft is regulated by the provisions of civil law concerning liability for damages caused by the use of mechanical means of transport operated by the power of nature..."[57].

These pertinent rules in the new Polish Civil Code are based on the theory of objective liability.

Czechoslovakia:-

Aviation Act of July 8, 1925, is theoretically based on fault liability. However, by imposing a strong

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56. Articles 152 and 153 of the Polish Civil Code imposing liability for damage caused by things are the source of Article 178 of the Egyptian Civil Code.
57. World Air Laws & Treaties, p. 2123.

presumption of fault upon the "Possessor" of the aircraft that caused damage on the surface, the Czechoslovakian legislator had in fact approached a strict rule of liability. Defences of the inevitable accident, force majeure and the act of God were not permissible.

In 1951, Law No. 63 was enacted under the socialist regime among the Collection of Laws. Rules of liability for damage caused by means of transport were set forth in this legislation. Liability was attached to the operator and the law (section 4) admits the discharge of his liability for a number of reasons. This legislation flatly opposes the "fatalistic causal liability".[58] This law was abrogated in 1964 when the new Czechoslavakian Civil Code was enacted under Law No. 40/1964 Collection, effective April 1st, 1964 governing the case of damage in general.[59]

The review of the national air law legislations as previously cited, demonstrates that in large areas of the world, whether influenced by the doctrines of civil law, common law or socialist law there is a tendency favouring the adoption of strict standards of liability.

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58. Michael, Milde, The Problems of Liabilities in International Carriage by Air, p. 119, Prague, (1963).
59. World Air Law & Treaties, p. 519.

In fact as Haley wrote: "Insofar as liability in aircraft cases is concerned, it is much harder to find a country where the ordinary rules of tort are applied in this field, than to find out where absolute liability is the rule".[60]

4- National Nuclear Energy Legislations:-[61]

It is interesting to note that the commencement of the national efforts to regulate the nuclear liability have coincided with the advent of the space age. The analogy between the two types of activities would appear sufficiently close for reasonable inference.

A. The United States:-

The first national legislation of this kind was passed in the United States as early as 1954. This legislation known as the Atomic Energy Act enacted mainly to protect the industry against possible ruinous claims arising from the use of atomic energy. The Act was amended and re-enacted in 1957 under the name of the Price - Anderson Act. The only question of liability covered by this law was the imposition of maximum limits upon the amount of liability.[62] Since this Federal legislation

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60. Haley, Op. Cit. supra note 17 at 263.
61. For a general account see Lee, R.S., Liability for Nuclear Damage Caused by Flight Instrumentalities, Thesis, McGill University, (1964).
62. The governmental indemnity is limited to the amount of five hundred million dollars, section 170 of the Act.

makes no provision for liability to third parties as to the grounds of liability, and who shall be liable as well as the available defences to the defendant, therefore the governing law is that of torts of the state in which the action is tried.

B. Germany:-

While the Civil Code in Germany bases liability on fault, the Federal Atomic Energy Act enacted in 1959 and came into force January 1960 imposes absolute liability for damage caused by nuclear reactors.[63] The theory underlying the concept of liability in this legislation is that, since there is an exceptional power on one side there must be a correspondent special liability on the other side. In other words, because of the inequality between the person operating a nuclear reactor causing the injury, and the victim receiving this injury the burden of loss should be placed upon the former.

Of paramount significance is the fact that the German legislation has flatly refused to allow the operator to minimize his absolute liability by availing himself of the traditionally available defences and recourses. Thus even the commonly permitted exonerations such as a natural catastrophe, the state of war or a civil disturbance

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63. Section 25 (1) of the Act.

or any other general force majeure or act of God, all are entirely eliminated.[64]

On the other side, a limit was placed on the aggregate amount of liability at five hundred million D.M.[65] The liability for death or personal injury is limited to fifteen thousand D.M.[66] Insofar as liability for property damage is concerned, the Act provides an estimate in accordance with the market value.[67] Besides, compulsory insurance or financial guarantee is imposed upon the operator to cover his liability, and automatic indemnity is furnished by the state to cover the damage in excess to the financial guarantee.[68] If damage is caused by more than one nuclear installation the liability is joint.[69]

C. The United Kingdom:-

The first nuclear legislation in the United Kingdom was enacted in 1959 and amended in 1960.[70] This Act contained provisions relating to the nature of liability, limitation of liability, who is liable as well as

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64. Section 25 of the Act.
65. Approximately 125 million dollars.
66. Approximately 38 hundred dollars.
67. Section 31 and 36 (1).
68. Section 36.
69. Section 34 (1).
70. See D. Lloyd, "Liability for Radiation Injuries", 12, Current Legal Problems, London, pp. 33 - 55, (1959).

for compulsory financial security.

The English Act prescribes absolute liability for the "licensee" of a nuclear installation.[71] All liability for nuclear damage is channeled to the "licensee",[72] and no other person can be held liable for such damage in order to protect the participants such as suppliers, contractors, and carriers.[73] The licensee is to furnish a financial guarantee to cover his liability for an aggregate amount of 5 million pounds.[74] The only available defence is the hostile action during an armed conflict which can be proved to have contributed to the nuclear damage.[75].

D. Switzerland:-

The Federal Act of 1959 which came into force in 1960 also provides for the imposition of absolute liability upon the nuclear operator. All liability for nuclear damage is borne by the operator whose liability is limited to the miximum amount of 40 million Swiss Francs and he has to take insurance to cover this amount.

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71. Section 4 (1).
72. Section 4 (2).
73. Exceptions as to carriers by sea and air are provided in section 4 (5).
74. Section 5 (1).
75. Section 4 (1).

The right of recourse is provided against he who deliberately causes damage. However, the exonerations of liability are confined to two situations, namely the act of war and the "grave natural disaster of an exceptional character".[76]

Thus far, we have considered three mature national nuclear legislations as examples. In many other countries the legislators are concerned with the regulation of nuclear liability. Among those we can mention Japan who promulgated her nuclear legislation in 1962, Sweden who passed an Act in 1960 although expired in 1964,[77] Denmark who promulgated her law in 1962 and Italy had her nuclear legislation in force since 1963. Similar legislations have been enacted or, are in the process of being promulgated in other countries such as France, Belgium, Spain, Netherlands, Austria and Norway.[78]

The following tendencies emerge from the above cited municipal law:-

1- The adoption of the doctrine of absolute liability for nuclear damage.

2- Liability is limited to a maximum amount.

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76. See in general Lee, Op. Cit. supra note 61.
77. Id. at 46, n. 110.
78. Id. at 35, n. 72.

3- The channelling of liability to one person, either the operator or the "licensee".

4- Compensation is guaranteed by compulsory insurance or security fund and subsidized by the state.

5- Full protection is given to the victim by eliminating the exculpatory circumstances or at least by narrowing the scope of defences and exonerations.

The preceding rules represent the "general principles of law recognized by civilized nations" governing the liability for damage caused by an ultrahazardous activity which is analogus to space activities. Therefore, these rules could be applied to space incidents as a part of the existing international law.[79]

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79. See Haley, Space Law and Government, p. 263 - 64, (1963).

C H A P T E R III

TRENDS IN THE DEVELOPMENT OF THE INTERNATIONAL LAW OF LIABILITY

Thus far we have painted the domestic picture and we now come to the international scene.

The law of state responsibility is traditionally based on the element of fault, i.e., states are answerable only for their faults. However, with the progress of science and the emergence of transnational situations,[1] international law has proved capable to adapt itself to the progressive development of the international society.

This chapter shall be devoted to a consideration of: first, the development of international law doctrines of liability in Treaty Law in regard to two areas exhibiting comparable problems, namely the Law of the Air and the Nuclear Energy Law. Second, the application of liability doctrines in customary law as developed in international adjudication.

1- Treaty Law:-

A. The Law of the Air:-

The 1952 Rome Convention

The Convention on Damage caused by Foreign

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1. Jessup, P., Transnational Law, p. 3, (1956).

Aircraft to Third Parties on the Surface, concluded in 1952 in Rome seems to be most directly related to our present inquiry.[2]

The convention which was opened for signature at Rome on October 7, 1952 adopts the principle of absolute liability of the aircraft operator for damage caused to persons or property on the surface by a foreign aircraft in flight, or by any person or thing falling therefrom. Two main factors have affected the adoption of the doctrine of absolute liability in the 1952 Conference of Rome: First the inequality between the victim on the surface who has neither relationship with, nor control over the aircraft causing the damage, and the operator of the aircraft who gains the profits of the flight. Secondly, the majority of the national legislation of the states participating at the conference were in favour of the principle.[3] A third factor may be added, namely the impossibility on the part of the injured person to prove the negligence of the aircraft operator because of the

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2. As suggested by the UN Ad Hoc Committee, this "Convention and ICAO experience in relation thereto could be taken into account (interalia) in any study ... concerning liability for injury or damage caused by space vehicles". UN Doc. A/4141, July 14, 1959.
3. ICAO Doc. 7379 - LC/34 Conference on Private International Air Law, Rome, Sept. - Oct., 1952, p. 15 Chap. 1, App. A.

complexity of aeronautical engineering.

The convention further places a limitation on the amount of compensation recoverable by the claimants. This principle of limited liability received a general agreement at the Rome Conference, and there has been no discussion as to its justification. The convention also provides for a compulsory system of security to cover the operator's liability. The trend in the convention has been to narrow the scope of exonerations and defences.[4] Thus the operator cannot free himself from his absolute liability unless he proves the fault of the victim himself, the intervention of an armed conflict, civil disturbance or public authority. Both, the act of God and force majeure were excluded from the available defences.

The possible revision of Rome Convention was recently considered by the ICAO Legal Sub-Committee which met in Oxford from March 24 to April 4, 1966 and it has been asserted by ICAO authorities that "No state in its comments suggested any change in the basic principle of absolute liability and no such change was suggested by any

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4. The authors of Rome Convention declared in the preamble: "moved by a desire to ensure adequate compensation for persons who suffer damage caused on the surface by foreign aircraft..."

member of the Sub-Committee".[5]

With this apparent consensus, it is submitted that the Rome Convention of 1952 can be taken as a collective statement declaring the doctrine of absolute liability subject to maximum limits as the preferred policy relating to the liability for surface impact damage.

Aerial Collision Liability

Up to the present time collision and interference between aircraft is regulated exclusively by municipal laws. Obviously, in any type of collision there is an assumption of a pre-existing set of traffic rules which have been violated and hence the collision occured. Thus liability for the resulting damage is based on fault.

There have been several attempts to unify the rule of liability for damage caused by collision or interference between aircraft, and the more recent draft convention[6] was prepared by ICAO in 1961 in Paris. The objective of the proposed convention is the regulation of liability

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5. ICAO Bulletin, Vol. XXI, no. 5, p. 6, 1966. In this session the Sub-Committee received a suggestion from the International Law Association that there should be a single international agreement on the question of surface damage caused by aircraft and spacecraft, (p. 7).
6. ICAO Doc. LC/SC/Aerial Collisions no. 71, 27/3/61, App. A, p. 7 (The Text of the Draft Convention).

of operators of aircraft with respect to damage resulting from collisions or interference between aircraft in flight. Liability in this draft is attached to the operator and it is designed to have dual basis: First, the operator should be subject to the Warsaw system of the reversal of the burden of proof in respect of damage to passengers and goods on the other aircraft. However, the operator thus liable, can exonerate himself from the presumption of liability if he proves that he and his servants or agents have taken all necessary measures to avoid the damage, or that it was impossible for him or them to take such measures.[7] Secondly, in respect of other damage, (e.g., loss of or damage to the other aircraft involved or damage caused to any other property on the aircraft and belonging to its operator) the operator shall be liable upon proof that the collision or interference was caused by his fault or that of his servants or agents acting within the scope of their employment.[8] If the damage was due to the fault of two or more operators liability shall be in proportion to the degree in which each operator is at fault and in the impossibility of ascertaining the degrees of fault, total damage shall be shared equally by all operators

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7. Contributory negligence of the injured person who is not the operator of an aircraft is provided as defence in Article (6) of the draft convention.
8. Articles (4) and (5) of the draft convention.

involved.[9]

The preceding rules represent an appropriate analogy relating to space incidents involving collision or interference between two or more spacecraft in flight or between spacecraft and aircraft, which will be discussed further.

B. The Law of Nuclear Energy:-

As early as 1957, the problem of nuclear liability has attracted international attention because of the ultrahazardous nature of the use of nuclear energy. The initial step was made by the European Nuclear Energy Agency and the outcome was the Convention on Third Party Liability in the Field of Nuclear Energy signed in Paris on July 29, 1960 under the auspices of the Organization for European Economic Co-operation (OEEC). This convention is the first multilateral agreement covering the subject on a regional level. It was followed by three other conventions: Convention on the Liability of Operators of Nuclear Ships concluded in Brussels, May 25, 1962; Convention Supplementary to the (OEEC) Paris Convention of 1960 which was concluded in Brussels in 1963; and the Convention on Civil Liability for Nuclear Damage signed

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9. This rule is derived from Article (4) of the 1910 Brussels Convention on Collision between Vessels.

in Vienna in 1963.[10]

The fundamental principles of the regime of liability as established by this nuclear Treaty Law may be summarized as follows:-

a- The provisions relating to the allocation of responsibility have unanimously adopted the theory of the "channelling" of liability i.e., all liability is imposed upon one person namely the nuclear operator. This "has been justified upon grounds of fairness and practicality".[11]

b- The liability imposed is absolute and independent of fault as it arises from the risk. It is quasi automatic. The justification of this system of liability was expressed in the "exposé des motifs" which states: "because of the special dangers involved in the activities within the scope of the convention and the difficulty of establishing negligence in view of the new

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10. For text of these conventions see Lee, Liability for Nuclear Damage Caused by Flight Instrumentalities, Thesis, McGill University, (1964), Appendices A, A1, B, B1, C & D, pp. 179 - 250.
11. McDougal, Lasswell, and Vlasic, Law and Public Order in Space, p. 611, (1963). They wrote: "It is fair that those who engage in ultrahazardous activities should bear the entire risk of damage that might originate therefrom; on the other hand, it would be impractical to permit exceedingly costly multiple insurance coverage of the same risk which would be inevitable if the liability were not concentrated in a single person".

techniques of atomic energy".[12] If more than one operator were involved, liability shall be joint and several.

c- The general idea in providing for the exculpatory circumstances in the four nuclear conventions is to narrow the scope of the traditional defences and to restrict the right of recourse. Thus the 1960 Paris Convention as amended by the 1964 Additional Paris Protocol, provides for the defences of an act of armed conflict, hostilities, civil war, insurrection or "except insofar as the legislation of the Contracting Party, in whose territory his nuclear installation is situated, may provide to the contrary, a grave natural disaster of an exceptional character".[13] Exonerations of liability in the 1962 Brussels Convention on the Liability of Operators of Nuclear Ships are almost identical.[14] In regard to the 1963 Vienna International Convention on Civil Liability for Nuclear Damage, the operator can avail himself of the same exonerations as in the 1960 Paris Convention.[15]

d- Since the peaceful use of nuclear energy is carried on for the benefit of the community, policy considerations

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12. "Exposé des motifs", Paris Convention, 27 J of A.L. & Com., p. 389 (1960).
13. Article 9.
14. Article 8.
15. Article 4/3 (a) and (b).

have called for the placing of a maximum limit of liability in respect of any one nuclear incident in order to protect the operator from ruinous claims. The limit is fixed at 15 million dollars in Paris Convention and increased to 120 million in the Supplementary Convention of 1963. In the 1962 Brussels Convention the limit is fixed at 100 million dollars and at 5 million dollars in the 1963 Vienna Convention.[16]

e- A duty to maintain insurance or other financial security is imposed on the operator to cover his liability.[17] In this respect a noteworthy achievement was reached under the Paris Supplementary Convention by establishing an international liability pool of public funds to ensure compensation.[18]

The main idea affecting the rule of liability adopted by the nuclear liability conventions was declared by the drafters of Paris Convention in the "Exposés des Motifs" which states: "on the one hand, the public exposed must be ensured of adequate protection in the face of unknown dangers, both for legal and for psychological reasons,

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16. See Article 7 of Paris Convention, Article 3 of the Supplementary Convention, Article 3/1 of Brussels Convention and Article 5 (1) and (2) of Vienna Convention.
17. Article 10 of Paris Convention, Article 3 (b) (i) of the Supplementary Convention, Article 3/2 of Brussels Convention and Article 7/1 of Vienna Convention.
18. Article 3 (a) and (b).

and, on the other hand, the growth of the nuclear industry should not be hindered by a burden of liability which would be intolerable in the case of an incident assuming catastrophic proportions and which could not be covered by conventional insurance".[19]

In formulating a rule of liability for damage caused by spacecraft, no decision-maker will be able to ignore the principles adopted by the nuclear conventions.

2- Customary Law:-

In the absence of an international rule governing a case presented for solution such as the question of liability for damage caused by space activities, it appears imperative, after having examined the Law of Treaty, to investigate the existing international custom as developed in international judicial decisions.

However, it should be pointed out at the outset that apart from a small number of cases in which a strict standard of liability was developed, the general rule in state responsibility is still based on fault as was declared long ago by Oppenheim: "An act of state injurious to another state is nevertheless not an international deliquency if committed neither wilfully and maliciously

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19. Exposé des Motifs, Paris Convention, p. 386, note 12 supra.

nor with culpable negligence".[20]

Nevertheless, there exists a considerable weight of opinion favouring the reception of strict liability doctrines in certain international relations through developing national doctrines such as nuisance and abus du droit, and applying them to international situations being accepted as general principles of law recognized by civilized nations. This was reflected in the two famous cases namely: (a) The Trail Smelter Arbitration and (b) The Corfu Channel Case.

