

Evaluation of Remote Sensing Principles 1986: The Unsolved Problems

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Abstract

In the collection and dissemination of satellite remote sensing data, discrepancy of principle between principle of common heritage of mankind and principle of sovereignty have always become an issue of dispute. In order to uphold the sensed state's rights as a sovereign state, Principles on Remote Sensing 1986 had been implemented on 11 April 1986 to govern the activities of satellite remote sensing by sense State. This article attempts to identify the lacuna of law in the implementation of Principles on Remote Sensing 1986, in particular in the occasion of collection and dissemination of satellite remote sensing data. From the critical analysis which has been done by the writer, the writer concluded that Principles on Remote Sensing 1986 fails to protect the legal interest of sensed state. Therefore, the writer proposes international cooperation as the most effective solution to the lacuna of law in the Principles on Remote Sensing 1986.

Keywords: Collection, dissemination, data, satellite, remote sensing, Principles on Remote Sensing 1986.

Introduction

In identifying the lacuna of law in Principles on Remote Sensing 1986, the writer begins the discussion by defining the meaning of satellite, remote sensing and data. Discussion continues with a brief review on the process of collection and interpretation of satellite remote sensing data. Thereafter, the principle of common heritage of mankind and the principle of sovereignty which were identified as discrepancy in collection and dissemination of satellite remote sensing data will be discussed. The main focus of this article is on the Principles on Remote Sensing 1986, which was specially designed to regulate the collection and dissemination of satellite remote sensing data. At the end of the discussion, the writer will

suggest some recommendations to the lacuna of law which have been identified in the Principles on Remote Sensing 1986.

Literature Review

On December 11, 1986 the General Assembly of the United Nations gave its unanimous approval without a formal vote to Resolution 41/65. This Resolution consisted of fifteen "Principles on Remote Sensing," which had obtained consensus in the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space (COPUOS) on April 11, 1986. Consensus had been reached by the Working Group on April 1, 1986. The Remote Sensing Principles of 1986 were the product of the acquisition in space, the return to Earth, the subsequent collating, the processing, and the interpretation of raw data (Christol, 1988).

The growing awareness of the benefits being derived from the fact gathering activities resulted in the elimination of some of the more strident restrictive proposals. In the end many of the State members in the consensus process applauded the spirit of accommodation and compromise which led to the adoption of General Assembly Resolution 41/65. For example. On March 27, 1986 Brazil indicated that while all delegations could not be completely satisfied, the combined efforts had "achieved a balance,"¹³ On April 1, 1986 the Mexican representative credited the consensus process as having produced "equitable legal relations (Christol, 1988)."

The above indications are rather true. The Remote Sensing Principles 1986 has recognized the rights and interests of developing countries. Principle XII Remote Sensing Principles 1986 states:-

As soon as the primary data and the processed data concerning the territory under its jurisdiction are produced, the sensed State shall have access to them on a non-discriminatory basis and on reasonable cost terms. The sensed State shall also have access to the available analysed information concerning the territory under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms, particular regard being given to the needs and interests of the developing countries.

Furthermore, Principle II Remote Sensing Principles 1986 states that "remote sensing activities shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic, social or scientific and technological development, and taking into particular consideration the needs of the developing countries". Meanwhile, Principle IX Remote Sensing Principle 1986 states that "in accordance with article IV of the Convention on Registration of Objects Launched into Outer Space and article XI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, a State carrying out a programme of remote sensing shall inform the Secretary-General of the United Nations. It shall, moreover, make available any other relevant information to the greatest extent feasible and practicable to any other State, particularly any developing country that is affected by the programme, at its request".

However, contrary to the provisions of this Resolution, several States have started making such access subject to their national security concerns, foreign policy interests or

international obligations. Ironically, the United States that has always and ardently advocated the freedom of acquisition and non-discriminatory dissemination of satellite imagery (i.e. open skies policies) has started imposing the most detailed, complex and extensive national legal prohibitions on the collection and distribution of such imagery. These prohibitions apply not only to the American private remote sensing satellite operators but also to almost all foreign operators and satellite imagery distributors that have any link with the US. Any unilateral application of such prohibitions universally, purely on the basis of national interests, will be contrary to the Principles of the 1986 UN Resolution and will seriously impede non-discriminatory access to any satellite imagery even for peaceful purposes and peace-keeping missions (Ram, 2003).

