

REGULATION OF REMOTE SENSING ACTIVITIES IN HONG KONG: PRIVACY, ACCESS, SECURITY, COPYRIGHT AND THE CASE OF GOOGLE

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I. INTRODUCTION

Satellite remote sensing, an important technological development in human history, has been playing an increasingly important role in modern society. Remote sensing makes it possible to collect data on dangerous or inaccessible areas; as such, it functions as a powerful tool in monitoring and assessing the resources of the Earth. In view of its multi-faceted functions and awesome potential, remote sensing has been applied to many different areas, such as weather broadcasting and oceanographic observation.

In recent years society has witnessed the importance of remote sensing on one other strategic area – environmental protection. “The acknowledgement of the necessity” of environmental protection “has led to a growing need for global observation; remote sensing activities, by offering precise geographical details, allow faster and more effective help in predicting natural disasters and use of natural resources.”¹ The importance of remote sensing in this area has been further evidenced in the recent United Nations Climate Change Conference in December 2009 in Copenhagen, Denmark.² By providing accurate data information, remote sensing can provide early warning of environmental pollution and further offer invaluable services in

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¹ Emmanuel Nabet, *Legal Aspects of the Use and Applications of Remote Sensing in South East Asia*, 5 SINGAPORE J. INT'L & COMP. LAW, 156, 159-60 (2001).

² COP15: United Nations Climate Change Conference, <http://www.itu.int/en/osg/activities/Pages/2009-12-cop15.aspx> (last visited Jan. 25, 2011).

prompt assessment of possible damages and coordinating measures against such pollutions.

Although not a Party to the United Nations Framework Convention on Climate Change, Hong Kong joined as members of the Chinese delegation to Conferences of Parties to the Convention. “Given its limited role in global climate talks, Hong Kong had to focus on what it could achieve on its own to reduce carbon emissions.”³ One of the proposals for the emission of carbon emissions is “to strengthen the control of emissions from . . . petrol and liquefied petroleum gas (LPG) vehicles, including the use of roadside remote sensing equipment and dynamometers for emission testing.”⁴ The use of remote sensing is thus placed in an important position in dealing with climate changes. Hong Kong has been applying remote sensing in many other areas, for example, in slope engineering and safety system, and landslide risk management.⁵ An overview of ongoing remote sensing activities in Hong Kong will be further discussed in Part 2 of this article.

The extensive use of remote sensing activities does not necessarily result in a so-called “remote sensing law” in Hong Kong. As one of the most liberalized economies in the world, Hong Kong leaves the regulation of remote sensing activities to the market. Nevertheless, Hong Kong does have an Outer Space Ordinance, which deals with the launching and operation of space objects and the carrying on of other activities in outer space. Part 3 of the paper will examine the regulatory regime for remote sensing activities in Hong Kong. Several important aspects of remote sensing activities will be covered in this part, including space licensing and intellectual property issue. Part 4 of the paper elaborates on the issues of open access (transaction of remote sensing products). When it comes to the issue of open

³ Chi-fai Cheung, *HK's Role Limited, Yau Says*, SOUTH CHINA MORNING POST, Dec. 11, 2009, at 9.

⁴ LEGISLATIVE COUNCIL PANEL ON ENVIRONMENTAL AFFAIRS SUBCOMMITTEE ON IMPROVING AIR QUALITY, PROGRESS OF MEASURES UNDER PEARL RIVER DELTA REGIONAL AIR QUALITY MANAGEMENT PLAN TO ACHIEVE 2010 EMISSION REDUCTION TARGETS 3, CB(1)2437/08-09(1) (Jan. 2010).

⁵ R.K.S. Chan & T.M.F. Lau, *Slope Safety System and Landslide Risk Management in Hong Kong*, http://150.217.73.85/wlfpdf/14_chan.pdf (last visited Mar. 1, 2010) (on file with author).

access, this paper discusses a recent event in which Google decided to move its search engine from mainland China to Hong Kong. This paper will look into relevant legal issues involved in this significant event and its implication to mainland China and Hong Kong in relation to remote sensing activities.

The present paper concludes that remote sensing activities are vital to the sustainable development of Hong Kong and that in view of the particular situation in Hong Kong, the current regulatory regime is sufficient for remote sensing activities in the region.