A. The Trail Smelter Arbitration:-[21]

In this case Canada was held liable for damage sustained by the United States as a result of sulphur dioxide fumes emitting from a Canadian smelter operating in British Columbia and poisoning crops and fisheries over the American border. The decision of the Arbitral Tribunal in this case has been traditionally regarded as applying the doctrine of nuisance to an international situation. However, the question of negligence was not reasoned by the tribunal since its award seems to depend upon different standards which appear to be much closer to the doctrine of

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20. Oppenheim, International Law, I, 8th ed. Lauterpacht p. 343, (1955).
21. Trail Smelter Arbitral Tribunal Decision, Mar. 11, 1941. See Text in 35 Am. J. Int'l L., 684 (1941).

objective liability[22] than to the concept of fault. The tribunal asserted that: "Under the principles of international law as well as of the United States,no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties of persons therein when the case of serious consequences and the injury is established by clear and convincing evidence".[23]

Whether or not the doctrine of nuisance was invoked in this case in justification of liability, the question remains, however, as to the principle for which this arbitration stands. Nuisance, though generally accepted in common law states, does not enjoy a wide generality in international relations. It is still parochial and not international. On the other hand this decision is undoubtedly of doctrinal significance, in that the tribunal was imposing strict standards of liability different from those usually associated with fault.

One explanation may be, that in this case a presumption of fault was raised which the defendant failed to rebut.[24]

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22. Haley, Space Law and Government, p. 261, (1963).
23. Am. J. Int'l., supra note 21 at 716.
24. Goldie, "Liability for Damage and the Progressive Development of International Law", 14 I.C.L.Q., p. 1230 - 31, (1965).

B. The Corfu Channel Case:-[25]

In this case the United Kingdom sued Albania holding her responsible for loss of life and property on board the British ships which ran into a minefield in the Albanian territorial waters.

The International Court of Justice discussed the obligations and duties incumbent upon Albania in order to decide whether she was responsible or not. The Court ruled: "The obligations incumbent upon the Albanian authorities consisted in notifying, for the benefit of shipping in general, the existence of minefield in Albanian territorial waters and in warning the approaching British warships of the imminent danger to which the minefield exposed them". The Court further asserted that: "Such obligations are based, not on the Hague Convention of 1907 no. VIII which is applicable in time of war, but on certain general and well recognized principles namely: elementary considerations of humanity, even more exacting in peace than in war, the principle of freedom of maritime communication and every state's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states".[26]

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25. (1949) I.C.J. Rep. 4.
26. Ibid at 22.

This decision also has been viewed as an international application of strict standards of liability more stringent than the traditional fault liability especially as no testimony was offered of Albanian negligence. This has been asserted in the dissents by Judges Winiarski[27] and Badawi,[28] who argued that Albania had in fact complied with the existing international law standards of care and that the court was imposing novel and higher standards.

However, some commentators hint to the conclusion reached by the court that "these grave omissions involve the international responsibility of Albania",[29] and take the view that "in so holding, the court was still in the limits of the traditional rule, as an act of omission is not less a fault than an act of commission leading to the same result".[30]

Be that as it may, one is led to conclude that the court based its decision on a presumption of fault which Albania failed to rebut. The court in so ruling was in fact imposing a strict standards of liability.

This same attitude has been taken in international relations through the application of the theory of

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27. Ibid at 49 - 51, 52, 55 - 56.
28. Ibid at 64 - 66.
29. Ibid at 23.
30. Haley, Op. Cit., supra note 22 at 260.

abuse of rights as an accepted international law doctrine. Abus du droit enjoys a European dominant position and it is widely adopted by other civil law countries.[31]

Pointing out the role of this doctrine in the international law, Sir Hersh Lauterpacht wrote: "The doctrine of abuse of rights plays a relatively small part in municipal law, not because the law ignores it, but because it has crystallized its typical manifestations in concrete rules and prohibitions. In international law where the process of express or judicial law making is still in the rudimentary stage, the law of torts is confined to very general principles and the part which the doctrine of abuse of rights is called upon to play is therefore particularly important. It is one of the basic elements of the international law of torts".[32]

In several cases the international courts have applied this doctrine,[33] and as Judge Alvarez pointed out in the famous Fisheries Case,[34] the doctrine has been well

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31. The doctrine is adopted by the Egyptian Civil Law. Supra, chapter II.
32. Lauterpacht, The Function of Law in the International Community, p. 298, (1933).
33. The German Interests in Polish Upper Silesia (1926) P.C.I.J. Ser. A, No. 7; The Free Zones of Upper Savoy and the Distrect of Gex (1929) P.C.I.J. Ser. A, No. 22; The Anglo-Iranian Oil Company Case (1952) I.C.J. Rep. 93, 133 - 35.
34. The Fisheries Case (1951) I.C.J. Rep. 116.

established in customary international law.

The preceding discussion indicates that the christian principle of fault liability is constantly developing. "The notion of culpa is always changing and undergoing a slow process of evolution, moving away from the classical elements of imprudence and negligence, it tends to draw nearer to the system of objective liability".[35]

Finally, mention should be made to a recent non-judicial settlement of an important significance namely the "ex-gratia" payments made by the United States in 1954 to redress the damage caused accidently to the Japanese fishermen by the American atomic tests.

In this precedent the United States has based her decision on a sense of responsibility and international morals[36] which may be viewed as an initial step toward the development of an international practice.

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35. Judge Azevedo's dissent in the Corfu Channel Case, supra note 25 at 85.
36. Since more than thirty years ago, the Franch authority G. Ripert, pointed out the important role of the rule of morals in the making of the rule of law. See G. Ripert, La Règle Morale dans les Obligations Civiles, Paris, (1935).

C H A P T E R IV

THE UNITED NATIONS AND THE PROBLEMS OF SPACE LIABILITY

1- Early Considerations:-

In its 1959 report, the UN Ad Hoc Committee on the Peaceful Uses of Outer Space considered the problem of liability[1] and pointed out the main issues as being the following:-

1) The kind of injury for which recovery may be had.
2) The type of conduct giving rise to liability: should liability be without regard to fault for some or all activities, or should it be based upon fault?
3) Should a different principle govern, depending on whether the place of injury is on the surface of the earth, in the airspace or in outer space?
4) Should liability of the launching state be unlimited in amount?
5) Where more than one state participates in a particular activity, is the liability joint or several?

The first state to respond was the United States who in 1962 submitted a draft proposal on the matter.[2] The first three questions raised in the report of the Ad

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1. UN Doc. A/4141, July 14, 1959.
2. U.S.A. Draft Proposal on Liability for Space Vehicle Accidents, UN Doc. A/5181, Ann. III, p. 4, Sept. 27, 1962.

Hoc Committee were answered by the United States, but the last two were omitted. Personal injury, loss of life and property damage were suggested as the recoverable kind of injury. As for the type of conduct giving rise to liability, the adoption of the doctrine of absolute liability was recommended by the American proposal in a formula that allows evidence of contributory negligence on the part of the claimant. This principle applies whether injury occurs on land, on the sea or in the air. No reference was made to outer space. The questions as to the limitation of liability and whether it should be joint or several in case more than one state participating in the activity causing the damage, remained unanswered in this early American proposal. This gap was eliminated in subsequent U.S. proposals on the matter which will receive further consideration in the following pages.

2- The UN Declaration of Legal Principles:-[3]

The most relevant international instruments on the matter of space liability are the United Nations Declaration of Legal Principles Governing the Activities of States in the Exploitation and Use of Outer Space, Nov. 22nd, 1963, and the recently concluded Treaty of Principles Governing the Activities of States in the Exploration and

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3. UN. Gen. Ass. Res. 1962 (XVIII), Dec. 24, 1963.

Use of Outer Space, including the Moon and Other Celestial Bodies.[4]

It is desirable to comment on the effect of the UN General Assembly Declarations or Resolutions on outer space prior to discussing the relevant provisions of the 1963 Declaration and their applicability to the problems of liability.

Because the traditional slow procedures of customary international law are inadequate to cope with the rapid pace of space exploration, increasingly there have been widespread demands to use the United Nations as means of expressing the world community policy.

Some writers suggest that the United Nations Resolutions should be viewed as legal instruments that can create "instant" customary law, especially when such resolutions are unanimously adopted.[5] With regard to the Declaration of Legal principles, different opinions were expressed. One point of view was that such a declaration reflects international law as accepted by the majority of the members of the United Nations.[6] Other opinions, though

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4. Hereinafter referred to as Space Treaty.
5. Bin Cheng, "United Nations Resolutions on Outer Space: Instant International Customary Law", 5 Ind. J. Int'l., p. 35, (1965).
6. Statement of the U.S. representative in the Legal Sub-Committee, UN Doc. A/Ac. 105/ C. 2/SR 41, p. 5, (1965).

recognize the fact that the Declaration is an important statement of general legal principles[7] do not accept to abide by it as part of the existing international law.

Be that as it may, the fact that the General Assembly has not been granted legislative powers, is not practically sufficient to deprive its declarations and resolutions of their legal effect. This is particularly true because the law is not merely a set of terms and procedures, but it is the collective expression of community objectives.[8] Furthermore, the unanimous agreement of the governments of the world assembled in the United Nations, on such basic legal principles, provides cogent evidence as to the state of law.[9]

Paragraph 8 of the Declaration of Legal Principles appears to be of immediate relevance to the problem of liability. This provision establishes the principle of international responsibility for damage caused by space activities whether the damage occurs on earth, in airspace

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7. The position taken by the Australian delegate in the Legal Sub-Committee, UN. Doc. A/5549/ Ann. 1, p. 14, (1963).
8. Higgins, Rosalyn, The Development of International Law Through the Political Organs of the United Nations, p. 9, (1963); See also Jenks, Space Law, p. 170, (1965).
9. Ogunbanwo, O., The Exercise of State Authority in the Airspace Over the High Seas, Thesis, McGill University, p. 66, (1966).

or in outer space.[10] According to para. 5 of the Declaration, responsibility is channeled to the state, whether the activity was carried on by governmental agencies or by non-governmental entities. If an international organization was involved, same as well as its member states shall bear responsibility.

In the light of the basic principles enunciated in this Declaration, it is the task of the UN Legal Sub-Committee to exchange the views and direct careful analysis of the various legal concepts and doctrines in the field of liability, in order to work out an international convention on the subject.

3- The Space Treaty:-

In December 19, 1966 the UN. General Assembly approved an international Treaty of Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.[11]

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10. Para. 8 reads: "Each State which launches or procures the launching of an object into outer space, and each State from whose territory or facility an object is launched, is internationally liable for damage to a foreign State or to its natural or juridical persons by such object or its component parts on the earth, in airspace, or in outer space".
11. Text in UN. Monthly Chronicle, Vol. IV No. 1, pp. 42 - 46, Jan. 1967.

The Text is now deposited in Washington, London and Moscow, opened to all States for signature. The Treaty will enter into force when signed by Britain, the Soviet Union, the United States and two other nations. The Space Treaty is the third achievement in a historic universal co-operation toward world peace: first was the Antarctic Treaty of 1959 reserving the vast Antarctic Continent for exclusively peaceful purposes. Second was the 1963 Test Ban Treaty barring all nuclear tests except underground.

The Draft Treaty was sponsored by 41 of the 122 UN. member States. More important is the fact that the major space powers along with many other States of different political and social tendencies were in support of the Treaty. The main operative provisions relating to the problem of liability are contained in two articles. Article VI reads: "States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities...". The same article proclaims that: "When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the

Treaty participating in such organization".

Article VII declares that: "Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the earth, in air space or in outer space, including the moon and other celestial bodies".

These provisions did not break too much new ground, as far as the problem of liability is concerned, since the same principles proclaimed by the Treaty were almost identically contained in the UN. 1963 Declaration of Legal Principles. However, its importance lies in the fact that it is the foundation stone in the law of space.[12]

4- The Draft Conventions on Liability:-

The UN. Legal Sub-Committee has before it today three draft conventions on liability for damage caused by

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12. Mc Whinney, E., "Will Earthly Accord Follow the Space Treaty", The Toronto Globe and Mail, Dec. 19, 1966, p. 7.

the launching of objects into outer space, submitted by Belgium,[13] the United States,[14] and Hungary.[15]

In this section, a brief attempt is made to review some selected points of agreement and disagreement as they have crystallized in the three proposals and in the discussions of the Legal Sub-Committee.

A. Points of Disagreement:-

1- The Kind of Injury for Which Compensation May be Claimed:-

The definition of damage for which there would be compensation, raised some controversy between the delegates in the Legal Sub-Committee. There were two alternative methods of dealing with the problem of defining damage. The first was that the damage for which there would be compensation should be a matter to be determined under the national law, either the law of the state liable or the national law of the injured person. This theory was adopted by the Belgium proposal which proclaims in its Article 2 that: " 'Damage' shall be understood to mean any loss for which compensation may be claimed under the law of the place

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13. UN. Doc. A/AC. 105/C. 2/L. 7/Rev. 2 and Corr. 1, 2 & 3, and W.G. II/27.
14. UN. Doc. A/AC. 105/C. 2/L. 8 Rev. 3.
15. UN. Doc. A/AC. 105/C. 2/L. 10/Rev. 1.

where the loss is caused". The second alternative, which was adopted by the U.S. and Hungary, is to set out in the convention itself the definition of damage. The U.S. text declares that: "'Damage' means loss of life, personal injury, or destruction or loss of, or damage to property". Since there may be internal injuries suffered without any apparent harm, the Hungarian draft suggests that the provisions of the proposed convention "shall apply to compensation for loss of life, personal injury or other impairment of health, and damage to property (hereinafter called 'damage')". This has been made in accordance with an amendment proposed by India.

There was a further point of disagreement with regard to compensation for another type of damage, namely, the loss of profits and moral damage which was specifically provided for in Article 2 of the Hungarian draft, but not in the Belgian or the United States drafts.

2- The Scope of Application:-

The most controversial point in this respect was the question of nuclear damage. The Hungarian proposal provides in Article 1 that the provisions of the convention "shall not apply to nuclear damage resulting from the nuclear reactor of space objects". Such damage is not excluded from the application of the convention in the

Belgian and the United States proposals.

The Hungarian draft seems on this point to be inconsistent with another provision of its Article 1 which proclaims that the convention shall apply to compensation for "other impairment of health". This could be interpreted to mean damage caused by nuclear reactors which have been used to launch a space object or were installed therein.

Nevertheless, the idea behind excluding the nuclear damage from the scope of the proposed convention, seems to be based on established international practice in which questions of liability for nuclear damage were dealt with in separate conventions such as the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy, the 1962 Brussels Convention on the Liability of Operators of Nuclear Ships, and the 1963 Vienna Convention on Civil Liability for Nuclear Damage. To follow this course means that the proposed convention would have to be supplemented by another convention dealing specifically with nuclear damage caused by space launchings while the multiplicity of such international instruments governing one case of damage, namely space damage, would certainly be inconvenient. Moreover, in view of the fact that space techniques will, in the near future, be most probably

based emtirely on nuclear energy, the proposed convention would become meaningless or at least its provisions might prove to be of limited value.

Given the intricacy of the problem, it is submitted that the matter should be dealt with through a specific provision contained in the proposed convention settling all possible hypothetical cases, such as the damage caused by a space nuclear reactor or device which might not necessarily be a nuclear damage. Or the case of damage separately caused by a fallen space object which has been launched into space by means of nuclear reactor. Also the proposed provision should specify that the damage might be instant or become apparent over an extended period of time or direct or indirect. It goes without saying that such a provision could be drafted in the light of the fundamental principles of the regime of liability as established by the international nuclear Treaty Law.

Another controversial issue is that of the question of whether the nationals of the launching state should be excluded from the application of the convention. Nationals of the state liable were specifically excluded from the application of the convention in both the Belgian and the United States drafts, but not in the Hungarian

draft.[16] The American and Belgian approach seems to be consistent with the principles of public international law, for a convention dealing with international liability must certainly exclude claims by nationals against their own state. It goes without saying that an international claim cannot be presented by a person against his own state.

A further question which was answered differently in two of the proposed drafts, was the status of the aliens resident in the territory of the state in which the accident occurred. The American draft excludes only the nationals of the launching state who suffered damage caused by their own state which implies that the convention shall apply to the non-nationals residing in the launching state. Contrary to this approach the Belgian draft excludes both the nationals and the permanent residents of the launching state. The Belgian provision seems to be inconsistent with the generally accepted principles of international law in terms of which the state of the foreign national who was injured on the territory of the launching state would have the right to present an international claim against the launching state.

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16. Article 1 of the Belgian draft and Article V of the U.S. draft.

3- The Principle of Liability:-

Should liability attach without regard to fault for some or all activities, or should it be based upon fault? The answers provided by the three drafts do not differ widely. Two drafts are clearly based on the concept of cause and effect. The Belgian text is perhaps the most explicit in proclaiming that: "The occurence of the event causing the damage shall create a liability for compensation once proof has been given that there is a relationship of cause and effect between the damage, on the one hand, and the launching... on the other hand".[17] The second is the American draft which provides that: "The launching State shall be absolutely liable..."[18]. Reflected here is the influence of La théorie du risque crée in the civil law and the doctrine of absolute liability in common law. In both, liability is objective. It arises from the risk itself irrespective of fault or negligence, since he who conducts the hazardous activity, though free from negligence, had control over the instrumentality causing the damage and therefore the loss must, in justice, be placed on his shoulders. This principle appears to be applicable to all space activities in both texts.

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17. Article 1 (b).
18. Article 2 (1).