The nature of Remote Sensing Principles 1986 as a soft law has caused some setbacks in terms of protecting the developing countries. According to Andrew T. Guzman and Timothy L. Meyer, soft law often takes the form of an international instrument that has some of the features of a formal treaty, but falls short of the requirements to be one. In general, this means that the states involved do not intend to be bound by international law (Guzman & Meyer, 2010).

According to Anthony D'amato, much of "soft" law is incorporated within "soft" (i.e., non-binding) instruments such as recommendations and resolutions of international organizations, declarations and "final acts" published at the conclusion of international conferences and even draft proposals elaborated by groups of experts. It is thus generally understood that "soft" law creates and delineates goals to be achieved in the future rather than actual duties, programs rather than prescriptions, guidelines rather than strict obligations. It is true that in the majority of cases the "softness" of the instrument corresponds to the "softness" of its contents. After all, the very nature of "soft" law lies in the fact that it is not in itself legally binding (D'amato, 2001).

Soft law is defined as a residual category: "the realm of 'soft law' begins once legal arrangements are weakened along one or more of the dimensions of obligation, precision, and delegation." Thus, if an agreement is not formally binding, it is soft along one dimension. Similarly, if an agreement is formally binding but its content is vague so that the agreement leaves almost complete discretion to the parties as to its implementation, then the agreement is soft along a second dimension. Finally, if an agreement does not delegate any authority to a third party to monitor its implementation or to interpret and enforce it, then the agreement again can be soft (along a third dimension) because there is no third party providing a "focal point" around which parties can reassess their positions, and thus the parties can discursively justify their acts more easily in legalistic terms with less consequence, whether in terms of reputational costs or other sanctions (Gregory & Mark, 2011).

Kenneth Abbott and Duncan Snidal advance a concept of legalization that provides a useful tool for understanding actors' choices in terms of an agreement's characteristics. International agreements can be usefully viewed as varying across three dimensions: (1) obligation, (2) precision of rules, and (3) delegation to a third-party decision-maker. Taken together, these characteristics can give an agreement a "harder" or "softer" legal character. Hard and soft law can thus be distinguished in terms of variation along a spectrum. Hard law, as an ideal type, "refers to legally binding obligations that are precise (or can be made precise through adjudication or the issuance of detailed regulations) and that delegate authority for interpreting and implementing the law." By contrast, "[t]he realm of 'soft law' begins once

legal arrangements are weakened along one or more of the dimensions of obligation, precision, and delegation.” Because international agreements almost invariably exhibit different weaknesses along one or more of these dimensions, they can be viewed in terms of having harder or softer law characteristics. For instance, if an agreement is not formally binding on the parties, it is softer in this first sense. If a formally binding agreement is vague, however, it exhibits softer characteristics along the precision dimension because it enables the parties to exercise almost complete discretion as to its implementation. Finally, if an agreement fails to provide a monitoring or enforcement mechanism, then the agreement is softer along this third dimension because there is no third-party to resolve interpretive disputes arising out of the agreement’s implementation. Without a third party interpreting the legal provisions which govern a dispute, the parties to the dispute can discursively justify their acts more easily in legalistic terms, and with less consequence, whether in terms of reputational costs or other sanctions. Such a third party could, at a minimum, provide a “focal point” around which parties can reassess their positions (Kenneth & Duncan, 2001).

Clearly from the above literature review, the breach of principles listed down under the Remote Sensing Principles 1986 will not entail any state responsibility because the nature of the soft law is a non-binding agreement. Clearly, the nature of Remote Sensing Principles 1986 has become the major setback to the implementation of the Principles. State members have no obligation to oblige to the principles listed under the Remote Sensing Principles 1986 but they are encouraged to give commitment to accomplish the goal of Principles of Remote Sensing 1986.

Materials and Methods

Satellite

Generally, satellite means object which is surrounding other object in outer space. It includes natural celestial bodies and man-made objects that surround other objects in space (Curran, 1984). For example, the moon is a satellite of the earth and the earth is a satellite of the sun. In particular, the satellite means man-made object launched into outer space and revolve around the earth. Among the most commonly used satellite is a satellite communication and satellite remote sensing (Morgan, 1984). For the purpose of this paper, the writer will only focus on satellite remote sensing.

