

## Developing Countries and the Law and Politics of Remote Sensing

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### Abstract

At the time when the Outer Space and the extra-terrestrial bodies were declared the “common heritage of all mankind” the extents of the potentials of these extra-terrestrial spaces and surfaces have yet to be determined. Remote Sensing is one of the offshoots of technological developments in the use of space which involves the direct acquisition of territorial information from sites outside the target territory. Technical developments have rendered previous restrictions on data scale, location, resolution and availability irrelevant. Considering these rapid advances, remote sensing technology is capable of generating and delivering a level of information detail that will violate individual right to privacy, which will no doubt, result to a number of direct legal and ethical consequences. Furthermore, advances in digital and information technology have resulted in rapid distribution of information to the global community. The practice of remote sensing has been difficult to justify based on the Common Heritage Principle and has given rise to political and legal questions concerning the rights of the “sensed” states and their citizens. This paper outlines the position of developing countries in the remote sensing scheme, and the effect of remote sensing on the rights of states and their citizens in theory and in practice.

**Keywords:** Remote sensing; Common heritage principle; Target; Sense

### Introduction

The term “remote sensing” is commonly used to describe the science—and art—of identifying, observing, and measuring an object without coming into direct contact with it [1]. It means the “sensing of the Earth’s surface from space making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects [2]. A more precise definition can be found in the Convention on the Transfer and Use of Remote Sensing of the Earth from Outer Space [3]:

The term “remote sensing of the Earth from outer space” means observations and measurements of energy and polarization characteristics of self-radiation and reflected radiation of elements of the land, ocean and atmosphere of the Earth in different ranges of electromagnetic waves which facilitate the location, description of the nature and temporal variations of natural parameters and phenomena, natural resources of the Earth, the environment as well as anthropogenic objects and formations.

The process of remote sensing involves the detection and measurement of radiation of different wavelengths reflected or emitted from distant objects or materials, by which they may be identified and categorised by class/type, substance, and spatial distribution. The radiation emitted by objects vary according to the properties of the material (structural, chemical, and physical), surface roughness, angle of incidence, intensity, and wavelength of radiation energy [4]. Information obtained in remote sensing is a combination of optical and geothermal information which are processed into consumable

data by the interplay of optic, spectroscopic, photographic, electronic, telegraphic and computer technologies.

### The Law on Remote Sensing

Remote sensing is undeniably an international legal issue for two reasons. First, it involves actions by States or their nationals that impact on another State or the nationals of that other State. Secondly, remote sensing makes use of space technologies, and the activities of man in space are regulated by International Law. With the first successful unmanned and manned missions to space and the moon, and in acknowledgment of the inherent potentials of the Outer Space and celestial bodies to mankind, the member-states of the United National adopted the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (the Declaration) [5].

The Declaration, which is the precursor of the Outer Space Treaty (Res 222 XXI, 1966), declares inter alia that:

- The exploration and use of Outer Space shall be carried on for the benefit and in the interest of all mankind;
- 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; and
- 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 cooperation and understanding.

However, as already stated, a clear-cut international legal regime on remote sensing has remained elusive. The United Nations Committee

on the Peaceful Use of Outer Space (UNCOPUOS) was tasked with the formulation of draft principles to deal with the legal implications of remote sensing [6]. However, the legal sub-committee of UNCOPUOS arrived at no significant landing on the nagging issues owing to the formalistic stances adopted by representatives of the various participating interest groups [7].

In essence, it was the case of developing countries pitched against the developed countries and the responsibility of the legal sub-committee invariably was to address the concerns of the developing countries. Whilst developing countries have no share of the remote sensing industry, they are on the receiving end of the scheme. Not only are they targets of the remote cameras, the information obtained from their territories are not freely accessed by them as they have to pay to receive the information.

