

# The Land Remote Sensing Laws and Policies of National Governments: A Global Survey

by  
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## I. Executive Summary

Generally speaking, all national data policies and laws contain the same fundamental principles. They are: making data available for scientific, social, and economic benefit and restricting access to some data for national security reasons. Differences occur in application of variables: resolution limits, specific Nations that are denied access, etc. Regarding high-resolution commercial data, the trend is to meet national security priorities by making determinations for data requests on a case-by-case basis. The trend is moving away from applying general principles, like the nondiscriminatory access policy, to analyzing the specifics of each request. The analysis of each request itself has also trended away from considering what kind of data is being requested to who is requesting it, and why. In one potential and important case, the analysis is moving completely away from the data and requester to analyzing the sensitivity of the entire context of the transaction. The cumulative effect of these trends emphasizes national security interests over commercial interests and brings control of high-resolution<sup>1</sup> satellites, data, and data products increasingly within the authority of national defense and licensing agencies via various legislative and policy mechanisms.

Formal law and policy is difficult to find due to differences in legal systems, language barriers, and the perceived importance or lack thereof, of the subject matter. However, there is a growing recognition of the need for more formal and transparent laws and policies. The body of law itself is growing. Globalization era issues, remote sensing activities, and access to affordable technology present practical problems and opportunities that are catalyzing remote sensing laws, in particular, and overall national space laws, in general. An increasingly common catalyst is disaster response, mitigation, and management.

The distinction between “public” and “private” in the remote sensing space segment is disappearing worldwide. What constitutes “commercial” operations varies among Nations.

The non-high resolution space-segment worldwide is mostly governmental, not private. A number of national funding entities are questioning the need for a space segment and they are increasing their demands to demonstrate the social and economic value of expensive space-based systems. To demonstrate value, some Nations are establishing State-owned entities organized like private corporations to conduct remote sensing activities. The difficulty in establishing system and data value is exacerbated by the tension between withholding data for national security purposes and making data available to increase its use, thereby demonstrating its economic and social value. In this new emerging era, ensuring survival of some existing systems and demonstrating the social and economic justification for all space-based systems is driving policy and law. The overall intent is to have an expanded user base within growing national security restrictions. Satellite operations are being

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<sup>1</sup> There is no uniform definition of “high-resolution”. Depending on a Nation’s or company’s history and capabilities it can range from 5.8 meters to well under one meter.



permitted by whoever appears to have the ability to succeed, but the increasing tendency worldwide is for an operator to be some form of government entity.

## II. Project Description

This project was undertaken by the National Center for Remote Sensing, Air, and Space Law (Center) and funded by the U.S. National Oceanic and Atmospheric Administration Satellite and Information Service's Commercial Remote Sensing Licensing Program. This study reviews some of the laws and policies that address the commercialization and privatization of space-based remote sensing systems, data, and data products. It contains an analysis of some existing policies, and identifies some Nations that have been reported to be commencing space-based remote sensing activities but do not yet have formal laws and policies. It also identifies some global trends and includes a Nation-by-Nation synopsis of relevant laws and policies. The countries reviewed include Argentina, Australia, Austria, Belgium, Brazil, Canada, China, European Community, France, Germany, Hong Kong (special administrative region of China), India, Iran, Israel, Italy, Japan, Malaysia, Nigeria, Poland, the Russian Federation, South Africa, South Korea, Spain, Thailand, Turkey, Ukraine, the United Arab Emirates, the United States of America, and the United Kingdom.

This study updates and expands work done in 2003 by the Center and presented to the United States Department of Commerce/National Oceanographic and Atmospheric Administration Advisory Committee on Commercial Remote Sensing titled, "A Brief Survey of Remote Sensing Law Around the World"<sup>2</sup>.

## III. Methodology

The core methodology for this study is formal legal research. It included a search on LEXIS/NEXIS and Westlaw, the most extensive legal databases. Research was conducted at the national and sub-unit levels (states, provinces, emirates, etc.) and sought legislative, regulatory, and case law.

This fundamental legal research was complemented by a full literature search of U.S. national, foreign national, and international law and policy materials. These included electronic and traditional hardcopy library sources. A major effort that focused on Internet sources was also conducted. A number of sources provided unofficial translations of legal materials in English.

Finally, where possible, interviews were conducted with government decisionmakers and industry participants. In some cases, information was gathered at professional international meetings and symposia. In other cases, specific visits were made to conduct in-person interviews and to directly observe remote sensing activities and policy processes. This approach was particularly

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<sup>2</sup> Joanne Irene Gabrynowicz, "Brief Survey of Remote Sensing Law Around the World" (2003), available at [http://www.spacelaw.olemiss.edu/activities\\_events\\_2003.htm](http://www.spacelaw.olemiss.edu/activities_events_2003.htm)



fruitful as much of what is considered “policy” does not get published in formal publications and is made by rank and file officials on an “as needed” basis.

It must be stressed that this is not a market study. The trends and observations discussed in this report are those found in law and policy, not market research and economics. The author welcomes any additions and corrections and may be contacted at [jgabryno@olemiss.edu](mailto:jgabryno@olemiss.edu).

#### IV. Acknowledgements

The author would like to thank the many, many people around the world that took time from their very busy professional lives to assist in gathering the information for this project. Like all research projects, not every source gets listed in a footnote; however, the sum of the project is the result of all of their contributions. Their support took many forms: providing access; documents; courtesy translations; interviews; contacts; travel assistance; and, most importantly, sharing their experiences, insights, and views of the subject. In this vein, it is worth noting that, as to be expected, different people from government, industry, and different countries often held different views. All agreed, however, this was a project that ought to be done; and, they looked forward to seeing as comprehensive a result as possible.

The author also wishes to acknowledge and thank the faculty and staff of the National Center for Remote Sensing, Air, and Space Law, and the University of Mississippi School of Law Library for their assistance and support. Particular thanks go to Mr. Michael Dodge and Ms. Melanie Walker who, as researchers, worked on this project and helped make it possible.

#### V. Analysis and Discussion

##### A. The Big Picture

Remote sensing law and policy can be divided into three eras,<sup>3</sup> with a possibly emerging fourth era. The first era was from 1972 to 1983. It began with the launch of the United States’ *Earth Resources Satellite 1*, later renamed *Landsat*. There was only one policy, a United States national policy, and no formal law. The primary policy was the nondiscriminatory access policy, through which all data was made available to any one requesting it with the only stipulation being that the recipient also make the data available on a nondiscriminatory basis. The policy was driven by the Cold War foreign policy goals of influencing allies and nonaligned Nations by demonstrating technological superiority and encouraging them to use the data. Relevant satellites were government operated.

The second era was from 1984 to 1992. This era began with the attempted commercialization of the U.S. *Landsat* system and the advent of the

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<sup>3</sup> Joanne Irene Gabrynowicz, *The Perils of Landsat from Grassroots to Globalization: A Comprehensive Review of U.S. Remote Sensing Law with a Few Thoughts for the Future*, 6 Chi. J. Int’l L.45 (2005). (Fuller discussion.)



French *Satellite Probatoire d'Observation de la Terre, SPOT 1*, and India's *Indian Remote Sensing Satellite, IRS-IA*. The U.S. passed its first Federal remote sensing statute.<sup>4</sup> The policy in both France and the United States was driven by the desire to commercialize remote sensing. India also made the data commercially available internationally and stressed socio-economic development nationally. The French and Indian satellites were operated by governments, and in the U.S. by both government and private actors. All three countries subscribed to the nondiscriminatory access policy in some form. In the case of the United States, it was made part of the Federal remote sensing statute.<sup>5</sup> All three funded the satellites through substantial subsidies resulting in a quasi-private environment. The ostensible user community was intended to be a commercial market but governments continued to be the largest users of remotely sensed data.

The third era was from 1992 to circa 2004. The era began with the United States' second Federal remote sensing statute,<sup>6</sup> returning the *Landsat* system to the public sector; amending the law as it applied to private systems; and declassifying high-resolution satellite technology making it available for commercial and environmental applications. A number of Nations entered the remote sensing arena with space-based systems and policy and law were driven by commercial and environmental policies, and all continued to claim they practiced some form of nondiscriminatory access. For the second time, the United States incorporated it into its amended remote sensing statute<sup>7</sup> and the policy was made part of a number of multilateral and bilateral agreements.<sup>8</sup> Most of the data users were government entities that used the data for national security and environmental purposes. Satellites were operated by both private and government entities.

Around 2004, a number of events occurred that, taken together, caused and are still causing more shifts in the remote sensing legal and policy landscape. Among them were the conclusion of the *Landsat Data Continuity Mission* competitive process in the United States; the failed attempt to integrate a *Landsat* sensor on the National Polar-Orbiting Environmental Satellite System; activation of the *Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters*<sup>9</sup>; growing interest in remote sensing satellite constellations; small satellite technology; and

<sup>4</sup> The Land Remote Sensing Commercialization Act, 15 USC § 4201 et seq. (1984).

<sup>5</sup> *Id.* § 4203

<sup>6</sup> The Land Remote Sensing Policy Act, 15 USC § 5601 et seq. (1992).

<sup>7</sup> *Id.* § 5651.

<sup>8</sup> RADARSAT Data Policy, Document Number: RSCA-PR0004, Sec. 10.1 b., (Canadian Space Agency), July 13, 1994, at 11 ("Data distribution shall be consistent with the United Nations Resolution 41/65 of December 3, 1986 on the Principles Relating to Remote Sensing of the Earth from Space."); ESA Envisat Data Policy, ESA/PB-EO (97) rev. 3, Paris, (European Space Agency), 19 Feb. 98 at 8-9 (1998).; Principles of the Provision of ERS Data to Users, ESA/PB-EO (90) 57, rev. 6, Paris, 9 May 1994, (European Space Agency, Earth Observation Programme Board), Sec. 2 General Principles, 2.1 Legal Principles, para. 2, at 2.

