REMOTE SENSING SATELLITES: LEGAL ISSUES IN EMERGING TECHNOLOGY

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Summary

"This paper aims to establish that the international law regulating imagery by remote sensing satellites is interstitial and aims to suggest the required measures to fortify the existing regime. The paper aims to analyse all principles of international law that may assist in preparing a universally acceptable law to regulate imagery by remote sensing satellites."

Introduction

The evolution of laws relating to outer space has not expended human energy over centuries; a few decades mark the pedagogy. And the development of its subsets has taken even shorter time periods. The subset, law relating to imaging satellites, characterises spontaneous evolution and has defeated expert opinion in short periods of time discovering uncontrolled conduct and urging fortification of pre-existing controls. It is sciolistic to confine science into set classifications of good or bad. Scientific inventions or discoveries do not inherit such classifications. It is the use humankind shall put such invention or discovery to that may attach a reputation to it. Imaging satellites as an invention is a colossal scientific achievement carrying immense potential to impact the standard of human life and it is this potential which not only opens infinite opportunities but also imputes a burden upon humankind to fetter the abuses that may result from its usage. To discharge the burden it is incumbent upon us, humankind, to devise a 'system of control' which shall form the border trenching the precincts of the law controlling and regulating the conduct of imaging satellites.

Importance Of Imagery By Remote Sensing Satellites

Most activities pertaining to outer space catch our imagination and lead us into the realm of sci-fi. If I were to propose the requirement of a study to equitably apportion land mass on the planet Saturn it will surely elicit cacophony. However, activities pertaining to outer space need not necessarily lead us into the realm of sci-fi and certain activities have become a benefactor for humankind. Communication satellites are one such example which has played an integral role in providing impetus to globalisation and affecting the daily lives of ordinary individual citizens.

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The activity of imagery from remote sensing satellites promises to be a leading benefactor and there is an urgent requirement to develop a system of control to prevent the activity of imagery from remote sensing satellites from being chapterised as a bane in the annals of human history.

Definition & Meaning

At the outset, the basic tenets of imagery by remote sensing satellites need to be explained. The Land Remote Sensing Policy Act, 1992 defines remote sensing as "the collection of data which can be processed into imagery of surface features of the earth from [a] . . . satellite."[1] Satellites orbiting the earth, either in geosynchronous orbit or in an inclined or polar low-earth orbit, detect electromagnetic radiation from sensed objects in one of two ways: [a] Passive instruments detect radiation from the sensed objects, and [b] active instruments emit energy and then detect the energy reflected from the sensed objects. Subsequently, the ground station selects if the data should be received and if received 'unpacked' into suitable imagery.

The data may be classified into: [a] 'primary data', which consists of a stream of unprocessed energy signals collected by the satellite; [b] 'processed data', which is primary data that has been processed to a point where it can be interpreted; and [c] 'analyzed information', which is an interpretation of the processed data based on both the data itself and information derived from other sources Applying this classification system to interpretation of remotely sensed images, a processed image of an aircraft would become analyzed information after outside data or information was used to determine the specific type of aircraft.

Resolution of remotely sensed images refers to the area that can be clearly discerned from the photograph. For example, an object measuring ten meters square could be discerned by a satellite capable of ten-meter resolution. Applying resolution capacity to the military context, ten-meter resolution can detect structures such as bridges, buildings, and concentrations of tanks or aircraft; two-meter resolution can identify aircraft, vehicles, and roads; one-meter resolution can precisely identify types of aircraft, tanks, cars, and troop units, and can differentiate between fighters and bombers or missile launchers and trucks.

Necessity For A System Of Control

To appreciate the requirement for a system of control to regulate remote sensing satellites it is important to highlight the paradigm within which the possible abuses of the activity of imagery from remote sensing satellites is confined. The impending necessity for a system of control stems from two primary concerns, [i] the rapid advancement in technology and [ii] the increasing commercialisation of the imagery industry.