Satellite remote sensing will collect the data from the earth through the outer space (Sabin, 1986). It is located at the orbit line. From the outer space, satellite remote sensing will screen the surface of the earth by using high performance camera (Swain & Davis, 1978). The data will be taken from a particular area at a particular time as scheduled (Lintz & Simonett, 1976). Therefore the satellite will revolve around the earth (Bhatia, 2008). The position of the satellite and the targeted area of earth are not static (Sabin, 1986). The extracted data will be processed in order to be understood and useful. The term remote sensing will be discussed further as this paper in fact will focus on the satellite remote sensing.

Remote Sensing

In 1960, when the word remote sensing is created it was meant to observe and measure the object without touching. Since 1960, remote sensing has brought various definition varies depending on the particular circumstances. According to environmental science like geography, geology, botany, zoology, civil engineering, forestry, meteorology, plantation and

oceanography, remote sensing means the application of electromagnet flashing censor to record the environmental image which can be interpreted to produce useful information (Curran, 1985). Remote sensing is also a science and art to obtain the information on an object, territory, or phenomena through data analysis by using particular tool without directly connecting with the observed object, territory, or phenomena (Lilesand, Kiefer & Chipman, 2004). According to A Modern Dictionary of Geography, remote sensing is defined as a data collection and translation on an object or territory without physical contact with the object and territory (Small & Witherick, 1991).

Taking the picture from the outer space within the distance of electromagnetic wave is the earliest type of remote sensing. However the development of technology has enabled the collection and dissemination of data from other distance such as near infrared, thermal infrared and microwave (Hord, 1986). According to National Aeronautic and Space Administration (NASA), remote sensing means:-

“The acquisition and measurement of data on some property(ies) of a phenomenon, object, or material by a recording device not in physical, intimate contact with the features(s) under surveillance; techniques involve amassing knowledge pertinent to environments by measuring force fields, electro-magnetic radiation, or acoustic energy employing cameras, radiometers and scanners, lasers, radio frequency receivers, radar systems, sonar, thermal devices, seismographs, magnetometers, gravimeters, scintillometers, and other instruments” (NASA, 2015).

In other words, remote sensing is a science to generate data about the earth, land, water and outer space from long distance collection.

Data

To explain in more detail the term ‘data’, the writer divides the meaning of data to general and specific definition. Generally, *Kamus Dewan* defines the data as item or information known or that has been collected about something and can form the basis for the review, analysis or conclusion (Dewan Bahasa & Pustaka, 2007). According to *Oxford Fajar Dictionary*, data means fact or information used to decide or discuss the information which is provided for or which is retained by the computer (Fajar Bakti, 2000). In terms of the legal interpretation, according to the law dictionary, the term data means structured information or recorded information in a form that can be processed by a device and can operate automatically in reacting to instructions given for that purpose (Int. Law Book, 2008).

It also means structured information or recorded information in a form that can be processed by a device which follows specific command (Pearson, 2002). It may consist of numbers, words, graphs or images that require further observation (Golden Book, 1998). According to Wharton's Law Lexicon, data means the site where the data will be processed further or facts that would lead to a conclusion (Universal Law, 2007). Australian Legal Dictionary interprets the term data as information used by the computer for the purposes of calculation, manipulation, or storage (Butterworth, 1997). In short, the data can be considered as facts, especially facts collected for analysis and used to find a reason or make decisions.

Elements of Remote Sensing Process

In much of remote sensing, the process involves an interaction between incident radiation and the targets of interest. This is exemplified by the use of imaging systems where the following seven elements are involved.

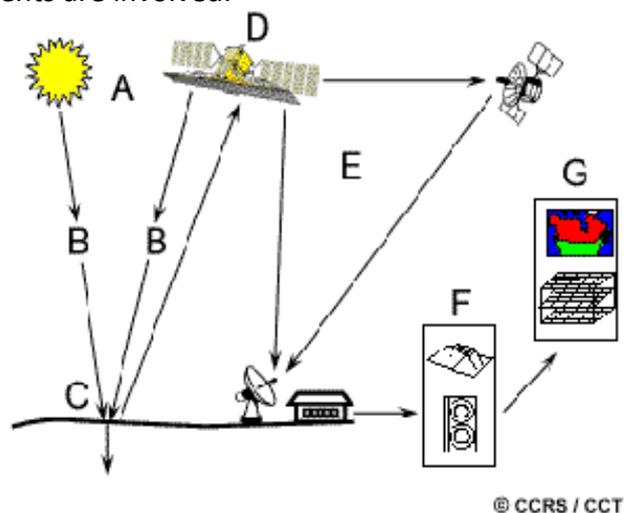


Figure 1. Collection and analysis satellite remote sensing data

<http://www.nrcan.gc.ca/earth-sciences/geomatics/satellite-imagery-air-photos/satellite-imagery-products/educational-resources/9363>