II. REMOTE SENSING ACTIVITIES IN HONG KONG

While lacking in indigenous launching capabilities, Hong Kong has been able to actively carry out space activities in recent years. Due to its small geographical area, Hong Kong has largely limited its space activities and focused on the information aspect of space: telecommunications services, remote sensing, data, and information. The extensive use of satellite-related space activities in Hong Kong serves the sole purpose of economic development and the improvement of people's livelihood.⁶

Two major satellite companies in Hong Kong provide important telecommunications services. Operating a fleet of five satellites comprising *APSTAR I*, *APSTAR IA*, *APSTAR IIR*, *APSTAR V* and *APSTAR VI*, the APT Satellite Holding Limited ('APT Group') has been providing high quality transponder utilization service, satellite communication service and satellite TV broadcasting service to the broadcasting and telecommunication operators in Asia-Pacific, Europe, and the United States since 1992.⁷ Established in 1988, the Asia Satellite Telecommunications Company Limited (AsiaSat) has three in-orbit satellites, *AsiaSat 3S*, *AsiaSat 4* and *AsiaSat 5*, which are "monitored and controlled . . . by the state-of-the-art satellite control

⁶ Industrial and Commercial Affairs, http://www.cgcc.org.hk/b5/chamber/bulletin/files/AnnualArticle_1222675178.24654_IndustrialandCommercialAffairs.pdf (last visited Jan. 25, 2011).

⁷ APT Satellite Holdings Limited Company Profile, <http://www.apstar.com> (last visited Feb. 4, 2011).

facilities in Hong Kong including the Stanley Earth Station and the AsiaSat Tai Po Earth Station.”⁸

While telecommunications services are major part of space activities, remote sensing activities have been playing an increasingly important role in various areas of social life in Hong Kong. For example, an HRPT (High Resolution Picture Transmission) station for the reception of SeaWiFS (Sea-viewing Wide Field-of-view Sensor) ocean color data was installed at the Hong Kong University of Science & Technology (HKUST) in 1994, where the Institute for the Environment/Environmental Central Facility (ENVF/ IENV) is affiliated.⁹

More importantly, the Satellite Remote Sensing Receiving Station, an important facility of the Institute of Space and Earth Information Science of the Chinese University of Hong Kong CUHK), was set up to capture and process satellite sourced remote sensing data.¹⁰ The Station is “useful in monitoring the environment and natural disasters including landslides, subsidence, earthquakes, tsunamis, floods and typhoons, thereby reducing the risk of civilian casualties and economic loss.”¹¹ The commercial practice of the Station is exemplary for the discussion of the present paper.

III. REGULATORY REGIME IN HONG KONG

Hong Kong has one ordinance specifically dealing with outer space matters. The Outer Space Ordinance came out from localization efforts during the transfer period when China resumed its sovereignty over Hong Kong. This Ordinance confers licensing and other relevant powers on the Chief Executive to ensure the compliance with international obligations of the Peo-

⁸ AsiaSat About Us, <http://www.asiasat.com/asiasat/contentView.php?section=1&lang=0> (last visited Feb. 4, 2011).

⁹ See The Honk Kong University of Science and Technology, Welcome to the HKUST HRPT Satellite Ground Station, <http://envf.ust.hk/satop/> (last visited Feb. 3, 2011).

¹⁰ Satellite Remote Sensing Receiving Station, The Chinese Univ. of Hong Kong, Introduction, <http://www.iseis.cuhk.edu.hk/groundstation/eng-background.htm> (last visited Feb. 3, 2011).

¹¹ *Id.*

ple's Republic of China.¹² It covers the launching or procurement of launching of a space object or any activity in Outer Space. Remote sensing activities are obviously covered by this Ordinance. There are no other relevant remote sensing laws and/or policies in Hong Kong besides this Ordinance. The Hong Kong government takes a liberal approach, leaving the regulation of remote sensing activities to the market. As such, we may need to fall back on certain general legislation for the protection of remote sensing data in Hong Kong. Furthermore, it is essential to look into general practice of remote sensing activities in Hong Kong for legal guidance.

A. Privacy and Security Concerns

The easy availability of remote sensing data leads to a possible concern over privacy and security. "As data availability will be purely driven by market considerations, . . . there are real threats to the rights to privacy [and security] due to possibilities of industrial espionage and the potential use of imagery by anti-social groups."¹³

As far as the concept of "remote sensing data" is concerned, one may immediately think of the Personal Data (Privacy) Ordinance, Cap. 486. Unfortunately, this ordinance does not apply in this case as it only refers to the collection, storage, and use of personal/individual data; "such data are those that describe an individual and attribute things to an individual so that others can identify a particular individual. It applies to Data Users in Hong Kong, whether they are individuals, private companies or public bodies."¹⁴ At the moment, there is no comprehensive data protection law in Hong Kong.

¹² Int'l Law Ass'n, Berlin Conference (2004), Space Law Comm., *Report on the Legal Aspects of the Privatization and Commercialization of Space Activities: Remote Sensing and National Space Legislation*, 16, available at <http://www.ila-hq.org/en/committees/index.cfm/cid/29>.

¹³ KR Sridhara Murthi, *Commercial Availability of High Quality Remote Sensing Imageries: Legal Issues*, 5 SINGAPORE J. INT'L & COMP. LAW, 149, 153 (2001).