In continuation with the axiom regarding the independence of science being classified as good or bad, advancement in technology is not our adversary but the pervasive access to our daily lives provided by the advanced technology compels predilection for a system of control. The recently launched GeoEye-1 claims to be the most sophisticated commercial remote sensing satellite with resolution capacity of 0.41 m for a panchromatic image (black & white) and 1.64 m for a multi-spectral image (colour). CARTOSAT-2, the remote sensing satellite, launched by India is equipped with a spatial resolution of less than a meter. Such resolution capacities in decimals enables satellites to determine the exact model and make of a motorvehicle and could thus enable private parties to obtain data about anybody in whichever part of the world at costs as frugal as $30. Moreover, the advancement in technology enables dissemination of data in less than a few hours. The objective of procuring such high resolution data may no longer be for a military objective but may be utilised for infringement of privacy of individual citizens. The rapidly improving resolution capacity coupled with the growth in nanotechnology could enable live recording instead of imagery in the near future and we are left to imagination to perceive the threat posed by unfettered usage of remote sensing satellites.

Balancing the seesaw between commercial interests and social welfare shall require a strengthened legal regime. It is fair to add that the fulcrum of the seesaw, the legal regime, must not only exist but must be stolid to bear the burden. The commercialisation of the remote sensing satellite industry began with the launch of LANDSAT 1 in 1972 and the US government under the LANDSAT programme made remotely sensed images commercially available to the public for the first time and the commercial market has tremendously grown thereafter. The French government followed with the launch of Syteme Probatoire d'Observation de la Terre (SPOT) I in 1986 and the former Soviet Union launched its own remote sensing satellite in 1987 to provide imagery to the commercial market. The international market for commercial satellite technology has blossomed as well, with Russia, Canada, Japan, Israel, France, India, China, Brazil and South Korea all Jockeying to offer low resolution satellite imagery. These countries can be grouped into three distinct categories. First, the United States of America which is the only country with an entirely independent commercial satellite industry. Second, the French, Israeli, Russian, Indian and Canadian governments which provide satellites to private companies for commercial use. Third, the Chinese, South Korean and Brazilian governments operate the satellites exclusively, with very little commercial use of imagery. The details of the private companies and the satellites operated by it are not being reproduced herein for the sake of brevity and the mention of the existence of such private companies suffices to build the necessity to regulate the commercial remote sensing satellite market.

Illustrations Of Possible Abuses

In the backdrop of these concerns, the possible abuses need to be illustrated. Such illustrations contain the dangers faced by imagery from remote sensing

satellites and also situations that may be imagined but not be classified as sci-fi in the present time set. Remote Sensing technology, and the prospect of immediate and widespread dissemination of the imagery, creates grave vulnerabilities for national security. Remote sensing technology can provide an adversary with near real-time visibility of military posture 'at both the strategic and theatre levels' and allows an adversary to pre-emptively destroy military installations using the long-range precision strike weapons against preselected targets. Such worst-case scenarios cannot be dismissed as pure science fiction, as there is substantial evidence that details of satellite imagery of the U.S. bases in Qatar and Diego Garcia was available at the website www.globalsecurity.org much in advance to the commencement of operation Iraqi Freedom. These images were easily accessible on the Internet and could be procured by anyone; the American news industry, private persons and also the adversary in the war. It is a chilling thought to imagine what benefit use of such data can bring to terrorists or rogue regimes. The clarity of the imagery (the resolution capacity as discussed above), the speed with which it can be disseminated (within a few hours) and the cost to procure such data(in the range of $30-300) poses a threat to the existence of humankind. The potential terrorist threat posed by dissemination of this type of information is evidenced by a number of actions taken by the US government post 9/11. The Nuclear Regulatory Commission, which had provided detailed information such as the longitude and latitude coordinates of 103 nuclear plants, engineering schematics of the plants and aerial photographs to the public closed the entire website in October 2001. The Federal Energy Regulatory Commission removed detailed information on hydropower plants, natural gas, oil pipelines and other critical installations. In the near future, with advancement in resolution capacity this technology shall raise the debate on infringement of privacy of individual citizens as monitoring would no longer require installed cameras and could be done from continents away. The possibilities of abuse of imagery from remote sensing satellites is myriad and every major abuse is not being enlisted as the illustrations cited above are sufficient to indicate the threat posed by dissemination of such data.

Effectiveness Of The Existing Regime

The concerns listed above along with illustrations cited have settled the argument in favour of a requirement to develop an effective system of control to regulate remote sensing satellites. Prior to delving into the details regarding an 'effective system' the existing system needs to be analysed and its effectiveness should be put to judgement.