The first requirement for remote sensing is to have an energy source (A) which illuminates or provides electromagnetic energy to the target of interest. As the energy travels from its source to the target (B), it will come in contact with and interact with the atmosphere it passes through. This interaction may take place a second time as the energy travels from the target to the sensor. Once the energy makes its way to the target through the atmosphere (C), it interacts with the target depending on the properties of both the target and the radiation. After the energy has been scattered by, or emitted from the target, a sensor (remote - not in contact with the target) will collect and record the electromagnetic radiation (D).

Thereafter, the energy recorded by the sensor has to be transmitted, often in electronic form, to a receiving and processing station where the data are processed into an image (hardcopy and/or digital)(E). The processed image is interpreted, visually and/or digitally or electronically, to extract information about the target which was illuminated (F). Finally, the application of information that has been able to extract from the imagery (G).

Characterization of Satellite Remote Sensing Systems

The most common characterization of different satellite remote sensing (RS) systems results from the systems diverse spatial, temporal and spectral resolutions.

Spatial Resolution

The spatial resolution specifies the pixel size of satellite images covering the earth surface.

High spatial resolution: 0.41 - 4 m

Low spatial resolution: 30 - > 1000 m

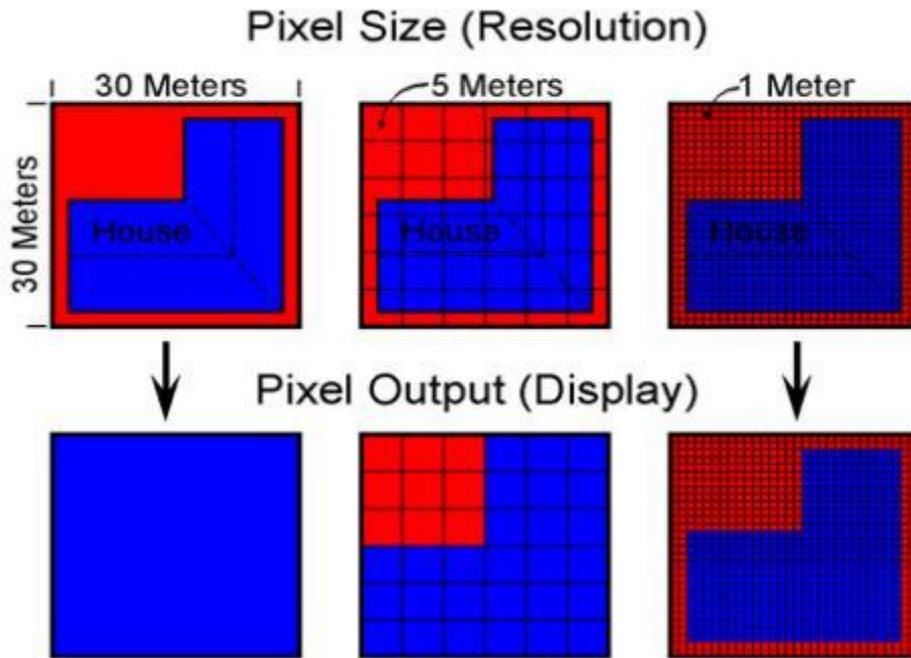


Figure 2. Pixel size of satellite images

<http://www.satimagingcorp.com/services/resources/characterization-of-satellite-remote-sensing-systems/>

Temporal Resolution

The temporal resolution specifies the revisiting frequency of a satellite sensor for a specific location.