On an objective analysis, the concerns of the developing countries are unarguably legitimate both under international law and under the domestic laws of the concerned countries for the following reasons:

### **Remote sensing interferes with the territorial sovereignty of the sensed states**

The Charter of the United Nations declares in its Article 2 that [the Organization] is based on the principle of the sovereign equality of all its members." The principle has been stated to mean that States are not only sovereign but equal among themselves [8]. The concept of sovereignty refers to the power of a state to exist free from foreign interference; and since all member States of the United Nations are sovereign nations, they are therefore also deemed to be equal among each other. However, the concept of sovereign inequality is not sacrosanct as a result of political and economic variations among the nations such that some countries naturally exert more political and economic influence than others.

This notwithstanding, the weaker nations are not subject to the whims of the stronger nations, and the stronger nations cannot impose their wills upon the weaker nations without the latter's express consent or implied consent imbued in their membership of international organisations. Sovereignty may therefore be viewed as a normative currency of sovereign nations which they may only compromise in return for recognisable gains. Many times, the unwillingness to compromise sovereignty results in extreme economic hardship on the citizens of that state and shuts them out from foreign aid and respite. Venezuela, Cuba and North Korea are handy examples.

But the current practice of remote sensing takes from a State without giving anything in return. The unpermitted collection of information about a state is in apparent breach of the sovereignty of the sensed State – the power of the sensed State to control the production and dissemination of information about its territory. Freedom of information must find a meeting point with the rights of States to censor some information about their territories which dissemination would be harmful to their interests. The status of the States as subjects of International Law and their rights to privacy is comparable with the right of individual citizens of a State to the privacy of their bodies and homes, and protection from voyeurs.

With VHR remote sensing, foreign countries are able to obtain valuable information about the sensed State's military strategies which may arrogate undue advantages to the sensing State over the sensed State. Further, with VHR remote sensing, foreign countries are able to obtain information about the sensed State's natural resources thereby

acquiring informational advantage at the expense of the technologically less-sophisticated sensed State. Therefore, at least the consent of the sensed State should be sought before information about it is obtained. The freedom of information of one States must be exercised without interfering with the rights and interests of another.

The applicable test in determining whether the sensed States have a right worth protecting against the sensing States should be: "is the information obtained such that a sovereign State would ordinarily regulate its dissemination?" If the answer is in the affirmative, then the sensing State ought to obtain the consent of the sensed State before sensing, disseminating or utilising the data obtained thereby. Indeed, every State has strategic, political and economic information about itself it intends to shield from the public domain, and foreign nationals who are found sourcing for such information are termed as spies. Espionage is treated with serious contempt by States and has affected diplomatic relations between nations. It is therefore difficult to justify a remote espionage on the basis freedom of information.

### **Remote sensing deprives sensed states commercial rights over their information**

It is now beyond controversy that information is a commercial commodity. The concepts of image or publicity rights, copyrights, patents, trademarks and trade secrets have, over the years, crystallised to protect a person or a corporate body's commercial rights over his or its information, or information pertaining to his or its activities. These concepts are universally recognised and regulated by super national agreements under headings such as intellectual property, privacy or under the general heading of informational rights. According to Raysman et al. [9], informational rights include "all rights in information created under laws governing patents, copyrights, mask works, trade secrets, trademarks, publicity rights, or any other law that gives a person independently of contract, a right to control or preclude another person's use of or access to the information on the basis of the rights holder's interest in the information."

Perhaps the most significant international agreement relating to the protection of the commercial value of information is the Agreement on Trade-Related Aspects of Intellectual Property Rights which is the Annex 1C of the Agreement Establishing the World Trade Organisation (WTO). The WTO agreement which has been signed or acceded to by 162 States as at 30 November 2015 has given informational rights and intellectual property its widest validation. Interestingly, the major sensing States – the United States, Russia and the European Union – are all bound by the Agreement on Trade-Related Aspects of Intellectual Property Rights.