Sources Of Law

The 'existing system' is contained within the 'sources of law' enshrined under art. 38 of the Statute of the International Court of Justice. The Statute of the International Court of Justice does not claim to define or state 'sources of law', as it is one of the sources itself, however it is considered to be the sentinel for

sources of law and recognised as a state practise to consider so. The provision entails:

"(1) The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:

(a) International conventions, whether general or particular, establishing rules expressly recognized by the Contesting States;

(b) International custom, as evidence of a general practice accepted as law;

(c) The general principles of law recognized by civilized nations;

(d) Subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.

(2) This provision shall not prejudice the power of the Court to decide a case *ex aequo et bono*, if the parties agree thereto."

Art. 38(1)(d) of the Statute must be read alongwith art 59 of Statute of the International Court of Justice and it is reproduced herein:

> "The decision of the Court has no binding force except between the parties and in respect of that particular case."

There is no statement asserting hierarchical supremacy of any of the sources, however, in one of the drafts the presence of the word 'successively' corroborates the intention of the draftsmen to give it an order. Therefore, the authority of international conventions (a) shall override that of international custom (b) and that of (b) shall override (c) and so on.

Conspectus Of Treaties Pertaining To Outer Space Law

The supremacy of international conventions mandate foremost enunciation of the conventions pertaining to space sensing by remote sensing satellites. There is no treaty that specifically confronts remote sensing. The international treaties relevant to the commercial remote sensing industry include: (1) the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty);[2] (2) the 1975 Convention on Registration of Objects Launched Into Outer Space (Registration Convention);[3] and (3) the 1972 Convention on International Liability for Damage Caused by Space Objects (Liability Convention).[4] India has signed and ratified all three treaties. In addition, in 1987 the United Nations General Assembly (UNGA) adopted the non-binding UN Remote Sensing Principles (Resolution 41/65).[5] The prevailing regime of regulating space sensing by remote sensing satellites has proved to be interstitial and inefficacious. The sporadic and unorganized development of the regime of imagery by remote sensing satellites makes it interstitial while incomprehensive jurisprudence makes the regime inefficacious to replicate in different municipal systems and circumstances.

Outer Space Treaty

The Outer Space Treaty of 1967 is the oldest multi-lateral convention pertaining to space laws. Art. I states: "exploration and use of outer space . . . be carried out for the benefit and interests of all countries . . . and shall be the province of all mankind".[6] This presents a quandary. Space is deemed to be the province of all mankind implying thereby it is an anti-thesis to the doctrine of sovereignty. It may be argued the doctrine of sovereignty is applicable only on earth, which includes land as well as airspace, while it is impossible to partition outer space. Moreover, individual countries cannot subsume parts of space at their own will as this shall impede growth of mankind. But then the inadequacy of this provision runs deeper. It does not require adducing complex legal arguments or technical advancements to explain the fact that it is impossible for the drafters of the treaty in 1967 to foresee such advancements in remote sensing technology which will make mapping of the earth surface to a resolution in decimals. The freedom of all states enshrined in art. I do present us with this quandary.

Art. IV of the Outer Space Treaty provides for the attribution of State responsibility for the acts of commercial remote sensing industry including civilian actors. The provision may have been certified as adequate in 1967 but today a number of aspects remain unanswered. What are the elements attributing responsibility to a State? Are acts of private actors attributable to the state? What are the methods of attributing responsibility in cases of non-governmental actors who are not private actors entirely? Can responsibility be attributed to plurality of states? And these are just a few which have been specifically presented.

The conundrum of attributing responsibility to a state extends to the payment of damages or reparation or compensation. Until it is conclusively determined as to which state incurs responsibility the liability to pay does not arise. Moreover, the Liability Convention does not provide any specific provision dealing with payment of damages arising from abuse of imagery taken from remote sensing satellites.

Registration Convention

The Registration Convention mandates the registration of every satellite in the registry with the launching state. Such information is to be communicated to the United Nations as well. However, there has been fortuitous change of circumstances. The Registration Convention dates back to 1975 when all satellites launched were owned by governments or governmental organizations. Today, in 2010 the private commercial satellite industry is worth over two to three billion dollars. Some of the popular private satellites are the IKONOS satellite, Quickbird-2 owned by Digital Globe in United States, ImageSat in Israel and the recently launched GeoEye-1. The Registration Convention fails to deal with the registration of satellites owned by private entities.