¹⁴ Implementation of Data Alignment Measures for the Alignment of Planning, Lands and Public Works Data: Final Report, Vol. 2I, at (1-9)-(1-10) (Mar. 2004, available at http://www.devb.gov.hk/filemanager/en/content_384/frv2I.pdf [hereinafter Final Report]).

In this regard, it might be useful to refer to general policy guidance. The Security Bureau is responsible for developing policies concerning the protection and handling of confidential government information. Four security classifications exist in Hong Kong, from highest to lowest in sensitivity: top secret, secret, confidential, and restricted documents.¹⁵ The above security classification does not necessarily mean that such documents will be denied access.

The Code on Access to Information defines the scope of information available for the public.¹⁶ Part 2 of the Code provides several situations when request of information may be refused: defence and security; external affairs; nationality, immigration and consular matters; law enforcement, legal proceedings and public safety; damage to the environment; management of the economy; management and operation of the public service; internal discussion and advice; public employment and public appointments; improper gain or advantage; research, statistics and analysis; third party information; privacy of the individual; business affairs; premature requests; and legal restrictions.¹⁷

B. Copyright Protection

While there is no specific legislation in Hong Kong on the protection of intellectual property rights in remote sensing data, we can still find support in the Copyright Ordinance (Cap. 528).¹⁸ Copyright has been broadly defined in the Ordinance to subsist in “original literary . . . [or] artistic works; . . . broadcasts; . . . and the typographical arrangement of published editions.”¹⁹ Furthermore, the Ordinance contains provisions regarding the protection of copyright in broadcasting using satellite. “Broadcast” in the Ordinance includes a transmission of visual images which “is capable of being lawfully received by members

¹⁵ Federation of American Scientists, Appendix F: Equivalent Foreign Security Classifications, http://www.fas.org/irp/doddir/dod/5200-1r/appendix_f.htm (last visited Oct. 20, 2010).

¹⁶ See Code on Access to Information, §§ 1.1-1.3 (effective Dec. 23, 1996) (Hong Kong), available at <http://www.access.gov.hk/en/code.htm>.

¹⁷ See *id.* §§ 2.1-2.18.

¹⁸ Copyright Ordinance, (2007) Cap. 528.

¹⁹ *Id.* § 2(1).

of the public in Hong Kong or elsewhere.”²⁰ While not expressly written down in the Copyright Ordinance, originality and creativity are two essential requirements for a work to enjoy copyright protection. Originality requires that the work is not copied from another work. Creativity further requires that at least a minimum degree of independent skill or judgment must have been introduced into the work by the author.²¹

The question is how to define remote sensing data. In this regard, we may need to go further to examine the factor of “creativity” in remote sensing data. The UN Principles relating to Remote Sensing of the Earth from Space in 1986 (UN Remote Sensing Principles) contains three terms: primary data, processed data²² and analyzed information.²³ There is no problem in finding that processed data and analyzed information involve human creativity by processing and analyzing the primary data and, therefore, enjoy copyright protection. Plenty of scholarly works have touched on the problem of copyright barriers to open access of remote sensing data.²⁴ As far as Hong Kong is concerned, this will not be a big problem since remote sensing documents in Hong Kong are largely accessible in a transparent manner. This issue will be further discussed in Part 4.

The Copyright Ordinance further defines Government copyright. “Where a work is made by an officer of the Government in the course of his duties, (a) the work qualifies for copyright protection . . . (b) and the Government is the first owner of any copyright in the work.”²⁵ As discussed below, the Hong Kong

²⁰ *Id.* § 8(1)(a).

²¹ STEVEN L. OBERHOLTZER, *THE BASIC PRINCIPLES OF INTELLECTUAL PROPERTY LAW* 35 (Brinks Hoffer Gilson & Lione, 2006).

²² See Principles Relating to Remote Sensing of the Earth from Space, G.A. Res. 41/65, at Principle I (b), U.N. GAOR, 29th Sess., 95th plen. mtg., U.N. Doc. A/Res/41/65 (Dec. 3, 1986) [hereinafter *Remote Sensing Principles*] (defining “processed data” as “the products resulting from the processing of the primary data, needed to make such data usable.”).

²³ *Id.* at Principle I (d) (defining “analyzed information” as “information resulting from the interpretation of processed data, inputs of data and knowledge from other sources.”).

²⁴ See, e.g., Lesley Jane Smith & Catherine Doldirina, *Remote Sensing: A Case for Moving Space Data Towards the Public Good*, 24 *SPACE POLICY* 22, 22-32 (2008).

²⁵ Copyright Ordinance of Hong Kong, (1997) § 182(1) Cap.528 (H.K.). Copyright Ordinance, Section 182 (1).

Government is one major body in producing remote sensing data, which no doubt enjoys the protection under the category of Government copyright.

