

MILITARY USE OF COMMERCIAL REMOTE SENSING DATA

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INTRODUCTION

It has frequently been noted that the space law of today is very ill prepared for the commercial ventures in space today. One often-neglected aspect in the development of commercial space law throughout the past decades is the increasing interplay between military and civilian use of outer space. In many space applications, such as communications, global positioning and remote sensing, there is often some mixture of civilian and military use with most satellite system, as there is with terrestrial applications of most technologies. This is especially the case with remote sensing activities, where the technological advancements in the field have been largely spurred on by the increasing need for greater intelligence-gathering capability by defence forces and intelligence agencies.

The reason that there is significantly more controversy associated with military or mixed use of satellite systems *vis-à-vis* terrestrial technologies is that the use of space has been well established in international law to be exclusively for peaceful purposes only. The content of this requirement continues to vary among different interpretations. Nevertheless, the military use of remote sensing technology have been one of the earliest space programs initiated by both protagonists of

the Cold War and continue to be one of its predominant applications. In this post-Cold War order, military satellite systems have become partially available for civilian use and, similarly, military establishments have begun purchasing data from commercial operators instead of purchasing and deploying expensive high-resolution systems of their own. In order to consider the relevant legal implications, it is important to first examine the law applying to military use of space and remote sensing generally and to study the following scenarios:

- 1) remote sensing systems used exclusively by the military;
- 2) military remote sensing systems supplying data to civilian entities or military systems with partial civilian operation for scientific or commercial purposes;
- 3) commercial or scientific remote sensing systems with partial military operation and use; and
- 4) commercial or scientific remote sensing systems supplying data to the military in offensive, defensive, reconnaissance and peacekeeping operations.

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THE PEACEFUL PURPOSES REQUIREMENT

The regulation of activities in space is one of the newest and most codified areas of international law. In order to discuss the relevant legal implications on any activity in space, it is essential to first examine the provisions of the United Nations space treaties. From the beginning, the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) has affirmed the principle that outer space is to be used for peaceful purposes only. Subsequently, the 1967 Outer Space Treaty and all subsequent treaties and General Assembly declarations affirm the principle that outer space should be used only for peaceful purposes. However, the provisions are far from clear as it appears to draw distinctions between outer space *sensu stricto* (the space between celestial bodies), the celestial bodies including the Moon and outer space *sensu lato*, which includes both "outer space" and the celestial bodies.¹

Specifically, Article IV(1) of the Outer Space Treaty prohibits the placement of any nuclear weapons and other weapons of mass destruction in outer space. This refers to outer space *sensu lato*, including outer space, the Moon and other celestial bodies. However, this provision, or any other, does not prohibit the stationing of any other type of weapon in outer space for military purposes, such as conventional or laser weapons. In other words, it appears from this provision that States are entitled to use outer space for military purposes, provided that these do not involve stationing nuclear weapons and weapons of mass destruction.²

The second paragraph of Article IV of the Outer Space Treaty, which requires the use of celestial bodies exclusively for peaceful purposes, appears to apply only to the Moon and other celestial bodies and not to outer space *sensu stricto*.³ Both the United States and the Soviet Union pointed out that, by omitting the mention of "outer space" from the peaceful purposes requirement in Article IV, the States have

rejected a broad prohibition of military activities in space and restricted the requirement to celestial bodies only.⁴ In any event, the United States has long argued that "peaceful" in the Outer Space Treaty means "non-aggressive" rather than "non-military".⁵ In other words, the Outer Space Treaty implements only the existing obligations under the Charter of the United Nations for non-aggressive use of space, but not to impose a new obligation involving the full demilitarisation of outer space, regardless of the scope of its application to outer space and the celestial bodies.⁶

This interpretation may be considered to be contrary to existing interpretations that are found in international law. For example, the similarly worded Antarctic Treaty, to which the United States is also a signatory, defines "peaceful" as "non-military" and specific references to military installations are regarded as exemplificative rather than exhaustive in nature.⁷ The Soviet Union, for example, takes a similar view and argues that the Outer Space Treaty prohibits all military activities regardless of their aggressive nature, albeit in reference to celestial bodies only.⁸ By inference, the interpretation used in applying the Antarctic Treaty should therefore be equally applicable to Article IV of the Outer Space Treaty as well. Further, the United States is also a signatory to several nuclear non-proliferation agreements and the White House would undoubtedly consider it absurd for States to assert that their development and manufacture of nuclear weapons is for "non-aggressive" purposes only and therefore permissible under the Nuclear Non-Proliferation Treaty. As a result, the interpretation adopted by the United States with respect to "peaceful" use of outer space may therefore be contrary to the existing principles of international law.