UNGA Resolution 41/65 of 1986

The requirement of a multi-national treaty specific to the sector of remote sensing lead to the United Nations General Assembly Resolution 41/65 in 1986. It is the solitary international instrument pertaining to space sensing by remote sensing satellites. While the original hope had been to adopt a binding treaty, the document finally submitted to the UNGA was a non-binding instrument. In the process of formulating these principles, many developing nations, especially Latin American nations, argued that because of their sovereignty over natural wealth and resources, they should also have sovereignty over information concerning those resources gathered through remote sensing technology. These developing nations argued that due to the absence of protection in Resolution 41/65 they would be subject to economic exploitation by countries possessing remote sensing technology. Specifically, many of these nations were concerned that their bargaining power would be compromised by negotiating with multinational corporations that possessed detailed (satellite-generated) information on the country's mineral and fuel deposits. These countries contended that before any data or information could be collected through remote sensing technology, they should be presented with the right to either grant or deny approval. The United States diametrically opposed this consent-driven position, arguing that Article I of the Outer Space Treaty established absolute freedom in space, and that remote sensing policy should be established consistent with the open-skies doctrine, under which consent of the sensed state is not required and remotely sensed data is available on a nondiscriminatory basis. It is critical to underscore that Resolution 41/65 applies, as stated in Principle I, to remote sensing conducted "for the purpose of improving natural resources management, land use and the protection of the environment," and makes no mention of military reconnaissance, or general media purposes. Because the Principles fail to address military concerns, they are incapable of dealing with the national security issues posed by improved resolution and the international proliferation of the remote sensing industry. Thus, Resolution 41/65 is of limited use in assessing the validity of remote sensing of a nation's military or strategic interests, the primary concern of PDD-23.

International Custormary Law

The development of the technology of imagery from remote sensing satellites has not developed any principles of customary international law specific to it and aid cannot be taken from any such principle to provide panoply to the other sources.

General Principles Of Law Recognised By Civilised Nations

The development of principles in the realm of space law often do not expend much human energy and time due to the rapid advancements in technology. This has necessitated the formation of the principle of short custom. The sources of international law allow 'general principles of law recognized by

civilized nations' as a valid source. While the United States has put in considerable effort in embedding regulations in its municipal system by way of legislations, directives and rules and regulations the development in other countries is only marginal. Certain countries like Canada, France and India do possess specific policies pertaining to imagery by remote sensing, however legislative sanction is pending. Such policies carry the risk of change and therefore cannot be classified as general principles of law.

Even in the United States the principle of shutter control has been analyzed in comparison with the fettering of the freedom of press to cover wars. The practice of the United States in allowing or disallowing media coverage of wars has been highly inconsistent. While the national security exception has been accepted at most times it has not been without much opposition and challenge from the press. It shall be the effort of the researcher to succinctly acquaint the reader with the instances where this inconsistent approach is alleged. These are: [a] US Civil war—Initially press coverage was allowed but upon realization of potential national security risk certain publications were suspended, [b] Spanish-America war of 1898—No prior restraint exercised [c] World War I- Elaborate system of voluntary and non-voluntary censorship acted as prior restraint, [d] World War II-System of mandated and voluntary censorship until after the attack on Pearl Harbor stringent measures were applied, [e] Korean war- Extremely strict censorship, [f] Vietnam war—No formal prior restraint however backdoor restraint in making press's access to battlefield restricted, [g] Invasion of Grenada in 1983- Strong prior restraint in banning reporters during first two days of invasion. Subsequently limited access was granted. Sidle Panel instituted to prepare a report in this matter. No leverage was granted even after a favorable report for media access. [h] Invasion of Panama in 1989- No prior restraint but due to delayed arrival of the pool of reporters no combat coverage was possible, [i] Operation Desert Storm- Prior restraint in the form of limited access under strict regulations. Selection of a percentage of reporters was challenged in the case of *Nation Magazine v. United States Department of Defense*.[7] However, before judgment on the injunctive relief could be delivered the war was over and the point became moot.[8] [f] Operation Iraqi Freedom—An embed system introduced by which journalists were included in the infantry divisions. No prior restraint was imposed but certain restrictions like non-disclosure of troop movements and equipments were imposed. It was criticized for bias as the reporters may be manipulated by the troops who guaranteed them security.

This dialectic between prior restraint and media access received affirmation from the United States Supreme Court as a *dicta* in 1931 and a conclusive judgment in 1979 in favor of prior restraint (national security exception).

Therefore, the existing legal regime to regulate imagery by remote sensing satellites is interstitial and inefficacious for the reasons stated above and the aforestated inadequacies must be redressed and there is requirement of a more effective legal regime.