When it comes to primary data, reference to the UN Remote Sensing Principles is needed for the definition: "[t]he term 'primary data' means the raw data that are acquired by remote sensors borne by a space object and that are transmitted or delivered to the ground from space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means."²⁶ At this stage, the primary data needs further processing to make it usable. Some scholars believe that it simply constitutes an electronically stored collection of spatial and non-spatial data and involves no human creativity.²⁷ As such, it does not satisfy the requirement of originality for copyright protection.

IV. OPEN ACCESS

The 1986 UN Remote Sensing Principles provides for non-discriminatory access by sensed States to remote sensing data on reasonable cost terms.²⁸ While copyright protection is important for the production of intellectual property work, there are concerns over the undesirable consequence of restricting the use of copyright information by allowing pricing above marginal costs.²⁹ It would be interesting to examine whether such concerns exist in Hong Kong.

A. Transaction of Remote Sensing Products between Private Parties

As mentioned earlier, Hong Kong government leaves private remote sensing activities to the market. There is no restric-

²⁶ Remote Sensing Principles, *supra* note 22, at Principle I (b).

²⁷ See Dennis.S. Karjala, *Copyright in Electronic Maps*, 35 JURIMETRICS J., 395, 395-415 (1995).

²⁸ Remote Sensing Principles, *supra* note 22, at Principle XII.

²⁹ See William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326-27 (1989).

tion on the access to remote sensing data.³⁰ Taking the CUHK Satellite Remote-Sensing Ground Receiving Station as an example, it has completely commercialized its products. *ENVISAT*, an advanced polar-orbiting Earth observation satellite, was launched in 2002 by the European Space Agency.³¹ The ground station receives and processes data from the satellite, and provides useful information to government and private corporations in Hong Kong, South China and neighboring regions.³² A list of product prices is reproduced below:³³

a. Basic Price (# a minimum order of 4 consecutive scenes for programming acquisitions)

Product Mode	Price (Archive)	Price (Programming)
Image Mode	HK\$4300/scene #	HK\$5800/scene #
Wide Swath Mode	HK\$4300/scene	HK\$5800/scene
Alternating Polarization Mode	HK\$4300/scene #	HK\$5800/scene #

b. Extra Programming Fee (# one programming request includes: four consecutive Image Mode images, or four consecutive Alternating Polarization Mode images, or One Wide Swath Mode image)

Programming Mode #	Extra Programming Fee
Regular: Order received 16 days in advance	No extra fee required
Priority: Order received between 9-16 days	HK\$5000/per programming request #
Emergency: Order received between 4-9 days	HK\$25000/per programming request #

³⁰ See e.g., Anthony Yeh, *Development and Applications of GIS in Asia*, <http://www.gisdevelopment.net/proceedings/gisdeco/2004/keynote/gar.htm> (last visited Jan. 25, 2011).

³¹ Satellite Remote Sensing Receiving Station, *supra* note 10.

³² *Id.*

³³ Satellite Remote Sensing Receiving Station, The Chinese Univ. of Hong Kong, *ENVISAT Data ASAR Product*, <http://www.iseis.cuhk.edu.hk/groundstation/eng-price.htm> (last visited Oct. 20, 2010).

c. Discounts for Volume Orders

Description	Discount
Order of 10-15 scenes	5%
Order of 16-50 scenes	10%
Order of more than 50 scenes	15%

d. Non-profit Making Project conducted by Universities and Research Institutes

“To promote the applications and researches on Satellite Remote Sensing, additional discounts can be offered to Universities or Research Institutes for conducting non-profit making projects.”

From the above list, it is clear that remote sensing data producers are in the sole position to decide on transaction terms with relevant customers, such terms normally being on a market basis. This rightly reflects the long-held commercial tradition in Hong Kong.

B. Remote Sensing Data Exchange within the Hong Kong Government

“Under the Digital 21 Information Technology Strategy, the Hong Kong Government has made [remarkable] progress” in recent years aiming to establish itself as “a leading e-business community and digital city” in the world.³⁴ Geographical information systems (GIS) have been extensively employed in capturing, updating, disseminating, performing query, and analyzing remote sensing data, which was frequently used by the government departments in carrying out their services.³⁵

³⁴ Kenneth So Man Cheong & Victor Ng Wai Tak, *Spatial Data Exchange within the HKSAR Government – from a Perspective of a Data Agent*, FIG Working Week 2007, at 1, available at http://www.fig.net/pub/fig2007/papers/ts_1d/ts01d_02_so_ng_1339.pdf.

³⁵ *Id.*

The Data Alignment Measures (DAM) project, led by the former Housing, Planning and Lands Bureau of the Hong Kong Government, commenced on October 16, 2002 and completed in March 2004 aims to improve the efficiency and effectiveness in the exchange of spatial data among government departments and to address the deficiencies arising from data definition, compatibility of data format, data quality, data cost and turn around time.³⁶

The Lands Department, as the primary digital map data supply agency in Hong Kong, is responsible for the related data collection, creation, conversion, integration, and dissemination. It has been assigned to be the Data Agent of the three Common Spatial Units (CSUs), namely, Building, Lot and Road Center-line.³⁷ It works closely with the Data owners in implementing the following CSU standards:

(a) Enforce the specification of CSU - Ensure the data from the Data Owners conform to specification requirements with respect to data completeness, timeliness, symbology standard and file formats standard.