The most unsatisfactory text in this regard is the Hungarian proposal which contains three articles providing for the principle of liability and exoneration therefrom. When one looks at these three articles (3, 4 & 5) one is forced to conclude that the Hungarian draft, tends to advocate the principle of fault liability or a system of watered-down absolute liability.[19] Article IV (1) explicitly proclaims that: "Whenever damage is done to a space object or to persons and property on board by another space object, no claim shall arise between each other, except in so far as the claimant State produces evidence that the damage has been caused because of the fault of the other State...". There is no indication whatsoever as to whether or not the same principle shall apply to the case of damage to aircraft or to persons and property on board or to injuries and damage to third parties on the surface. Besides, considering the declaration of article 1 that the provisions of the convention shall apply to compensation for loss of life, injuries and damage in outer space, in the atmosphere or on the ground, article IV would raise an important question as to whether or not it shall apply to

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19. Article 3.

other cases of damage.[20]

4- The Question of Exoneration:-

All three draft proposals agreed that the basic consideration in establishing liability was whether damage had occured and whether it was a result of the launching of a space object. However, differences arose as to what type of exculpatory circumstances that affect the chain of causation should be allowed to exclude liability. All texts, though using different terminology, provided for exoneration from liability in the event of wilful acts or gross negligence on the part of the state suffering damage.[21] In this connexion, the three drafts reflect the influence of the international air law. The explanation of "wilful misconduct" or "faute lourde" in the Belgian provision was based on the text of Article XIII of the Hague Protocol of 1955.[22] Also the concept of contributory negligence as

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20. Article V of the Hungarian draft seems to prescribe absolute liability only in cases of unlawful activities. Also some Soviet writers advocate the idea of "full responsibility in the event of personal or property losses for citizens of foreign countries". See E. Korovin, "International Status of Cosmus Space", Legal problems of Space Exploration, Senate Symposium, p. 1067, (1961).
21. Belgian draft Art. 1 (c), U.S. draft Art. II (2), Hungarian draft Art. III.
22. Article XIII of the Hague Protocol 1955 reads: "The limits of liability... shall not apply if it is proved that the damage resulted from an act or omission of the carrier..., done with intent to cause damage or recklessly and with knowledge that damage would probably result..." See statement of Mr. Litvine, the representative of Belgium in the Legal Sub-Committee, UN. Doc. A/AC. 105/C 2/SR. 50, p. 7, 30 Sept., 1965.

applied in the American draft is contained in the provisions of Articles 6 & 9 of the 1952 Rome Convention.

The polemical issue was the defence of natural disaster contained in the Hungarian draft but omitted in the Belgian and U.S. drafts. It was noteworthy that the United States and Belgium in this connexion followed the course of the 1952 Rome Convention which made no provision for natural disaster or force majeure as an exonerating clause. The cogency of this argument lies in the fact that it is natural for the risk of a natural disaster or force majeure to be borne by the launching state who chose to engage in a hazardous undertaking and must therefore assume full responsibility for all consequences, and that it would be inequitable for other states to share that risk and bear the costs of damage which they suffered.

There was further disagreement with regard to the expression used in the American draft,namely, "reckless act or omission". In the course of discussion in the Legal Sub-Committee, it has been argued[23] that this term means that the United States proposal provides not only for gross negligence, but for simple negligence through omission. The American indication stressed that

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23. By Mr. Rybakov the representative of the Union of Soviet Socialist Republics, UN. Doc. A/AC. 105/C. 2/SR. 50, p. 6, 30 Sept. (1965).

the term "wilful or reckless act or omission" did not mean mere negligence "but was rather tantamount to gross negligence".[24] It is noteworthy that the American draft was unique in providing for a reduction of liability when the damage suffered results partially from the wilful or reckless act or omission of the state suffering damage. This might entail practical difficulties in so far as to what criterion shall apply to determine the degree of exoneration.

5- Limits of Liability:-

None of the three proposals resolved this question. The Hungarian and the U.S. drafts, though both provided for the principle of limited liability,[25] the figure was left blank. Belgium remained unconvinced of the desirability of the principle of limited liability. It was unfortunate that the Belgian text disregarded such an important principle. However, it was subsequently declared by the Belgian representative in the Legal Sub-Committee[26] that his delegation was prepared to reconsider his position if an agreement was reached on a specified

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24. Statement of Mr. Sohier, representative of the United States of America, Ibid.
25. Article II (1) of the Hungarian draft & Article IX of the U.S. draft.
26. Statement of Mr. Litvine in the fourth session, UN. Doc. A/AC. 105/C. 2/SR. 55, p. 3, 6 Oct. (1965).

ceiling of liability as well as a breakdown of the different categories of damage. On the other hand, it was not clear from either the Hungarian provision or the U.S. text whether the limit represented the aggregate sum of compensation payable by all states liable, which is an important point that would have to be clarified.

6- The Procedure for Settling Claims and Disputes:-

A different approach has been taken by the three drafts on questions relating to jurisdiction and procedures for settlement of claims for compensation and settlement of disputes.

All three drafts, though agreed on the presentation of claims for compensation through diplomatic channels and on arbitration medium in case of unsatisfied claims, they have disagreed on the procedures to be followed.[27]

The Belgian draft declares that: "The Arbitration Commission shall take its decisions according to law and by majority vote. It shall make an award within six months after the date of its establishment and its decisions shall be binding". Likewise the U.S. draft stipulates that: "The Commission shall determine its own procedure... conduct its

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27. Article 4 of the Belgian draft, Articles IV & VII of the U.S.A. draft and Articles X & XI of that of Hungary.

business and arrive at its decision by majority vote". And that "The decision of the Commission shall be rendered expeditiously and shall be binding upon the parties".

These texts provide for an ultimate and binding settlement of a claim for compensation, whereas the Hungarian text provides no ultimate solution inasmuch as it leaves the settlement dependent upon the agreement of the applicant state and the state liable who may never get into accord. In this connexion Article XI of the Hungarian draft proclaims, that should the arbitration committee set up by the two states "not arrive at a decision, the States may agree upon an international arbitration procedure or any other method of settlement acceptable to both States".

The only text that provides for the procedure for settling disputes through the Jurisdiction of the International Court of Justice was that of the United States. Article X reads: "Any dispute arising from the interpretation or application of this Convention, which is not previously settled by other peaceful means of their own choice, may be referred by any Contracting Party thereto to the International Court of Justice for decision".

7- The Treatment of International Organizations:-

The problem of attaching liability to international organizations which conduct space activities was

intimately connected with the question of determining the relationship of such organizations to the provisions of the proposed convention. The real controversial issue in this respect was the question of the status of the international organizations as subjects of international law (locus standi) and whether or not they should become parties to the convention on the same footing as the states.

There were three possible ways of dealing with this problem. As a standpoint, it should be remembered that the Declaration of Legal Principles recognizing the importance of the activities of international organizations in outer space, has declared in paragraph (5) that responsibility for compliance with the principles shall be borne by the international organization and its member states.[28]

In dealing with this matter, the Hungarian proposal took the rather obsolete view that only states could be subjects of international law and, nevertheless, article VI simply imposed liability on the "international organization which has launched or attempted to launch the space vehicle or object", without providing any appropriate procedure for the acceptance of obligations by such organization and without conferring any rights on it. Under the

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28. This same principle was adopted by the new Space Treaty in its Article VI.

principles of international law, the Hungarian doctrine seems to be unacceptable, for states parties to an agreement cannot impose liability on an international organization, whether or not they are members of that organization, simply because the Declaration of Legal Principles provides that such organizations should be liable. On the other side, the Belgian approach to the problem placed the international organizations on the same footing as states by providing for such organizations to become parties to the convention (according to article 5) and to have the same rights and obligations as states (according to article 6), thus raising the controversial issue of "locus standi" of the international organizations. The third and most satisfactory approach was that taken by the United States draft in article III providing for a simple procedural step to be taken by the international organization itself in order to come within the scope of the convention. While avoiding difficulties arising out of the difference in status between states and international organizations, the American approach, based on the most contemporary practice in the United Nations, would enable international organizations to exercise their capacity to enter into international agreements by assimilating such organizations as far as possible to the states without placing them on the same footing as states. Furthermore, the U.S. draft seems to have placed primary responsibility on the international

organization with subsidiary liability falling on the constituent members in order to encourage smaller states to pool their resources for the purposes of space research through the intermediary of such organizations.[29]

B. Points of Agreement:-

1- The Dimensional Scope of the Convention:-

The authors of the three drafts and those delegates who have spoken in the debates of the Legal Sub-Committee agreed that the provisions of the convention should apply to damage caused in outer space, in the air or on the ground. The relevant articles in both the Hungarian and the U.S. drafts were more explicit in this respect than that of the Belgium draft. Article I (1) of the Hungarian draft explicitly provides that: "The provisions of this Convention shall apply to compensation for loss of life, personal injury... and damage to property... caused in outer space, in the atmosphere or on the ground...".

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29. Article III of the U.S. draft reads: "1. If an international organization which conducts space activities transmits to the Secretary-General of the United Nations a declaration that it accepts and undertakes to comply with the provisions of the present Convention, all the provisions, except Articles X, XI parag. 2, XIII, XIV and XV, shall apply to the organization as they apply to a State which is a Contracting Party. 3. If ... an international organization fails to pay such compensation each member of the organization which is a Contracting Party, shall... be liable for such compensation...".

Likewise Article II (1) of the U.S. proposal proclaims that: "The launching State shall be absolutely liable... for damage on the earth, in air space, or in outer space..."

The Belgian text, though not so explicit, seems to be in accord with the other proposals. In its Article 2 it declares that: "Any damage suffered by a ship, aircraft or space device and by the persons and property carried therein shall be deemed to have been caused in the territory of the flag State..." It was noteworthy, in this respect, that the difficulty of drawing a distinction between outer space and airspace was argued in the debates of the Legal Sub-Committee in favour of determining the dimensional aspect of the convention as broadly as practically possible. Consequently, the Sub-Committee decided in its fourth session in 1965 that the provisions of the convention shall apply to damage caused on the ground, in the air and in outer space.[30]

2- Which State is Liable:-

Similarly, there also appeared to be complete agreement on attaching liability to the "launching State" (or international organization). Article 3 of the Belgian

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30. UN. Doc. A/AC. 105/C. 2/SR. 49, p. 5, Oct. 1st (1965).

proposal reads: "The launching State shall be held liable...". Also Article II (1) of the U.S. draft declares that: "The launching State shall be absolutely liable...". Likewise Article VI of the Hungarian draft proclaims that: "Liability for damage shall rest with the State or international organization which has launched or attempted to launch the space vehicle or object". The term launching was unanimously understood to mean attempted launchings. The common understanding for the term launching state is the state or states (or the international organization) which carry on the launching of a space object into outer space or whose territory or facility was used for such launching.[31] It is to be remembered that paragraph 8 of the Declaration of Legal Principles provides that: "Each State which launches or procures the launching of an object into outer space, and each State from whose territory or facility an object is launched, is internationally liable for damage". The United States seems to have based her proposal directly on this text, while the Hungarian proposal used the term "facilities" only, and the Belgian draft preferred the expression "territory". The United States draft was the only one to take the procurement of launching into account. However, the concept of procuring the launching might presumably be what was intended by the Hungarian term "a

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31. Article 2 Belgian draft, Article I (c) U.S. draft and Article VI of the Hungarian draft.

common undertaking" and by the very broad expression of "participation" which was used by the Belgian draft in Article 3 which reads: "If several States participate in the launching...". The criteria of ownership or possession of the space object was found only in the Hungarian draft. To sum up, it is to be observed that whatever expression was used or criteria was advanced to determine the party liable, all three texts have recognized the responsibility of the state carrying out the launching and they all took into account the criterion of territory. It goes without saying that according to the text of the three drafts, in case where a launching was carried out on the high seas or on a territory which belongs to no state, the applicable criterion shall be the "launching state" just the same, i.e. the state which carried out the launching operations.

Recently, this question was dealt with in the new Space Treaty which declares in Article VII that: "Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage..."[32] It is, however, preferable that an international convention on space liability should

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32. Supra note 11 at 44.

elaborate more specifically on this point.

3- The Liability of International Organizations:-

Should an international organization as such, as distinct from its member states, which launches or participates in the launching of an object into outer space causing damage, be regarded as liable? There seemed to be general agreement on the affirmative answer to this question by the authors of the three drafts. Nevertheless, it should be pointed out that no such agreement appeared to have been found in the proposals as to the question of how the principle of such liability shall apply in practice.[33]

In so far as the principle of liability is concerned, all three drafts, though adopting different methods, have provided for the liability of international organizations in the event of damage caused by the launching of an object into outer space by such organizations. Article VI (1) of the Hungarian draft declares that: "Liability for damage shall rest with the State or international organization which has launched or attempted to launch the space vehicle or object". Likewise the United States proposal proclaims in Article III (1) that: "If an international organization which conducts space activities transmits to

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33. See supra, points of disagreement.

the Secretary-General of the United Nations a declaration that it accepts and undertakes to comply with the provisions of the present Convention, all the provisions, except... (those relevant only to States) shall apply to the organization as they apply to a State which is a Contracting Party". The Belgian text treated the international organizations on the same footing as the states parties to the convention. Thus Article 6 provided that: "International organizations acceding to this Convention in accordance with the provisions of article 5 shall have the same rights and obligations as States". Similarly, there has been a unanimous agreement among the authors of the drafts that all member states of the international organization which was held liable should assume joint liability to pay the amount of compensation.[34] Saving that, as previously mentioned, the U.S. draft placed primary responsibility on the international organization and secondary liability resting with its member states.

4- The Question of Joint and Several Liability:-

All three proposals were based on the concept of joint and several liability of states participating in a joint undertaking. The provision of article 3 of the

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34. Article 6 of the Belgian proposal, Article III (3) of the U.S. proposal and Article VII of the Hungarian draft.

Belgian proposal, though drafted in a way so as to avoid the use of the controversial expression of "joint and several liability", provides for the same idea in declaring that: "If several States participate in the launching of a space device, each of them shall be liable for compensation for the whole of the damage, and a claim for compensation may validly be addressed to any one of them".[35] Likewise, under the terms of article II (3) of the United States proposal, where two or more launching states were liable, the presenting state may proceed against any or all such states individually or jointly for the total amount of damages. The text further provides that once that amount was agreed upon or otherwise established, each such state proceeded against shall be liable to pay the amount, provided that the aggregate of the compensation paid shall in no event exceed the amount which would be payable under the convention if only one respondent state were liable. The U.S. draft, though using the term "jointly", appears to set out what was meant by the concept of joint and several liability by providing for the procedure to be

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35. In the fifty second meeting, fourth session of the Legal Sub-Committee, Mr. Litvine, representing Belgium, declared that his delegation avoided the use of controversial language such as "joint and several liability", but that the underlying idea was the same. UN. Doc. A/AC. 105/C. 2/SR. 52, p. 13, Oct. 1st, 1965.

followed in this connexion without going into the difficulty of answering the question whether this procedure really formulates "joint and several liability".

Unlike the American approach, the Hungarian position, taking for granted that there was general agreement on the concept of joint and several liability, were two or more states were involved, explicitly declared in article VI (2) that: "Where liability may be laid upon more than one State or international organization, their liability towards the claimant shall be joint and several".

In any event, it seems safe to conclude that what in fact was in dispute, is the terminology to be used and the method of procedure to be followed and not the principle of joint and several liability itself. Nevertheless, it is preferable to avoid using such a controversial term, since it was a possible source of controversy, and to formulate, in the convention, a generally accepted practical and just procedure to be followed in case of joint undertaking.

C H A P T E R V

THE PROSPECTS FOR AN APPROPRIATE RULE OF LIABILITY FOR SPACE DAMAGE

This chapter deals with the advantages and disadvantages of the various recommended solutions to the main issues of liability. Consideration shall be given first, to the regime of liability for damage to third parties on the surface, secondly to the system of liability governing collision damage and finally to the rule of liability for damage caused by contamination.

1- Liability for Damage to Third Parties on the Ground:-

A. The Nature of Liability:-

The basic problem here is that of whether the damage caused by space activities should, under all circumstances, be borne by the party who conducted such activities or in some other way by the victim involved? On the one hand, the answer to this question should be clear and definite in order that the parties affected may know their positions and be able to take appropriate measures, if possible, before damage occurs. On the other hand, the drafters of the proposed convention, in their endeavour to ensure adequate protection to the public, should not lose sight of the fact that the scientific progress of space research must not be hampered by placing obstacles in the way of participants in space ventures, and that the growth of space industry must not be hindered

by a heavy burden of liability that might be ruinous and intolerable in case of catastrophic disaster.

The principle of absolute and limited liability plays the most important role in resolving these difficulties. The doctrine of objective liability which results from the risk irrespective of fault should be the point of departure in this connexion. As we have previously noted, both national and international trends tend to apply more rigorous rule of liability in cases of damage arising from activities of abnormal or ultrahazardous nature to protect the hopeless victims. In literature, the principle enjoys a dominant position as all writers agree that absolute liability should be imposed for ground damage caused by space activities.[1] Likewise, two of the proposed draft

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1. Dr. DeRode-Verschoor; General View on the Problems Studied and Still to be Studied in Connection With the Responsibility for the Damage Caused by Spacecraft, Fifth Colloquium on the Law of Outer Space, Verna (1962); Also in the same Colloquium, Dr. Wimmer, Suggestions for an International Convention on Damage Caused by Spacecraft; Dr. Goedhuis, D., Some Observations on the Present Legislative Procedure Applied to Outer Space, 6th Space Law Colloquium, Paris (1963); Berezowski, C., Rules of Liability for Injury or Loss Caused by the Operation of Space Vehicles, Report to the 50th Conference of the International Law Association; Goldie, L.F.E., Liability for Damage and the Progressive Development of International Law, 14 I.C.L.Q., pp. 1189 - 1264, (1965); Beresford, S., Principles of Spacecraft Liability, Third Space Law Colloquium, Stockholm (1960); See also in the same Colloquium, the views of Cooper, J.C., and Verplaestse, J., Damages to Third Parties on the Surface Caused by Space Vehicles, Discussion.

conventions now before the Legal Sub-Committee adopt the same principle. In the American proposal, the statement of the principle of absolute liability is unmistakably clear and simple. Also the provision of Article 1 of the Belgian proposal spells out the concept of absolute liability. Moreover,the statements in the Legal Sub-Committee appear to be in support of the principle.[2]

The type of damage most directly related to the question under consideration, is the surface impact damage caused by aircraft which exhibits comparable problems. The system established by the 1952 Rome Convention is based on the principle of absolute liability and no attempt to introduce degrees in absolute liability or to change to the principle of presumption of fault, or to the principle of fault has ever been successful. According to recent ICAO information[3] no state is suggesting any change to this basic principle of absolute liability in Rome Convention.