Articles I and II of the Outer Space Treaty require the activities of States to be in accordance with international law, explicitly referring to the Charter of the

United Nations. Article 2(4) of the Charter requires restraint from the use or threat of use of force, which presumably extends to outer space. This, of course, does not prevent military applications that do not involve the use of force against another State. Further, this specific reference to international law may well save the "non-aggressive" interpretation of the provision. Generally speaking, the interpretation of a treaty provision in international law is subjectively based on the views of the State, unless the interpretation is so wide of the intent of the provision that it would amount to the exercise of bad faith. It would be difficult to suggest that the stance of the United States would constitute bad faith in interpreting the "peaceful purposes" requirement as meaning "non-aggressive" use of space. Consequently, the United States and other States may arguably choose to bind themselves with any reasonable interpretation of Article IV as they see fit.

LAW OF REMOTE SENSING

In response to the need for specific legal rules for remote sensing activities, the General Assembly of the United Nations adopted the Principles Relating to Remote Sensing of the Earth from Outer Space in 1986 to govern the remote sensing activities of States, their nationals and commercial entities.⁹ In these Remote Sensing Principles, "remote sensing" is defined as activities involving "the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects".¹⁰

One major concern relating to remote sensing is its potentially detrimental effect on the sovereignty and the interests of the sensed States. This is especially the case where the States that are subject to the remote sensing activities of other States have not consented to the activities and have not been consulted prior to the

activities taking place. As a result, the Remote Sensing Principles address remote sensing as well as the data produced, including the processing of the "primary data" and the dissemination of "analysed information".¹¹ As with most other international space law instruments, the Remote Sensing Principles require States to "promote international cooperation" by allowing participation of all States on an "equitable and mutually acceptable terms".¹² Further, the Remote Sensing Principles call for the establishment of international processing facilities for remote sensing data "within the framework of regional agreements and arrangements whenever feasible".¹³ The use of vague phrases such as "whenever feasible" and "mutually acceptable" have ensured that the terms of the Remote Sensing Principles would not be specific enough in its terms to be overly controversial for the industrialised States while addressing the real or ideological concerns of the developing States.¹⁴

This is not to suggest that the Remote Sensing Principles provide no legal obstacles to military satellite reconnaissance activities. Specifically, Principle I requires remote sensing activities by States to be undertaken to improve natural resources management, land use and the protection of the environment. This leaves open the interpretation that remote sensing technologies can only be applied for those limited purposes, thus prohibiting any military application as well as other civilian purposes.¹⁵ Alternatively, a more creative argument would be to suggest that remote sensing for other purposes are not prohibited but that they, in fact, fall outside the purview of the Remote Sensing Principles and are therefore governed by existing principles of international law that may relate to such activities.¹⁶

In terms of international state responsibility for governmental and private activities, Principle IV of the Remote Sensing

Principles require activities not to be conducted in a manner that is detrimental to the legitimate rights and interests of the sensed State and with due regard of the rights and interests of other States "in accordance with international law". In regard to the dissemination of data, the Remote Sensing Principles require the distribution of data should be done on a "non-discriminatory basis" and any supply of data is to be done on "reasonable" terms.¹⁷ As Jakhu pointed out, there is no definition and no indication as to what is reasonable and what would constitute a non-discriminatory basis.¹⁸ Meanwhile, there is no limitation on the use of the disseminated data afterwards, which is arguably the stage at which most harm can be done to the sensed States.

The Remote Sensing Principles also require States to ensure that remote sensing activities are conducted in accordance with the Principles and that the operator complies with the "norms of international law on state responsibility for remote sensing activities".¹⁹ This is rather ambiguous since there are, at present, no norms of international law on state responsibility for remote sensing activities. The French text, to which the Russian version is similar, uses the phrase *en ce qui concerne* instead of "for", inferring that the provision relates to the applicability of the general principles of state responsibility to remote sensing activities.²⁰ As each of the texts is equally official in status, it is difficult to determine which interpretation provides the correct operation and approach of the provision.

These continuing controversies over some of the terms and provisions of the Remote Sensing Principles have been significant factors in the opposition of most States to embody them into binding international agreements.²¹ It may be arguable that the Remote Sensing Principles are merely recommendatory rather than binding in nature, as they are not a binding source of international law and may not reflect the

predominant opinion of most States. In any case, the fact that there is a divergence of opinion over the content of the obligations under the Remote Sensing Principles may be a strong indication that there is insufficient state practice and *opinio juris* for the principles to be considered customary in nature. As the binding nature of General Assembly resolutions depend ultimately on their ability to correspond to existing principles of custom, this makes the consideration of the issues relating to military use of commercial remote sensing systems somewhat problematic.