(b) Prepare metadata of each CSU and submit to hosting PD of the Metadata Catalogue System.

(c) Respond to Data Owners/Data Users requests for enquiries on exchanged data.

(d) Issue and maintain CSU IDs - Issue and maintain CSU IDs for the dataset, and ensure the ID's uniqueness to allow PDs to perform translation and matching of their data with respect to the CSU dataset.

(e) Administer dataset ownership;

(f) Observe license arrangement;

(g) Resolve CSU related issues brought up by Data Users and/or Data

Owners, if possible or refer the issues to DAM Management Committee if needed.³⁸

³⁶ Implementation of Data Alignment Measures for the Alignment of Planning, Lands and Public Works Data: Final Report (Volume 1 of 3), Main Text, at 2-1 (Mar. 2004), http://www.devb.gov.hk/filemanager/en/content_384/frv1.pdf.

³⁷ *Id.* at page 1-8.

³⁸ Final Report, *supra* note 14, at (1-3)-(1-4).

The Lands Department has set up the web-based Data Dissemination System (DDS) as part of the data-sharing framework within the e-Government. The DDS facilitates the management and distribution of remote sensing data among Government departments, through its support in importing, manipulating, and integrating the data. Furthermore, such data, while enjoying copyright protection, are also “used by other public and private organizations as a common . . . reference for end-users and for value-adding users.”³⁹ The public can, through the DDS, enjoy the e-government services for the searching, browsing, ordering, and delivery of the data. In this way, the Lands department, through its DDS, is able to provide quality services to the government departments, private entities and individuals.

Licensing agreements have become a preferred means of control over the use and reproduction of spatial databases by suppliers around the world.⁴⁰ Hong Kong is no exception in this regard. A license agreement will be reached between data owners and data users through a data agent concerning the use of relevant data.⁴¹ Relevant conditions, especially the copyright issue, data privacy, and sensitivity, will be put down in the agreement.⁴² Since data owners are basically government departments, the copyright of the data automatically belongs to the Hong Kong Government. Different government departments might have different practice in this regard. Some “adopt a loosen [sic] approach releasing data freely” used by the user some are “more stringent . . . requiring the data [be used] for a specific purpose.”⁴³

As far as fees are concerned, we may also refer to the Code on Access to Information, which requires that “[a]ny charges levied on requests for information will reflect the cost of provid-

³⁹ Cheong & Tak, *supra* note 34, at 3.

⁴⁰ Smith & Doldrina, *supra* note 24, at 31.

⁴¹ DDS of Lands Department, *Supplementary Feasibility Study Report, User Catalogue*, Ref. No.: T122, at 2.2-7 (June 2004) available at <http://www.landsd.gov.hk/mapping/en/news/frs22.pdf>.

⁴² Final Report, *supra* note 14 at (1-2).

⁴³ Cheong & Tak, *supra* note 34 at 9-10.

ing the information.”⁴⁴ The policy of open access in Hong Kong requires that charges for information be simple and inexpensive; as further explained in the Guidelines to the Code on Access to Information, successful applicants for access to information should only be charged for the cost of reproducing the required documents, etc. at the current standard charge where one exists.⁴⁵

V. CASE STUDY: GOOGLE’S MOVE FROM MAINLAND CHINA TO HONG KONG

After more than two months’ negotiations with the Chinese Government, Google decided to redirect its Chinese Internet search operations from censored mainland China to an uncensored site based in Hong Kong (google.com.hk) on March 23, 2010.⁴⁶ This move has aroused heated discussions on various implications to the mainland citizens.

Under its WTO Commitments, China has opened its telecommunications services market to the extent as defined its undertakings: foreign entities can invest up to fifty percent of the joint ventures on value-added telecommunications services; as defined in the list of commitments, value-added services include online information and/or data processing (including transaction processing).⁴⁷ Naturally, Internet services belong to value-added services and fifty a percent cap applies to foreign investments in setting up joint-ventures. In spite of the above WTO commitments, China retains the sovereignty to set the laws within its territory as to the content regulation.⁴⁸

⁴⁴ Code on Access to Information, *supra* note 16, at § 1.24.

⁴⁵ Code on Access to Information: Guidelines for Departments, 25, *available at* <http://www.access.gov.hk/guidelines.pdf>.

⁴⁶ Miguel Helft & David Barboza, *Google Shuts China Site in Dispute Over Censorship*, N.Y. TIMES (March 22, 2010), *available at* <http://www.nytimes.com/2010/03/23/technology/23google.html>.