A more hazardous activity particularly relevant to our present inquiry is the problem of liability for

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2. Mr. Rybakov, the U.S.S.R. representative declared in the 50th meeting of the fourth session that all three proposals under consideration provided for absolute liability and that his delegation saw no basic objection to the principle in question. UN. Doc. A/AC. 105/C. 2/SR. 50, p. 3, Sept. 30, (1965).
3. ICAO Bulletin, Vol. XXI, No. 5, p. 6, (1966).

nuclear damage where the concept of absolute liability was developed in the nuclear liability Treaties through the idea of channeling the prescribed absolute liability to the nuclear operator in all cases except where the damage may be regarded as the responsibility of the society as a whole. The same theory is generally applied by national nuclear legislations.

The idea advanced in justification of the principle of absolute liability in all such situations is based on the fact that there is no equality in the positions between the two parties of one incident. The injured party has neither relationship with, nor control over the activity causing the injury, and it is normally impossible for him to produce evidence of fault or negligence against the operator of the activity, mostly for reasons of complexity and technicality.[4]

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4. In the "Exposé des Motifs" of the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy, the drafters pointed out that: "In Western Europe, with but few exceptions, there is a long established tradition of legislative action or judicial interpretation that a presumption of liability for hazards created arises when a person engages in a dangerous activity. Because of the special dangers involved in the activities within the scope of the convention and the difficulty of establishing negligence in view of the techniques of atomic energy, this presumption has been adopted for nuclear liability. Absolute liability is therefore the rule, liability results from the risk irrespective of fault", 27 J. of Air & Com., p. 389, (1960).

Thus far, the principle of absolute liability has undoubtedly proved fully justified, nationally and internationally, not only upon theoretical grounds but also, and more important, upon practical considerations. The old idea that a loss shall lie where it falls can no longer "commend itself to any balanced sense of justice".[5]

A system of liability for surface impact damage in space law, should place the burden of loss where it properly belongs. If a state or an international organization chose to engage in the ultrahazardous space undertaking, it must assume responsibility for all the consequences, and the burden of loss would be assumed as one of the costs of the venture. If the principle of absolute liability was found to be adequate for ground damage caused by aircraft, it is even more appropriate in the case of damage caused by huge rockets or spacecraft which present a stronger case for absolute liability.

B. Limitation of Liability:-

It is in the system of absolute liability that the placing of a limitation on the extent of compensation payable, ordinarily operates as a supplemental scheme. Such policy is fully justified upon grounds of both legal and practical considerations.

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5. Jenks, Space Law, p. 172 - 73, (1965).

It is desirable that an international convention would specify a uniform ceiling of liability as one of its basic principles instead of leaving the matter to be determined in different ways according to the national law of the injured person. This policy will undoubtedly bring about a unification of law, and in practice will facilitate settlement of claims and disputes. Besides, the adoption of the principle of limitation of liability is not a peculiarity of the law of space, for it has been accepted in other legal areas. For instance in the law of the sea, the principle was adopted by the 1960 Brussels Convention in regard to collisions at sea as well as the 1924 Brussels Convention relating to the Bills of Landing (The Hague Rules). Another area more assimilated to our study, is the nuclear field where all the Treaties on nuclear liability impose maximum limits on the amount of liability. Limited liability has been also accepted in the law of the air: in Warsaw Convention, the liability of the air carrier, though not absolute, is limited to fixed maximum sums. Also in the 1952 Rome Convention the liability of the operator of the aircraft is limited in its extent and the principle was met with general agreement at the Rome Conference without any debates as to its justification.

If limitation of liability in amount was found to be necessary and proved justified in the foregoing areas of the law, it is even more so in the regime of liability for surface damage caused by space activities.

From the practical point of view, the limitation of liability countervails the rigorous regime of absolute liability imposed upon the party undertaking the venture. Under such a regime of objective liability, limitation of the amount of liability seems indispensable, for both ideas, (absolute and limited liability) are two wings of one system without any of which it cannot operate. This is particularly true from the point of view of the economic feasibility of undertaking space activities. If a state chose to engage in such hazardous undertaking it must bear in mind the probability of an incident giving rise to claims for compensation and take this probability fully into account as one of the costs of the venture. By limiting the over-all amount of liability, such a state could be protected against ruinous claims and can reliably insure its liability. This insurance is of a dual value, it protects the launching state and in the same time is in the interest of the potential victim. Of course, one need not to hamper the scientific progress of space research which is socially beneficial and contains great prospects for the entire world community. If the heavy burden of legal

liability was not financially limited, participants may hesitate to engage in the hazardous undertaking and all would suffer.

The next step a proposed convention on the subject has to take in this connexion, is to decide how far and in what way liability should be limited. It may be recalled that this matter caused heated controversy at the Conference of Rome in 1952. However, the same issue was agreed upon with comparative ease in the conventions relating to civil liability for nuclear damage, and by way of analogy similar limits to those adopted in nuclear liability may be established in space liability.

Be that as it may, the problem of fixing the limit of liability appears to be of technical and financial nature rather than one of a legal nature.

C. Exoneration from Liability:-

The main objective of the principle of absolute liability in a convention for damage caused by space activities is obviously to safeguard the persons on the ground, and to provide for an adequate system to compensate the victims. The idea which immediately follows is to deprive the responsible party of all available defences which may enable him to minimize his absolute liability. All traditional exceptions and exonerations of liability should be

excluded and the escape route must be as narrow as practically possible in order to safeguard the effectiveness of the principle.

The exchange of views which took place in the Sub-Committee with respect to this question revealed that the real issue was a matter of describing factual situations and not of differences on the principle. All proposals and debates centered around the chain of causation, and different terminology was advanced every time this chain of causation between the damage and the launching operation has been affected either by a natural unavoidable force, or by intentional activity of the plaintiff state.

As a standpoint, and in order to provide for a solution of this problem, it is desirable to use fresh expressions rather than traditional terms such as "wilful misconduct", "faute lourde", "reckless act", "gross negligence" and so forth. For such terms do not give their exact meaning unless they were used in the legal system where they have originated. The practical example for such a case is what happened in the debates of the Sub-Committee concerning the expression of "wilful or reckless act or omission", contained in the United States proposal[6]

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6. Article II/2 of the United States proposal, UN. Doc. A/AC. 105/29, Ann. II, p. 8, October 1, (1965).

and was interpreted by the U.S.S.R. representative as being tantamount to simple negligence[7] whereas the concept of "reckless" in many American jurisdictions is assimilated not only to gross negligence but to intention.[8] It was subsequently made clear by the American delegate that the words "wilful" and "reckless" governed the word "omission" as well as the word "act".[9]

To sum up, it seems preferable that all commonly available defences normally including catastrophic events such as a general force majeure, Act of God, natural disaster, war and civil disturbance, should not be allowed as accepted exemptions from liability. However, the only case which calls for exception is that of an injured state who intentionally caused the damage suffered. This case could preferably be described in the proposed convention in a clear and simple provision similar to that used in the 1962 Brussels Convention on the Liability of Operators of Nuclear Ships.[10]

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7. UN. Doc. A/AC. 105/C. 2/SR. 50, p. 5, September 30, (1965).
8. The concept of reckless or wanton is equivalent to wilful negligence and distinguished from mere negligence in the American jurisdiction. See Restatement, Torts No. 282 (1934).
9. Supra note 7.
10. Article II/5 of this convention reads: "If the operator proves that the nuclear damage resulted wholly or partially from an act or omission done with intent to cause damage by the individual who suffered the damage, the competent courts may exonerate the operator wholly or partially from his liability to such individual".

D. The Question of Which State is Liable:-

This case presents no problem if a single state was involved because the allocation of responsibility will be clear and easy. But much complicated problems will arise when several states pool their resources for the purposes of space research and engage in joint undertaking. The term launching state may raise practical difficulties, some of which could be envisaged in the following hypothetic example: state (A) possesses a rocket bearing its registration mark holding a spacecraft or capsule belonging to state (B), was launched from a site located in the territory of state (C). The launching was performed by equipment provided by state (D), operated by experts from state (E), and financially supplied and paid for by an international organization in which states (F), (G) and (H) are members having observers at the launching site. State (I) was exercising control over the orbit or trajectory of the spacecraft which fell back to the surface together with fragments of the rocket and caused damage on the territory of state (J).

Against which state can the injured party pursue her claim for damage? Which state shall be liable and which one is the launching state? What kind and what degree of participation is required to bring a state within the definition of a launching state and make it liable

for the damage? The advanced example is hypothetical, however, it is not quite improbable.[11]

As a point of departure, a definition of the term "launching state" seems to be essential. The objective method in defining this term by considering the activities involved themselves will provide for a practical solution. In an attempt to draw up a list of criteria for a selected definition of the "launching state" which would meet with a general satisfaction, the following criteria were advanced in the Legal Sub-Committee: (a) ownership or possession of the space object, (b) territory, (c) facilities used, (d) the exercise of control over the orbit or trajectory. The three draft proposals of Belgium, Hungary and the United States included these criteria. The United States draft added the criteria of procuring the launching, as proclaimed in paragraph 8 of the Declaration of the Legal Principles and which also appeared in article VII of the 1966 Space Treaty.

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11. The United States and Italy are engaged in space joint undertaking known as the "San Marco" project". The American delegate in the Legal Sub-Committee announced in the 48th Meeting of the fourth session that some launchings took place in the U.S. while the launching team was Italian, and that further launchings were to take place from American platforms in the ocean with Italian made space vehicles. UN. Doc. A/AC. 105/C 2/SR. 48, p. 4, Sept. 29, (1965).

For the purpose of an international convention covering the liability for surface impact damage caused by the launching of objects into outer space, it is submitted that the term "launching state" shall preferably mean the state or states or the international organization:

a) Owning or possessing the space object which caused the damage, or whose registration mark was attached to this object.

b) Providing the launching site, whether on its territory, on the high seas or in outer space.

c) Performing the launching operations whether by providing equipment, materials, personnel, funds or any other facilities necessary for the launching.

d) Exercising effective control over the orbit or trajectory of the space object causing the damage.

Moreover, a proposed convention on the subject should establish - within its provisions or in a special protocol - an appropriate system of identification marks and provide for adequate legal and technical registration procedures of all space launchings and all spacecraft.[12]

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12. McDougal, Lasswell and Vlasic, Law and Public Order in Space, p. 615, (1963). They advocate the general idea "of providing each spacecraft with appropriate identification marks and of establishing appropriate procedures, legal and technical, for registration and surveillance of all spacecraft from the moment they leave their launching pads".

Since a state suffering damage might experience considerable difficulty in identifying the launching state, particularly in cases where the launching was performed as a common undertaking involving more than one state, it would be equitable and practical to place the liability on all the states participating in the joint undertaking. The applicant state shall have the right to decide against which of the participating states - all being jointly and severally liable to her - she will pursue her claim. All participating states may take up the question of apportioning liability among themselves by entering into appropriate arrangements with each other, taking into account the type and degree of participation in the common undertaking.[13]

Another point to be considered is that of the responsibility of the international organizations engaged in space activities. The discussion of this point raised the old controversial issue of the status of international organizations as subjects of international law. However, the view that only states could be subjects of international

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13. Supporting this trend, Mr. Litvine, the representative of Belgium in the Legal Sub-Committee stated that "if states agreed on a launching operation, they should be allowed to make their own arrangements among themselves concerning liability. What was needed was a solution which would facilitate action by the applicant states". UN. Doc. A/AC. 105/C. 2/SR. 51, p. 9 - 10, October 4, (1965).

law is now rather obsolete.

Be that as it may, it is important that any arrangement concerning liability must take fully into account the existence of joint ventures undertaken by some states through the procedure of setting up international organizations. As regards the relationship between an international organization and the provisions of the convention, different views were expressed in the draft conventions as well as in the debates of the representatives of states in the Sub-Committee. So far, as previously indicated, the most practical and equitable solution was that proposed by the United States which provides for a procedural link through which an international organization can bring itself within the scope of the convention without raising the controversial issue of the status of the international organizations. Moreover, the American approach, based on the idea of encouraging space research, placed primary responsibility on the international organization with subsidiary responsibility falling on the constituent members.

E. Financial Security:-

Because of the extensive phisical scale of damage which a space disaster may bring about, the number of human beings who may be affected and the mass destruction with all the ensuing financial problems, it is essential to

provide for financial security as one of the compulsions of the liability to guarantee the payment of compensations. It is noteworthy that all conventions on nuclear liability contain provisions imposing upon the nuclear operator the duty to maintain insurance or any other reliable financial security covering the aggregate amount of his liability. Special arrangements are also made to ensure that the financial security shall remain effective and cannot be suspended or cancelled unless certain provisional procedures were exhausted.

The establishment of a world fund[14] to which all nations of the world community pool their contributions is probably the most constructive idea with regard to space activities.[15] However, some writers argue that this solution, though it appears "attractive",[16] may encounter many

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14. Professor Pépin suggests the establishment of an international guarantee fund in order to provide for the payment of compensations. See Damages to Third Parties on the Surface Caused by Space Vehicles, Discussion, Third Space Law Colloquium, Stockholm (1960); Madame De-Verschoor takes the same view, See Authorities cited note 1 supra.
15. The idea of a common pool to which participant states contribute, was first introduced in the 1963 Brussels Supplementary Convention to Paris Convention. Professor McDougal states in this connexion that it is reasonable and fair that states as they share the benefits must share the risks according to their possibilities. See McDougal, Lasswell and Vlasic, Op. Cit. supra note 12 at 619.
16. Jenks, Op. Cit. supra note 5 at 173, 286.

difficulties concerning the administration and financing of an international pool. However, it is submitted that the United Nations organization is expected to be able to overcome such difficulties.[17]

F. Jurisdiction and Settlement Procedures:-

Questions relating to jurisdiction, settlement of claims and settlement of disputes are fundamental problems which should be dealt with in any convention on liability, for they are in fact the executory instruments of the principles laid down in the convention. The best approach in this connexion was that adopted by the United States proposal which draw a line between the procedures for settling claims for compensation and the procedures for

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17. See Von Rauchhaupt, The Damages in Space Law, Report of Working Group IX, Fifth Space Law Colloquium, Varna (1962). The report declared: "It seems to be advisable that a special international authority should receive all necessary guarantees and money for the potential cases of world space damage and still better have them in their possession before the permission of the covered world space flight be granted. This system should be applied not only for the spacecraft of the rich states but also for the spacecraft of the poorer states and the private owners". In this connexion Professor Cooper takes the view that all these suggestions give rise to all kinds of complications. He suggests that each state should establish a national guarantee fund for payment of compensation in case of space damage, then the state collects from the responsible party. See Cooper, J., Memorandum of Suggestions for an International Convention on Third Party Damage Caused by Space Vehicles, Senate Symposium, p. 680 - 83, (1961).

settling disputes. There is a general agreement in the Legal Sub-Committee that claims shall be presented through diplomatic channels.[18] However, there are differences with regard to the time limits for presentation of claims but it is easy to bridge them. The Belgian proposal suggests two years while the other two proposals suggest a period of one year[19] which seems more desirable from the practical point of view. If the claim is not settled through this medium all are agreed on arbitration as the appropriate medium for settlement of claims.[20] This approach is quite different from that of the conventions on nuclear liability. The 1960 Paris Convention generally places exclusive jurisdiction in the courts of the state where the nuclear installation is situated. The 1962 Brussels Convention provides for the jurisdiction of the International Court of Justice in case of litigation. The same approach was adopted in the 1963 Vienna Convention. There is no doubt that the jurisdiction of the world court is the most desirable and appropriate instrument for settling

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18. Article 4 (a) of the Belgian Proposal, Article IV (3) of the U.S. Proposal and Article X of the Hungarian Proposal.
19. Article 4 (a) of the Belgian Proposal, Article IV (4) of the U.S. Proposal and Article IX of the Hungarian Proposal.
20. Article 4 (c), (d), (e), (f) of the Belgian Proposal Article VII (1), (2), (3), (4), (5), (6) of the American draft and Article XI, (1), (2) of the Hungarian draft.

international disputes since it has always proved highly efficient. Nevertheless, it is unfortunate that one of the major two space powers, namely the Soviet Union is not in favor of this jurisdiction. Therefore, the arbitration medium appears to be the only practical solution for this problem.[21] The most appropriate approach relating to settlement procedures through arbitration was that adopted in Article VII of the U.S. proposal which provides for an ultimate settlement of claim for compensation.[22]

2- Liability for Collision Damage:-

Space incidents may involve collisions or

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21. The American proposal is the only draft convention which provides for the jurisdiction of the World Court in Article X which reads: "Any dispute arising from the interpretation or application of this Convention which is not previously settled by other peaceful means of their own choice, may be referred by any Contracting Party thereto to the International Court of Justice for decision". The same approach was adopted by the original working paper submitted by the Belgian Delegation to the Legal Sub-Committee which proclaims in Article 5 that: "If the State which is liable does not take a decision considered satisfactory by the plaintiff state within six months, the latter shall be entitled to take the claim for compensation before the International Court of Justice", UN. Doc. A/AC. 105/19 Ann. II, p. 11 - 12, Mar. 26, (1964). In the recent session of the Sub-Committee the U.S.S.R. representative declared that "He regretted that the United States despite the wishes expressed by the majority in the Sub-Committee, had maintained its earlier provision, raising the controversial issue of the jurisdiction of the International Court of Justice". UN. Doc. A/AC. 105/C. 2/SR. 48, p. 11, Sept. 29, (1965).
22. Supra, Points of disagreement.

interference between two or more spacecraft in flight or between spacecraft and aircraft. The collision may take place in airspace or in outer space. Such incidents call for a special system of liability.