<sup>9</sup> Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters, (2000), *available at* [http://www.disasterscharter.org/charter\\_e.html](http://www.disasterscharter.org/charter_e.html) (last visited December 14, 2006).



developing nations including Algeria, Columbia, Nigeria, and Turkey launching and operating remote sensing satellites, with others, like Malaysia and Thailand, planning to do so. In this new emerging era, ensuring survival of some existing systems and demonstrating the social and economic justification for all space-based systems is driving policy and law. The overall intent is to have an expanded a user base within growing national security restrictions. Satellite operations are being permitted by whoever appears to have the ability to succeed, but the increasing tendency worldwide is for an operator to be some form of government entity. What follows is a discussion of some of the trends, laws, and policies that have begun in the recent past and that are continuing to occur now.

## B. Current Trends

1. ***There is relatively little formal law, and there are more policies than laws, but the trend is to establish more formal law. Remote sensing applications are catalyzing both remote sensing-specific law and national space law.***

Leading actors, like the United States<sup>10</sup> and Canada<sup>11</sup>, have formal, transparent remote sensing legal regimes. Nations do look to other Nations for precedent. For example, the new Canadian statute is based on the U.S. Land Remote Sensing Policy Act and a Canadian – U. S. treaty; however, it also has important distinctions based on Canadian national interests.<sup>12</sup> Korea actively looked to U.S. law and other national laws in developing its own laws and policies.<sup>13</sup> Chinese experts recommend doing the same.<sup>14</sup> Germany is considering a two-tiered “security data policy” analogous to that codified by the

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<sup>10</sup> The U.S. Department of Commerce/National Oceanographic and Atmospheric Administration Satellite and Information Service provides an easily accessed, complete set of U.S. legal and policy reference materials *available at* <http://www.licensing.noaa.gov/reference.html> (last visited December 14, 2006).

<sup>11</sup> The Canadian Parliament House of Commons Standing Committee on Foreign Affairs and International Trade provides an easily accessed source for legal materials *available at* [http://cmte.parl.gc.ca/cmte/CommitteeHome.aspx?Lang=1&PARLSES=381&JNT=0&SELID=e22\\_1&COM=8979&STAC=1091383](http://cmte.parl.gc.ca/cmte/CommitteeHome.aspx?Lang=1&PARLSES=381&JNT=0&SELID=e22_1&COM=8979&STAC=1091383) The Department of Justice Canada provides an easily accessed source for legal materials at <http://lois.justice.gc.ca/en/R-5.4/259133.html> (last visited December 14, 2006).

<sup>12</sup> DVD: Bruce Mann, *Drafting Legislation to Regulate Commercial Remote Sensing Satellites: A How-To Guide from Canada*, 49<sup>th</sup> Colloquium on the Law of Outer Space 3 (2006) (on file with author).

<sup>13</sup> Doo Hwan Kim, *Korea's Space Development Programme: Policy and Law*, 22 *Space Policy* 110 at 112. (2005)

<sup>14</sup> Yun Zhao, *National Space Legislation, with Reference to China's Practice*, Proceedings, Asian Cooperation in Space Activities: A Common Approach to Legal Matters, 8. (2006) (on file with author). “Particular references should also be made to the existing national space legislations [sic] and successful experiences, especially those of the United States (US), which have been rather advanced and complete.”



United States.<sup>15</sup> A number of Nations, for example, Australia and Argentina, have general space laws and regulations that include remote sensing and data activities. At least one Nation, the United Arab Emirates has no space law or remote sensing law for space-based systems, but does have a federal law requiring authorization of “aerial photographic apparatus”.<sup>16</sup> India also requires aerial remote sensing to be cleared by the defense authorities, but this is policy, not law.<sup>17</sup> Some Nations, China, for example, have laws regarding activities related to remote sensing, like mapping.<sup>18</sup>

Some Nations, like India, have overall, comprehensive policies.<sup>19</sup> The current trend for many Nations, like Japan, however, is not to have overall, national policies but more typically to have policies on a satellite-by-satellite basis.<sup>20</sup> Internal discussions can focus on parameters like who is requesting data and why. Absent national law, users and distributors fill the void and seek guidance on a daily basis with domestic, non-space, non-remote sensing regulations. For example, in Malaysia routine data distribution decisions are made according the Malaysian regulations for disaster response.<sup>21</sup> In Nigeria, its 2003 National Geoinformation Policy and its Copyright Act have provisions “intended to protect intellectual property arising from the enhancement and dissemination of remotely sensed data.”<sup>22</sup> And while India does not have a specific space law, “[S]pace-related matters in India are regulated by legal rules belonging to different areas of Indian domestic law...[and]...[t]he legal position of the space industry is largely determined by the Indian Constitution.”<sup>23</sup>

In some Nations, there is no national law but the private law and the satellite operating licensing regulations of another country can govern a transaction. In Poland and the U.A.E., for example, contracts between the national data receiving entity and the foreign satellite data provider are the only legal bases for data distribution absent national laws and policies. In India, the committee that determines whether or not to grant a request for high resolution data does not address requests for 1-meter data or higher because it is

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<sup>15</sup> Dr. Michael Gerhard and Dr. Bernhard Schmidt-Tedd, *Regulatory Framework for the Distribution of Remote Sensing Satellite Data: Germany's Draft Legislation on Safeguarding Security Interests*, 48<sup>th</sup> Colloquium on the Law of Outer Space 2 (2005) (on file with author).

<sup>16</sup> Federal Act No. 20 (1991) Promulgating the Civil Aviation Law.

<sup>17</sup> Interview with V. Sundrararamaiah, Scientific Secretary, Indian Space Research Organization Headquarters, Bangalore, India, (August 7, 2006).

<sup>18</sup> Asian Surveying and Mapping, *China Tightens Controls*, September 12, 2006 available at [http://www.asmmag.com/ASM/content/2006/ASM\\_036/main\\_news\\_8.html](http://www.asmmag.com/ASM/content/2006/ASM_036/main_news_8.html) (last visited December 14, 2006).

<sup>19</sup> Mukand Rao, V. Jayaraman and K.R. Sridharamurthi, *Issues for a Remote Sensing Policy and Perspective of the Indian Remote Sensing Data Programme*, 2002 Proceedings, The First International Conference on the State of Remote Sensing Law, 47-61.

<sup>20</sup> Interview with Yasushi Horikawa, Ph.D., Executive Director, JAXA (Aug. 18, 2006).

<sup>21</sup> Instruction 20 for Disaster Response

<sup>22</sup> Tare Brisibe, *International Obligations and National Regulation of Outer Space Activities in Nigeria*, Proceedings, UN/Ukraine Workshop on Space Law: Status, Application and Progressive Development of International and National Space Law, (in press, on file with author).

<sup>23</sup> V.S. MANI, S. BHATT, AND V.B. REDDY, RECENT TRENDS IN INTERNATIONAL SPACE LAW AND POLICY 129 (1997).



controlled by the data provider's contract.<sup>24</sup> In these cases, private law and foreign regulation shapes national actions and policies, but is not a substitute for national laws.

A rising and rather robust trend is the increased participation by developing nations, newly space capable nations, and nations in alliances with spacefaring nations to develop national space laws that include remote sensing. Examples include Belgium<sup>25</sup> and Nigeria<sup>26</sup>. Even some long-established spacefarers without national legislation are considering, or have begun enacting national law to meet globalization era needs. France<sup>27</sup>, Germany<sup>28</sup>, India,<sup>29</sup> and Japan<sup>30</sup> are excellent examples of this. Informed opinion is also building for establishing space law in Nations that would seem like less likely candidates, for example, Iran.<sup>31</sup>

A major catalyst for establishing space and remote sensing law is the availability of affordable satellite technology and small satellite missions. Austria, Colombia<sup>32</sup>, Nigeria<sup>33</sup>, Poland<sup>34</sup>, and South Africa, among others, have, or are planning to have, small satellite missions that are creating a need for space and remote sensing law from the bottom up. In the case of Colombia, for example, it was a partner in a mission using a picosat for a university project. The other partner participants required Colombia to sign a document stating that the picosat was being used for "peaceful purposes,"<sup>35</sup> an obligation under the *Treaty on Principles Governing The Activities of States in the Exploration and Use of Outer Space, Including The Moon and Other Celestial Bodies (Outer Space Treaty)*.<sup>36</sup> This led to an internal Colombian government assessment as to

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<sup>24</sup> There were conflicting views on this point. This statement was opted for in this report based on the research as a whole. It may be revised at a later date.

<sup>25</sup> Law on the Activities of Launching, Flight Operations or Guidance of Space Objects available at [http://www.belspo.be/belspo/res/rech/spatres/loispat\\_en.stm](http://www.belspo.be/belspo/res/rech/spatres/loispat_en.stm) (last visited December 14, 2006).

<sup>26</sup> Tare Brisibe, *Outer Space Activities and Intellectual Property Protection In Nigeria*, 32 J. Space L. (2006) (in press, on file with author).

<sup>27</sup> Telephone interview with Marco Ferrazzani, Head of Office for Programme Matters, Legal Department, European Space Agency (Dec. 22, 2006).

<sup>28</sup> *Supra* note 15.