⁴⁷ *Trade in Services, The People’s Republic of China: Schedule of Specific Commitments*, GATS/SC/135 (Feb. 14, 2002), *available at* <http://docsonline.wto.org/DDFDocuments/t/SCHD/GATS-SC/SC135.doc>.

⁴⁸ Rachel Perkins, *Google vs. China*, VANDERBILT J. ENT. & TECH. LAW, JETLaw Blog, Mar. 30, 2010, <http://jetl.wordpress.com/2010/03/30/google-vs-china/>.

As such, Google entered the Chinese market with its Chinese search engine (google.cn) in January 2006. Upon entering the Chinese market, Google accepted the policies to censor its search results and signed “a licensing agreement that it will not circulate content on certain taboo subjects.”⁴⁹ Now Google has withdrawn from the Chinese market on account of cyber attacks and censorship.⁵⁰

While examining the issues of cyber attacks and censorship in mainland China lies well beyond the research of the current paper, it would be interesting to see the access of Google map and relevant remote sensing data/information available to mainland citizens. As a general practice, Google provides remote sensing data freely on its website. Users can access to the information for their daily use. By moving its search engine to Hong Kong, Google relieves its obligation to censor online contents, leaving the task of censorship to mainland’s powerful Great Firewall,⁵¹ as such, mainland users can still largely make use of Google’s services. And more importantly, as suggested by one commentator, “[a]ny searches conducted on google.com.hk within China, will be filtered and it will likely produce the same filtered results that a search on google.com would produce if performed in China.”⁵² At the moment, Google’s map and other services are still available to mainland citizens.⁵³

Furthermore, although Hong Kong enjoys a high degree of autonomy from mainland China, “the Chinese government could potentially take steps to block Google servers.”⁵⁴ There is no clear indication about whether the Hong Kong-based services

⁴⁹ Elizabeth M. Lynch, *Google & China: Full of Sound & Fury, Signifying Nothing?*, CHINA LAW & POLICY, Mar. 24, 2010, <http://chinalawandpolicy.com/2010/03/24/google-china-full-of-sound-fury-signifying-nothing/>.

⁵⁰ Michael Wines & Jonathan Ansfield, Google’s Troubles in China are Just Beginning, *The International Herald Tribune*, Mar. 24, 2010, at 1.

⁵¹ “The Great Firewall is a protective mechanism that filters search results before they enter mainland China.” Lynch, *supra* note 49. No doubt all the information from Hong Kong will be subject to the Great Firewall. *Id.*

⁵² *Id.*

⁵³ Stefan Geens, *Google Maps: Still Doomed in China*, Oct. 26, 2010, <http://ogleearth.com/2010/10/google-maps-still-doomed-in-china>.

⁵⁴ Michael B. Farrell, *Google ends Internet Censorship, Dares China to make next move*, THE CHRISTIAN SCIENCE MONITOR, Mar. 22, 2010, <http://www.csmonitor.com/USA/2010/0322/Google-ends-Internet-censorship-dares-China-to-make-next-move/>.

would remain available in the mainland. As such, what will be the legal consequence by blocking the access of those services? This is one legal issue among many others.

By denying complete access to Google services, mainland Government could be in a position to encourage other Internet enterprises to provide similar services as long as such remote sensing data/information does not violate Chinese law. In case substitute services are not available in the mainland, mainland users might revert to Google's Hong Kong branch for such services. As discussed above, Hong Kong takes a liberal attitude in access to remote sensing data; the companies are free to decide on transactions of remote sensing data on market value. Under such circumstances, Google's Hong Kong existence shall have no problem in supplying its Google map services and remote sensing data to mainland consumers, possibly again free of charge. Even if Google does not wish to give away its valuable remote sensing data freely to its competitors in the mainland market, the fees charged for the transaction of such data will reflect market prices and be affordable to consumers.

In this regard, one noteworthy point is the influence on mainland China of the ongoing trend of lifting local restrictions on access to remote sensing data. It is said that "the present global trend of increasing informal e-mail exchanges between individuals and access to relevant Web Sites will undoubtedly help to improve information exchange on a regional scale. However, the information made available on Web Sites may still be subject to restrictions in the absence of formal agreements to the contrary."⁵⁵ The event of Google's retreat from the mainland market also directly affirms the two different regimes in mainland China and Hong Kong for public access to remotely sensed imagery.