On the other hand, it has been generally accepted that resolutions of the General Assembly, of which the Remote Sensing Principles is one, may serve as a statement of custom that is already established by state practice or to cause States to "march in step in their practice so as to create one".²² Further, the resolution may of itself contribute to the formation of custom as "collective" state practice or *opinio juris*.²³ The process by which the resolutions were adopted and the degree of consensus in the process are both *indicia* of whether the state practice is a general one. The International Court of Justice has suggested in recent times that resolutions of the General Assembly are state practice and, therefore, evidence of existing custom. In the case of *Military and Paramilitary Activities in and against Nicaragua*, the Court relied almost exclusively on General Assembly resolutions in stating the customary law on the use of force.²⁴ Judge Tanaka had suggested that the accumulation of resolutions could be regarded as "the middle way" between legislation by convention and the traditional processes of custom making in formulating international law.²⁵ Several other arbitral and judicial cases have also adopted similar approaches.²⁶

These views have to be balanced with the specific circumstances in which the Remote Sensing Principles were adopted, along with the terms of the Resolution itself. The

Remote Sensing Principles resolution was adopted without a vote by the General Assembly in 1986, as with most other space law principles.²⁷ However, some States nonetheless expressed serious reservations at some of the terms and provisions of the Principles, especially on the issue of the need for consent of the sensed States.²⁸ The continuing debate over the meaning of the terms "discrimination" and the "reasonable basis" for the supply of data lends further support to the view that the Remote Sensing Principles, as a whole, cannot be considered to be evidence of existing principles of customary international law.

Although the whole of the Remote Sensing Principles may not be considered to be the embodiment of customary international law, this does not prevent some of its provisions of the Remote Sensing Principles, especially Principle IV, from having crystallised into custom. In my view, the fact that the resolution containing the Remote Sensing Principles was adopted by consensus, with most of the reservations being made by States to advocate a further requirement of consent to the existing obligation of Principle IV, suggests that the requirement of not undertaking remote sensing activities to the detriment of legitimate rights and interests of sensed States is one of virtually universal support and therefore has crystallised into customary international law. Similarly, the lack of express reservations or disputes over the operation and application of Principle XII may allow such a principle to be asserted to be a binding principle of custom as well.

MILITARY REMOTE SENSING

Even though there continues to be disagreement and debate as to the content of Article IV of the Outer Space Treaty in relation to activities exclusively for "peaceful purposes", many States have nonetheless undertaken military remote sensing and satellite reconnaissance

activities, either without regard to its possible legal ramifications or that they considered such activities to be lawful. Either approach merits closer attention.

As discussed above, Article IV only requires that the Moon and other celestial bodies to be used exclusively for peaceful purposes. By inference, this requirement does not extend to outer space *sensu stricto* or the orbital space around the Earth. The only requirement imposed by Article IV on Earth orbits appears to be the partial demilitarisation by the prohibition on weapons of mass destruction. It would be difficult to regard a remote sensing satellite as a weapon of mass destruction, though the issue may be somewhat different if the satellite is used for target guidance of a nuclear missile. Further, the application of international law to outer space would not inhibit military remote sensing activities, as remote sensing is not a use of force and does not involve a threat of the use of force between States.

As a result of the uncertainties surrounding the application of the demilitarisation provisions of the Outer Space Treaty, it is necessary to consider the implications, if any, which are imposed by the law of remote sensing and customary international law. Space law has often been credited with the speediest creation of customary international law. Following the launch of Sputnik-1, some academics have debated over the creation of the customary principle of applying the *mare liberum* doctrine to outer space.²⁹ In any event, due to the overwhelming acceptance by States of the principles contained in the Outer Space Treaty, customary law appears to be of peripheral importance in the field of space law.³⁰

However, it is perhaps this application of the *mare liberum* doctrine to outer space that is of importance in the present study. By applying the Grotian principle of the freedom of the high seas to outer space, it may be argued that spacecrafts flying over a

subjacent State are inviolate and cannot be harmed or said to be infringing the rights of the subjacent State.³¹ Applying this principle to the case of remote sensing, a sensed State cannot assert that their rights under international law have been infringed as a result of the mere passage of a remote sensing satellite above its sovereign territories. However, this would fall far short of allowing such a satellite to undertake remote sensing activities in a *laissez-faire* manner without reference to the sensed State.