It must be clarified that Agreement on the Trade-Related Aspects of Intellectual Property deals with the protection of the right of persons over the creation of the mind and it may be argued that the territorial information obtained via remote sensing are not creation of the mind. However, the underlying factor is the protection of the commercial value in the information belonging to a person from being exploited by another person without compensation.

**According to the New York Civil Rights Law:** Any person whose name, portrait, picture or voice is used within this state for advertising purposes or for the purposes of trade without the written consent first obtained as above provided may maintain an equitable action in the supreme court of this state against the person, firm or corporation so using his name, portrait, picture or voice, to prevent and restrain the use thereof; and may also sue and recover damages for any injuries

sustained by reason of such use and if the defendant shall have knowingly used such person's name, portrait, picture or voice in such manner as is forbidden or declared to be unlawful by section fifty of this article, the jury, in its discretion, may award exemplary damages[...] (NY Civ Rights L § 51 (2014)).

In this context, the position of sensed States may be illustrated using photography. Whilst, it is unrealistic in many circumstances to prevent one's photograph from being taken without prior permission, the use of such photographs for commercial ends automatically vests an interest worth protecting in the person who has been photographed. In the case of *Coton v Burge*, the United States District Court, M.D. Florida, Tampa Division held that the use of a self-portrait of the plaintiff as cover for a pornographic DVD without her consent violated a Florida State law – Fla. Stat. § 540.08 – which provides as follows: “No person shall publish, print, display or otherwise publicly use for purposes of trade or for any commercial or advertising purpose, the name, portrait, photograph, or other likeness of any natural person without the express written or oral consent to such use given by (such person).”

Thus, even if we assume that the act of remote sensing is not an infringement of the sovereignty of the sensed State, it is clear from the foregoing that the sensed State still retains commercial interests in the use, dissemination and trade in the sensed information. The test in this case should be: would the sensed State have earned pecuniary compensation from the distribution of the sensed information? If the information is such that a State or a foreign national would be required by the sensed State to pay before accessing the information, then the sensing State cannot justifiably disseminate the information without first, the knowledge of the sensed State and second, paying the sensed State. The practice of remote sensing could not have been more paradoxical as the sensed States actually pay to receive the information about themselves from the sensing States [10]. This is reminiscent of the colonial practice of freely obtaining and taking away natural resources from colonies only to process and import the finished products for sale in the colonies.

With the use of VHR remote sensing, sensing States are able to obtain extensive vital information about mineral deposits, crop performance and yield forecasts. The information can now be easily accessed by private individuals and entities which make commercial decisions based on the information [11]. In Nigeria, information on solid minerals in the country is regulated by the Nigerian Minerals and Mining Act (hereafter referred to as the NMM Act). Section 2 of the NMM Act provides that “[no] person shall search for or exploit mineral resources in Nigeria or divert or impound water for the purpose of Mining except as provided in this Act.” The NMM Act in its Sections 46, 47 and 164 are to the effect that before a person may search for minerals in Nigeria he must obtain a Reconnaissance Permit, and such a person must either be a citizen of Nigeria or a body corporate registered under the Companies and Allied Matters Act. The Reconnaissance Permit is granted upon the payment of prescribed fees as prescribed in Paragraph 3 of the Guideline on Mineral Titles.

Interestingly, Section 164 of NMM Act defines reconnaissance as “the operations and works to carry out the search for minerals through physical observation, rock sampling, geological surface analysis, geophysical surveys, geochemical surveys, photogeological surveys by other non-obstructive surveys or studies of surface geology or by other remote sensing techniques, laboratory testing and assays.” [Emphasis provided].

Thus, the NMM Act expressly prohibits obtaining information on the mineral deposits in Nigeria via remote sensing without having been issued with a reconnaissance permit. The foregoing shows Nigeria's intention to regulate information about its territory. Remote sensing intrudes on this right.