High temporal resolution: < 24 hours - 3 days

Medium temporal resolution: 4 - 16 days

Low temporal resolution: > 16 days

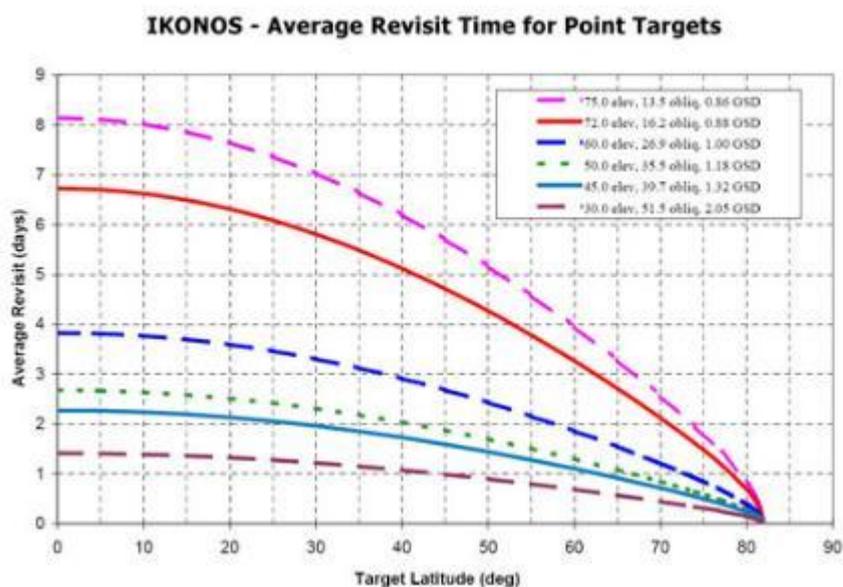


Figure 3. Revisiting frequency of a satellite sensor for a specific location

<http://www.satimagingcorp.com/services/resources/characterization-of-satellite-remote-sensing-systems/>

Spectral Resolution

In the first instance, a sensor's spectral resolution specifies the number of spectral bands in which the sensor can collect reflected radiance. But the number of bands is not the only important aspect of spectral resolution. The position of bands in the electromagnetic spectrum is important, too.

High spectral resolution: - 220 bands

Medium spectral resolution: 3 - 15 bands

Low spectral resolution: - 3 bands

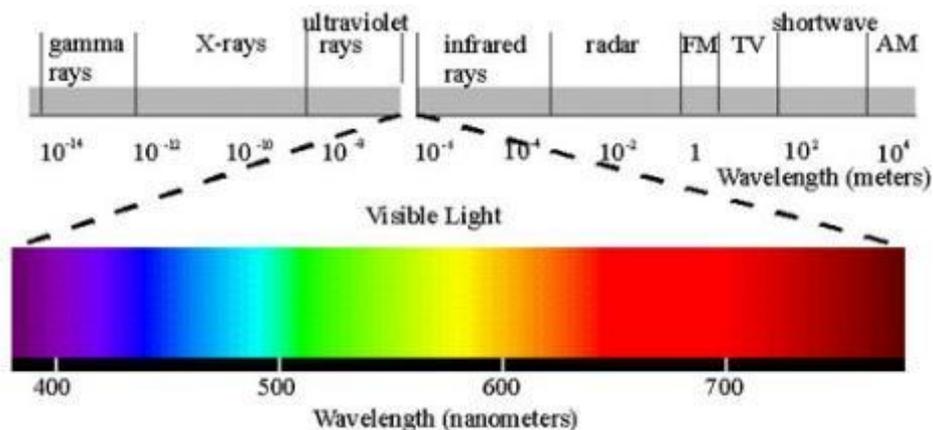


Figure 4. Number of spectral bands

<http://www.satimagingcorp.com/services/resources/characterization-of-satellite-remote-sensing-systems/>

The different spatial, temporal and spectral resolutions are the limiting factor for the utilization of the satellite image data for different applications.

Critical Analysis

All results and discussions were critically analyzed using qualitative method with historical and comparative approaches.

Results and Discussions

Discrepancy of Principles: Principle of Common Heritage of Mankind and Principle of Sovereignty of State in Collection and Dissemination of Satellite Remote Sensing Data

It is pertinent to understand the legal principles that regulate the earth and the outer space. This understanding is essential to enable the readers to comprehend the lacuna of law that exist in Principles on Remote Sensing 1986 in the event of collection and dissemination of satellite remote sensing data.

The idea of common heritage of mankind was triggered by Arvid Pardo of Malta at the United Nations General Assembly in 1967 in which the seas located outside the coastal areas and outside the jurisdiction of a country, and its natural resources are recognized as "the common heritage of mankind" (Gardiner, 2003). It means the area which falls under the category of common heritage of mankind is considered as a joint property regardless of the development of science and technology and the political influence of a country. The principle of equal right and justice in the distribution of natural resources is prioritized (Evans, 2006; Brownlie, 1973; Dixon, 2007). Principle of common heritage of mankind applies to outer space.