A. The Background of the Problem:-

In the not distant future the supersonic commercial airliners will commence operations. The X-15 has already penetrated the lower reaches of outer space,[23] and it is able to soar well above the perigee of Explorer III, attaining an altitude of 110 miles. This vehicle is reported capable of achieving a speed of some 5,000 miles an hour in level flight, then coast into the realm of satellites and glide back to earth.[24] Hence, the probability of collision and interference between different flight instrumentalities in the airspace and in space is increasing, and the matter should be regulated by law without delay. It is unfortunate that up to the present time the problem of collision and interference between aircraft is still internationally unresolved, despite the efforts of ICAO to draft a convention on the subject. One would hope that the Legal Sub-Committee, in attempting to conclude a convention on the liability for damage caused

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23. Haley, Space Law and Government, p. 98 (1963).
24. Haley, Survey of Legal Opinion on Extraterrestrial Jurisdiction, Senate Symposium, p. 719, (1961).

by the launching of objects into outer space, will seek co-operation and coordination with the International Civil Aviation Organization to achieve "compatibility"[25] in regulating almost identical types of incidents.[26]

The basic problem here is the absence of traffic regulations which are essential in the determination of the cause of collision. For in any type of collision there is an assumption of a pre-existing rules of traffic or navigation which have been violated, and as a result of this violation the collision occurred. Therefore, the establishment of some rules regulating aerospace navigation seems indispensable for a system of liability for damage caused by collision between two or more spacecraft and between spacecraft and aircraft. Such rules may regulate the passage of a spacecraft or a rocket in airspace en route to outer space and there must be co-ordination between these rules and the rules of the air as set forth in the Chicago Convention.

Collision or interference can be discussed, either according to the type of vehicles involved, or

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25. Vlasic, I.A., Law and Public Order in Space, working paper, Washington World Conference on World Peace through Law, p. 20 - 21, Sept. (1965).
26. See Lee, R.S., Liability for Nuclear Damage Caused by Flight Instrumentalities, Thesis, McGill University, p. 163, (1964).

according to the area where it took place. As regards the place of the incident, collision or interference might occur:-

a) in airspace.

b) in outer space.

c) and possibly (though remote) on celestial bodies.

With respect to the type of vehicles involved, collisions and interference are liable to occur:-

a) between spacecraft and aircraft.

b) between two or more spacecraft.

c) a far out possibility of collision between interplanetary space ships.

In the following pages incidents pertaining to the second classification are briefly outlined.

B. The System of Liability:-

1) Collision between Spacecraft:-

In the event of collision or interference between two or more spacecraft in flight, there are special factors which must be taken into account before deciding which principle of liability to apply. When state (A) launches an object into outer space inflicting harm upon another object launched by state (B), whether the incident took place in airspace or in outer space, there exists equality

in the positions of both parties. In other words, both parties through their identical activities may have equally contributed to the incident causing the damage. They have mutually and willingly accepted the chances of the same risk and possible harms.

In such a situation the principle of absolute liability makes no sense and the normal rule of liability based on fault should work its way again to govern the case, since all the factors justifying the doctrine of absolute liability are absent. Rigorous system of absolute liability applies only to exceptional situations, where there is inequality between the parties involved.

One major objection could be raised to the applicability of fault liability in this connexion, namely, that negligence could be difficult to prove for the same reasons as in the case of liability for ground damage. However, it seems sound to advocate the idea that the parties involved shall equally share the liability if it is impossible to determine the negligence of any party. If any degree of fault could be established against any party, this should be taken into account in establishing liability and particularly in the apportionment of the compensation.[27]

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27. Jenks, Op. Cit. supra note 5 at 287; McDougal Lasswell & Vlasic, Op. cit. supra note 12 at 624.

The American position in this connexion is to provide for absolute liability in general and in all space incidents because, so the argument goes, collisions in space are highly unlikely to occur.[28] However, a possibility of such collision does not seem to this author so remote as not to constitute a threat. Therefore, the Hungarian approach applying fault liability to collisions between spacecraft seems preferable.

Some writers[29] draw a distinction between the case where the space activity involved is a shareable activity and that of a non-shareable activity, adopting the principle of fault liability but with a presumption of negligence against the conductor of the activity in the first case, and imposing absolute liability on the non-shareable activity towards the shareable activity, in the second case. This idea may appear theoretically attractive, however, a distinction between shareable and non-shareable space activities will in practice involve many political and perhaps military issues, thus raising unsurmountable

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28. The American representative in the Legal Sub-Committee declared that his delegation has deliberately disregarded remote possibilities in order to keep the principle of absolute liability as comprehensive and simple as possible, UN. Doc. A/AC. 105/C. 2/SR. 50, p. 4 - 5, Sept. 30 (1965).
29. Goldie, L.F.E., Liability for Damage and the Progressive Development of International Law, 14, I.C.L.Q., p. 1257 - 58, (1965).

difficulties. Moreover, there is no clear objective criteria through which this distinction could be practically and safely drawn.

Since the liability advocated is not absolute, the principle of limitation of liability does not appear to be justified and exonerations of liability shall preferably be confined to the case in which the defendant state proves that the damage was a result of an act or omission done with intent to cause damage by the applicant state.

2) Collision between Spacecraft and Aircraft:-

If the collision or interference involved a spacecraft and an aircraft in airspace, the applicable rule of liability is not clearly stated in literature. One view takes the position that a spacecraft has better position than the aircraft in terms of superior performance, thus it creates greater risk than the aircraft which has no more opportunity to evade a spacecraft than a person on the surface, and therefore the doctrine of absolute liability should apply.[30] Another point of view argues that the aircraft is the vehicle which has better opportunity than the

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30. Cooper, Op. cit. supra note 17 at 681, See McDougal, Lasswell and Vlasic, Op. cit. supra note 12 at 624 - 25. They agree on the principle of absolute liability with certain exceptions to be considered.

spacecraft because the latter is more restricted while the former is "highly manoeuvrable".[31] This second school of thought is divided into two opinions: the first, advocates a presumption of negligence on the part of the spacecraft coupled with a fundamental collision rule which obligates aircraft to give way to spacecraft to the effect that if the aircraft fails to comply with this basic rule, the spacecraft shall be discharged of the burden of proof.[32] The second opinion is in favour of fault liability on the ground that if the differences in speed and in the capability of manoeuvring are the controlling factors at the present time, then one must bear in mind the immense speed of supersonic aircraft, the risks of which may probably be comparable to those of space ships. On the other hand, spacecraft at the present time are highly controlled, and in the not too distant future will be equipped with special wings to facilitate its manoeuvrability.[33]

The foregoing discussion indicates that differences in the legal opinions are based on uncertainty in the technical knowledge of capacity, capability and performance of both spacecraft and modern aircraft.

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31. Goldie, Op. cit. supra note 29 at 1256.
32. Ibid.
33. Goedhuis, D., Some Observations on the Present Legislative Procedure Applied to Outer Space, 6th Space Law Colloquium, Paris, (1963).

It would seem that the system of liability covering these contingencies should have a dual basis: first, the liability between the operators of the spacecraft and aircraft. Second, the liability of both operators towards the persons and property on board the aircraft and spacecraft.

In regard to the system of liability to the persons and property (not belonging to the operators), it would seem a sound policy to recommend the imposition of absolute liability upon both operators with an insurable maximum amount, since the inequality in positions is present in this case. Exonerations from liability should preferably be confined to the sole case where the defendant proves that the plaintiff had intentionally caused the damage. To provide for other traditional defences such as the Act of God, the armed conflict, the natural disaster or the force majeure, is to place the loss on the victim's shoulders which is an inequitable solution.

In respect to liability of the operators towards each other, the problem is more complicated and requires a cautious solution. It is to be taken into account that the situation is vague and the positions are not clear as to whether or not there is inequality between a spacecraft in its advanced shape, and an aircraft in its recent modern

type. Nevertheless, the present understanding is that the spacecraft represent greater risk, but on the other hand aircraft are more capable of manoeuvring. The most appropriate approach therefore, is to return to the original rule of fault liability with a presumption of negligence set against the spacecraft being apparently in the superior position. Furthermore, the establishment of aerospace navigation rules is indispensable in order to determine what acts or omissions shall be considered negligence or fault. Until this question is resolved in an international agreement, it is advisable to operate the rule suggested by Goldie in this connexion, namely an aircraft should give way to spacecraft and if it fails to do so the spacecraft shall be discharged of its burden of proof.[34]

In keeping with this approach, defences such as the Act of God, armed conflict or force majeure appear to be in order. However, the principle of limitation of the liability of operators toward each other does not seem justified and compensation should be paid for the actual damage according to the value of property at the time of collision or the cost of repairs whichever is the least.

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34. See Jenks, Op. cit. supra note 5 at 286.

3. Liability for Damage Caused by Contamination:-

In discussing the events giving rise to liability, mention has been made earlier of contamination caused by space activities. Pollution of the earth environment may result from the bringing to earth of bacteria from outer space, nuclear detonations and experiments with climate. Also the bringing to celestial bodies of bacteria from the earth and the disposal of radioactive waste in outer space may result in space contamination.[35]

Scientifically, the problem of space contamination is dealt with through "CETEX", the Committee on Contamination in Extra-Terrestrial Exploration of the Committee on Space Research of the International Council of Scientific Unions. This Committee advises on the appropriate precautions for the avoidance of such contamination.

Because the question of contamination is still largely unexplored from both technological and legal perspectives, possible claims by states for alleged contamination losses arising out of space activities, present a most difficult problem. Although the task of formulating the appropriate legal rules in this area is at the present time

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35. Jenks, The International Law of Outer Space, Report to the Institute of International Law, p. 173 - 74, (1962); McDougal, Lasswell and Vlasic, Op. cit. supra note 12 at 625.

extremely difficult, it is imperative that the matter should be regulated as early as possible.

The question now may be asked: can the contamination of and from space be viewed as an international deliquency? In other words, on what basis in law an obligation to take appropriate precautions against space contamination, according to the specific standards of CETEX, can be placed upon states participating in space activities.

In December 1963, the United Nations General Assembly adopted the Declaration of Legal Principles to guide nations in exploring and using outer space "in accordance with international law" and "in the interest of maintaining international peace and security" as well as "with due regard for the corresponding interests of other states".

These principles were again asserted in the 1966 Space Treaty which urges states to conduct exploration of outer space including the moon and other celestial bodies "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 and, where necessary, shall adopt appropriate measures for this purpose".[36]

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36. Article IX of the Treaty.

Such principles, being part of the existing international law, are in fact the main source of obligation falling upon states participating in space activities. Hence they ought to follow the advise of CETEX and adopt appropriate measures to avoid harmful contamination of and from outer space and celestial bodies. Since no nation has power to exercise its sovereignty over the areas in free space, all rights in space and celestial bodies are common and equal, and each state is therefore entitled to enjoy the use of these areas and to claim respect for its rights thereof.

The liability arising from the violation of such an international obligation creates a wholly new problem of law. The rule of liability as it has been developed in certain doctrines of municipal and international law relating to activities of an abnormal or ultrahazardous nature may help provide a relatively accepted body of international law in this context.

In the law of some countries, as we have noted, the tendency is to abandon more and more the old theory that there is no liability without fault actual or presumed. Liability is now admitted in many cases of dangerous activities on the mere ground that the person who creates a risk is bound by law to compensate those who suffer damage thereby caused. This theory - commonly called "La théorie du

risque crée" in the civil law doctrine - dominates the area of workmen's compensation for accidents as well as liability for damage caused by dangerous things. From our earlier discussion, it will also be recalled that the common law has analogies that may prove helpful in the process of formulating a rule of liability for this new situation. Incidents of application of the doctrine of "res ipsa loquitur" to aircraft accidents and other occurences such as the escape of gas or water from mains have been previously explored in justification of a strict standard of liability. Nevertheless, and due to certain necessary conditions for the application of this doctrine, its results have proved uncertain in easing the difficult burden of proof of negligence imposed on the plaintiff. Another way in which national systems, particularly American courts, apply the rule of absolute liability to some conditions and activities, is the doctrine of special liability for ultrahazardous activity as adopted by the American Restatement of Torts. In order to bring such doctrine into operation, the condition created must involve extreme danger which is not a matter of common usage and which cannot be eliminated by the exercise of utmost care. This analogy strongly suggests the application of the rule of absolute liability based on the doctrine of ultrahazardous activity to the case of injurious contamination caused

by space activities.[37]

Another type of more hazardous activity, particularly relevant to our study, is that of liability for nuclear damage. Recalling from our previous discussion, we note that both national legislations and international Treaty Law have established the principle of absolute liability placed exclusively on the operator of the nuclear installation or ship for losses caused by nuclear incidents.

Looking into the customary international law, the landmark decision in "Trail Smelter Case", which considered the liability of Canada for its activity which gave rise to pollution, appears to be of immediate relevance to the present inquiry. The importance of this decision, which is

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37. In this regard, Professor McDougal and Associates suggest a distinction between instances of activities regarded as ultrahazardous and those not regarded as such with the imposition of absolute liability in the first case and a system of liability based on "reasonableness arrived at through multifactoral analysis, not unlike that employed in determining common law negligence or nuisance", in the second case. Although they offer a comprehensive set of important factors which could be taken into consideration in determining responsibility for such activities, it would appear practically preferable to classify all space activities under the definition of ultrahazardous activity so as to avoid any possible controversy in establishing the controlling factors on one hand, and on the other hand, to keep the principle of absolute liability as comprehensive and simple as possible in one type of activity, namely, space activity. See McDougal, Lasswell and Vlasic, Op. cit. supra note 12 at 631 - 32.

traditionally viewed as reflecting the common law doctrine of nuisance, lies in its doctrinal significance, in that it is a breakthrough in customary international law from the traditional fault liability towards a strict standard of liability in cases where one state creates unnecessary hazards for others.[38]

The only relevant rules in the international law of the sea are those of the 1954 International Convention for the Prevention of Pollution of the Sea by Oil and the Geneva Convention on the High Seas. These conventions though provide for the prevention of pollution of the sea by oil, do not regulate civil liability for losses arising from such pollution in terms of penalties for violations.

Finally, in the more recent practice of states, the most significant case bearing upon this matter is the position taken by the United States Government in the diplomatic exchange with Japan regarding the American nuclear tests of March 1st, 1954 which injured Japanese fishermen and caused damage to the Japanese fishing industry. In this situation the United States made an "ex gratia" payment of $ 2 million to Japan without reference

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38. See important comments on this decision in McDougal, Lasswell and Vlasic, Ibid p. 628.

to the question of legal liability.[39] However, although the United States regarded the tests as action in self-defence, it is pertinent to point out that the principle underlying the Trail Smelter Case is that each state is internationally responsible for injury or damage caused by its acts or omissions to other states or their nationals. Because of the extreme danger of nuclear detonations, the American nuclear tests in the Marshal Islands were denounced by the Soviet Union and claimed to be a violation of the customary international law of the sea.[40] The Afro-Asian nations concluded[41] that such tests constitute an international deliquency against humanity and that the state exercising them should be held absolutely liable in damage thereby caused. To some extent, this problem is of immediate urgency as it may be recalled that the Antarctic Treaty of 1959 prohibits the texting of any type of weapons and that the Moscow Nuclear Ban Treaty of 1963 also prohibits such tests except underground. Furthermore, the 1966 Space Treaty expressly forbids the testing of any type of weapons on celestial bodies.

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39. McDougal and Schlei, "The Hydrogen Bomb Tests in Perspective: Lawful Measures for Security", 64 Yale L.J., p. 649, (1955).
40. Id.
41. Asian-African Legal Consultative Committee 6th session, Cairo, Feb. - March 1964, "Conclusions Concerning the Legality of Nuclear Tests", 59, Am. J. Int'l., p. 721, July (1965).

After noting the above various incidents in which analogy may possibly be invoked, it will be safe to conclude that the imposition of liability for damage caused by contamination of and from space should, in equity and in law, be based on the doctrine of absolute and limited liability attached to the participant whose activity had caused the injury. The basing of liability for injurious contamination on negligence appears to be inappropriate, since the standards by which to determine negligence in contamination incidents are yet to be developed. Moreover, if such standards were to be developed, they will undoubtedly present insurmountable difficulties in obtaining evidence.

C O N C L U S I O N

From the preceeding general survey of the development of doctrines of liability in both national and international law, it is now possible to predict with reasonable certainty what rule of liability will predominate in the case of space damage. It thus appears that the traditional form of fault liability is generally abandoned and that the tendency of the law on both national and international levels is to adopt the theory of objective liability in situations involving abnormal hazards, on the ground that the person who creates a condition involving a high degree of risk is liable for the resulting harm regardless of fault. Contemporary municipal and international air law and the law of nuclear energy are but one illustration of this tendency.

Liability concepts have been thoroughly discussed in the UN Legal Sub-Committee during the preparation of the draft agreements on liability for damage caused by objects launched into outer space. The advantages and disadvantages of each concept were carefully weighed. General agreement on the desirability of applying the doctrine of absolute liability for ground damage has already been achieved. However, some argue that fault liability should apply to certain cases of collision damage. It is also worth noting

that although there was rapprochement of views on some points, substantial differences of views remain on a number of issues. One, however, must take into account the complexity of the problems of liability, and it is therefore only fair to state that the Sub-Committee has a useful role in clarifying the different positions and in narrowing the gaps with regard to some important principles.[1]

Despite the slow progress in the work of the Legal Sub-Committee on the preparation of a convention on liability which has been on its agenda since 1962, it is hoped, especially after the conclusion of the 1966 Space Treaty, that the Sub-Committee will be able to overcome the existing differences and work out an international convention on the subject. The universal acceptance of such a convention would benefit not only the innocent third parties on the surface, but also the safety of navigation in airspace and in outer space. In this context the registration of spacecraft in a public registry, for purposes of easy identification of the party liable would seem highly

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1. Professor Vlasic states: "The disappointment caused by the slow rate of progress in the preparation of this convention should not be permitted to obscure great practical benefits that will flow from the efforts of the Legal Sub-Committee to develop a uniform system of liability for space activities, applicable both to states and international organizations". Vlasic, The Growth of Space Law 1957 - 65: Achievements and Issues, mimeo, McGill University, p. 17, (1967).

desirable.[2] Another present necessity relating to the determination of responsibility for damages caused by collision and interference in space, is the elaboration of some basic rules for space navigation, comparable to those of maritime and aerial navigation.[3]

In conclusion, it is submitted that in formulating a regime of liability for damage caused by space activities, the following basic principles appear to be most appropriate:-

1- Absolute and limited liability for ground damage and injurious contamination. By way of analogy to the nuclear liability system, the limit of liability should be realistic and substantial so as to provide adequate compensation for all potential victims. On the other hand, such limit must not be so onerous as to hamper the progress of space research and discourage wider participation in space exploration.