Propositions For An Effective Regime

The possible abuses from space sensing by remote sensing satellites urge immediate formulation of a universally acceptable law in the form of a multi-lateral treaty. This multi-lateral treaty must not only fortify the interstitial nature of the 'existing regime' but should embed the general principles of international law of state responsibility, ascertainment of liability, damages and reparation or compensation for an 'effecting regime' to regulate imagery by remote sensing satellites.

Responsibility Of States

Elements constituting state responsibility

It is imperative for the researcher to explicate the elements constituting attribution of state responsibility. The ILC Draft Articles on State Responsibility provides for a State to be internationally responsible for a wrongful act.[9] The Mexico-United States General Claims Commission in the *Dickson Car Wheel Company Case* noted that for a State to incur international responsibility, "an unlawful international act be imputed to it, that is, that there exist[s] a violation of a duty imposed by an international juridical standard."[10] The parameters establishing state responsibility in the *Diplomatic and Consular Staff Case*[11] were considered, to include "treaties in force or under any other rules of international law that may be applicable."[12]

The terminology "breach of an international obligation" is inclusive of both treaty and non-treaty obligations.[13] In the *Gabćikovo-Nagymaros Project case* the I.C.J. referred to the relevant draft article provisionally adopted by the commission in 1976 in support of the proposition that it is "well established that, when a state has committed an internationally wrongful act, its international responsibility is likely to be involved whatever the nature of the obligation it has failed to respect".[14]

State responsibility for non-governmental actors

The classic approach mandated state responsibility for government actors only. However, a conjunctive reading of Art. XIV of the UN Principles on the Observation of Earth from Space along with Art. VI of the Outer Space Treaty, 1967 exhorts state responsibility for acts of non-governmental entities as well. They do not advocate a blanket attribution of responsibility making it subservient to authorization and continuous supervision.[15] The need for supervision emanates from the overriding security concerns regarding commercial remote sensing activity restricting the freedom of scientific investigation and space exploration in outer space[16]; hence the contentious principle of prior restraint(shutter control).

Further, as recognized in the *Phosphates in Morocco case*,[17] conduct can only give rise to state responsibility if it is attributable to the state under international

law. International law does not attribute conduct of non-State actors, such as acts or omissions of private persons, mobs, associations, corporations, trade unions, or unsuccessful insurgents, to a State,[18] which was also made clear under the 1980 ILC Draft Articles.

State responsibility for individual conduct

Individual conduct can be so attributed under ILC Draft art. 8 if the person is in fact acting on the instructions of, or under the direction or control of the state, i.e., as a *de facto* agent of the state and the conduct complained of was an integral part of that operation.[19] Attributing conduct in this way requires a "specific factual relationship" between the person and the state and conduct to be attributed must be an 'integral part of that operation'.[20] Only if there is connivance or complicity, approval or ratification, can a state be responsible.

This Court closely considered the concept of control in the *Military and Paramilitary case*[21] stating that a "high degree of dependency" alone was not sufficient and the United States must have either expressly directed the acts or possessed 'effective control' over the paramilitary operations in the course of which they were committed. Therefore, if a state is capable of 'effective control' over the remote sensing satellite or the entity controlling the satellite state responsibility shall be attributable.

Due diligence and constructive knowledge

Acts or omissions of non-state actors under the Draft Articles are themselves generally not attributable. However, the state may incur responsibility not for negligence but for failure to exercise due diligence in preventing or reacting to such acts or omissions. It has been stated that an omission should be judged by a subjective standard of willful neglect, or fault, rather than an objective standard of inaction or simple negligence. The relevance of due diligence here is that States must make sure through a level of judgment, care, prudence and, determination that their territory is not used for the purposes of activities involving the violation of the rights of people or the territory rights of another State.

In the *Corfu Channel case*,[22] Albania was held internationally responsible for failure to take necessary steps to warn approaching ships of the danger of mines based on the knowledge of their presence from the close surveillance over its territorial waters.[23] The Court, however, stated that it could not be concluded from the mere fact of the control exercised by a State over its territory that that State necessarily knew, or ought to have known, of any unlawful act perpetrated therein. In the Tehran Hostage case,[24] the Court recognized the acts of the militants in seizing the Embassy and in taking hostages as conduct of the State of Iran only after the new government ratified the initial non-State conduct and failed "to take appropriate steps"[25] to protect the Embassy. Both these cases are evidence of the fact that constructive knowledge and ratification of the activities

of a state or non-state actor is essential for attributing responsibility upon the state. Therefore, to prevent abuse by a remote sensing satellite is a positive duty upon the state. States cannot escape from responsibility even if they were not aware of the possibility of the abuse if they could have prospectively discovered.