<sup>29</sup> Staff Writers, *Enact Space Law To Govern Use Of Remote Sensing Data*, Spacemart, November 23, 2006 available at [http://www.spacemart.com/reports/Enact\\_Space\\_Law\\_To\\_Govern\\_Use\\_Of\\_Remote\\_Sensing\\_Data\\_999.html](http://www.spacemart.com/reports/Enact_Space_Law_To_Govern_Use_Of_Remote_Sensing_Data_999.html) (last visited December 14, 2006).

<sup>30</sup> Interview with Prof. Kazuto Suzuki, University of Tsukuba, (August 17, 2006).

<sup>31</sup> DVD: Ali Akbart Golroo and Mohsen Bahrami, *Lack of National Law in Iran, the Main Obstacle for the Private Sector in Space Activities*, 49<sup>th</sup> Colloquium on the Law of Outer Space, 5 (2006), (on file with author).

<sup>32</sup> E-mail from Juan Carlos Narvaez Gomez, Msc .Satellite Based Communication, Navigation and Surveillance, Civil Aviation of Colombia, Focal Point Fourth Space Conference for the Americas (Viernes, 03 de Febrero de 2006 09:52 a.m.) (on file with author).

<sup>33</sup> Brisibe, *supra* note 26.

<sup>34</sup> Anna Burzykowska, *Space Law Challenges for Smaller European Countries: The Prospective Legal Framework for Space Activities in Poland*, 2006 Proceedings, United Nations/Ukraine Workshop on Space Law: Status, Application and Progressive Development of International and National Space Law (in press, on file with author).

<sup>35</sup> *Supra*, note 32.

<sup>36</sup> Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205.



whether recognizing the treaty principle would be consistent with Colombian national law.<sup>37</sup> In the case of Nigeria<sup>38</sup>, its small remote sensing satellite led to the decision to ratify the Outer Space Treaty and the *Convention on International Liability for Damage Caused by Space Objects (Liability Convention)*<sup>39</sup>. Over time, it can be expected that these growing activities will influence emerging laws, policies, and State practice.<sup>40</sup>

Part of the trend to establish new national space law includes aggressive space law capacity building.<sup>41</sup> This, plus the increased questioning by, and the desire of, decisionmakers and other actors for guidance, portends a dynamic future for remote sensing law, regulation, and policy.

## 2. Transparency of laws and policies is relatively rare, but improving slightly.

For the purposes of this study, “transparency” is defined as legal, regulatory, and policy materials being readily accessible in official sources like published legal codes, regulations, and policies. On the open end of the spectrum is the United States and Canada whose non-classified laws and policies are available in published national legal codes and on numerous Internet sites.<sup>42</sup> This kind of transparency is relatively rare for a number of reasons, including differences among legal systems. Also important are cultural attitudes toward the availability of information and privacy. Some developing countries view transparency as a “weapon” of some developed nations, for example. Language is another important factor. Although English is the accepted language of aerospace activities, not all remote sensing related laws and policies are routinely translated into English.<sup>43</sup>

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<sup>37</sup> *Supra*, note 32.

<sup>38</sup> *Brisibe*, *supra* note 26.

<sup>39</sup> Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187.

<sup>40</sup> Joanne Irene Gabrynowicz, *Comments on the Discussion Paper, Space Law and Remote Sensing Activities*, Proceedings, Workshop on Space Law Disseminating and Developing International and National Space Law: the Latin American and Caribbean Perspective, U.N. Office of Outer Space Affairs, Rio de Janeiro, 22-25 November 2004, , UN Doc. ST/SPACE/28, available at [www.unoosa.org/oosa/en/SpaceLaw/workshops/index.html](http://www.unoosa.org/oosa/en/SpaceLaw/workshops/index.html)

<sup>41</sup> Since 2002, space law capacity building workshops have been held in The Hague, Netherlands; Daejeon, Republic of Korea; Rio de Janeiro, Brazil; Abuja, Nigeria; and, Kyiv, Ukraine. See, <http://www.unoosa.org/oosa/en/SpaceLaw/workshops/index.html>. (last visited December 17, 2006).

<sup>42</sup> See <http://thomas.loc.gov/>, <http://www.licensing.noaa.gov/>, [http://parl11.parl.gc.ca/common/Bills\\_ls.asp?lang=E&ls=c25&source=library\\_prb&Parl=38&Ses=1](http://parl11.parl.gc.ca/common/Bills_ls.asp?lang=E&ls=c25&source=library_prb&Parl=38&Ses=1) and <http://cmte.parl.gc.ca/cmte/CommitteeHome.aspx?Lang=1&PARLSES=381&JNT=0&SELID=e22.1&COM=8979&STAC=1091383> and <http://lois.justice.gc.ca/en/R-5.4/259133.html> (last visited December 14, 2006).

<sup>43</sup> One example is Japan’s Long-Term Plan of Space Development. While parts have been translated, the policy as a whole has not. This is in part, because the policy is being reviewed in light of the merger between ISIS and NASDA (on file with author). Another potential example is the proposed German remote sensing legislation. As of this writing, there are no official plans to provide an official translation of the proposed legislation if passed.



The trend is toward a slight improvement in transparency of remote sensing laws and policies. This is being catalyzed by the Internet,<sup>44</sup> increased academic inquiry<sup>45</sup>, active space law capacity building<sup>46</sup>, and, in some cases, a growing need to coordinate policies for economics and efficiency.<sup>47</sup>

**3. Access to data is the presumed norm with exceptions for national security; the number and kind of exceptions are growing; the UN Principles on Remote Sensing are being more narrowly construed.**

All space-based, non-military remote sensing activities are based on the starting presumption that data is to be made available, particularly to sensed states, on a nondiscriminatory basis and that data is to be as openly available as much as possible. Data denial is the exception, not the rule. Only one system promotes its products on the basis of “exclusivity” and “secrecy”.<sup>48</sup> Regarding high-resolution data, however, the number of exceptions to the nondiscriminatory access policy is growing in Canada<sup>49</sup>, Europe (Germany<sup>50</sup>, France, and Italy<sup>51</sup>),

<sup>44</sup> Deserving of particular mention is the United Nations Office of Outer Space Affairs whose ever-growing website has become an important source for space law. Available at <http://www.unoosa.org/oosa/en/SpaceLaw/index.html>

<sup>45</sup> In addition to the work of the National Center for Remote Sensing, Air, and Space Law at the University of Mississippi in the United States, the work of the International Center for Space Law in Ukraine and the International Institute of Air and Space Law at Leiden University deserves noting. The former has published a number of national space laws in English and Russian, and the latter has conducted research into national space legislation of different nations.

<sup>46</sup> Since 2002, space law capacity building workshops have been held in The Hague, Netherlands; Daejeon, Republic of Korea; Rio de Janeiro, Brazil; Abuja, Nigeria; and, Kyiv, Ukraine. See, <http://www.unoosa.org/oosa/en/SpaceLaw/workshops/index.html>. (last visited December 17, 2006).

<sup>47</sup> Ratification and Execution of the Agreement Between the Government of the Italian Republic and the Government of the French Republic on Cooperation In the Field of Earth Observation, Done In Turin, 29th January 2001. Published in the Gazzetta Ufficiale (Official Gazette) 31st January 2004, no 25, Preamble, (“Wishing to develop their respective Earth observation capacities and economise national resources by means of cooperation”) [hereinafter *Turin Agreement*] (on file with author).

<sup>48</sup> Imagesat International <http://www.imagesatintl.com/> (last visited December 22, 2006).

<sup>49</sup> Remote Sensing Space Systems Act 2005, OPERATION OF REMOTE SENSING SPACE SYSTEMS, Applications, Licences and Related Matters , “8. (7) In a licence, the Minister may restrict the provision of remote sensing products or classes of such products from the licensed system to persons or classes of persons other than the licensee or system participants on any conditions that the Minister considers appropriate. The conditions may include requirements that, in specified cases or circumstances, the provision of the remote sensing products

(a) be subject to the Minister’s prior approval; or

(b) be done only under a legally enforceable agreement, entered into in good faith, that includes measures respecting their security or their further provision”.

available at <http://lois.justice.gc.ca/en/R-5.4/259133.html#rid-259155> [hereinafter Remote Sensing Act 2005] (last visited December 14, 2006).

<sup>50</sup> Interview with Wolfgang Schneider, Federal Ministry of Economics and Technology, (if proposed law passes, it will have no reference to the UN Remote Sensing Principles and non-discriminatory access) (November 30, 2006).

<sup>51</sup> Turin Agreement, *supra*, note 47. “Art. V.(e) Use of products of the Defence Ministries



India<sup>52</sup>, Israel,<sup>53</sup> and the United States<sup>54</sup>, among others. Recent and pending

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Products generated to meet specific Defence Ministry requirements may be placed at the disposal of commercial or private users, after having been subjected to a process of degradation and declassification, in accordance with the joint rules on the use of data which form the subject of a specific agreement.”

<sup>52</sup> ISRO:EOS:POLICY-01:2001 Indian Space Research Organisation Hq Bangalore-560 094 Remote Sensing Data Policy (RSDP) available at [www.isro.org/Announcement-opportunity/rdsp.pdf](http://www.isro.org/Announcement-opportunity/rdsp.pdf)

“1. For operating a remote sensing satellite from India, license and/or permission of the Government, through the nodal agency, will be necessary. [ ...]

c. Government reserves the right to impose control over imaging tasks and distribution of data from IRS or any other Indian remote sensing satellite when it is of the opinion that national security and/or international obligations and/or foreign policies of the Government so require. Policy restricting anything less than 2.5m” [ ...]