2- In a system of objective liability, exonerations from liability should be kept at a minimum.

3- The Convention should provide for financial security so as to protect he who caused the damage and he who suffered it.

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2. Ibid at 41.
3. Ibid at 46.

4- International organizations engaged in space activities should be made liable under the proposed convention by providing for a procedural link (as proposed by the United States) which can bring them under the scope of the convention without being placed on the same footing as states. Under this arrangement primary responsibility should rest with the international organization with secondary responsibility falling on the member states.

5- Liability should be joint and several in cases of joint undertaking where more than two states or international organizations are involved.

6- The rule of liability for collision between spacecraft and aircraft in flight may be based on a presumption of fault against the spacecraft with a legal duty on the aircraft to give way to spacecraft. If the aircraft fails to comply with this duty, the spacecraft would be discharged of its burden of proof.

7- Liability for damage caused by collision between two or more spacecraft, should be based on fault and apportioned according to the degree of fault. If it is impossible to establish the degree of fault, liability should be equally shared.

8- The most appropriate practical method for settlement of claims and disputes is clearly the modality of arbitration.

A P P E N D I C E S

APPENDIX A

UNITED NATIONS
GENERAL ASSEMBLY

A/RES/1962 (XVIII)
24 December 1963

RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY

[on the report of the First Committee (A/5656)]

1962 (XVIII). Declaration of Legal Principles Governing the Activities of States in the Exploitation and Use of Outer Space

The General Assembly,

Inspired by the great prospects opening up before mankind as a result of man's entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the betterment of mankind and for the benefit of States irrespective of their degree of economic or scientific development,

Desiring to contribute to broad international co-operation in the scientific as well as in the legal aspects of exploration and use of outer space for peaceful purposes,

Believing that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between nations and peoples,

Recalling its resolution 110 (XI) of 3 November 1947, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace, or act of aggression, and considering that the aforementioned resolution is applicable to outer space,

Taking into consideration its resolutions 1721 (XVI) of 20 December 1961 and 1802 (XVII) of 14 December 1962, adopted unanimously by the States Members of United Nations,

Solemnly declares that in the exploration and use of outer space States should be guided by the following principles:

1. The exploration and use of outer space shall be carried on for the benefit and in the interests of all mankind.

2. Outer space and celestial bodies are free for exploration and use by all States on a basis of equality and in accordance with international law.

3. Outer space and celestial bodies are not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

4. The activities of States in the exploration and use of outer space shall be carried on in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

5. States bear international responsibility for national activities in outer space, whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set forth in the present Declaration. The activities of non-governmental entities in outer space shall require authorization and continuing supervision by the State concerned. When activities are carried on in outer space by an international organization, responsibility for compliance with the principles set forth in this Declaration shall be borne by the international organization and by the States participating in it.

6. In the exploration and use of outer space, States shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space with due regard for the corresponding interests of other States. If a State has reason to believe that an outer space activity or experiment planned by it or its nationals would cause potentially harmful interference with activities of other States in the peaceful exploration and use of outer space, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State which has reason to believe that an outer space activity or experiment planned by another State would cause potentially harmful interference with activities in the peaceful exploration and use of outer space may request consultation concerning the activity or experiment.

7. The State on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and any personnel thereon, while in outer space. Ownership of objects launched into outer space, and of their component parts, is not affected by their passage through outer space or by their return to the earth. Such objects or component parts found beyond the limits of the State of registry shall be returned to that State, which shall furnish identifying data upon request prior to return.

8. Each State which launches or procures the launching of an object into outer space, and each State from whose territory or facility an object is launched, is internationally liable for damage to a foreign State or to its natural or juridical persons by such object or its component parts on the earth, in air space, or in outer space.

9. States shall regard astronauts as envoys of mankind in outer space, and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of a foreign State or on the high seas. Astronauts who make such a landing shall be safely and promptly returned to the State of registry of their space vehicle.

1280th plenary meeting,
13 December 1963.

□ *Text of Annex to* A/RES/2222 (XXI)

Treaty of Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies

THE STATES PARTIES TO THIS TREATY,

Inspired by the great prospects opening up before mankind as a result of man's entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

Recalling resolution 1962 (XVIII) entitled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space", which was adopted unanimously by the United Nations General Assembly on 13 December 1963,

Recalling resolution 1884 (XVIII), calling upon States to refrain from placing in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or from installing such weapons on celestial bodies, which was adopted unanimously by the United Nations General Assembly on 17 October 1963,

Taking account of United Nations General Assembly resolution 110 (II) of

3 November 1917, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression, and considering that the aforementioned resolution is applicable to outer space,

Convinced that a Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, will further the purposes and principles of the Charter of the United Nations,

Have agreed on the following:

Article I

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development and shall be the province of all mankind.

Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

Article II

Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

Article III

States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

Article IV

States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

Article V

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

Article VI

States Parties to the Treaty shall bear international responsibility for national

activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the State concerned. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

Article VII

Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the earth, in air space or in outer space, including the moon and other celestial bodies.

Article VIII

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State, which shall, upon request, furnish identifying data prior to their return.

Article IX

In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty 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 and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.

Article X

In order to promote international co-operation in the exploration and use of outer space, including the moon and other celestial bodies, in conformity with the purposes of this Treaty, the States Parties to the Treaty shall consider on a basis of equality any requests by other States Parties to the Treaty to be afforded

an opportunity to observe the flight of space objects launched by those States.

The nature of such an opportunity for observation and the conditions under which it could be afforded shall be determined by agreement between the States concerned.

Article XI

In order to promote international co-operation in the peaceful exploration and use of outer space, States Parties to the Treaty conducting activities in outer space, including the moon and other celestial bodies, agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities. On receiving the said information, the Secretary-General of the United Nations should be prepared to disseminate it immediately and effectively.

Article XII

All stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.

Article XIII

The provisions of this Treaty shall apply to the activities of States Parties to the Treaty in the exploration and use of outer space, including the moon and other celestial bodies, whether such activities are carried on by a single State Party to the Treaty or jointly with other States, including cases where they are carried on within the framework of international inter-governmental organizations.

Any practical questions arising in connexion with activities carried on by international inter-governmental organizations in the exploration and use of outer space, including the moon and other celestial bodies, shall be resolved by the States Parties to the Treaty either with the appropriate international organization or with one or more States members of that international organization, which are Parties to this Treaty.

Article XIV

1. This Treaty shall be open to all States for signature. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force upon the deposit of instruments of ratification by five Governments including the Governments designated as Depositary Governments under this Treaty.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Treaty, the date of its entry into force and other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article XV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each

State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it.

Article XVI

Any State Party to the Treaty may give notice of its withdrawal from the Treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.

Article XVII

This Treaty, of which the Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in ....., at the cities of London, Moscow and Washington, the ..... day of ..... one thousand nine hundred and.....

Intervention in the Domestic Affairs of States

General Assembly Adopts Resolution

The General Assembly on December 19 adopted a resolution condemning all forms of intervention in the domestic affairs of states and urging all states to refrain from armed intervention, subversion, terrorism or other indirect forms of intervention to change an existing system or to interfere in civil strife in another state. The resolution, which was recommended to the Assembly by the First (Political and Security) Committee, was adopted by a vote of 114 in favour to none against, with 2 abstentions (Malta, United Kingdom). The draft, originally submitted by the Soviet Union, was later modified by amendments proposed by 19 Latin American delegations and co-sponsored by a number of African and Asian delegations. The amendments were approved by a vote of 100 in favour to none against, with 1 abstention (*text on p. 51*.)

The item, entitled "Status of the implementation of the Declaration on the Inadmissibility of Intervention in the Domestic Affairs of States and the Protection of their Independence and Sovereignty" was included as an additional item in the agenda of the twenty-first session as the Soviet Union had requested in a letter dated September 23. At the same time, the Soviet Union submitted a draft resolution under which the General Assembly would reaffirm the Declaration, which was adopted at the 20th session; urge the immediate cessation of intervention, in any form whatever, in the domestic affairs of states and peoples; call on all states to carry out faithfully their obligations under the United Nations Charter and the provisions of the Declaration on non-intervention (resolution 2131 (XX)); condemn all forms of intervention in the domestic affairs of states and peoples as a basic source of danger to world peace; and warn those states which, in violation of the United Nations Charter and the Declaration on non-intervention, engage in armed intervention in the domestic affairs of other states and peoples, that by so doing they assume responsibility for all consequences which may ensue, including consequences to themselves.

Consideration in Committee

The First (Political and Security) Committee, which considered the item from December 5 to 12, had before it the draft resolution submitted by the Soviet Union. On November 30, the representatives of 19 Latin American states—Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela—submitted amendments to the draft resolution before the Committee. On December 9 and 10, the same delegations submitted revised amendments to the draft. These were subsequently co-sponsored by Burma, Burundi, the Democratic Republic of the

APPENDIX C

ANNEX II

Proposals and amendments relating to liability for damage caused by objects launched into outer space

Belgium: Proposal (A/AC.105/C.2/L.7/Rev.2

and Corr. 1, 2 and 3; and WG II 27)

CONVENTION ON THE UNIFICATION OF CERTAIN RULES GOVERNING LIABILITY FOR DAMAGE CAUSED BY SPACE DEVICES

The Contracting Parties,

Recalling the Declaration of Legal Principles governing the activities of States in the exploration and use of outer space adopted by the General Assembly of the United Nations on 13 December 1963 and embodied in resolution 1962 (XVIII).

Recognizing that activities in the exploration and peaceful uses of outer space may from time to time result in damage,

Recognizing the need to establish rules governing liability with a view to ensuring that compensation is paid for damage thus caused,

Have agreed as follows:

Article I

(a) The provisions of this Convention shall apply to compensation for damage caused to persons or property by a space device or space devices. They shall not apply to compensation for damage caused in the territory of the launching State or suffered by its nationals or permanent residents.

(b) The occurrence of the event causing the damage shall create a liability for compensation once proof has been given that there is a relationship of cause and effect between the damage, on the one hand, and the launching, motion or descent of all or part of the space device, on the other hand.

(c) Liability for compensation shall cease to exist in the event of wilful misconduct on the part of the applicant State. "Wilful misconduct" shall be understood to mean any act or omission perpetrated either with intent to cause damage or rashly and in full knowledge that damage will probably result.

Article II

"Damage" shall be understood to mean any loss for which compensation may be claimed under the law of the place where the loss is caused. Any damage suffered by a ship, aircraft or space device and by the persons and property carried therein shall be deemed to have

been caused in the territory of the flag State or, in the case of a space device and the persons and property carried therein, in the territory of the launching State.

"Launching" shall be understood to mean an attempted launching or a launching operation proper, whether or not it fulfils expectations of those responsible therefore.

"Space device" shall be understood to mean any device intended to move in space and sustained there by means other than the reaction of air, as well as the equipment used for the launching and propulsion of the device.

"Launching State" shall be understood to mean the State or States which carry out the launching of a space device or whose territory is used for such launching.

"Applicant State" shall be understood to mean the State which has been injured, or whose nationals or permanent residents have been injured and which presents a claim for compensation.

Article III

The launching State shall be held liable for compensation for damage caused in the circumstances stated in Article I, as defined in Article II. If several States participate in the launching of a space device, each of them shall be liable for compensation for the whole of the damage, and a claim for compensation may validly be addressed to any one of them.

Article IV

(a) Within two years after the occurrence of the damage, or after the identification of the State liable under Article II, the applicant State shall present through the diplomatic channel, to the State which it holds liable, all claims for compensation concerning itself and its nationals and residents.

(b) If the applicant State or a person represented by it brings an action for compensation before the Courts or administrative organs of the State receiving the claim, it shall not at the same time present a claim for compensation for the same damage under the provisions of this Convention. The said provisions shall not be considered to require, by implication, the prior exhaustion of such remedies as may exist under the rules of ordinary law in the State receiving the claim.

(c) If the State receiving the claim has not taken, within six months after being approached, a decision considered satisfactory by the applicant State, the latter may have recourse to arbitration.

Within ninety days of the date of the request addressed to it by the applicant State, the State receiving the claim shall appoint one arbitrator, the applicant State shall appoint a second and the President of the International Court of Justice a third. If the State receiving the claim fails to appoint its arbitrator within the prescribed period, the person appointed by the President of the International Court of Justice shall be the sole arbitrator.

The Arbitration Commission shall take its decisions according to law and by majority vote. It shall make an award within six months after the date of its establishment and its decisions shall be binding.

(d) Sums due in compensation for damage shall be fixed and payable either in the currency of the applicant State or in a freely transferable currency.

(e) The periods specified in this Article shall not be subject to interruption or suspension.

(f) There shall be joinder of claims where there is more than one applicant in respect of damage due to the same event or where more than one State is liable and the damage was caused by more than one space device.

Article V

1. This Convention shall be open for signature by States Members of the United Nations or any of the specialized agencies or parties to the Statute of the International Court of Justice, and by any other State or international organization invited by the General Assembly of the United Nations to become a Party to the Convention. Any State or international organization which is invited to do so but does not sign this Convention may accede to it at any time.

2. This Convention shall be subject to ratification or approval by signatory States. Instruments of ratification or approval and instruments of accession shall be deposited with the Secretary-General of the United Nations.

3. This Convention shall enter into force thirty days after the date of the deposit of three instruments of ratification, approval or accession. For each State which deposits its instrument of ratification, approval or accession after the entry into force provided for in the preceding paragraph, this Convention shall enter into force on the date of deposit of such instrument.

Article VI

International organizations acceding to this Convention in accordance with the provisions of Article V shall have the same rights and obligations as States. The States members of the said international organization shall be held jointly liable for the obligations of the latter, in the same manner as provided for in Article III, whether or not such States are parties to the Convention. The accession of an international organization shall be accompanied by a notification of the acceptance by the States members of the organization concerned of the joint obligations so assumed.

The claims referred to in Article IV (a) may, in the case of the international organization, be presented through the Secretary-General of the United Nations.

Article VII

Each Contracting Party may notify the Secretary-General of the United Nations of its withdrawal from this Convention not less than five years after its entry into force. Such withdrawal shall take effect one year after receipt of the notice which must be in writing. Such withdrawal shall not relieve the Contracting Party concerned of any obligation or liability arising from damage inflicted before its withdrawal takes effect.

Article VIII

This Convention may be amended or supplemented at the proposal of one or more Contracting Parties. Such amendments shall take the form of additional protocols which shall be binding on such Contracting Parties as ratify, approve or accede to them. Such protocols shall enter into force when the majority of the Contracting Parties to this Convention have thus accepted them.

Article IX

The Secretary-General of the United Nations shall inform signatory states, and those which ratify, approve or accede to this Convention, of signatures, the deposit of instruments of ratification, approval or accession, the entry into force of this Convention, proposals for amendments, notifications of acceptance of additional protocols, and notices of withdrawal.

Article X

This Convention, of which the Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified true copies to all signatory States and to any State Member of the United Nations which so requests.

United States of America: revised proposal

(A/AC.105/C.2/L.8/Rev.3)

CONVENTION CONCERNING LIABILITY FOR DAMAGE CAUSED BY THE LAUNCHING OF OBJECTS INTO OUTER SPACE

(Changes from the revised draft submitted on 20 October 1964 are indicated by underlined words (new language - except in preamble) and deletions by crossing through.)

The Contracting Parties,

Recognizing that activities in the peaceful exploration and use of outer space may on occasion result in damage,

Recalling General Assembly resolution 1962 (XVIII), entitled "Declaration of Legal Principles Governing Activities of States in the Exploration and Use of Outer Space",

Seeking to establish a uniform rule of liability and a simple and expeditious procedure governing financial compensation for damage,

Believing that the establishment of such a procedure will contribute to the growth of friendly relations and co-operation among nations,

Agree as follows:

ARTICLE I

For the purposes of this Convention

(a) "Damage" means loss of life, personal injury, or destruction or loss of, or damage to, property.

(b) The term "launching" includes attempted launchings.

(c) "Launching State" means a Contracting Party, or an international organization which has transmitted a declaration ~~notification~~ to the Secretary-General under Article III, paragraph 1, of this Convention, which launches or procures the launching of an object into outer space or whose territory or facility is used in such launching, or which exercises control over the orbit or trajectory of an object.

(d) "Presenting State" means a State which is a Contracting Party, or an international organization which has transmitted a declaration ~~notification~~ to the Secretary-General under Article III, paragraph 1 of this Convention, which presents a claim for compensation to a Respondent State.

(e) "Respondent State" means a launching State, or an international organization which has transmitted a declaration ~~notification~~ to the Secretary-General under Article III, paragraph 1 of this Convention, from which compensation is sought by a Presenting State.

ARTICLE II

1. The launching State shall be absolutely liable and undertakes to pay compensation to the Presenting State, in accordance with the provisions of this Convention, for damage on the earth, in air space, or in outer space, which is caused by the launching of an object into outer space, regardless of whether such damage occurs during launching, after the object has gone into orbit, or during the process of re-entry, including damage caused by apparatus or equipment used in such launching.