Damages And Reparation

Payment of damages and causal relationship

Another ancillary effect is the payment of damages by the injury caused by a remote sensing satellite. The payment of damages or reparation is consequent upon liability incurred. Liability only exists if there is a direct causal relationship between that breach and the damages claimed. Under traditional and contemporary standards of tort jurisprudence,[26] proximate cause in tort actions involves two factors: avoidability and foreseeability of risk.[27] Unless causation is established, no damages may be considered to fall under the ambit of international liability.

The Chorzow Factory case stated the general principle behind liability in the international context: "reparation must, as far as possible, wipe out all the consequences of the illegal act."[28] Nevertheless, states cannot recover for damages that are indirect, or overly uncertain or remote. Three elements must be present in order for liability to be appropriate in an international dispute: a legal obligation must exist, that obligation must be breached, and damages must result from that breach. For example, in the 1928 Naulilaa Arbitration, the international tribunal found no causal link between German actions and a native uprising in a Portuguese colonial territory.[29] The damages claimed were simply too remote to be attributable to the German activity.

The international community took this principle into account when it adopted the 1972 Convention on International Liability for Damage Caused by Space Objects, the primary authority for liability determinations in cases involving outer space objects. Although the preamble of the Convention recognizes that damage will occur in the development of space,[30] the Convention expressly limited damage to direct losses such as "loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations."[31] If the drafters of the Convention wished to allow recovery for indirect and remote damages, they would have explicitly written that intention into the treaty, especially in light of the exclusion of such damages under customary international law.

International experience reflects this limitation of recovery to direct, rather than remote, damages. In the case of Cosmos 954, the only international case where one state has paid another for damages caused by its outer space activity, the crash of a Russian naval reconnaissance satellite resulted in radioactive fallout throughout Canadian territory.[32] Russia took the position that its damage

settlement did not include compensation for Canada's unnecessary clean-up measures.[33] Rather, its settlement only included payment for direct damages such as the diminution in value of Canada's property.

Reparations

Reparations for breaches of international obligations is the principle legal consequence for international wrong.[34] International law mandates states to bear responsibility by virtue of its position as an international person.[35] Any act performed by a government or those of its officials or private individuals performed at the government's command or with its authorization imputes original responsibility.[36] The PCIJ has stated, quite unequivocally, in the *Chorzow Factory* case that: "It is a principle of international law that the breach of an obligation involves an obligation to make reparations in an adequate form."[37]

The incorporation of these principles of public international law into the legal regime regulating imagery by remote sensing satellite shall strengthen the 'existing regime' and aid in making the current system effective.

Conclusion

Having stated all sources of international law relating to regulation of imagery by remote sensing satellites, verifying it as interstitial and inefficacious and stating the need and process of regulating ancillary effects of imagery by remote sensing satellites the burden to suggest an alternative proposal to fortify the legal regime of imagery by remote sensing satellites tempts the researcher to formulate a draft of the multi-lateral convention on remote sensing. However, the researcher desists from wording the proposal in legal language for two reasons: *first*, the process of formulation of any multi-lateral treaty involves participation of States through designates and the draft is a reflection of individual requirements of each state and *second*, the scope of the paper is to highlight the interstitial and inefficacious nature of the regime and suggest ways to fortify it rather than exhort states to consider proposals in the letter and form contained in this paper. The proposals are enlisted below:

Proposal-1: Effect of the treaty

The requirement is for a binding treaty. The treaty must incur absolute responsibility upon the states signatory to the treaty. The maxim *pacta sunta servanda* is to be considered sacrosanct.

Proposal-2: Scope of the treaty

The treaty must be able to arbitrate the dialectic of sovereignty over satellite imagery between the developed countries and the developing countries. To be able to do so the treaty must have applicability on sensitive imagery alone. This will not only maintain space as *res communis omnium* but also safeguard the sovereign rights of nations. The sensed data must not be discriminated on its military/non-military characteristic.