The importance of the right of individuals to freely choose their sources of information has been recognized worldwide. The right has been well put down in important international human rights documents. The Universal Declaration of Human Rights, adopted in 1948 by the General Assembly of the United Nations,

⁵⁵ Hubert George, *Developing Countries and Remote Sensing: How Intergovernmental Factors Impede Progress*, 16 *SPACE POLICY*, 267, 268 (2000).

has clear wordings that “[e]veryone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”⁵⁶ This document, while not a treaty and binding on the States, has been claimed to constitute customary international law and thus shall be strictly followed by the States.⁵⁷ The above right has been further elaborated in the International Covenant on Civil and Political Rights.⁵⁸ Although not yet a member, China has signed the document and thus shall act, in good faith, “not to defeat the object and purpose” of the Covenant.⁵⁹ This Covenant reiterates the individual’s right to freedom of expression and provides that “the right to freedom of expression . . . include[s] freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice.”⁶⁰ Certain restrictions have been identified in this Covenant, which include the circumstances for “respect of the rights or reputations of others,” and/or “for the protection of national security or of public order, or of public health or morals;” but these restrictions shall only be “such as are provided by law and are necessary.”⁶¹ The media mentioned in the above two international documents obviously covers satellite and Internet. Correspondingly, the right of access to Internet information or remote sensing data lies within the scope of the above documents. As a result, Google’s move from mainland to Hong Kong has no doubt serious implications to the mainland citizens’ right concerning their choice of information.

⁵⁶ Universal Declaration of Human Rights, G.A. Res. 217A, Art. 19, U.N. GAOR, 3d Sess., 1st Plen. Mtg., U.N. Doc. A/810 (Dec. 12, 1948).

⁵⁷ See Lisa L. Turner & Lynn G. Norton, *Civilians At the Tip of the Spear*, 51 A.F. L. REV. 1, 75-76 (2001).

⁵⁸ This document is adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of Dec. 16, 1966; it entered into force on Mar. 23, 1976.

⁵⁹ Vienna Convention on the Law of Treaties, art. 18, May 23, 1969, 1155 U.N.T.S. 331.

⁶⁰ International Covenant on Civil and Political Rights, pt. III, art. 19(2), Dec. 19, 1966, 999 U.N.T.S. .

⁶¹ *Id.* at pt. III, art. 19(3).

At the moment there are no clear rules on the issue of access to remote sensing data in mainland. We may refer to the cooperative framework set up by the Brazil and China for the *CBERS* Application System. Under the framework, *CBERS* data is only available for free for all the Latin American countries and some African countries.⁶² The downlink data is available to other countries on per-minute fee basis.⁶³ Domestically, we may refer to the Interim Measure on the Use of Aero-Remote Sensing Data during the Earthquake Relief Period (the Measure).⁶⁴ The use of remote sensing data is restricted to relevant departments under State Council and People's Government in the disaster area.⁶⁵ The users should specify the purpose and applicable scope of the data in advance.⁶⁶ The users are required to sign confidentiality agreement for the use of secret data.⁶⁷

The above practice shows that remote sensing data are strictly controlled by the Chinese government. Commercialization of remote sensing data has been on the track internationally; however, domestically, the government exerts strict rules on accessing the remote sensing data. On both circumstances, the most prominent restriction lies in the protection of state secrets.

According to the Law on Guarding State Secrets,⁶⁸ state secrets include those "concerning major policy decision on state affairs; . . . in the building of national defence and in the activities of the armed forces; . . . in diplomatic activities and in ac-

⁶² National Institute for Space Research, *China-Brazil Earth Resource Satellite Announces the End of the CBERS-2B Operations*, May 12, 2010, http://www.inpe.br/ingles/news/news_dest118.php.

⁶³ JOANNE IRENE GABRYNOWICZ, *THE LAND REMOTE SENSING LAWS AND POLICIES OF NATIONAL GOVERNMENTS: A GLOBAL SURVEY* (2007), available at <http://www.spacelaw.olemiss.edu/publications/noaa.pdf>.

⁶⁴ Interim Measure on the Use of Aero-Remote Sensing Data during the Earthquake Relief Period, May 16, 2008, <http://vip.chinalawinfo.com/newlaw2002/SLC/SLC.asp?Db=chl&Gid=105198> (last visited Jan. 25, 2011).

⁶⁵ *Id.* at art. 2.

⁶⁶ *Id.* at art. 4.

⁶⁷ *Id.* at art. 6.

⁶⁸ Law on Guarding State Secrets (promulgated by the Standing Comm. Nat'l People's Cong., Sept. 5, 1988, effective May 1, 1989) (P.R.C.), art. 8, translated at Selected Legal Provisions of the People's Republic of China Affecting Criminal Justice, <http://www.cecc.gov/pages/newLaws/protectSecretsENG.php>.

tivities related to foreign countries as well as to be maintained as commitments to foreign countries; . . . in national economic and social development; concerning science and technology; . . . concerning activities for safeguarding state security and the investigation of criminal offences; and other matter classified” by the state secret-guarding department.⁶⁹ State secrets are further classified into three categories: “most confidential, classified and confidential.”⁷⁰ Anyone who “intentionally or negligently releases state secrets shall bear criminal liability.”⁷¹

To strengthen the protection of state secrets, the National People’s Congress is reviewing for possible amendment to the twenty-year-old Law on Guarding State Secrets. The latest version of the draft amendment, according to the report, “in addition to requiring telecom and Internet operators to detect, report and delete information that disclose State secrets, also stipulates the clear obligation for them to work with relevant authorities on investigations.”⁷² It is obvious that the Chinese government is stepping up the control of state secrets in the era of information technology, which has potentially profound implications to access to remote sensing imageries in future.