### **The paparazzi problem: Remote sensing interferes with the constitutionally guaranteed privacy rights of citizens of sensed states**

Remote sensing operates to deny citizens of their constitutionally guaranteed rights to privacy. The combination of the privatisation of the remote sensing industry and the continual improvement on the VHR remote sensing capabilities has exposed citizens to actual or potential interference with their privacy.

Privacy refers to the aspects of a person's being, information and life which he would keep away from the public domain. Section 37 of the Constitution of the Federal Republic of Nigeria protects the “privacy of citizens, their homes, correspondence, telephone conversation and telegraphic communication” from unjustified intrusion. Intrusion into the privacy of a citizen of Nigeria, by virtue of Section 45 of the Constitution, can only be justified if the intrusion is sanctioned by “a law that is reasonably justifiable in a democratic society in the interest of defence, public safety, public order, public morality or public health; or for the purpose of protecting the rights and freedoms of other persons.” In the case of *R v Broadcasting Standards Commission*, the English court extended privacy rights to corporate bodies.

Needless to say, the law does not protect a person or his information from being seen or heard in public domain as they are would no longer qualify as private. However, the manner the public information is used or disseminated may also lead to breach of privacy [12]. Hence, while the surveillance of an individual in his house (barring any legal justification) would be in a clear violation of his privacy, as would be a targeted surveillance in the public, a passive recording of him in public would not be in breach of his privacy. However, the use and dissemination of the passively recorded information may be in breach of that individual's privacy.

According to Prosser's Law of Torts, four categories of interference exist: (a) intrusion on a person's privacy, (b) public disclosure of private facts, (c) putting the plaintiff in a false light in the public eye, (d) appropriation of some elements of the plaintiff's personality for the advantage of another person [13]. Remote sensing in the absence of the consent of the sensed State potentially fits in the mould of Prosser's four categories of interference. This is because VHR remote sensing has proven able to capture images of places and persons with spectacular precision.

A rather hilarious incident recounted by one author was the angst of the CEO of Google Earth, the global leader in commercial VHR remote sensing data distribution “when he found his mansion including swimming pool and other edifices to be easily and rapidly pointed out on the Internet, using Google data” [14]. The commercial nature of VHR remote sensing means that sensing entities may not only capture private data, they readily disseminate the information to third parties for fees. The rapid development of the internet has the more empowered retail access to remotely sensed information which hitherto would have been private.

The mere fact that a person's privacy has been breached is actionable and there is no need to establish that the person has suffered any

inconvenience, loss or injury as a result of the intrusion. Most, if not all democratic States protect the rights of their citizens to their privacy. Although the United States of America does not have an express provision in its law on privacy, the U.S. Supreme Court has severally upheld the rights of privacy. In the case of *United States v Jones*, the court held that an unauthorised attaching of a tracking device to the plaintiff's person without his consent was unconstitutional for the violation of the plaintiff's expectation of privacy.

It may be argued that the protection does not extend against intrusion by foreign nations, who do not owe privacy obligations to citizens of the sensed States. However, the right to privacy is protected under Article 12 of the Universal Declaration of Human Rights (UDHR), which has attained the status of Customary International Law [15]. Its status as Customary International Law means that the UDHR has by reason of the practice and expression of nations, and evidence of a widespread expectation that countries ought to abide by its principles. Thus, the obligation to respect the privacy of persons is binding on sensing States. As a result, their unilateral gathering of information which may be regarded as private by the citizens of the sensed States is not justifiable in International Law.

## Politics of Remote Sensing

The frailty of International Law is fully manifest in the field of remote sensing. Every effort expended in coming up with any binding rule in respect of the relative rights of the sensing States and the sensed States has failed to address the real concerns of the sensed States [14]. The resultant principles formulated after long consultations only gave rise to Pyrrhic victory for the sensed States. The principles, as would be seen below, rather adumbrated the rights of the sensing States to continue their activities unimpeded by the grumbling of the sensed States than addressed the misgivings of the sensed States. The approach of the UN is that remote sensing is an essential activity especially as regards environmental and climate issues. As expected, the spacefaring nations advocate unfettered remote sensing while the sensed States advocate closer cooperation between the sensing States and the sensed States.