4. Government prescribes the following guidelines to be adopted for dissemination of satellite remote sensing data in India:

a. All data of resolutions up to 5.8 m shall be distributed on a non- discriminatory basis and on “as requested basis”

b. With a view to protect national security interests, all data of 5.8 m and better than 5.8 m resolution images will be screened by the appropriate agency before distribution so that images of sensitive areas are excluded.

i. Data of 5.8m and up to 1m resolution can be distributed to users after screening and ensuring the sensitive areas are excluded.

ii Data of 1m resolution and better will also be screened as above and the following procedure will be followed for its distribution

1. Government users can obtain the data without any further clearance.

2. Private sector agencies, recommended by at least one Government agency for use of 1 m and better resolution data for supporting development activities, can obtain it without any further clearance.

3. Other Private, Foreign and other users can obtain the data after further clearance from an inter-agency High Resolution Image Clearance Committee (HRC).

4. Specific requests for data of sensitive areas, by any user, can be distributed only after obtaining clearance from HRC.

5. Specific sale/non-disclosure agreements to be concluded between NRSA and users for data of 1 m resolution and better.

<sup>53</sup>Imagesat International, “Through the unique SOP and EPOD programs, Customers acquire a completely autonomous, secret, regional high-resolution imaging capability.”

<http://www.imagesatintl.com/> (last visited October 17, 2006).

<sup>54</sup> National Defense Authorization Act for fiscal year 2005., P.L. No. 108-375 § 1034 (2004).

(a) Disclosure Prohibited.--Land remote sensing information may not be disclosed under section 552 of title 5, United States Code.

(b) Land Remote Sensing Information Defined.--In this section, the term “land remote sensing information”--

(1) means any data that--

(A) are collected by land remote sensing; and

(B) are prohibited from sale to customers other than the United States Government and its affiliated users under the Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5601 et seq.);

and

(2) includes any imagery and other product that is derived from such data.

(c) State or Local Government Disclosures.--Land remote sensing information provided by the head of a department or agency of the United States to a State or local



legislation demonstrate that national security interests are being made a priority over general data access. The proposed German legislation “tends to support commercialization” but recognizes that the legislation’s purpose is “the necessity of safeguarding security and foreign policy interests [and this] guides the contents of the regulations of the draft legislation”.<sup>55</sup> Governments are engaging in what is more correctly characterized as “controlled access”, rather than “restricted access” and are construing the *U.N. Principles Relating to Remote Sensing of the Earth from Outer Space*<sup>56</sup> more narrowly. For example, the new Canadian legislation specifically contends that a sensed State’s right to data of its territory is limited to data used for resource management purposes.<sup>57</sup> Regarding the proposed German legislation and the U.N. Principles, “[b]y interpreting the terms ‘non-discriminatory’ and ‘reasonable’ or by imposing security aspects prevail [sic] on Principle [ ] XII distributions, the legislating State can restrict the access of the sensed State to data of its own territory due to security or foreign policy interests”.<sup>58</sup> In some cases making exceptions to data access has given way to intentionally establishing dual use policies for dual use systems. The formal definition of “dual use” used by Italy and France is a “satellite observation system developed...for military and civil use (institutional and commercial)...”<sup>59</sup> The data policy flowing from this definition allows for “direct access to the satellites” by defense entities and all other users, including commercial. They must go through a civilian operator who has an exclusive worldwide license. Allocation of all system resources, including data, is 40% for institutional bodies of cooperating countries and less than 10% for defense.<sup>60</sup>

All current and pending national legislation and policy provide for some form of “shutter control”. That is, Government-authorized mechanisms to interrupt, withhold, or prevent data access. The means are increasingly varied and growing.

Nonetheless, regardless of actual practice, no Nation or data supplier wants to appear to denounce the nondiscriminatory access policy and the *U.N.*

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government may not be made available to the general public under any State or local law relating to the disclosure of information or records.

(d) Safeguarding Information.--The head of each department or agency of the United States having land remote sensing information within that department or agency or providing such information to a State or local government shall take such actions, commensurate with the sensitivity of that information, as are necessary to protect that information from disclosure prohibited under this section.

(e) Other Definitions.--In this section, the terms “land remote sensing” and “United States Government and its affiliated users” have the meanings given such terms in section 3 of such Act (15 U.S.C. 5602).

<sup>55</sup> Gerhard et al., *supra* note 15, at 2.

<sup>56</sup> Principles Relating to Remote Sensing of the Earth from Outer Space (resolution 41/65 of 3 December 1986)

<sup>57</sup> Mann, *supra* note 12, at 7.

<sup>58</sup> Gerhard, et al., *supra* note 15, at 6.

<sup>59</sup> Turin Agreement, *supra* note 47, at Art. 1 (e).

<sup>60</sup> DVD: Michel Arnaud, Benoit Boissin, Lionel Perret, Eric Boussarie & Alain, Gleyzes, *The Pleiades Optical High Resolution Program*, Proceedings, 57th International Astronautical Congress Proceedings 2-3, (2006) (on file with author.)



*Principles.*<sup>61</sup> Even a provider that promotes “exclusivity”, “autonomy”, and “secrecy” in marketing its system and data, when asked in a public forum, stated that it abides by nondiscriminatory access.<sup>62</sup> In this sense, expressed opinion continues to assert a presumption of data openness and availability. These assertions, however, must be considered in the context of changing and emerging State practice.

**4. Shifts: from “commercialization” to use; from focusing on data to focusing on users, to focusing on the context of transactions; from profits to becoming operational. There is a steadily increasing interest in disaster response, mitigation, and management.**

In terms of policy goals, there is a shift occurring from the need or desire to “commercialize”<sup>63</sup> satellites to the need and desire to increase the use of data. The growing demand of national funding authorities and legislatures to demonstrate the economic or social value of the satellites is driving this shift<sup>64</sup>. In the era of globalization, the economic and social value of expenditures is becoming as important as the Cold War value of establishing national prestige through technological and commercial superiority.<sup>65</sup> As a result, a concomitant shift is also occurring from focusing on the kind of data being sought, to whom is using it. There is less discussion about “raw data”, “metadata”, etc., and more discussion about “who” uses the data and “why”.<sup>66</sup> Asking who is using the data and why, is also increasing in a number of Nations for national security reasons as well as for commercial reasons. In the case of Germany’s proposed legislation, the shift is anticipated to go even further. If passed, the proposed German law would move the inquiry completely away from the kind of data being

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<sup>61</sup> Supra, note 56.

<sup>62</sup> Notes taken by Joanne Irene Gabrynowicz, Director, National Center for Remote sensing, Air, and Space Law at the Commercial Remote Sensing Symposium (September 14, 2006) (on file with author).

<sup>63</sup> See the next section for a discussion regarding the definition of this term.

<sup>64</sup> Philippe Clerc, *The State of Remote Sensing Law: French Regulation and Practice*, Proceedings: The First International Conference on the State of Remote Sensing Law 2, at 7, (2002).

<sup>65</sup> Resolution on the Commission Communication to the Council and the European Parliament “The European Union and Space: fostering applications, markets and industrial competitiveness”. (COM(96)0617-C4-0042/97), (1998). This is one resolution that demonstrates the point: “...the growth in the commercial market, although important, must not be allowed to hide the fall in the public investment required for the development of this sector in order to guarantee technological progress...[and]...Stresses the need for a European policy to promote the use of Earth observation data by establishing infrastructure and services which the private sector cannot finance...Emphasizes the need to enhance technological skills and financial capacities in the civilian space sector, more particularly in the field of satellite observation, being aware that the private sector is not able to finance all the European infrastructure required...Resolution on the Commission Communication to the Council and the European Parliament “The European Union and Space: fostering applications, markets and industrial competitiveness”.

<sup>66</sup> Satellite Data Exports Controlled Asian Surveying and Mapping, September 12, 2006, available at [http://www.asmmag.com/ASM/content/2006/ASM\\_036/main\\_news\\_9.html](http://www.asmmag.com/ASM/content/2006/ASM_036/main_news_9.html),



requested, that is, how sensitive it is, to the sensitivity of the entire transaction. That inquiry will require the data distributor to analyze not only “who” and “why” but the entire context of the transaction including geopolitical factors that will be on a precise check list, a “geomatrix” provided by the government.<sup>67</sup>

Finally, reflecting the trends to stress data use and data users, both the ground segment and space segment participants are focusing more on becoming operational<sup>68</sup> for the long-term and less on generating near-term profits. A steadily growing part of this trend is disaster response, mitigation, and management.

## 5. “Public” and “Private” are increasingly difficult to distinguish.

Specific legal constructs depend on national law. “Private” can have different definitions in different Nation-States. “Commercial” has different definitions in different Nation-States. In Europe, for example, the term “commercial” means to generate revenue, and it applies to any entity that does so, regardless of by whom.<sup>69</sup> In the U.S., the term “commercial” means a private sector activity, and in general, is not applied to government activities. The recently passed Canadian remote sensing law highlights the increasing difficulty in distinguishing what “commercial” means by requiring both government agencies and companies to obtain operating licenses.<sup>70</sup> This was done precisely “because of the difficulty and uncertainty in attempting to confine the application of the legislation to commercial satellites”.<sup>71</sup>

Regardless of the definition used, often the policy implications are the same. For example, some sensed States are concerned whether or not it is a public or private entity that is collecting imagery of its territory or selling it to an adversary. However, the correct applications of some policies and law do depend upon a distinction, such as the nondiscriminatory data access policy and various pricing policies.