It has been pointed out that most States nonetheless consider military reconnaissance and remote sensing by satellite for military purposes to be lawful.³² It should be of no surprise to many that the States supporting this view are the States with the capability of undertaking military remote sensing activities. The International Court of Justice has stated that customary law can be created purely from the state practice and *opinio juris* of only the States that are concerned with the customary principle, so the argument can be made that the concerned States, namely the States with remote sensing capability, are sufficient in making lawful the military use of remote sensing technology.³³ This view disregards the fact that, unlike maritime delimitation or manned space flight, remote sensing law affects both the sensing and the sensed States. In any event, it is significant to note that the industrialised sensing States did not make any strong reservations against Principle IV when the resolution was adopted in COPUOS and the General Assembly.

The final issues involve whether military remote sensing activities are detrimental to the legitimate rights and interests of the sensed States or if the requirements of non-discrimination in the access to data on reasonable terms are contravened. The first question essentially rests on whether military reconnaissance and surveillance of the sovereign territories of other States is a contravention of international law. In this

situation, it is perhaps useful to consider the position under the international law for other spatial areas. Article 1 of the Chicago Convention on International Civil Aviation, for example, recognises state sovereignty in the airspace above a State's territory.³⁴ Article 36 provides for each State to restrict or regulate the carriage of photographic apparatus on board overflying aircrafts. As Haeck pointed out, it can be deduced from the provisions that aerial espionage by direct overflight is prohibited by the Chicago Convention, but peripheral espionage, such as space imagery, is permitted by international air law.³⁵ Under the law of the sea, ships have the right of innocent passage through territorial waters but this does not provide for reconnaissance and espionage activities undertaken on board while the ships are at sea.³⁶ However, the law of the sea does not prevent espionage and reconnaissance of an adjacent State from international waters.

This presents two possible propositions when considering these legal parallels with military remote sensing activities. It may be seen from the principles of air law and maritime law that reconnaissance and photographic espionage activities may be undertaken in international spatial areas but not in areas to which the sovereignty of the sensed State extends. In other words, it is permissible to undertake reconnaissance in the high seas but not in the territorial waters or the territorial airspace of the target State. On the other hand, it may also be argued that the taking of photographic images for military or strategic purposes along the periphery of a State's sovereign territory may be considered lawful, but it would be a contravention of law to be taking images within the territorial waters or by overflight of the interior of a State's territory. If the taking of images of the interior of the territory of a State is unlawful, then this would undoubtedly compromise the legitimate rights and interests of a State for such activities to take place. The need for consultation and cooperation with the sensed State under the Remote Sensing

Principles and the positions of some States that make prior consent a requirement of lawful remote sensing would lend support to the proposition that military remote sensing activities would be unlawful. In my view, therefore, such activities would be unlawful, as they would be regarded as detrimental to the legitimate rights and interests of the sensed States.

Principle XII of the Remote Sensing Principles, as discussed above, requires the distribution and dissemination of the collected data to be available on "reasonable" terms on a "non-discriminatory" basis. It would clearly be in the strategic interests of States to withhold the data collected from military remote sensing activities from the sensed States. This would clearly contravene the requirement to supply data to the sensed State on reasonable terms and on a non-discriminatory basis. However, this defect in lawfulness can be rectified simply by the sensing State agreeing to supply the collected data to the sensed State on reasonable terms. As a result, this legal requirement is not a bar to military remote sensing activities *per se*, but would instead prevent the monopolisation of the collected data in the hands of the military establishments of the sensing States.

MILITARY AND COMMERCIAL REMOTE SENSING ACTIVITIES

Military Remote Sensing with Partial Civilian Use

The question then follows is whether a military remote sensing operation with partial civilian involvement, operation and supply would be equally unlawful. It should be noted that the unlawfulness of military remote sensing is not associated with the satellites themselves, but rather with the activities undertaken with such a satellite. As a result, the legality of remote sensing activities would depend on the nature of the activity rather than the nature

of the satellites being used for such activities.³⁷

One of the most controversial aspects of the prohibition of military uses involves the use of military personnel and equipment for scientific research and military use of civilian equipment and personnel. Under Article IV of the Outer Space Treaty, the use of military personnel, equipment or facilities for peaceful exploration and scientific research is not prohibited. Some have argued that this undermines the entire principle of prohibiting military uses of space.³⁸ However, it is difficult to sustain a position that the right to scientific use of space should be denied to States that rely on predominantly military programs for their space exploration and activities, especially considering most rockets used for civilian missions have been converted vehicles from long-range missiles. In any event, this point was addressed in the case of *Opinion Construing the Phrase "Naval and Military Works or Materials" as Applied to Hull Losses and Also Dealing with Requisitioned Dutch Ships*, in which the U.S.-German Mixed Claims Commission held that the test of whether an activity or equipment is of a military character is essentially a functional one and not one of nominal status.³⁹ Consequently, even though a vehicle may belong to the military of a State, its use for purely scientific research in Antarctica or on the Moon would be perfectly lawful, as it is the activity, not its ownership, which determines the status of an entity or object in international law.