Proposal-3: Meaning of Sensitive Imagery

A generic definition is sought which should be capable of qualifying all types of sensitive imagery as protected. Sensitive imagery may be defined to include any imagery of a sensed state or its territories, holdings, or assets abroad that could potentially compromise that state's national security. The following list of sensitive imagery is offered by way of illustration only, and is not meant to be exhaustive, as the final determination of whether an image is classified as sensitive depends as much on context as it does on the actual image itself. Sensitive imagery, depending on the context, could include images of military bases at home or abroad, troop deployments, nuclear facilities, reservoirs, airports, etc. To illustrate the role context must play in assessing whether an image is deemed sensitive, imagery of a reservoir might not, in and of itself, be considered sensitive, while in the context of a credible threat of biological terrorist attack, such an image would be considered sensitive.

Although resolution is critical in determining whether an image is sensitive, there is no bright-line resolution at which an image becomes sensitive. Rather, determinations must be made on a case-by-case basis. For example, ten-meter resolution imagery of a military installation, incapable of revealing number or type of aircraft, might not be considered sensitive, while one-meter resolution imagery capable of discerning both number and type of aircraft would be considered sensitive (given the appropriate context).

Proposal-4: Access to data

Every state must be given exclusive rights over the 'unprocessed data' and 'imagery' of its sovereign territory. Under no circumstances should this preferential right be defeated.

Proposal-5: Validation of unprocessed data

Sensed data is processed at the ground station to obtain imagery. All unprocessed data which carries the apprehension of security, which pertains to a classified area where sensing is prohibited or the sensing of which has been temporarily requested to be withheld from the authorized body must not be processed and made commercially available without validation from the concerned state.

Proposal-6: Mechanism of validation

Every state must be allowed independence to formulate there own validation process. However, such process must be notified with an International body exclusively dealing with space sensing. In situations where a country finds it difficult to carry the validation by itself it may refer the matter to the International Body.

Proposal-7: International body for remote sensing

An exclusive International body for remote sensing must be set up. The constitution and functioning of which must be detailed as consensually accepted by the signatories to this treaty. The body must be equitably represented by designates of each nation. Special care must be taken to quell the apprehension of developing countries to be able to negotiate with developed countries.

Proposal-8: Dispute resolution

There should be a three tier process of dispute resolution. Any state or entity may appeal from the decision of the office validating unprocessed data to the International Body. The appeal may further be taken up by the International Court of Justice. However, the International Court of Justice at its discretion can accept only those cases which appear complex for the International Body to deal with or where a case of prima facie bias exists.

Proposal-9: State Responsibility

State responsibility is not to be attributable in accordance with the provision of any other treaty or source of law. Responsibility is not to be for the acts of governmental actors alone but also for acts of private entities. Specific provisions must be made for attributing responsibility to para-statal entities. State responsibility must be attributed to the state owning the satellites in precedence with the launching station.

Proposal-10: Payment of damages

Consequent upon attribution of state responsibility the defaulting state must make reparation or compensation as determined by the International Body.

Proposal-11: Enforcement mechanism

Enforcement of the treaty is to be vested with the International Body. All states must extend full co-operation to the International Body in enforcing the provisions of this treaty.

Endnotes

1. Land Remote Sensing Policy Act (1992)15 U.S.C.A. §§ 5601-5672.
2. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (entered into force Oct. 10, 1967) [hereinafter Outer Space Treaty].
3. Convention on Registration of Objects Launched Into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 (entered into force Sept. 15, 1976) [hereinafter Registration Convention].

4. Convention on International Liability for Damage Caused by Space Objects, opened for signature Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 (entered into force Sept. 1, 1972) [hereinafter Liability Convention].
5. Principles Relating to Remote Sensing of the Earth From Outer Space, Dec. 3, 1986, U.N. GAOR Special Political Comm., 41st Sess., Annex, Agenda Item 72, U.N. Doc. A/RES/41/65 (1987) [hereinafter Resolution 41/65].
6. Outer Space Treaty, *Op. cit.*, at art. I.
7. *Nation Magazine v. United States Dep't of Defense*, 762 F. Supp. 1558, 1560 (1991).
8. Id. at 1570.
9. *ILC Draft Articles on State Responsibility* art. 2, in Report of the International Law Commission on the Work of its Fifty-third session, Official Records of the General Assembly, Fifty-sixth session, Supplement No. 10(A/56/10), Chp. I, *adopted by* the General Assembly in G.A. Res. 56/83, U.N. GAOR, 56th Sess., Supp. No. 10, U.N. Doc. A/RES/56/83 (2002) [hereinafter ILC Draft Articles].
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