The close relationships between revenue-generating remote sensing space systems—regardless of public or private designation—and their nations of origin; the high degree of direct or indirect subsidies; and targeted contractual funding appear to be creating hybrid entities worldwide that increasingly embody

<sup>67</sup> Schneider, *supra* note 50; Gerhard et al, *supra* note 15.

<sup>68</sup> Turin Agreement, *supra* note 47, at Art. II. (“The aim of this system, together with other military and civil systems, is to satisfy the operational programme specifications...”).

<sup>69</sup> Frans von der Dunk, *The Moon Agreement and the Prospect of Commercial Exploitation of Lunar Resources* 32 *Annals of Air and Space Law* (2007). (in press. on file with author). “It is important here to define certain relevant terms, since in particular US authors tend to use the term “commercial” where the European authors would use the term ‘private’...[which] refers to the (legal) classification of an actor (as opposed to ‘public’, comprising governments, governmental agencies and intergovernmental organisations) undertaking a space activity, ‘commercial’ refers to the main driving factor behind, and overarching objective of, such an activity, and hence is to be contrasted to such other objectives as military or scientific purposes. Thus, governments or other public entities may also undertake commercial activities in outer space.”

<sup>70</sup> Remote Sensing Act 2005, *supra* note 49.

<sup>71</sup> Mann, *supra*, note 12, at 4.



elements of both public and private institutions. In fact, the trend in both the space segment and the ground segment of remote sensing activities is toward “public-private partnerships”<sup>72</sup>, a term that has no uniform definition but usually implies risk sharing<sup>73</sup>.

## **6. Government ground segment trend is to decrease data distribution cost, moving to free.**

Some of the most prominent actors in this trend are Australia, Europe, Japan, and the United States. In the U.S., the Government has dramatically decreased the cost of *Landsat* data and intends to continue to do so<sup>74</sup>. In Australia, GeoScience Australia provides data free on the Internet and sells it on CDs.<sup>75</sup> Originally the distribution of data by public agencies was based on profit motive.<sup>76</sup> In both the U.S. and Australia, a shift toward just recouping costs resulted in increased data use. Japan asserts that public data users should access data at “almost no charge” on networks.<sup>77</sup> The European Space Agency has also been reported to be considering making data free.<sup>78</sup>

## **7. The space segment is more government, less private**

High-resolution “commercial” remote sensing space systems, however “commercial” is defined, overwhelmingly serve national security activities, a governmental function. Environmental monitoring; disaster response and mitigation; and, land change detection are growing uses of satellites, and these too, are more governmental activities. Additionally, even where “public - private” partnerships exist, satellite ownership is often retained by national Governments, as in Japan<sup>79</sup> and Germany.<sup>80</sup>

## **8. State-owned entities organized like private corporations.**

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<sup>72</sup> Communication From The Commission To The Council And The European Parliament European Space Policy - Preliminary Elements, {SEC(2005)664}, Brussels, 23.05.2005 COM(2005) 208 final. (“In particular, risk sharing public private partnerships will be explored wherever possible.”)

<sup>73</sup> Infoterra, “DLR, and...EADS Astrium GmbH have agreed to jointly bear the costs of constructing and implementing” re: TerraSAR-X, Germany’s first public-private satellite partnership. <http://www.terrasar.de/en/imp/hist/index.php>

<sup>74</sup> U.S. Department of Interior/U.S. Geological Survey, available at [http://landsat.usgs.gov/data\\_products/slc\\_off\\_data\\_products/slc\\_off\\_data\\_prices.php](http://landsat.usgs.gov/data_products/slc_off_data_products/slc_off_data_prices.php)

<sup>75</sup> Australian Government, Geoscience Australia, available at <http://www.ga.gov.au/news/>

<sup>76</sup> Free of Fee: The Governmental Data Ownership Debate, GITA White Paper, Aug. 2005.

<sup>77</sup> Space Activities Commission, Japan’s Earth Observation Satellite Development Plan and Data Utilization Strategy, (2005). (on file with author).

<sup>78</sup> Peter B. de Selding, *ESA Policy Change Would Make Earth Observation Data Free*, Space News, April 8, 2003, available at [http://www.space.com/spaceneWS/archive03/esaarch\\_040703.html](http://www.space.com/spaceneWS/archive03/esaarch_040703.html)

<sup>79</sup> Masami Onoda, *Commercial Remote Sensing in Japan*, (June 28,2006) (on file with author).

<sup>80</sup> Gerhard et al., *supra* note 15, at 7.



In space-based remote sensing there have been attempts at both privatization<sup>81</sup> and commercialization.<sup>82</sup> A newer and different trend is emerging: State-owned entities organized like private corporations. This approach has been used for other assets including railroads, highways, electricity, and water. It is new to space-based remote sensing. In India,<sup>83</sup> Japan,<sup>84</sup> Thailand,<sup>85</sup> and Turkey,<sup>86</sup> for example, corporate entities have been established with government funds. In Thailand, the Geo-Informatics and Space Technology Development Agency (GITSDA) is a new “public organization”. It is government-funded, performs functions that government organizations do and is permitted to compete with both government and private entities.<sup>87</sup> In some ways, these entities are not required to follow established government rules and procedures. They have the authority to set their own processes and procedures and they usually have government representation on their governing boards. In Malaysia, it is the desire of some of the remote sensing leadership to corporatize in order to expand its consulting services.<sup>88</sup> Variations of this approach can be seen in the original Intelsat and Comsat models; the older European postal-telephone and telegraph (PTT) models; and to some extent in the U.S. Post Office model, which is a form of a government corporation.<sup>89</sup> Another variation of this trend is authorizing government entities to participate in both public and private activities, as in Argentina.<sup>90</sup>

The drivers for the new remote sensing organizations are pursuit of efficiency and flexibility, and human resource capacity building<sup>91</sup>. While it is a subject of debate as to the relative efficiency of the public and private sectors,

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<sup>81</sup> *Supra* note 64, at 9.

<sup>82</sup> *Supra* note 4, and note 6

<sup>83</sup> The National Remote Sensing Agency is “vested with authority” to acquire and disseminate foreign and Indian remote sensing and is “competent to enter into agreements”.

<sup>84</sup> *Supra* note 79, (“JAXA is not a governmental organization. It is an independent public corporation”).

<sup>85</sup> Interview, Director of Earth Observations Center, Bangkok, Thailand, (Aug. 4, 2006).

<sup>86</sup> *Id.*, see also, Taylor Dinerman, *Turkey’s Military Satellite Program: a Model For Emerging Regional Powers* available at <http://www.thespacereview.com/article/774/1>.

<sup>87</sup> *Id.*

<sup>88</sup> Interview, Deputy Director and staff, Malaysian Centre for Remote Sensing (MACRES), Kuala Lumpur, (Aug. 15, 2006).

<sup>89</sup> The U.S. Postal Service is officially “an independent establishment in the executive branch of the Government”, 39 U.S.C. § 201 (1988) and has the legal capacity to sue and be sued but does not have a corporate charter. 39 U.S.C. §§ 101-5605 (1988 & Supp. V 1993).

<sup>90</sup> National Commission on Space Activities, National Decree No. 955/91. This law is an all-encompassing act that establishes a space program for Argentina. It authorizes a Board of Directors to oversee the program, financial aspects (both governmental and private), the multiple purposes of the act (including scientific, technical, and commercial enterprises), and the blanket state oversight of all enterprises involving space. Under the law, the Argentine space agency, CONAE, is authorized to act as both a public and private entity in the commercial sphere. CONAE can draw up and enter into commercial contracts with private entities. Additionally, CONAE may draw income from patents, licenses, consultation, and other items or services stemming from the research performed by the agency

<sup>91</sup> *Supra* note 86.



the primary difference between them is that a private company can go bankrupt. That is unlikely with a government enterprise. In some nations the idea of providing government employees with experience by running a company appears to be an unusual approach. Developing human resources, however, is an important part of the system in Thailand, Turkey, and Malaysia, for example. Overall, there is uncertainty regarding the roles and processes of these emerging organizations. The nature of these entities can raise the question of if, and to what degree, they have the competency to legally bind their Nation-State of origin.

## V. Some specific evolving, dynamic cases.

### A. Japan: Possible major changes?

Japan is addressed in this study because it is an important remote sensing nation that may soon be undergoing historic changes in its national law, practices, and policies. It is among those Nations that have a corporate-like entity performing government-like functions. The Japan Aerospace Exploration Agency (JAXA) is an independent administrative public corporation.<sup>92</sup> JAXA employees are not civil servants and they have contracts and unions. Unlike JAXA's predecessor, NASDA, JAXA has the new objective of promoting space development and use. Promotion includes dissemination of data and results, which, in turn, includes remotely sensed data.<sup>93</sup>

Currently, Japan has no formalized, detailed data policy for each satellite. The guidelines of the Space Activities Commission are applied to JAXA.<sup>94</sup> As of August 2006, decisionmakers were considering what policy, or policies, ought to be formulated. In principle, all data is available to the public without regard to a specific spatial resolution limit.<sup>95</sup> Data access is determined on a satellite-by-satellite basis. Decisionmakers can have internal discussions and ask who is requesting data and why. Policy priorities include establishing rules for processed data; solving issues pertaining to providing Earth observation data; and encouraging data use.<sup>96</sup> All data can be used only for peaceful purposes and JAXA retains intellectual property rights.<sup>97</sup>

Users are divided into three categories: public data users, all others, and national security users. Public users include those that contribute to promotion of data utilization. For them, data is available at the cost of reproduction and should be "almost no charge"<sup>98</sup> on networks. Other data users include commercial users

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<sup>92</sup> *Supra*, note 79.