Unlike military activities, it is possible for commercial or civilian remote sensing activities to be undertaken with compliance to the Remote Sensing Principles. Such activities would be lawful provided that they are done with respect to the sovereign and legitimate rights of the sensed States by the use of the collected data being disseminated for civilian purposes only and that the collected or analysed data are available to the sensed States and other

parties on a reasonable and non-discriminatory basis.⁴⁰ As a result, it is my view that civilian uses of military remote sensing systems would be lawful subject to the legal requirements of the Remote Sensing Principles being met, as would be required of any other remote sensing activity. Ideally, of course, such remote sensing activities should be done with the consent of the sensed State and in cooperation with the relevant authorities in the sensed State.

Commercial Remote Sensing with Partial Military Operation

There may be situations where the military of a State has partial control of the operation and the collection of data from a commercial or scientific remote sensing system. This may occur in relation to a specific satellite in the system or when the system scans a particular third party State or an area of that third party State. It may be prudent to assume that, with the exception of this partial military operation, the remote sensing system would otherwise comply with all requirements of international law.

Since the taking of images of the territorial interior of another State without its consent is necessarily detrimental to its legitimate rights and interests, it is difficult to see any distinction that can be made to distinguish a remote sensing system that is exclusively controlled and operated by the military and a commercial or scientific one that is partially utilised by the military. Just as the designation of military status is based on the nature of the activity rather than the ownership status of the equipment or personnel involved, the use of a commercial remote sensing system by the military would not change the nature of the remote sensing activities being conducted that is, for all intents and purposes, an unlawful military application of remote sensing. Similarly, if the collected data from such operations are used exclusively by the

military establishment or intelligence agencies that are controlling the operation, then this would contravene the requirement under Principle XII that requires the supply collected data to be supplied to the sensed State on reasonable terms and on a non-discriminatory basis.

Commercial Remote Sensing with Military Purchase of Data

In this situation, the commercial remote sensing system is controlled and operated exclusively by civilians, with the military acting as no more than a commercial purchaser of the collected data or images of territorial areas of a sensed State.

Principle I of the Remote Sensing Principles stipulate that "remote sensing activities" covers the operation of remote sensing systems, collection and storage of data and activities relating to the processing, interpretation and dissemination of the processed data. As a result, the requirements in Principle IV to conduct remote sensing activities with due regard to the legitimate rights and interests of the sensed States would extend to the processing and dissemination of the data after collection. In other words, regardless of the intended purpose and the civilian nature of the data collection, the sale or provision of the collected data to a military establishment or intelligence agency would contravene Principle IV for being detrimental to the rights and interests of the sensed State in international law.

As for the application of Principle XII, presumably there would be no restriction imposed by the military purchaser on the supply of the same data to the sensed State on a non-discriminatory basis and on reasonable terms. If the supply agreement between the military purchaser and the remote sensing operator gave the purchaser exclusivity to the data collected, then such an agreement would cause the operator to contravene Principle XII in denying the data to the sensed State.

CONSEQUENCES OF ILLEGALITY

Liability for State Breaches of the Remote Sensing Principles

Articles II and III of the Liability Convention provides that the launching States of a space object are liable for any damage caused by the space object in space, on the surface of the Earth and to aircraft in flight. Article I of the Liability Convention defines a "launching State" as one that launches or procures the launch of a space object or a State from whose territory or facility the space object is launched.

Although the Liability Convention provides for the most detailed provisions to date in relation to liability for space activities, it is doubtful that they would have an application to remote sensing activities where the damage or injury suffered by the sensed State is a strategic one. The term "damage" is defined in Article I as damage to persons or property or other impairments of human health. Although the World Health Organisation has defined "health" as being anything affecting the welfare of a person, it is difficult to see that the provision would have covered a strategic disadvantage or the loss of a strategic advantage.

Article VI of the Outer Space Treaty shall bear international responsibility for "national activities" in outer space and have the responsibility for ensuring that such activities conform to the Outer Space Treaty. This is reinforced by Principle XIV of the Remote Sensing Principles, which prescribe international responsibility for the remote sensing activities of non-governmental entities on the States. Further, Article VII provides that States shall bear liability for any damage caused by space objects that are launched or procured by the State. There is no definitional confinement in the Outer Space Treaty for the type of activities or the damage or injury for which the launching States are to shoulder the liability.

Consequently, grounds for liability under Article VI may be established provided that the sensing State is also a launching State.