Essential elements in the principle of common heritage of mankind enshrined in the Declaration of Principles by the Assembly of the United Nations (Declaration of Principles by the General Assembly), namely: -

1. Joint sovereignty, territory and its natural resources will not become private property, or will not be part of the sovereignty of any country;
2. Joint interest, exploration of an area and its natural resources should be conducted for all mankind;
3. Co-management, international treaties agreed to by all countries will establish an international regime that regulates the area and its natural resources; and
4. Maintaining the area exclusively for peaceful purposes (Pinto, 1996).

On the other hand, territorial sovereignty is a crucial element for a state to be recognized by the international community (O'Brien, 2001; Chambers, 1966; Pergler, 1971; O'Connell, 1971)). Article 1 of the Chicago Convention states that "the contracting states recognize that every state has complete and exclusive sovereignty over the airspace above its territory". Recognition on a state is based on the concept of sovereignty which describes the power of government institutions and state's power as an individual who is recognized in the eye of law (Shaw, 1997; O'Brien, 2001; Kirkemo, 1974). Sovereignty depends on a state's territorial factor (O'Connell, 1971; Dixon, 2007; Gardiner, 2003). As stated by James Crawford, the meaning of the term 'sovereignty' varies (Wilde, 2008). However, Eli Lauterpacht stated that:

“...it is necessary to distinguish between the two principal meaning attributed to the word 'sovereignty'. It is used, in one sense, to describe the right of ownership which a state may have in any particular portion of territory. This may be called 'the legal sovereignty' ...[t]his kind of sovereignty may be likened to the residual title of the owner of freehold land which is let out on a long lease. The word 'sovereignty' is, however, more commonly used, in its second meaning, to describe the jurisdiction and control which a state may exercise over its territory, regardless of the question of where ultimate title to the territory may lie (Wilde, 2008).”

The existence of a state is closely linked to the territory that belongs to it. The concept of sovereignty is still being a main concern with regard to the development of law on the protection of state from trespassing (Bourelly, 1988). The principle which upholds the sovereignty of the territory of a state is considered as one of the international system, as there is custom that prohibits the interference on the internal affairs of a state (Polter, 1976). Territorial sovereignty has been described by Max Huber, an arbitrator in *Island of Palmas Arbitration case* ((1928) American Journal of International Law 22: 875-876). He stated: -

“Sovereignty in the relation between states signifies independence. Independence in regard to portion of the globe is the right to exercise therein, to the exclusion of any other state, the functions of a state.”

As stated above, principle of common heritage of mankind applies to outer space and principle of sovereignty is applied on the earth. Both principles have its respective functions in regulating space and earth. The principle of common heritage of mankind regulates the equal sharing of natural resources while the principle of state sovereignty regulates the territory of a state. Both are mutually exclusive, as the regulations and surroundings are

different. However, in the collection and dissemination of satellite remote sensing data, the discrepancy in law has happened. This is because satellite remote sensing is located in the outer space and is regulated by the principle of common heritage of mankind in which no territorial claims is allowed. In contrast, the satellite remote sensing data is collected from the earth which subject to territorial sovereignty of a state.

When satellite remote sensing is launched into the outer space, according to principle of common heritage of mankind, outer space is not subject to ownership by any state. Therefore, satellite remote sensing is allowed to reside in any part of the outer space. If satellite remote sensing only collecting data which located in the outer space, then it is permissible and does not violate the rights of any state because the outer space is reserved for all mankind. However, the outcome will be different when satellite remote sensing collected the data from the earth which located under the territory and jurisdiction of other state. In fact, collection of data from the territory of other state without prior consent from the sensed state is amounting to a breach of the principle of sovereignty which is an essential element to be recognized as a state. In this circumstance, does the collection of satellite remote sensing data should follow the principle of common heritage of mankind as emphasized in the law of outer space or the principle of state sovereignty as emphasized in international law? If we ignore the principle of state sovereignty which is emphasized in international law, impliedly it means that satellite remote sensing is free to collect data of any state because the satellite remote sensing is located in the outer space which promoted the non-territorial sovereignty claim.