2. If the damage suffered results either wholly or partially from a wilful or reckless act or omission on the part of the Presenting State, or of natural or juridical persons that it represents, the liability of the launching State to pay compensation under paragraph 1 of this Article shall, to that extent, be wholly or partially extinguished.

3. If under this Convention more than one launching State would ~~shall~~ be liable ~~to pay compensation for damage in relation to any one incident under this Convention~~, the Presenting State may proceed against any or all such States individually or jointly for the total amount of damages, and once the amount of liability is agreed upon or otherwise established, each such State proceeded against shall be liable to pay ~~the full~~ that amount ~~of such compensation~~, provided

that, in no event shall the aggregate of the compensation paid exceed the amount which would be payable under this Convention if only one Respondent State were liable.

4. The compensation which a State shall be liable to pay for damage under this Convention shall be determined in accordance with applicable principles of international law, justice, and equity.

ARTICLE III

1. If an international organization which conducts space activities transmits to the Secretary-General of the United Nations a declaration that it accepts and undertakes to comply with the provisions of the present Convention, all the provisions, except Articles X, XI, paragraph 2, XIII, XIV, and XV, shall apply to the organization as they apply to a State which is a Contracting Party.

3. The Contracting Parties to the present Convention undertake to use their best endeavours to ensure that any international organization which conducts space activities and of which they are constituent members is authorized to make and will make the declaration referred to in paragraph 1 of this Article.

4. ~~In the event that an international organization fails to pay~~ If within one year of the date on which compensation has been agreed upon or otherwise established pursuant to Article VII, an international organization fails to pay such compensation, each member of the organization which is a Contracting Party shall, upon service of notice of such default by the Presenting State within three months of such default, be liable for such compensation in the manner and to the extent set forth in Article II, paragraph 3.

ARTICLE IV

1. A Contracting Party which suffers damage referred to in Article II, paragraph 1, ~~as a result of the launching of an object into outer space~~, or whose natural or juridical persons suffer such damage, may present a claim for compensation to a Respondent State.

2. A Contracting Party may also present to a Respondent State a claim of any natural person, other than a person having the nationality of the Respondent State, ~~permanently~~ residing in its territory. However, a claim of any individual claimant may be presented by only one Contracting Party.

3. A claim shall be presented through the diplomatic channel. A Contracting Party may request another State to present its claim and otherwise represent its interest in the event that it does not maintain diplomatic relations with the Respondent State.

4. Notice of a claim must be presented within one year of the date on which the accident occurred or, if the Presenting State could not reasonably be expected to have known of the facts giving rise to the claim, within one year of the date on which these facts became known to the Presenting State.

ARTICLE V

A State shall not be liable under this Convention for damage suffered by its own nationals.

ARTICLE VI

1. The presentation of a claim under this Convention shall not require exhaustion of any remedies in the Respondent State which might otherwise exist.

2. If, however, the Presenting State, or any natural or juridical person whom it might represent, elects to pursue a claim in the administrative agencies or courts of the Respondent State or pursue ~~other~~ international remedies outside this Convention, ~~it~~ the Presenting State shall not be entitled to pursue a such claim under this Convention.

ARTICLE VII

1. If a claim presented under this Convention is not settled within one year from the date on which documentation is completed, the Presenting State may request the establishment of a commission to decide the claim. In such event, the Respondent State and the Presenting State shall each promptly appoint one person to serve on the commission, and a third person, who shall act as chairman, shall be appointed by the President of the International Court of Justice. If the Respondent State fails to appoint its member within three months, the person ~~individual~~ appointed by the President of the International Court of Justice shall constitute the sole member of the commission.

2. No increase in the membership of the commission shall take place where two or more ~~there is more than one~~ Presenting States or Respondent States are joined in any one proceeding before the commission. The Presenting States so joined may collectively appoint one person to serve on the commission in the same manner and subject to the same conditions as would be the case for a single Presenting State. Similarly, where two or more Respondent States are so joined, they may collectively appoint one person to serve on the commission in the same way.

3. The commission shall determine its own procedure.

4. The commission shall conduct its business and arrive at its decision by majority vote.

5. The decision of the commission shall be rendered expeditiously and shall be binding upon the parties.

6. The expenses incurred in connexion with any proceeding before the commission shall be divided equally between the parties in the proceeding.

ARTICLE VIII

Payment of compensation shall be made in a currency convertible readily and without loss of value into the currency of or used by the Presenting State.

ARTICLE IX

The liability of the launching State shall not exceed $_____ with respect to each launching.

ARTICLE X

Any dispute arising from the interpretation or application of this Convention, which is not previously settled by other peaceful means of their own choice, may be referred by any Contracting Party thereto to the International Court of Justice for decision.

ARTICLE XI

1. A Contracting Party may propose amendments to this Convention. An amendment shall come into force for each Contracting Party accepting the amendment

on acceptance by a majority of the Contracting Parties, and thereafter for each remaining Contracting Party on acceptance by it.

2. After this Convention has been in force five years a revision conference may be called upon the request of a majority of Contracting Parties.

ARTICLE XII

A Contracting Party may give notice of withdrawal from this Convention five years after its entry into force by written notification to the Secretary-General of the United Nations. Such withdrawal shall take effect one year from the date of receipt of the notification by the Secretary-General. ~~Such withdrawal shall not relieve a State~~ A State withdrawing from this Convention shall not thereby be relieved of any obligation or liability with respect to damages arising before withdrawal becomes effective.

ARTICLE XIII

The Convention shall be open for signature by States Members of the United Nations or of any of the specialized agencies or Parties to the Statute of the International Court of Justice, and by any other State invited by the General Assembly of the United Nations to become a party. Any such State which does not sign this Convention may accede to it at any time.

ARTICLE XIV

This Convention shall be subject to ratification or approval by signatory States. Instruments of ratification or approval and instruments of accession shall be deposited with the Secretary-General of the United Nations.

ARTICLE XV

This Convention shall enter into force thirty days following the deposit of th fifth instrument of ratification, approval or accession. It shall enter into force as to a State ratifying, approving, or acceding thereafter upon deposit of its instrument of ratification, approval or accession.

ARTICLE XVI

The Secretary-General of the United Nations shall inform all States referred to in Article XIII of signatures, deposits of instruments of ratification, approval or accession, declarations referred to in Article III, paragraph 1, the date of entry into force of this Convention, proposals for amendments, notifications of acceptances of amendments, the date of entry into force of each amendment, requests for the convening of a revision conference, and notices of withdrawal, and shall transmit to those States certified copies of each amendment proposed.

ARTICLE XVII

This Convention, of which the Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified copies of each to the States mentioned in Article XIII.

Hungary: revised draft Convention concerning Liability for Damage caused by the Launching of Objects into Outer Space

(A/AC.105/C.2/L.10/Rev.1)

The Contracting States,

Recognizing the common interest of mankind in furthering the peaceful exploration and use of outer space,

Recalling the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, adopted by the General Assembly on 13 December 1963 as resolution 1962 (XVIII),

Considering that the States and international organizations involved in the launching of objects into outer space should be internationally liable for damage caused by these objects,

Recognizing the need for establishing international rules and procedures concerning such liability to ensure protection against damage caused by objects launched into outer space,

Believing that the establishment of such rules and procedures would facilitate the taking of the greatest possible precautionary measures by States and international organizations involved in the launching of objects into outer space to protect against damage inflicted by objects launched into outer space,

Have decided to conclude the present Convention:

The scope of liability

Article I

1. The provisions of this Convention shall apply to compensation for loss of life, personal injury or other impairment of health, and damage to property /hereinafter called "damage"/:

/...

(a) Caused by an object launched into outer space; or

(b) Caused in outer space, in the atmosphere or on the ground by any manned or unmanned space vehicle or any object after being launched, or conveyed into outer space in any other way,

but they shall not apply to nuclear damage resulting from the nuclear reactor of space objects.

2. Liability is also incurred even if, for any reason, the space vehicle or other object has not reached outer space.

3. For the purpose of this Convention "Space Object" means space ships, satellites, orbital laboratories, containers and any other devices designed for movement in outer space and sustained there otherwise than by the reaction of air, as well as the means of delivery of such objects and any parts thereof.

Article II

1. Liability under this Convention shall not exceed...

2. A claim for damage may be advanced on the ground of loss of profits and moral damage whenever compensation for such damage is provided for by the law of the State liable for damage in general.

Article III

Unless otherwise provided in articles IV and V, exemption from liability may be granted only in so far as the State liable produces evidence that the damage ha resulted from natural disaster or from a wilful act or from gross negligence of the party suffering the damage.

Article IV

1. Whenever damage is done to a space object or to persons and property on board by another space object, no claim shall arise between each other, except in so far as the claimant State produces evidence that the damage has been caused because of the fault of the other State or of a person on behalf of whom the latte State might present a claim (article VIII).

2. If in the case mentioned in paragraph 1, a claim arises on the part of a third State, liability of the States liable for the space objects shall be joint and several.

Article V

The State shall assume liability for damage caused on the ground, in the atmosphere or in outer space, if the damage occurred while exercising an unlawful activity in outer space or the space vehicle or object was launched for unlawful purposes, or if the damage has otherwise resulted from an unlawful activity. In such cases, the State liable shall be barred from any exoneration whatsoever.

The subject of liability

Article VI

1. Liability for damage shall rest with the State or international organization which has launched or attempted to launch the space vehicle or object, or in the case of a common undertaking, with all the States participating in the undertaking or with the State from whose territory or from whose facilities the launching was made, or with the State which owns or possesses the space vehicle or object causing the damage.

2. Where liability may be laid upon more than one State or international organization, their liability towards the claimant shall be joint and several.

Article VII

If liability for damage rests with an international organization, the financial obligations towards States suffering damage shall be met by the international organization and by its member States jointly and severally.

Claims, payment, arbitration

Article VIII

A claim for damage may be made by a State in whose territory damage has occurred or in respect of damage suffered by its citizens or legal entities whether in the territory of that State or abroad.

Article IX

A claim must be presented within one year of the date of occurrence of the damage, or of the identification of the State that is liable. If the applicant

/...

State could not reasonably be expected to have known of the facts giving rise to the claim, the claim must be presented within one year of the date on which these facts officially became known.

Article X

The claim shall be presented through diplomatic channels. The claimant State may request a third State to represent its interests in the event it has no diplomatic relations with the State liable.

Article XI

1. In case the State liable does not satisfy the claim of the claimant State, the claim for compensation shall be presented to a committee of arbitration set up by the two States on a basis of parity. This committee will determine its own procedure.

2. Should the committee mentioned in paragraph 1 not arrive at a decision, the States may agree upon an international arbitration procedure or any other method of settlement acceptable to both States.

Article XII

Claim for compensation for damage caused by a space ship of a foreign State shall not constitute ground for sequestration or for the application of enforcement measures to such space ship.

Final clauses

Article XIII

1. This Convention shall be open for signature to all States. It shall be subject to ratification. Instruments of ratification shall be deposited with the Secretary-General of the United Nations.

2. It shall enter into force thirty days after the deposit with the Secretary-General of the United Nations of the fifth instrument of ratification.

Article XIV

After the Convention enters into force it shall be open for accession to other States. Instruments of accession shall be deposited with the Secretary-General of the United Nations.

Article XV

With respect to each State which ratifies the Convention or accedes thereto after the deposit of the fifth instrument of ratification, the Convention shall enter into force thirty days after the date of deposit by the State of its instrument of ratification or accession.

Article XVI

Any Contracting State may denounce this Convention by notification to the Secretary-General of the United Nations. The denunciation shall take effect one year after the date on which the notification has been received by the Secretary-General of the United Nations.

Article XVII

The Secretary-General of the United Nations shall notify all States concerning:

(a) The signature of this Convention and the deposit of instruments of ratification or accession in accordance with articles XIII and XIV;

(b) The date of entry into force of this Convention in accordance with articles XIII and XV;

(c) Denunciations received in accordance with article XVI.

Article XVIII

The original of this Convention, of which the texts in the Chinese, English, French, Russian and Spanish languages are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall transmit certified copies thereof to all States.

A P P E N D I X D

LIABILITY FOR DAMAGE CAUSED BY OBJECTS LAUNCHED INTO OUTER SPACE

Comparative table of provisions contained in the proposals submitted by Belgium (A/AC.105/C.2/L.7/Rev.2 and Corr. 1, 2 and 3; and WG.II/27), the United States of America (A/AC.105/C.2/L.8/Rev.3) and Hungary (a/AC.105/C.2/L.10/Rev.1).

BELGIUM: PROPOSAL (A/AC.105/C.2/L.7/Rev.2 and Corr.1, 2 and 3; and WG.II/27)

CONVENTION ON THE UNIFICATION OF CERTAIN RULES GOVERNING LIABILITY FOR DAMAGE CAUSED BY SPACE DEVICES

Preamble

The Contracting Parties,

Recalling the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space adopted by the General Assembly of the United Nations on 13 December 1963 and embodied in resolution 1962 (XVIII),

Recognizing that activities in the exploration and peaceful uses of outer space may from time to time result in damage,

Recognizing the need to establish rules governing liability with a view to ensuring that compensation is paid for damage thus caused,

Have agreed as follows:

Definitions

Article 2

"Damage" shall be understood to mean any loss for which compensation may be claimed under the law of the place where the loss is caused. Any damage suffered by a ship, aircraft or space device and by the persons and property carried therein shall be deemed to have been caused in the territory of the flag State or, in the case of a space device and the persons and property carried therein, in the territory of the launching State.

"Launching" shall be understood to mean an attempted launching or a launching operation

UNITED STATES: PROPOSAL (A/AC.105/C.2/L.8/Rev.3)

CONVENTION CONCERNING LIABILITY FOR DAMAGE CAUSED BY THE LAUNCHING OF OBJECTS INTO OUTER SPACE

The Contracting Parties,

Recognizing that activities in the peaceful exploration and use of outer space may on occasion result in damage,

Recalling General Assembly resolution 1962 (XVIII), entitled "Declaration of Legal Principles Governing Activities of States in the Exploration and Use of Outer Space",

Seeking to establish a uniform rule of liability and a simple and expeditious procedure governing financial compensation for damage,

Believing that the establishment of such a procedure will contribute to the growth of friendly relations and co-operation among nations,

Agree as follows:

Article I

For the purposes of this Convention

(a) "Damage" means loss of life, personal injury, or destruction or loss of, or damage to, property.

(b) The term "launching" includes attempted launchings.

(c) "Launching State" means a Contracting Party, or an international organization which has transmitted a declaration to the Secretary-General under Article III, paragraph 1, of this Convention, which launches or procures the launching of an object into outer space or whose

HUNGARY: PROPOSAL (A/AC.105/C.2/L.10/Rev.1)

CONVENTION CONCERNING LIABILITY FOR DAMAGE CAUSED BY THE LAUNCHING OF OBJECTS INTO OUTER SPACE

The Contracting States,

Recognizing the common interest of mankind in furthering the peaceful exploration and use of outer space,

Recalling the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, adopted by the General Assembly on 13 December 1963 as resolution 1962 (XVIII),

Considering that the States and international organizations involved in the launching of objects into outer space should be internationally liable for damage caused by these objects,

Recognizing the need for establishing international rules and procedures concerning such liability to ensure protection against damage caused by objects launched into outer space,

Believing that the establishment of such rules and procedures would facilitate the taking of the greatest possible precautionary measures by States and international organizations involved in the launching of objects into outer space to protect against damage inflicted by objects launched into outer space,

Have decided to conclude the present Convention:

Article I

1. The provisions of this Convention shall apply to compensation for loss of life, personal injury or other impairment of health, and damage to property (hereinafter called "damage"): ...

3. For the purpose of this Convention "Space Object" means space ships, satellites, orbital laboratories, containers and any other devices designed for movement in outer space and sustained there otherwise than by the reaction of air, as well as the means of delivery of such objects and any parts thereof.

Defintions (cont'd)

Article 2 (cont'd)

proper, whether or not it fulfils expectations of those responsible therefor.

"Space device" shall be understood to mean any device intended to move in space and sustained there by means other than the reaction of air, as well as the equipment used for the launching and propulsion of the device.

"Launching State" shall be understood to mean the State or States which carry out the launching of a space device or whose territory is used for such launching.

"Applicant State" shall be understood to mean the State which has been injured or whose nationals or permanent residents have been injured, and which presents a claim for compensation.

Article 1

(c) ... "Wilful misconduct" shall be understood to mean any act or omission perpetrated either with intent to cause damage or rashly and in full knowledge that damage will probably result.

Field of application and exemptions from provisions of agreement

Article 1

(a) The provisions of this Convention shall apply to compensation for damage caused to persons or property by a space device or space devices. They shall not apply to compensation for damage caused in the territory of the launching State or suffered by its nationals or permanent residents.

Article I (cont'd)

territory or facility is used in such launching, or which exercises control over the orbit or trajectory of an object.

(d) "Presenting State" means a State which is a Contracting Party, or an international organization which has transmitted a declaration to the Secretary-General under Article III, paragraph 1 of this Convention, which presents a claim for compensation to a Respondent State.

(e) "Respondent State" means a launching State, or an international organization which has transmitted a declaration to the Secretary-General under Article III, paragraph 1 of this Convention, from which compensation is sought by a Presenting State.

Article II

4. The compensation which a State shall be liable to pay for damage under this Convention shall be determined in accordance with applicable principles of international law, justice and equity.

Article II

1. The launching State shall be absolutely liable and undertakes to pay compensation to the Presenting State, in accordance with the provisions of this Convention, for damage on the earth, in air space, or in outer space, which is caused by the launching of an object into outer space, regardless of whether such damage occurs during launching, after the object has gone into orbit, or during the process of re-entry, including damage caused by apparatus or equipment used in such launching.

Article V

A State shall not be liable under this Convention for damage suffered by its own nationals.