The major difficulties would be the mode of enforcement that is available to the injured State and the remedies that may be available. The only judicial or arbitral body with the ability to adjudicate international disputes between States is the International Court of Justice, which would require the States to have submitted to the Court's jurisdiction in a way envisaged by Chapter II of the Statute of the Court. If the sensing State has not submitted to the Court's jurisdiction, then no international legal channels are open to the sensed State beyond diplomatic protests presented bilaterally or through the United Nations.

The damages would also be difficult to quantify. In the frequently-quoted principle from the *Chorzow Factory* case, the defendant State would be liable to pay damages to restore, as far as possible, the situation that would have existed if the unlawful act had not taken place.⁴¹ The problem in this case is that the damages would be impossible to quantify and the sensed State would be entitled to no more than injunctive or declaratory relief from judicial bodies. Even if armed conflict between the States followed such remote sensing activities, it would nonetheless be difficult to quantify the differential in damage inflicted by the sensed State resulting from its possession of the data. This results in the sensed State having no legal remedies available to it for what it may consider to be a grievous injury to its military and strategic safety from present or future military aggression from the sensing State.

State Responsibility for Non-State Violations of Law

In the event that the remote sensing activities is conducted by a non-governmental entity for commercial or scientific purposes, an additional difficulty

is that the remote sensing operator may be the entity of a different State to the one that purchased the data. In other words, the sensing State and the ultimate acquirer of the data may be different States. As the Outer Space Treaty deals with only the States that launched or procured the launch of the space objects involved in the operation, the space law instruments cannot be relied on to prescribe liability onto the ultimate purchaser of the data.

For the sensed State to pursue legal remedies against the sensing State, either for selling the data to its own military establishment or to the intelligence agencies of another State, it would be necessary to demonstrate that the non-governmental entity are nonetheless carrying out "national activities" within the meaning of Article VI of the Outer Space Treaty or that the State is liable under the principles of state responsibility in customary international law.

The term "national activities" have been hotly debated in academic circles, but it is probably safe to assume that it in effect means the activities for which the State would be held to be internationally responsible under principles of state responsibility.⁴² Generally, States have international responsibility for the activities of its nationals or non-governmental entities if the acts can be appropriately attributed to the State.⁴³ This principle was extended in the *Corfu Channel* case in which the Court held that a State cannot knowingly allow its territory to be used for acts contrary to the rights of other States.⁴⁴ In the case of commercial or scientific remote sensing activities, there are two reasons why the States may be found to have sufficient connection to the activities under the principles of state responsibility. First, the States have responsibility under Article VI of the Outer Space Treaty and Principle XIV of the Remote Sensing Principles to provide appropriate supervision to the space activities of its nationals and non-governmental entities. Second, the States

have a responsibility to maintain a register of the satellites launched or operated by their nationals or non-governmental entities, a legal requirement derived from the Registration Convention and Principle IX of the Remote Sensing Principles. As a result, it would be difficult for the States to assert that the remote sensing activities were undertaken without the knowledge of the State.

In any event, the same difficulties in relation to the quantification of damages would similarly arise in the case of commercial or scientific remote sensing operators. There is a possibility that the sensed States may be able to seek binding injunctions against the operators in the domestic courts to prevent any future supply or sale of data to either the military of that State or that of another State. This is especially the case in countries where the law provides for the incorporation of international instruments into domestic law, such as Australia or France.⁴⁵ However, this would not be effective against sensing States that do not provide such domestic legal remedies, nor would it prevent the State from enacting a law requiring the entity to supply data to its military or intelligence agencies.

CONCLUSIONS

In reviewing the law in relation to military remote sensing, it can be seen that there remains some uncertainty over the legality of such reconnaissance activities or the acquisition of similar data from commercial or scientific remote sensing operators. This issue is unlikely to be resolved due to the obvious interests of the sensing States to assert the lawfulness of their activities and for the sensed States to similarly assert their unlawfulness. As the number of States with the ability to conduct such satellite espionage activities continues to increase, it may be no more than a matter of time for States to prefer the protection of their own

military secrets ahead of the need to their espionage activities to be lawful.

Regardless of when the States would agree on the question of lawfulness, it nonetheless highlights the fact that there is an absence of appropriate enforcement measures for the space law instruments or the principles adopted by the General Assembly. Further, there are no adequate remedies available to States for any non-economic injury inflicted on them by any contravention of Principle IV. As the commercialisation of space applications continue to quicken its pace, the need to provide for some form of injunctive relief as well as some formula for the calculation of exemplary damages that is not directly linked to the quantification of the damage caused is becoming increasing apparent. These issues should, among other issues and considerations, provide sufficient fuel for the codification of the law of remote sensing by satellite into a binding convention that most States would find acceptable.