While Google’s Hong Kong existence has no problem in providing relevant remote sensing data to mainland users, there are further concerns over the mainland regime in controlling the flow of such data. Indeed according to recent reports, “Google suggests [mainland] customers use VPNs, secure shell tunneling, and proxy servers for access;” no matter whether this suggestion is feasible or not, the sole fact of bypassing censorship in mainland will entail legal risks for the mainland customers.⁷³ For example, the 2006 Regulations on the Protection of the Right to Network Dissemination of Information provides

⁶⁹ *Id.* at art. 8.

⁷⁰ *Id.* at art. 8.

⁷¹ Criminal Law, (promulgated by the Standing Comm. Nat’l People’s Cong., July 1, 1979, effective Jan. 1, 1980, amended Mar. 14, 1997) (P.R.C.), art. 398, <http://www.cecc.gov/pages/newLaws/criminalLawENG.php>.

⁷² Wang Huzhong & Wang Xing, *Police to work with phone, Internet providers*, CHINA DAILY, Apr. 27, 2010, at 4.

⁷³ Thomas Claburn, *Google Helps Users Cope with Censorship*, INFORMATIONWEEK, Mar. 29, 2010, at 17.

that anyone who purposely avoids or damages the adopted technical measures shall assume civil liabilities and where any crime is constituted, the violator shall be subject to criminal liabilities.⁷⁴ “Whoever unlawfully obtain[s] state secrets by stealing, spying or buying” shall also possibly be held criminally liable.⁷⁵

VI. CONCLUSION

Remote sensing, a great efficient source for data acquisition,⁷⁶ is increasingly important to daily life. The 1986 UN Remote Sensing Principles is meaningful in the sense that it is the only official document providing general guidelines for remote sensing activities in the international arena. As a UN resolution, the Remote Sensing Principles does not have binding effect; as general guidelines, the Remote Sensing Principles leaves broad discretionary power to the Member States.

“The basic human right of Freedom of Information concerns both the right to obtain information and the freedom to disseminate the acquired data.”⁷⁷ While there is no uniform ap-

⁷⁴ See Ordinance on the Protection of the Right to Network Dissemination of Information (promulgated by the State Council, May 18, 2006, effective July 1, 2006), art. 18. Article 18 of the Ordinance on the Protection of the Right to Network Dissemination of Information provides:

Where anyone violates the present [Regulations] by committing any of the following infringement, he shall, in light of the severity of the situation, assume such civil liabilities as stopping the infringement, eliminating the negative impacts, making an apology and compensating for the losses occurred. In case the public security is injured, the administrative department of copyright may order it to stop the infringement, confiscate the illegal proceeds and may impose thereupon a fine of 100,000 Yuan. In the event of any serious circumstances, the administrative department of copyright may confiscate such facilities as computers that are mainly applied to providing network services. Where any crime is constituted, the violator shall be subject to criminal liabilities according to law: . . . (2) Purposely avoiding or damaging the adopted technical measures . . .

Id.

⁷⁵ Criminal Law, *supra* note 71, at art. 282. See also, *id.* at art.287.

⁷⁶ Yi-Ping Chen & Ming-Der Yang, *Legal Issues on Public Access to Remote Sensing Data in Taiwan*, 2005 IEEE International Geoscience and Remote Sensing Symposium, 264 (2005) (on file with author).

⁷⁷ H. Priyatna Abdurrasyid, *The Application of Remote Sensing in Indonesia*, 5 SINGAPORE J. INT'L & COMP. LAW 139, 146 (2001).

proach in dealing with data access issue around the world, the Hong Kong Government is laudable in taking a liberal approach in guaranteeing their citizens' right to information and knowledge. And indeed, one of Hong Kong's key rationales as a financial center is its freedom of information.⁷⁸ Remote sensing activities have proven to be successful in the past years to the satisfaction of the users despite the lack of remote sensing law in Hong Kong. It is expected the remote sensing data will have broader applications within society, and we can optimistically expect that the Hong Kong Government will continue its established approach in sharing and disseminating remote sensing data for the betterment of the Hong Kong society.

⁷⁸ See Frederik Balfour & Josh Fellman, *Google Faces No Hong Kong Censors After China Retreat*, BUSINESSWEEK, Mar. 23, 2010, <http://www.businessweek.com/news/2010-03-23/google-faces-no-hong-kong-censors-after-china-retreat.html>.