Article II

2. A claim for damage may be advanced on the ground of loss of profits and moral damage whenever compensation for such damage is provided for by the law of the State liable for damage in general.

Article I

1. The provisions of this Convention shall apply to compensation for loss of life, personal injury or other impairment of health, and damage to property (hereinafter called "damage"):

(a) caused by an object launched into outer space, or

(b) caused in outer space, in the atmosphere or on the ground by any manned or unmanned space vehicle or any object after being launched, or conveyed into outer space in any other way,

but they shall not apply to nuclear damage resulting from the nuclear reactor of space objects.

2. Liability is also incurred even if, for any reason, the space vehicle or other object has not reached outer space.

State and international organizations made liable and question of joint liability

Article 3

The launching State shall be held liable for compensation for damage caused in the circumstances stated in article 1, as defined in article 2. If several States participate in the launching of a space device, each of them shall be liable for compensation for the whole of the damage, and a claim for compensation may validly be addressed to any one of them.

/Article 2

"Launching State" shall be understood to mean the State or States which carry out the launching of a space device or whose territory is used for such launching./

Article 6

International organizations acceding to this Convention in accordance with the provisions of article 5 shall have the same rights and obligations as States. The States members of the said international organization shall be held jointly liable for the obligations of the latter, in the same manner as provided for in article 3, whether or not such States are parties to the Convention. The accession of an international organization shall be accompanied by a notification of the acceptance by the States members of the organization concerned of the joint obligations so assumed.

The claims referred to in article 4 (a) may, in the case of the international organization, be presented through the Secretary-General of the United Nations.

Article II

1. The launching State shall be absolutely liable ....

/Article I

(c) "Launching State" means a Contracting Party, or an international organization which has transmitted a declaration to the Secretary-General under Article III, paragraph 1, of this Convention, which launches or procures the launching of an object into outer space or whose territory or facility is used in such launching, or which exercises control over the orbit or trajectory of an object./

Article II

3. If under this Convention more than one launching State would be liable the Presenting State may proceed against any or all such States individually or jointly for the total amount of damages, and once the amount of liability is agreed upon or otherwise established, each such State proceeded against shall be liable to pay that amount provided that, in no event shall the aggregate of the compensation paid exceed the amount which would be payable under this Convention if only one Respondent State were liable.

Article III

1. If an international organization which conducts space activities transmits to the Secretary-General of the United Nations a declaration that it accepts and undertakes to comply with the provisions of the present Convention, all the provisions, except Articles X, XI, paragraph 2, XIII, XIV, and XV, shall apply to the organization as they apply to a State which is a Contracting Party.

2. The Contracting Parties to the present Convention undertake to use their best endeavours to insure that any international organization which conducts space activities and of which they are constituent members is authorized to make and will make the declaration referred to in paragraph 1 of this Article.

Article VI

1. Liability for damage shall rest with the State or international organization which has launched or attempted to launch the space vehicle or object, or in the case of a common undertaking, with all the States participating in the undertaking or with the State from whose territory or from whose facilities the launching was made, or with the State which owns or possesses the space vehicle or object causing the damage.

2. Where liability may be laid upon more than one State or international organization, their liability towards the claimant shall be joint and several.

Article VII

If liability for damage rests with an international organization, the financial obligations towards States suffering damage shall be met by the international organization and by its member States jointly and severally.

State and international organizations made liable and question of joint liability (cont'd)

Question of absolute liability and exoneration from liability

Article I

(b) The occurrence of the event causing the damage shall create a liability for compensation once proof has been given that there is a relationship of cause and effect between the damage, on the one hand, and the launching, motion or descent of all or part of the space device, on the other hand.

(c) Liability for compensation shall cease to exist in the event of wilful misconduct on the part of the applicant State. "Wilful misconduct" shall be understood to mean any act or omission perpetrated either with intent to cause damage or rashly and in full knowledge that damage will probably result.

Article II

1. The launching State shall be absolutely liable and undertakes to pay compensation to the Presenting State, in accordance with the provisions of this Convention, for damage on the earth, in air space, or in outer space, which is caused by the launching of an object into outer space, regardless of whether such damage occurs during launching, after the object has gone into orbit, or during the process of re-entry, including damage caused by apparatus or equipment used in such launching.

2. If the damage suffered results either wholly or partially from a wilful or reckless act or omission on the part of the Presenting State, or of natural or juridical persons that it represents, the liability of the launching State to pay compensation under paragraph 1 of this article shall, to that extent, be wholly or partially extinguished.

Article III (cont'd)

3. If within one year of the date on which compensation has been agreed upon or otherwise established pursuant to Article VII, an international organization fails to pay such compensation each member of the organization which is a Contracting Party shall, upon service of notice of such default by the Presenting State within three months of such default, be liable for such compensation in the manner and to the extent set forth in Article II, paragraph 3.

Article III

Unless otherwise provided in Articles IV and V, exemption from liability may be granted only in so far as the State liable produces evidence that the damage has resulted from natural disaster or from a wilful act or from gross negligence of the party suffering the damage.

Article IV

1. Whenever damage is done to a space object or to persons and property on board by another space object, no claim shall arise between each other, except in so far as the claimant State produces evidence that the damage has been caused because of the fault of the other State or of a person on behalf of whom the latter State might present a claim [Article VIII].

2. If in the case mentioned in paragraph 1, a claim arises on the part of a third State, liability of the States liable for the space objects shall be joint and several.

Article V

The State shall assume liability for damage caused on the ground, in the atmosphere or in outer space, if the damage occurred while exercising an unlawful activity in outer space or the space vehicle or object was launched for unlawful purposes, or if the damage has otherwise resulted from an unlawful activity. In such cases the State liable shall be barred from any exoneration whatsoever.

Question of absolute liability and exoneration from liability (cont'd)			**Article III** Unless otherwise provided in Articles IV and V, exemption from liability may be granted only in so far as the State liable produces evidence that the damage has resulted from natural disaster or from a wilful act or from gross negligence of the party suffering the damage.
Limitation of liability in amount		**Article IX** The liability of the launching State shall not exceed $ ________ with respect to each launching.	**Article II** 1. Liability under this Convention shall not exceed ....
Payment of compensation in convertible currency	**Article 4** (d) Sums due in compensation for damage shall be fixed and payable either in the currency of the applicant State or in a freely transferable currency.	**Article VIII** Payment of compensation shall be made in a currency convertible readily and without loss of value into the currency of or used by the Presenting State.	
Presentation of claims by States or international organizations and on behalf of natural or juridical persons	**Article 2** 5. "Applicant State" shall be understood to mean the State which has been injured or whose nationals or permanent residents have been injured, and which presents a claim for compensation.	**Article IV** 1. A Contracting Party which suffers damage referred to in Article II, paragraph 1, or whose natural or juridical persons suffer such damage, may present a claim for compensation to a Respondent State. 2. A Contracting Party may also present to a Respondent State a claim of any natural person, other than a person having the nationality of the Respondent State, residing in its territory. However, a claim of any individual claimant may be presented by only one Contracting Party. **Article III** 1. If an international organization which conducts space activities transmits to the Secretary-General of the United Nations a declaration that it accepts and undertakes to comply with the provisions of the present Convention, all the provisions, except Articles X, XI, paragraph 2, XIII, XIV and XV, shall apply to the organization as they apply to a State which is a Contracting Party.	**Article VIII** A claim for damage may be made by a State in whose territory damage has occurred or in respect of damage suffered by its citizens or legal entities whether in the territory of that State or abroad.

Joinder of actions	Article 4 (f) There shall be joinder of claims where there is more than one applicant in respect of damage due to the same event or where more than one State is liable and the damage was caused by more than one space device.	Article VII 2. No increase in the membership of the commission shall take place where two or more Presenting States or Respondent States are joined in any one proceeding before the commission. the Presenting States so joined may collectively appoint one person to serve on the commission in the same manner and subject to the same conditions as would be the case for a single Presenting State. Similarly, where two or more Respondent States are so joined, they may collectively appoint one person to serve on the commission in the same way.	
Presentation of claims for compensation through diplomatic channel	Article 4 (a) Within two years after the occurrence of the damage, or after the identification of the State liable under article 2, the applicant State shall present through the diplomatic channel, to the State which it holds liable, all claims for compensation concerning itself and its nationals and residents.	Article IV 3. A claim shall be presented through the diplomatic channel. A Contracting Party may request another State to present its claim and otherwise represent its interest in the event that it does not maintain diplomatic relations with the Respondent State.	Article X The claim shall be presented through diplomatic channels. The claimant State may request a third State to represent its interests in the event it has no diplomatic relations with the State liable.
Time-limits for presentation of claims	Article 4 (a) Within two years after the occurrence of the damage, or after the identification of the State liable under article 2, the applicant State shall present through the diplomatic channel, to the State which it holds liable, all claims for compensation concerning itself and its nationals and residents. (e) The periods specified in this article shall not be subject to interruption or suspension.	Article IV 4. Notice of a claim must be presented within one year of the date on which the accident occurred or, if the Presenting State could not reasonably be expected to have known of the facts giving rise to the claim, within one year of the date on which these facts became known to the Presenting State.	Article IX A claim must be presented within one year of the date of occurrence of the damage, or of the identification of the State that is liable. If the applicant State could not reasonably be expected to have known of the facts giving rise to the claim, the claim must be presented within one year of the date on which these facts officially became known.
Pursuit of remedies available in liable State or under other international agreements	Article 4 (b) If the applicant State or a person represented by it brings an action for compensation before the Courts or administrative organs of the State receiving the claim, it shall not at the same time present a claim for compensation for the same damage under the provisions of this Convention. The said provisions shall not be considered to require, by implication, the prior exhaustion of such remedies as may exist under the rules of ordinary law in the State receiving the claim.	Article VI 1. The presentation of a claim under this Convention shall not require exhaustion of any remedies in the Respondent State which might otherwise exist. 2. If, however, the Presenting State, or any natural or juridical person whom it might represent, elects to pursue a claim in the administrative agencies or courts of the Respondent State or pursue international remedies outside this Convention, the Presenting State shall not be entitled to pursue such claim under this Convention.	

Procedures of settlement of claims for compensation

Article 4

(c) If the State receiving the claim has not taken, within six months after being approached, a decision considered satisfactory by the applicant State, the latter may have recourse to arbitration.

Within ninety days of the date of the request addressed to it by the applicant State, the State receiving the claim shall appoint one arbitrator, the applicant State shall appoint a second and the President of the International Court of Justice a third. If the State receiving the claim fails to appoint its arbitrator within the prescribed period, the person appointed by the President of the International Court of Justice shall be the sole arbitrator.

The Arbitration Commission shall take its decisions according to law and by majority vote. It shall make an award within six months after the date of its establishment and its decisions shall be binding.

(d) Sums due in compensation for damage shall be fixed and payable either in the currency of the applicant State or in a freely transferable currency.

(e) The periods specified in this article shall not be subject to interruption or suspension.

(f) There shall be joinder of claims where there is more than one applicant in respect of damage due to the same event or where more than one State is liable and the damage was caused by more than one space device.

Article VII

1. If a claim presented under this Convention is not settled within one year from the date on which documentation is completed, the Presenting State may request the establishment of a commission to decide the claim. In such event, the Respondent State and the Presenting State shall each promptly appoint one person to serve on the commission, and a third person, who shall act as chairman, shall be appointed by the President of the International Court of Justice. If the Respondent State fails to appoint its member within three months, the person appointed by the President of the International Court of Justice shall constitute the sole member of the commission.

2. No increase in the membership of the commission shall take place where two or more Presenting States or Respondent States are joined in any one proceeding before the commission. The Presenting States so joined may collectively appoint one person to serve on the commission in the same manner and subject to the same conditions as would be the case for a single Presenting State. Similarly, where two or more Respondent States are so joined, they may collectively appoint one person to serve on the commission in the same way.

3. The commission shall determine its own procedure.

4. The commission shall conduct its business and arrive at its decision by majority vote.

5. The decision of the commission shall be rendered expeditiously and shall be binding upon the parties.

6. The expenses incurred in connexion with any proceeding before the commission shall be divided equally between the parties in the proceeding.

Article XI

1. In case the State liable does not satisfy the claim of the claimant State, the claim for compensation shall be presented to a committee of arbitration set up by the two States on a basis of parity. This Committee will determine its own procedure.

2. Should the committee mentioned in paragraph 1 not arrive at a decision, the States may agree upon an international arbitration procedure or any other method of settlement acceptable to both States.

Space object not to be subject to sequestration or enforcement measures

Article XII

Claim for compensation for damage caused by a space ship of a foreign State shall not constitute ground for sequestration or for the application of enforcement measures to such space ship.

Jurisdiction of International Court of Justice

Parties to agreement, signature, accession and ratification

Article 5

1. This Convention shall be open for signature by States Members of the United Nations or any of the specialized agencies or parties to the Statute of the International Court of Justice, and by any other State or international organization invited by the General Assembly of the United Nations to become a Party to the Convention. Any State or international organization which is invited to do so but does not sign this Convention may accede to it at any time.

2. This Convention shall be subject to ratification or approval by signatory States. Instruments of ratification or approval and instruments of accession shall be deposited with the Secretary-General of the United Nations.

Entry into force

Article 5

3. This Convention shall enter into force thirty days after the date of the deposit of three instruments of ratification, approval or accession. For each State which deposits its instrument of ratification, approval or accession after the entry into force provided for in the preceding paragraph, this Convention shall enter into force on the date of deposit of such instrument.

Amendments

Article 8

This Convention may be amended or supplemented at the proposal of one or more Contracting Parties. Such amendments shall take the form of additional protocols which shall be binding on such Contracting Parties as ratify, approve or accede to them. Such protocols shall enter into force when the majority of the

Article X

Any dispute arising from the interpretation or application of this Convention, which is not previously settled by other peaceful means of their own choice, may be referred by any Contracting Party thereto to the International Court of Justice for decision.

Article XIII

This Convention shall be open for signature by States Members of the United Nations or any of the specialized agencies or Parties to the Statute of the International Court of Justice, and by any other State invited by the General Assembly of the United Nations to become a party. Any such State which does not sign this Convention may accede to it at any time.

Article XIV

This Convention shall be subject to ratification or approval by signatory States. Instruments of ratification or approval and instruments of accession shall be deposited with the Secretary-General of the United Nations.

Article XV

This Convention shall enter into force thirty days following the deposit of the fifth instrument of ratification, approval or accession. It shall enter into force as to a State ratifying, approving, or acceding thereafter upon deposit of its instrument of ratification, approval, or accession.

Article XI

1. A Contracting Party may propose amendments to this Convention. An amendment shall come into force for each Contracting Party accepting the amendment on acceptance by a majority of the Contracting Parties, and thereafter for each remaining Contracting Party on acceptance by it.

Article XIII

1. This Convention shall be open for signature to all States. It shall be subject to ratification. Instruments of ratification shall be deposited with the Secretary-General of the United Nations.

Article XIV

After the Convention enters into force it shall be open for accession to other States. Instruments of accession shall be deposited with the Secretary-General of the United Nations.

Article XIII

2. It (the Convention) shall enter into force thirty days after the deposit with the Secretary-General of the United Nations of the fifth instrument of ratification.

Article XV

With respect to each State which ratifies the Convention or accedes thereto after the deposit of the fifth instrument of ratification, the Convention shall enter into force thirty days after the date of deposit by the State of its instrument of ratification or accession.

Amendments (cont'd)

Article 8 (cont'd)

Contracting Parties to this Convention have thus accepted them.

Article XI (cont'd)

2. After this Convention has been in force five years a revision conference may be called upon the request of a majority of Contracting Parties.

Withdrawal from and denunication of agreement

Article 7

Each Contracting Party may notify the Secretary-General of the United Nations of its withdrawal from this Convention not less than five years after its entry into force. Such withdrawal shall take effect one year after receipt of the notice which must be in writing. Such withdrawal shall not relieve the Contracting Party concerned of any obligation or liability arising from damage inflicted before its withdrawal takes effect.

Article XII

A Contracting Party may give notice of withdrawal from this Convention five years after its entry into force by written notification to the Secretary-General of the United Nations. Such withdrawal shall take effect one year from the date of receipt of the notification by the Secretary-General. A State withdrawing from this Convention shall not thereby be relieved of any obligation or liability with respect to damages arising before withdrawal becomes effective.

Article XVI

Any Contracting State may denounce this Convention by notification to the Secretary-General of the United Nations. The denunciation shall take effect one year after the date on which the notification has been received by the Secretary-General of the United Nations.

Notifications by Secretary-General

Article 9

The Secretary-General of the United Nations shall inform signatory States, and those which ratify, approve or accede to this Convention, of signatures, the deposit of instruments of ratification, approval or accession, the entry into force of this Convention, proposals for amendments, notifications of acceptance of additional protocols, and notices of withdrawal.

Article XVI

The Secretary-General of the United Nations shall inform all States referred to in Article XIII of signatures, deposits of instruments of ratification, approval, or accession, declarations referred to in Article III, paragraph 1, the date of entry into force of this Convention, proposals for amendments, notifications of acceptances of amendments, the date of entry into force of each amendment, requests for the convening of a revision conference, and notices of withdrawal, and shall transmit to those States certified copies of each amendment proposed.

Article XVII

The Secretary-General of the United Nations shall notify all States concerning:

(a) the signature of this Convention and the deposit of instruments of ratification or accession in accordance with articles XIII and XIV;

(b) the date of entry into force of this Convention in accordance with article XIII;

(c) denunciations received in accordance with article XVI.

Authentic text and deposit of agreement

Article 10

This Convention, of which the Chinese, English French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified true copies to all signatory States and to any State Member of the United Nations which so requests.

Article XVII

This Convention, of which the Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations who shall send certified copies of each to the States mentioned in Article XIII.

Article XVIII

The original of this Convention, of which the texts in Chinese, English, French, Russian and Spanish languages are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall transmit certified copies thereof to all States.

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