Notes

¹ Outer Space Treaty, Article IV.

² Cheng, *The Legal Status of Outer Space and Relevant Issues: Delimitation of Outer Space and Definition of Peaceful Use* (1983) 11 J. SPACE L. 89 at 102.

³ Markov, among others, holds the opposite view: see Markov, *The Juridical Meaning of the Term "Peaceful" in the 1967 Space Treaty* (1969) 11 PROC. COLL. L. OUTER SPACE 30.

⁴ See the testimony of Ambassador Goldberg in TREATY ON OUTER SPACE: HEARINGS BEFORE THE SENATE COMMITTEE ON FOREIGN RELATIONS (1967) 90th Cong., 1st Sess. 22 at 59; and the statement by the Permanent Representative of the Soviet Union in SUMMARY RECORD OF THE U.N. COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE (1966) U.N.Doc.A/AC.105/C.2/SR.66 at p. 6. See also Lay and Taubenfeld, THE LAW RELATING TO ACTIVITIES OF MAN IN SPACE (1970), at p. 97; and Christol, THE MODERN INTERNATIONAL LAW OF OUTER SPACE (1982), at pp. 29-30.

⁵ TREATY ON OUTER SPACE: HEARINGS BEFORE THE SENATE COMMITTEE ON FOREIGN RELATIONS, *supra* note 4, at p. 59; and Christol, *supra* note 4, at pp. 29-30.

⁶ Charter of the United Nations, Article 2(4).

⁷ The Antarctic Treaty (1959) 402 U.N.T.S. 71; Article I.

⁸ Russell, *Military Activities in Outer Space: Soviet Legal Views* (1984) 25 HARV. INT'L. L. J. 153 at 161; Piradov (ed.), INTERNATIONAL SPACE LAW (1976); and Christol, *supra* note 4, at pp. 28-29.

⁹ See Christol, *Remote Sensing and International Space Law* (1988) 16 J. SPACE L. 21.

¹⁰ Principles Relating to Remote Sensing of the Earth from Outer Space (1986) 41 U.N. G.A.O.R., Supp. 20 (U.N.Doc.A/41/20) (the "Remote Sensing Principles").

¹¹ Remote Sensing Principles, Principle XII.

¹² *Ibid.*, Principle V.

¹³ *Ibid.*, Principle VII.

¹⁴ See Gorove, DEVELOPMENTS IN SPACE LAW: ISSUES AND POLICIES (1991), at pp. 293-302.

¹⁵ Lee, *Reconciling Space Law for the Commercial Realities of the Twenty-First Century* (2000) 4 SINGAPORE J. OF INT'L. & COMP. L. 198 at 216.

¹⁶ Jakhu, *International Policy and Law-Making Process for Remote Sensing by Satellite* (1997) 22:1 ANN. AIR & SPACE L. 451 at 452.

¹⁷ *Ibid.*, Principle XII.

¹⁸ Jakhu, *supra* note 16, at 452.

¹⁹ Remote Sensing Principles, Principle XIV.

²⁰ See Kopal, *Principles Relating to Remote Sensing of the Earth From Outer Space: A Significant Outcome of International Cooperation in the Progressive Development of Space Law* (1987) 30 PROC. COLL. L. OUTER SPACE 322.

²¹ Christol, *Remote Sensing and International Space Law* (1988) 16 J. SPACE L. 21.

²² Harris, CASES AND MATERIALS ON INTERNATIONAL LAW (5th ed., 1998), at p. 61.

²³ Sloan, *General Assembly Resolutions Revisited* (1987) 58 BR. Y. B. INT'L. L. 39. MacGibbon held a contrary view, as he asserted that the formalised conduct of States in the artificial confines of the General Assembly cannot constitute real state practice in the real world: Cheng, INTERNATIONAL LAW: TEACHING AND PRACTICE (1982), at p. 22.

²⁴ (*Nicaragua v United States*) [1986] I.C.J. REP. 4.

²⁵ *Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276, Second Phase (Ethiopia v South Africa; Liberia v South Africa)* [1966] I.C.J. REP. 6 at 292.

²⁶ See *Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons* [1996] I.C.J. REP. 66, at para. 70; *South West Africa*, *supra* note 25, at 31; *Texaco Overseas Petroleum Co and California Asiatic Oil Co v Libya* (1977) 53 INT'L. L. REP. 389; and *Kuwait v American Independent Oil Co* (1982) 21 I.L.M. 976.