<sup>93</sup> Law Concerning Japan Aerospace Exploration Agency, Law No. 161 of 2002, art.. 18. 1. (5) ("Dissemination of the activities referred to in each of the preceding Items, and promotion of utilization thereof.") available at [www.jaxa.jp/about/gaiyo/law/law\\_e.pdf](http://www.jaxa.jp/about/gaiyo/law/law_e.pdf)

<sup>94</sup> JAXA, "Remote Sensing Data Policy in Japan for Prof. J.I. Gabrynowicz, University of Mississippi School of Law" Presentation, Tokyo, (Aug. 18, 2006). (on file with author).

<sup>95</sup> Interview, *supra*, note 20.

<sup>96</sup> JAXA, *supra*, note 94.

<sup>97</sup> *Id.*

<sup>98</sup> JAXA, *supra*, note 94.



who can be offered a low price but not less than prices offered by private companies. National security data is classified and comes from Japan's Information Gathering Satellite (IGS).

The most important pending change in Japanese remote sensing law is the *Japanese Draft Basic Law on Space Development*. As of August 2006, the draft was still in development and was expected to be formally proposed in 2007, although it could also be proposed as early as 2006. The draft consists of a preamble and 38 articles. Copies have not yet been made officially available and some changes are still possible. The process in preparing and proposing the draft appears to be an abbreviated one and it could change based on politics. The Liberal Democratic Party is leading the law-making effort. At the same time, there is growing interest by the Ministry of Foreign Affairs to use space technology as a diplomatic tool. This is being driven by China's success in human space flight and using it in Chinese diplomacy.

The legal drivers of the *Japanese Draft Basic Law on Space Development* is the historical Japanese definition of "peaceful purposes" and the Japanese Constitution's prohibition against a standing military. A Diet Resolution defines "peaceful purposes" to mean "non-military" rather than "non-aggressive". This is being reconsidered in light of recent North Korean space activities

Another driver of the draft law is a 1990 Japan - U.S. trade accord that requires non-research and development satellites to be openly procured in a transparent way. This has resulted in the U.S. winning 18 out of 19 Japanese satellite contracts. The draft law is not intended to override the accord and it is expected that the accord will be renegotiated.

Procurement of the Information Gathering Satellite (IGS) was not open to international vendors due to its national security mission. The *Japanese Draft Basic Law on Space Development* is intended to continue to ensure that future procurements can be done this way, too. It is intended to promote research and development, support Japanese industry, and enhance national security. A private finance initiative is part of the draft law. It would allow private sector entities to procure satellites with private funds while the government would provide user fees to a company as an anchor tenant. It is intended to be similar to arrangements between the United States Government and its U.S.-licensed companies. There is some informed internal opinion that, due to fiscal constraints, this approach is unlikely unless it becomes part of future classified Information Gathering Satellites. Data policy will be discussed in the future.

## **B. India: Early recognition of societal value**

India is addressed in this study because it is an important remote sensing nation and has its remote sensing policy roots in providing socio-economic benefit, an aspect of remote sensing that other Nations are also now being required to demonstrate.<sup>99</sup> National security and foreign policy are also prime

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<sup>99</sup> JAXA, *supra*, note 94.; US FLI-WG <http://www.landimaging.gov/>



considerations in Indian policy.<sup>100</sup> The Indian Parliament approved and adopted a comprehensive Remote Sensing Data Policy (RSDP) for the acquisition and distribution of satellite remote sensing data.<sup>101</sup> India has a comprehensive remote sensing national policy, yet no national law.<sup>102</sup> Pressure is growing, however, to establish national law.<sup>103</sup> The political environment includes the forces among individual Indian states with important remote sensing institutions and national political forces.

Satellite data and imagery are considered a “public good” in India.<sup>104</sup> Attempts are being made to liberalize data policies to encourage more data use.<sup>105</sup> The term is used as the economic term of art that means one cannot be excluded from using a particular good.<sup>106</sup> It is also more commonly used as a social term, that is, remotely sensed data is good for the public. Here, data as public good is intended to “support national development, knowledge and commerce” and the government owns the data.<sup>107</sup> This view was first expressed by Vikram Sarabhai, a founder of India’s space program, “We are convinced that if we are to play a meaningful role nationally, and in the community of nations, we must be second to none in the application of advanced technologies to the real problems of man and society”.<sup>108</sup> The result is a focus on user needs and applications from the beginning. Return on investment is documented for each round of funding and a Cabinet level committee makes satellite design and use decisions.<sup>109</sup>

All data up to 5.8 meters is available on a nondiscriminatory basis. Higher-resolution data is theoretically available on a case-by-case basis.<sup>110</sup> Dissemination should not be “unreasonably” controlled.<sup>111</sup> The 5.8 limit is an historical artifact based on India’s early remote sensing capabilities. An interagency high-resolution committee was established as a mechanism to allow the release of high-resolution data. The committee does not make determinations regarding 1-meter or higher data that is provided by foreign commercial companies.<sup>112</sup> Contract terms govern this distribution.

The Committee was initially envisioned to allow release of more data. However, in practice, it appears to work more in the opposite manner. There is

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<sup>100</sup> Indian Space Agency, *Indian Space Programme and Its Legal Dimensions* presentation at Headquarters, Bangalore, India, July 8, 2006 (on file with author).

<sup>101</sup> ISRO, *supra* note 52.

<sup>102</sup> Rao, et al., *supra* note 19, at 47 – 61.

<sup>103</sup> Mani et al, *supra* note 23, at 132.

<sup>104</sup> ISRO, *supra* note 52

<sup>105</sup> Interview with V. Sundrararamaiah, Scientific Secretary, Indian Space Research Organization Headquarters, Bangalore, India, (August 7, 2006).

<sup>106</sup> Rao, et al, *supra* note 19, at 51 – 52.

<sup>107</sup> "Indian Space Programme and Its Legal Dimensions" presentation by the Indian Space Research Organization at Headquarters, Bangalore, India, July 8, 2006.

<sup>108</sup> K. Kasturirangan. “Realising the Dreams of Dr. Vikram Sarabhai”. *Countdown*, July – December 1994, No. 171- 176.

<sup>109</sup> Interview, Dr. K. Kasturirangan, Member of Parliament, New Delhi, India, (Aug. 10, 2006).

<sup>110</sup> ISRO, *supra* note 52.

<sup>111</sup> ISRO, *supra* note 100.

<sup>112</sup> *Supra* note 24.



pressure from India's remote sensing industry and data users to liberalize the high-resolution policy so that data will be more widely used and to compete in the international remote sensing marketplace, and particularly with the United States. The response from India's national security community is that the U.S. has vast oceans and friends, not enemies, on its borders. As of July 2006, it was unclear what the data policy would be for *Cartosat 2*-meter data. Internal discussions are continuing along the lines of competitiveness versus national security.

India's legal, policy, and remote sensing communities are passionate in their view that Google Earth, Microsoft Virtual Earth, and other web-based image suppliers must be regulated. Some in the Indian legal community hold the opinion that these suppliers are in violation of international law and are engaging in relevant research to demonstrate this. These views reflect the philosophy of the current national remote sensing policy that "has safeguards for ensuring that images of sensitive areas are screened out..."<sup>113</sup>

### C. Israel: Anomaly or Adherent?

Israel is addressed in this study because it provides an opportunity to consider remote sensing law, policy and State practice in a global context. It is an important remote sensing nation and unlike other remote sensing nations, the company that operates from Israel<sup>114</sup> openly promotes exclusivity and secrecy as its starting premise for commercial remote sensing products and services. It also advertises these qualities as a premium service. Customers "acquire a completely autonomous, secret, regional high-resolution imaging capability"<sup>115</sup> and they "may choose to acquire all or some of their...imagery on an exclusive basis".<sup>116</sup> In some arrangements "acquired imagery is not recorded or stored on the satellite and cannot be downloaded to any other ground station."<sup>117</sup> These terms apparently can exclude a sensed State from gaining access to data of its territory contrary to the U.N. Principles.<sup>118</sup> There are multiple data distribution policies based on who the customer is and the contractual agreement between the company and client.

The policies that govern the company that operates from Israel explicitly recognize the fact that the overwhelming majority of the high-resolution space-based capabilities market consists of governments and organizations without their own indigenous surveillance satellites. Policies and laws of other Nations

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<sup>113</sup> ISRO, *supra* note 52.

<sup>114</sup> The company that operates out of Israel describes itself as an "international company" and has a minimal corporate presence in Netherlands Antilles and Cyprus. However, a cursory "piercing of the corporate veil" readily reveals the company's history and operations identify it with Israel and bring it within Israeli competence.