The Working Group of the Legal Sub-Committee of the UNCOPUOS was tasked with coming out with a draft principle in respect of remote sensing [16]. Deliberations addressed both the act of sensing and the utilisation of sensed data, but efforts at arriving at a middle ground were frustrated by the unyielding positions of the spacefaring nations. The sensed States were well open to accepting any arrangement which would give them some active roles in the industry, even if it was the symbolic signification of their consent for the sensing of their territories and the dissemination of the sensed data. Unfortunately, the resultant Principles Relating to Remote Sensing of the Earth from Outer Space [2] (hereafter referred to as the Principles) merely restated the positions of both sides but kept the beacons unmoved.

There were a number of concessions which would have addressed the misgivings of the sensed States but with the effect of restricting the liberties of the sensing States. These options were only mentioned in the loosest non-binding phraseologies that they do not possess any persuasive value. It is worth noting that principles and declarations of the UN are not binding but are viewed with respect by member States especially when they are adopted unanimously. Thus, the UNCOPUOS did not achieve any binding framework on remote sensing [6].

## Prior consent consideration

The requirement for prior consent before the territory of a State is sensed or the sensed data is distributed would have obviated the major part of the concerns of the sensed States especially claims as to interference with sovereignty rights. However the suggestion was disregarded in favour of the "principle of freedom of exploration and use of outer space on the basis of equality" (Article IV of the Principles). The Principles did mention that remote sensing activities should be "conducted on the basis of respect for the principle of full and permanent sovereignty of all States and peoples over their own wealth and natural resources" but provides no guidance for the actualisation of that statement.

The obvious stalemate in the Principle is clearly a result of the unwillingness of the developed spacefaring states to agree to restrict their power to access what they could get (and have been getting) for free. The position of the developed countries, mostly of the West, is that the principle of "freedom of exploration and use of the outer space" gives them unfettered rights to space-based remote sensing. In addition, they assert that it is technically impracticable to separate one territory from another from space and therefore it was not possible to determine at which point the consent of the sensed State is required [7].

The United States has an overwhelming lion's share of the global remote sensing market and as a result, its practices most likely form the norm on any remote sensing issue. The position of the United States, which is echoed by other Western spacefaring nations, is the principle of public non-discriminatory distribution of remote sensing data [7]. Thus, sensed data about Nigeria's oil reserves obtained through remote sensing are available to any private individual, company or state entity which is able to pay the fees.

## Bilateral and multilateral treaty solution

Another practicable solution, given the failure of a UN-level framework would have been bilateral and multilateral treaties. This would enable countries to agree terms as to the mechanisms of the remote sensing and what to do with the resultant data. Spacefaring nations from the Eastern bloc led by Russia display a more conciliatory approach to the issue of remote sensing. During the UNCOPUOS deliberations, the bloc advocated respect for State sovereignty and close cooperation among the sensing States and the sensed States [6].

The position of the Eastern bloc is illustrated in the Convention on the Transfer and Use of the Remote Sensing of the Earth from Outer Space which was signed in Moscow in 1978 and which is the only multilateral treaty on remote sensing [6]. That convention reaffirmed in its preamble that it is "the inalienable right of all nations to dispose of their natural resources and of information concerning those resources [...]" In the Article V of that convention, it was further agreed that sensed information "about the natural resources or the economic potential of another Contracting State" shall not be disclosed or made available to anyone except with an explicit consent of the sensed State.

This view was not adopted in the Principle although the Principle might have alluded to the desirability of such treaties as the Eastern bloc convention when it encouraged cooperation between the sensing States and sensed States. The unpopularity of bilateral and multilateral agreement solution apparently reflects the apathy of the United States towards the issue. As noted above, the United States is the norm

creator in the remote sensing field and the authors are not aware of any treaty between the United States and another State in respect of remote sensing.