In the matter of dissemination of satellite remote sensing data, under the principle of common heritage of mankind, any benefit should be shared by all mankind (Pinto, 1996). Indirectly, it means that all data collected is jointly owned by all states. According to principle of territorial sovereignty, collection of data is not permitted without prior consent of the sensed state because the collected data is under the territory and jurisdiction of the sensed state. In term of the dissemination of data, consent should also be sought from the sensed state as the principle of state sovereignty gives the right to the sensed state over its territory (O'Brien, 2001; Chambers, 1966; Pergler, 1928; O'Connell, 1971). Therefore, all data collected from any sensed state's territory should obtain consent from the sensed state before the collected data is distributed to third party.

However, based on the principle of common heritage of mankind, a sense state is freely collect the satellite remote sensing data of the sensed state's territory from the outer space and distribute the collected data without prior consent and approval from a sensed state because the satellite remote sensing is located in the outer space which is free from any territory sovereignty claim. The sense state has the ownership of satellite remote sensing data that collected by its satellite remote sensing and the right to use and disseminate the satellite remote sensing data to third party is the discretionary power of the sense state since the sense state has the ownership on its collected satellite remote sensing data. The dissemination of satellite remote sensing data to third party without prior consent is against the territorial sovereignty right of a sensed state under the international law.

The dissemination of satellite remote sensing data of the sensed state to third party will also explore the natural resources information of the sensed state and will cause the unnecessary

threat to the national security of the sensed state because the wealth of the sensed state can be measured by third party and the situation will become worse if the third party is in needs of that particular natural resource which only available in the territory of sensed state. Indirectly, the dissemination of satellite remote sensing data of the sensed state to the third party will weaken and threaten the national security of the sensed state and at the same time will increase the possibility of intervention of the sensed state territory.

Since there is discrepancy between principles of common heritage of mankind and the principle of state sovereignty in the collection and distribution of satellite remote sensing data, it is pertinent for the writer to assess the Principles on Remote Sensing 1986, which regulates activities of satellite remote sensing, in particular the collection and dissemination of satellite remote sensing data.

Principles on Remote Sensing 1986: Critical Analysis

The Nature of Principles 1986: *Soft Law*

Recalling the General Assembly resolution 3234 (XXIX) of 12 November 1974, in which it recommended that the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space should consider the question of the legal implications of remote sensing of the Earth from space, as well as its resolutions 3388 (XXX) of 18 November 1975, 31/8 of 8 November 1976, 32/196 A of 20 December 1977, 33/16 of 10 November 1978, 34/66 of 5 December 1979, 35/14 of 3 November 1980, 36/35 of 18 November 1981, 37/89 of 10 December 1982, 38/80 of 15 December 1983, 39/96 of 14 December 1984 and 40/162 of 16 December 1985, Principles on Remote Sensing 1986 had officially adopted on 11 April 1986.

United Nations General Assembly resolution that declare principles or state rules of international law in abstract terms or that apply such rules to particular cases are not such legally binding upon member or non-member states (Harris, 2010). Therefore, the Principles on Remote Sensing 1986 has a non binding character and to be considered as "*soft law*". Soft law can be defined as a body of guiding principles, standards, rules of conduct, or declarations of policy, which are not strictly binding norms of law (Khin, 2007). Not being legally binding, Principles on Remote Sensing 1986 cannot be enforced in court. Nevertheless, the principles is useful to describe instruments that clearly have an impact on international relations and that may later harden into custom or become the basis of a treaty.

The International Court of Justice in its Judgment of 27 June 1986 in the case of *Nicaragua v. United State* ((1986) ICJ Rep 14: .97), in considering whether the United Nation Charter obligation to refrain from the threat or use of force was also a principle of customary international law, stated:-

"The Court has however to be satisfied that there exists in customary international law an *opinio juris* as to the binding character of such abstention. The *opinio juris* may, though with all due caution, be deduced from inter alia, the attitude of the parties and the attitude of states towards certain General Assembly resolution, and particurly resolution 2625 (XXV)... The effect of consent to the text of such resolutions cannot be understood as merely that of a "reiteration or elucidation" to the treaty commitment undertaken in the Charter. On the contrary, it must be understood as an acceptance of the validity of the rule or set of rules declared by the resolution by themselves..."

It can be concluded that Principles on Remote Sensing 1986 is hardly a binding instrument to the member or non member of United Nation. Therefore, no international responsibility will be imposed against the wrongdoer or any state in the event of breach of Principles on Remote Sensing 1986. However, the Principles on Remote Sensing 1986 is still an important guidelines in forming customary international law through state practise and *opinio juris*.