<sup>115</sup> <http://www.imagesatintl.com/default.asp?catid={058FFC84-67B4-4996-AB67-C0BCA4FE4F85}>

<sup>116</sup> <http://www.imagesatintl.com/default.asp?catid={38D9FD69-CE40-4E27-8F6D-85D35E50AFEF}>

<sup>117</sup> <http://www.imagesatintl.com/default.asp?catid={C430687B-FB8B-4CCC-B3B9-EDC528B0D044}>

<sup>118</sup> Art. XII.



recognize this fact implicitly, and secrecy and exclusivity are incrementally implemented by various mechanisms, such as placing data into access tiers,<sup>119</sup> degrading images,<sup>120</sup> and making a distinction between environmental and non-environmental data.<sup>121</sup>

Therefore, the difference between the Israeli model and those of other Nations raises a question of whether the differences are more a matter of degree or of kind. On a spectrum with full nondiscriminatory access at one end and complete exclusivity on the other, the question becomes where on the spectrum is the point passed that, according to the international remote sensing community, required data access moves into reasonable national security constraints and then goes on to become impermissible data denial? One major criterion in such an analysis would be if a relevant law or policy expresses the intention of eventual openness. For example, regarding the *Pleiades* system, Italy and France “agree to jointly study and develop procedures for degrading classified images, with a view to lowering their level of classification”<sup>122</sup>; and, the Afghan imagery obtained pursuant to an exclusive SpacelImaging – U.S. Government contract for Afghan imagery was eventually released for public purchase.<sup>123</sup>

## VII. CONCLUSION

Worldwide, commercial (whether public, private or hybrid) high-resolution remote sensing is increasingly being organized and institutionalized through law and policy to meet national security concerns. Data distribution policies are changing to reflect this. While there are some notable differences from Nation to Nation, the general principles, overall trends, and practices are similar for developed, developing, and newly active space nations. National space law is on the rise, catalyzed in large part by the practical issues raised by commercial remote sensing activities.

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<sup>119</sup> US and proposed German Law

<sup>120</sup> Turin Agreement, *supra*, note 47, at, Art. V.

<sup>121</sup> Germany and Canada

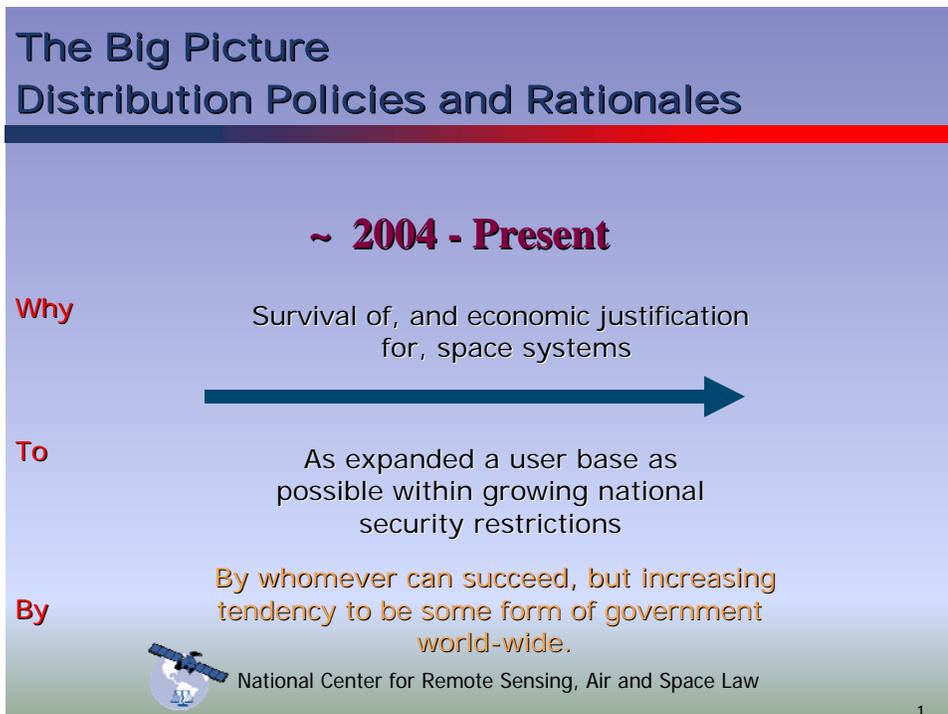
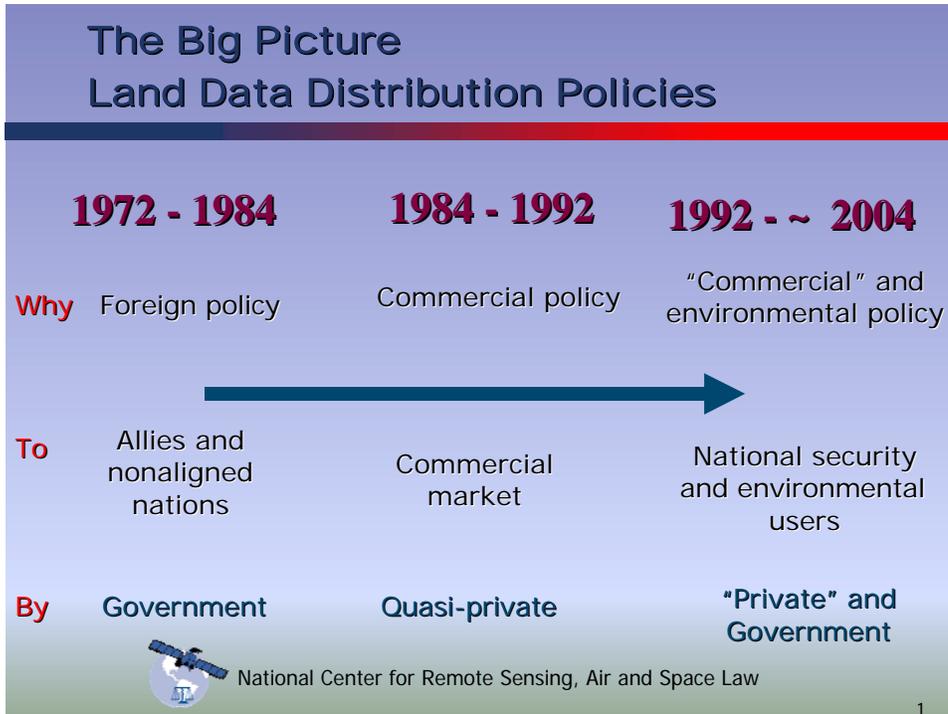
<sup>122</sup> Turin Agreement, *supra* note 47 V. 2.

<sup>123</sup> Joanne Irene Gabrynowicz, “A Case of First Impression: the US Government-SpacelImaging Contract for Afghan Imagery,” IAF abstracts, 34th COSPAR Scientific Assembly, The Second World Space Congress, held 10-19 October, 2002 in Houston, TX, USA., p.IISL-3-23IAF abstracts, 34th COSPAR Scientific Assembly,



## VIII. Charts

### A. The Big Picture



National Center for Remote Sensing, Air, and Space Law



## B. Nation-by-Nation synopsis of relevant current and pending laws and policies

Country	National Space and/or Remote Sensing Law	Relevant Regulations, Policies, and Some Other Related Laws	Data Policy
Argentina	<p>Creation of the National Commission on Space Activities, National Decree No. 955/91</p> <p>Establishment of the National registry of Objects Launched into Outer Space, National Decree, 125/95</p>	None	National Commission of Space Activities data distribution policy allows for free and open access of data, catalyzed by the Nation's interest in prevention and preparedness for future disasters. Can engage in commercial activities and distribute data accordingly.
Australia	Space Activities Act of 1998, No. 123	Space Activities Regulations of 2001, No. 186, <i>Regulatory Practices for National Space Organizations</i> , Procedure for licensing, operating and launch activities	GeoScience Australia provides data free on the internet and sells it in a packaged form on CD.
Austria	None	None	None
Belgium	Law on the Activities of Launching, Flight Operations or Guidance of Space Objects	In progress	In progress
Brazil	<p>Law No. 8.854 of 10 February 1984 (Established the Brazilian Space Agency)</p> <p>Resolution on Commercial Launching Activities from Brazilian Territories, Resolution No. 51, Jan. 26, 2001</p> <p>Resolution on procedures and on definition of necessary requirements for the request, evaluation, issuance, follow-up, and supervision of licenses for carrying out launching</p>	Portaria AEB (Administrative Edict), No. 27, Regulation on procedures and on definition of necessary requirements for the request, evaluation, issuance, follow-up, and supervision of licenses for carrying out launching space activities on Brazilian Territory.	<p>Summary: Currently under CBERS agreement, open access but possible movement to adopt other policies. Data downlinks licensed based on per-minute fee basis. China and Brazil may agree in a few special cases to transfer data free. Now includes Mozambique, Angola, and some other African countries. CRESDA and Brazilian ground stations have unlimited access. Distributors are licensed. Independent price list for distribution solely within national market. Can not be exported abroad. INPE and CRESDA set international prices.</p> <p>General Considerations: The downlink data is</p>