### Free access by sensed state of data about its territory

With the failure of the prior consent and treaty solutions, it might be beneficial to consider extending incentives and concessions to sensed States in respect of the use of sensed data. It is undeniable the fact that remote sensing has become a vital source of geological, environmental and economic information which are also palatable to sensed States. But the fact that sensed States are required to pay in order to access data about itself, just like other States and private ventures, cannot be sustained by any moral argument. It may be argued that since a person pays to collect his photograph from a photographer, sensed States should also be expected to pay to access data about itself; but it is evidently imperialist to sell commercial resources freely obtained from a State back to that State.

The Principles only provides for the right of the sensed State to obtain the information but is far from recommending obtaining it for free. Instead, it recommends that the sensing States should provide the processed data to the sensed State “on a non-discriminatory basis and on reasonable cost terms” (Article XII of the Principles). The only kinds of information that the Principles recommended should be made freely available to the sensed States are information relating to the protection of the earth’s natural environment and information relevant to the protection of mankind from natural disaster (Article XI of the Principles).

It must be acknowledged the important role which remotely obtained meteorological information has played in the aversion of disasters and in the fight against global warming, but the authors are unable to confirm whether such information are actually obtained free and freely. It has been brought to fore that political and ideological differences and alliances have influenced access to vital remotely sensed data. This was noted in the 1998 Report of the Committee on the Peaceful Uses of Outer Space where it was stated that “[availability] of remote sensing data should not be withheld from particular States based upon their political status.” According to the report,

The Committee noted that Malaysia and its neighbouring countries had recently experienced severe haze episodes caused by uncontrollable peat and forest fires brought on by extreme drought and that data from the SPOT (France) and NOAA/AVHRR (United States) satellites had been used to determine and monitor the burning areas. Since the countries in the region affected by haze did not operate any remote sensing satellites, the Committee appealed to the world space community to further assist in the provision of remote sensing data during such disasters.

It is doubtful whether the non-discriminatory access principle has had any effect in this politically polarised world. It is unlikely that the United States would provide remote sensing data to Syria or to North Korea. With the current spike in terrorism, remotely obtained information about terrorism must also be freely shared with the States concerned. Thus, Nigeria, Cameroun, and Chad should be able to freely request and obtain information on Boko Haram from sensing States, but it is doubtful whether this is the case.

### Conclusion

Progress in remote sensing technology, like every front of technology, is expected to be exponential and the privacy and the security of information of nations as well as individuals will continue to be eroded. The effect of indiscriminately harvesting information about persons and governments was brought to fore by the recent Facebook saga which brought the whole world together in condemning the intrusion of Facebook into the privacy of its users and the commercial distribution of private information. Ironically, the leaders of this outrage against Facebook are the same persons championing unqualified rights to remotely sense another State.

As has been demonstrated above, an international remote sensing framework which does not factor in the interests of the sensed States to protect themselves from the prying eyes of the powerful cameras beaming down from satellites orbiting the earth will be inadequate on every objective standard. The responsibility of UNCOPUOS is, in actual fact, to protect the sensed States and the rights of their citizens from unregulated access to proprietary information about them.

UNCOPUOS has not been able to achieve this for one major reason: International Law depends a lot on the views of the norm-forming countries and the norm-forming countries as far as remote sensing is concerned are the United States, the European Union and Russia. Unfortunately, the majority view of these technologically advanced nations led by United States is that unregulated remote sensing can be justified under the freedom of information principle.

The issue is compounded by the fact that the persons leading the counter argument against the unrestrained freedom of sensing States to obtain and disseminate territorial information stance do not have the political makeweight to change the status quo. This call for closer cooperation between sensed States in order to provide a unified argument that can challenge the political and economic super-powers that have dominated the remote sensing industry.

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