What is Not Forbidden under Principles on Remote Sensing 1986

According to Principle VI of The Principles on Remote Sensing 1986, all states should be treated equally. Principle VI called for cooperation amount the states with regard to data collection, storage and data processing and cooperation in terms of technology facility. Principle X refers to the needs to protect the natural environment and the duty to inform the states that could be affected by natural disasters. Principle XI called on all states to protect any state from natural disasters. Principle XIII called on the sense state to ask for a negotiation with the sensed state, and provides an opportunity for the sensed state to involve in the operation of satellite remote sensing for mutual benefit.

Principles on Remote Sensing 1986 is important for 'what is not forbidden' by it. Principles on Remote Sensing 1986 do not prohibit activities that have been carried out for a long time and no objection has been raised from other states of such activities. Principles on Remote Sensing 1986 acknowledged that the sense state does not need to obtain the consent from the sensed state. As stated in Principle XIII of the Principles on Remote Sensing 1986, the sense state is urged to hold a negotiation. Thus, the negotiation is not compulsory and is subject to the discretion of the sense state to determine whether a consultation should be held or not. In addition, there is no effective regulatory regime on the dissemination of satellite remote sensing data. In fact, there is no provision which require the exclusive rights of the obtained data for the sensed state, or prohibiting the dissemination of data to third party without prior consent of the sensed state.

Suggestion with Regards to the Lacuna of Law in Application of the Principles on Remote Sensing 1986

The major lacuna in the Principles on Remote Sensing 1986 is that there is no provision requiring the negotiation between the sense state and the sensed state prior to the collection of satellite remote sensing data from the territory of the sensed state. In the dissemination of satellite remote sensing data to third party, the consent of the sensed state is not necessarily obtained. Moreover, the Principles on Remote Sensing 1986 is a "*soft law*" which has no binding effect and only act as a persuasive role in nature.

Therefore, the writer proposes international cooperation as the most effective solution to the lacuna of law in the Principles on Remote Sensing 1986. The term international cooperation has never been defined in the international treaties or international judgments until 1970 when the General Assembly of the United Nations, in the Resolution 26 265 (XXV) recognized the Declaration on Principles of International Law concerning Friendly Relations and Cooperation Among States based on the Charter of the United Nations. The Declaration stated that international cooperation as an act of voluntary coordination of two or more countries that took place under the regime of the law and have the same specific purposes. The main purpose of international cooperation is not only to promote and ensure the security

interests of the countries involved in an activity, but also to preserve the development and progress of developing nations and third world countries.

The writer suggests that more regional agreements to be drafted and ratified amount the regional states in order to protect the territorial sovereignty right of those respective states. Ratified state parties to the regional agreements or particular agreements are bound to the agreements. With the consistent state practice and *opinio juris* of the state parties, it will create customary international law which will bind the non-members to the agreement (North Sea Continental Shelf (1969) ICJ Rep 3).

With reference to the Principles on Remote Sensing 1986, some principles in the Principles on Remote Sensing 1986 can be reinforced through regional agreements in order to protect the interests of the state parties. Principle IV states: -

“...These activities shall 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, with due regard to the rights and interests, in accordance with international law, of other states and entities under their jurisdiction. Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed state.”

This principle indicated that sovereignty of a state is an issue that should be given priority in the collection and dissemination of satellite remote sensing data. Acknowledgment and respect to the territorial sovereignty and natural resources should be prioritized in accordance with international law. It is emphasized that the remote sensing activities should not violate the rights and interests of a state.

However, Principle IV does not clearly stated that the approval and consent of the sensed state to be compulsory before any data collection initiated by the satellite remote sensing. Furthermore, the Principles on Remote Sensing 1986 is not a binding instrument.

Therefore, the sensed state shall draft an agreement which emphasizes the compulsory negotiation between the sense and sensed state and obtain the consent from the sensed state before senses and collects data from the territory of the sensed state and before any data of the sensed State is disseminated to third party in order to protect the sovereignty right of the sensed state.

Conclusion

From the above discussion, it is obvious that the Principle on Remote Sensing 1986 is a *soft law* and has no binding effect to its member and non-member. The Principles on Remote Sensing 1986 is ineffective in the way that it allows the collection and dissemination of satellite remote sensing data without prior consultation and consent from the sensed state. Therefore, the writer hopes that the suggestion proposed by the writer will be taken into consideration to resolve the problems that have been identified in the Principles on Remote Sensing 1986.

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