²⁷ RESOLUTIONS ADOPTED BY THE GENERAL ASSEMBLY AT ITS 41ST SESSION, United Nations

- Dag Hammarskjöld Library, <
<http://www.un.org/Depts/dhl/res/resa41.htm>>,
 accessed on 1 August 2001.
- ²⁸ Even though formal consensus was reached, the speeches from various delegations at the final negotiations indicated that serious differences of opinion remained in the States' approaches to the issue. For example, the view that sensing States should first seek the permission of the sensed State was taken by Nigeria (1986) U.N.Doc. A/AC.105/SR.290 at 6; Venezuela (1986) U.N.Doc. A/SPC.41/SR.37 (1986) at 14; Turkey (1986) U.N.Doc. A/SPC.41/SR.38; and Algeria at 7.
- ²⁹ See Cheng, *United Nations Resolutions in Outer Space: "Instant" International Customary Law?* (1965) 5 INDIAN J. INT'L. L. 23 at 36. This view appears to be supported by Malanczuk, *Space Law as a Branch of International Law* [1994] NETH. Y. B. INT'L. L. 143 at 160-161. Cooper, on the other hand, asserted that there are no customary principles applying to outer space in the early days of human space exploration: Cooper, *The Rule of Law in Outer Space* (1961) 47 AM. BAR ASS'N. J. 23. The International Court of Justice later held that the requirement of time, however short, is nonetheless necessary for the formulation of customary law: *North Sea Continental Shelf Cases (Federal Republic of Germany v Denmark; Federal Republic of Germany v The Netherlands)* [1969] I.C.J. REP. 4 at 43; and *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v United States)* [1986] I.C.J. REP. 4 at 97. Ramey suggests that Cooper may be in the minority: Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space* (2000) 48 AIR FORCE L. REV. 1 at 68.
- ³⁰ Malanczuk, *AKEHURST'S MODERN INTRODUCTION TO INTERNATIONAL LAW* (7th ed., 1997), at p. 43; and Ramey, *supra* note 29, at 72.
- ³¹ Unless, of course, that the satellite is in fact interfering with a legitimate right of the subjacent State or that, by being there, the satellite has contravened a duty under international law, such as the obligation of non-interference of radio signals under Article 44 of the Constitution and Convention of the International Telecommunications Union.
- ³² Ramey, *supra* note 29; Morgan, *Military Use of Commercial Satellites* (1994) 60 J. AIR L. & COM. 237 at 317; and Vlasic, *The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space*, in Jasani (ed.), *PEACEFUL AND NON-PEACEFUL USES OF SPACE: PROBLEMS OF DEFINITION FOR THE PREVENTION OF AN ARMS RACE* (1991), p. 45 at p. 50.
- ³³ *North Sea Continental Shelf Cases*, *supra* note 29.
- ³⁴ (1944) 15 U.N.T.S. 295 (the "Chicago Convention").
- ³⁵ Haeck, *Aspects Juridiques de Certaines Utilisations Militaires de L'espace* (1996) 21:1 AN. AIR & SPACE L. 65 at 100.
- ³⁶ United Nations Convention on the Law of the Sea (1982) 21 I.L.M. 1261, Articles 17 and 19.
- ³⁷ This is supported also by the general law relating to the classification of military personnel, equipment of materiel as discussed above: *supra* note 39.
- ³⁸ See Topping, *The Legality of President Reagan's Proposed Space-Based Ballistic Missile Defence System* (1984) 14 GA. J. INT'L. & COMP. L. 329; and James, *The Legalities of Antisatellites* (1980) 3 BOSTON COL. INT'L. & COMP. L. J. 467.
- ³⁹ [1924] DEC. OP. 75.
- ⁴⁰ Remote Sensing Principles, Principles IV and XII.
- ⁴¹ *Chorzow Factory (Germany v Poland)* (1928) P.C.I.J. SER. A, NO. 17 at 47.
- ⁴² See, for example, Cheng, *Article VI of the 1967 Space Treaty Revisited: "International Responsibility", "National Activities" and the "Appropriate State"* (1998) 26 J. SPACE L. 7; and Gorove, *Major Definitional Issues in the Space Agreements* (1992) 35 PROC. COLL. L. OUTER SPACE 76.
- ⁴³ *Trial Smelter Arbitration* (1949) 3 R.I.A.A. 1905 at 1965-1966.
- ⁴⁴ *Corfu Channel (United Kingdom v Albania)* [1949] I.C.J. REP. 4 at 22.
- ⁴⁵ The *Space Activities Act 1998* (Cth) of Australia expressly implements the five United Nations space treaties into Australian law. In the case of France, its Constitution provides for the automatic incorporation of treaties ratified by France into its domestic law.