	<p>space activities on Brazilian territory, Administrative Edict No. 27, June 20, 2001</p> <p>Complementary Protocol to the Framework Agreement Between the Government of the People's Republic of China and the Government of the Federative Republic of Brazil on Cooperation in the Peaceful Applications of Outer Space Science and Technology on the Cooperation for the CBERS Application System, 2004.</p> <p>For the Government of the Federative Republic of Brazil for the Government of the People's Republic of China CBERS Data Policy</p>		<p>open to any country or organization and is based on the conception that CBERS imagery will be distributed by licensed representatives who operate an application system infrastructure that performs data reception and processing...Each ground station receives the image raw data and processes it into image products, which will then be distributed to users. The licensing of CBERS data downlinks is based on fees which are charged in a per-minute basis. China and Brazil may, in a few special cases, upon mutual consultation, decide on the transfer of data free of charge. The ground stations operated by INPE in Brazil and by CRESDA in China have unlimited access to all data collected within their footprint. The policy for distribution of data collected by those ground stations will be defined by each operator.</p> <p>Licensing Policy For International Ground Stations</p> <p>(a) CBERS data reception, processing and distribution to other countries will be carried out by licensed representatives jointly appointed by CRESDA and INPE.</p> <p>(b) The licensed representative will commercialize CBERS data downlink to ground stations on a annual fixed basis, based on a fee determined by INPE and CRESDA. The annual fee will be determined by the conditions of the ground stations, including geographical location and antenna footprint.</p> <p>Product Distribution Policy</p> <p>The commercial agreement between licensed</p>
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			<p>representatives and distributors shall include the following:</p> <p>(a) The right of receiving, processing and distributing CBERS data shall be granted to the distributor by the licensed representative.....</p> <p>(f) Each distributor could set its native price list independently for distribution solely within its respective national market. Images distributed within the distributor's national market may not be exported abroad.</p> <p>(g) When distributing abroad, the distributor must refer to the international price list set by INPE and CRESDA.</p>
Canada	<p>Canadian Space Agency Act, 1990, c. 13 (Assented to May 10, 1990).</p> <p>Bill C-25, Remote Sensing Space Systems Act, 2005</p>	<p>Agreement Between the Government of Canada and the Government of the United States of America Concerning the Operation of Commercial Remote Sensing Satellite Systems</p> <p>Department of Industry Act</p> <p>Department of Foreign Affairs and International Trade Act</p> <p>National Defence Act</p> <p>Canadian Charter of Rights and Freedoms, Article 1</p> <p>Personal Information and Electronic Documents Act</p> <p>Access to Information Act</p>	<p>Incorporates all aspects of Canadian Access Control policy. Availability in accord with UN Remote Sensing Principles. Sensing states only automatically given access to data for improving natural resources management.</p> <p>License Conditions: Raw data and remote sensing products from the system about the territory of any country—but not including data or products that have been enhanced or to which some value has been added—be made available to the government of that country within a reasonable time, on reasonable terms and for so long as the data or products have not been disposed of.</p> <p>Priority access: Minister of Foreign Affairs may order if there are reasonable grounds that continued operations would be injurious to international relations inconsistent with international obligations</p> <p>Minister of Defence may order if there are</p>



			<p>reasonable grounds that continued operation would be injurious to defence of Canada or safety of Canadian Forces</p> <p>Solicitor General may order any service to Royal Canadian Mounted Police, Canadian Security Intelligence, Government for critical infrastructure protection or emergency preparedness Reasonable grounds service is desirable to fulfill respective responsibilities</p>
China	<p>Provisions and Procedures for the Registration of Space Objects, 2001.</p> <p>Interim Measures on the Administration of Permits for Civil Space Launch Projects, 2002.</p> <p>Complementary Protocol to the Framework Agreement Between the Government of the People's Republic of China and the Government of the Federative Republic of Brazil on Cooperation in the Peaceful Applications of Outer Space Science and Technology on the Cooperation for the CBERS Application System, 2004.</p> <p>For the Government of the Federative Republic of Brazil For the Government of the People's Republic of China CBERS Data Policy</p>	<p>None known. General policy statement in a white paper: China's Space Activities by The State Council Information Office, P.R.C. November, 2000; Beijing CNSA 2003-12-15. "The Chinese government holds that international space cooperation should follow the fundamental principles listed in the "Deceleration [sic] on International Cooperation on Exploring and Utilizing Outer Space for the Benefits and Interests of All Countries, Especially in Consideration of Developing Countries' Demands"</p> <p>General policy statement in an October 12, 2006 white paper from the Information Office of China's State Council titled "China's Space Activities in 2006"..."China is unflinching in taking the road of peaceful development, and always maintains that outer space is the common wealth of mankind. While supporting all activities that utilize outer space for peaceful purposes, China actively explores and uses outer space and continuously makes new contributions to</p>	<p>Summary: CBERS data is available for free for all of Latin American countries only. Currently under CBERS agreement, open access but possible movement to adopt other policies. Data downlinks licensed based on per-minute fee basis. China and Brazil may agree in a few special cases to transfer data free. Now includes Mozambique, Angola, and some other African countries. CRESDA and Brazilian ground stations have unlimited access. Distributors are licensed. Independent price list for distribution solely within national market. Can not be exported abroad. INPE and CRESDA set international prices.</p> <p>General Considerations: The downlink data is open to any country or organization and is based on the conception that CBERS imagery will be distributed by licensed representatives who operate an application system infrastructure that performs data reception and processing....Each ground station receives the image raw data and processes it into image products, which will then be distributed to users. The licensing of CBERS</p>



		<p>the development of man's space programs.”</p>	<p>data downlinks is based on fees which are charged in a per-minute basis. China and Brazil may, in a few special cases, upon mutual consultation, decide on the transfer of data free of charge. The ground stations operated by INPE in Brazil and by CRESDA in China have unlimited access to all data collected within their footprint. The policy for distribution of data collected by those ground stations will be defined by each operator.</p> <p>Licensing Policy For International Ground Stations</p> <p>(a) CBERS data reception, processing, and distribution to other countries will be carried out by licensed representatives jointly appointed by CRESDA and INPE.</p> <p>(b) The licensed representative will commercialize CBERS data downlink to ground stations based on a annual fixed basis, based on a fee determined by INPE and CRESDA. The annual fee will be determined by the conditions of the ground stations, including geographical location and antenna footprint.</p> <p>Product Distribution Policy</p> <p>The commercial agreement between licensed representatives and distributors shall include the following:</p> <p>(a) The right of receiving, processing, and distributing CBERS data shall be granted to the distributor by the licensed representative.....</p> <p>(f) Each distributor could set its native price list independently for distribution solely within its respective national market. Images distributed within the distributor's national market may not</p>
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			be exported abroad. (g) When distributing abroad, the distributor must refer to the international price list set by INPE and CRESDA.
European Community		EC Directive 96/9/EC, Articles 7 (1); 10 (1); 10 (2); 10 (3); Recital 41; Recital 53	
France	Draft Law for General Space Activities accompanied by Advisory Letter from the Conseil d'Etat, French High Court on Administrative Matters. It is likely to have a separate chapter to include remote sensing rules.  Government of France – CNES Administrative Act  Loi N° 61-1382, dated 19/12/1961JO 10/12	Decree n° 84-510, dated 28 June 1984, named, Décret relatif au Centre national d'études spatiales (JO 29/06), modified by decree n° 89-77 (6/2/1989), decree n° 93-277 (03/03/1993, decree n° 93-1441 (27/12/1993) and decree n° 96-308 (10/04/1996). Additional, In progress.	EC Database Protection Directive 96/9/CE (1996) implemented by Loi 98-536.  Additional, in progress.
Germany	Satellitendatensicherhertsgesetz Proposed 3-part law, drafted and in progress.	Proposed. For advanced systems. Three kinds of licenses: 1. satellite operation 2. general data distribution 3. specific data transactions	Proposed. National security is priority with commercial aspects secondary. Intent of proposed data distribution mechanism is to create a system in which an operator (“Betreiber”), a distributor (“Datenanbieter”) or an operator/distributor (“Betreiber zugleich Datenanbieter”) will be licensed. To distribute data to users, they will be required too implement a “geomatrix” provided by the government that includes a check list to determine sensitivity of the transaction. There is potential liability if a distribution mistake is made. Penalties may include incarceration.
Hong Kong (special administrative region of China)	An Ordinance to Confer Licensing and Other Powers on the Chief Executive to Secure Compliance with International Obligations of the	None.	None.



	People's Republic of China with Respect to the Launching and Operation of Space Objects and the Carrying on of Other Activities in Outer Space, 13 June 1997, amended 1999.		
India	No space or remote sensing law.	No space or remote sensing regulations. Information Act 2000 Convergence Act 2001 Indian Constitution, Art. 51	Remote Sensing Data Policy (RSDP), ISRO: EOS:Policy-01:2001 Indian Space Research Organisation HQ, Bangalore-560 094 Government owns all data. All data up to 5.8 m is available. Higher on a case-by-case basis. High-resolution committee established. Restricts access to some foreign data within India.
Iran	Parliament approved bill to establish Iranian Space Agency, 2003  Decisions of the Supreme Aerospace Council	None	None
Japan	Law Concerning Japan Aerospace Exploration Agency. Law No. 161 of 13 <sup>th</sup> December 2002, Chapter 3: Operations, Article 18: (Scope of Activities), 1. (5) "Dissemination of the activities referred to in each of the preceding Items, and promotion of utilization thereof."  Japanese Draft Basic Law on Space Development (in progress).	Fundamental Policy of Japan's Space Activities, Revised on January 24, 1996, Space Activities Commission  The Basic Law on Science and Technology (1995)  1999 Law Concerning Access to Information Held by Administrative organs, Law No. 42.	1. Long Term Plan of Space Development. Issued by Space Activities Commission (SAC) in September 2003 "Japan shall develop data archive systems so that users can use satellite observation data easily and effectively and promote utilization and circulation of data."  2. Japan's Earth Observation Satellite Development Plan and Data Utilization Strategy. Issued by Space Activities Commission (SAC) in July 2005.  3. Earth Observation Promotion Strategy, Council for S&T Policy, Cabinet Office, Govt. of Japan, 27 December 2004  Detailed data policy for each satellite in progress. No formalized policy. Currently



			<p>thinking about this. In principle: all data open to public. No specific resolution limit. Satellite by satellite basis. Who is requesting data and why? Could be discussed internally.</p> <p>Guiding principles:  --All data can only be used for peaceful purposes.  --JAXA retains intellectual property rights to all data.</p> <p>User categories:  1. Public data users  Contribute to promotion of data utilization  Cost of reproduction  Should be "almost no charge" on networks  Distributed by JAXA  2. Other data users  Includes commercial  Low price but not less than offered by private companies  Distributed through private enterprise  National security  Information Gathering Satellite (IGS)  Classified data</p> <p>Rules to be established for processed data  Solve Earth observation data provision issues  Encourage data use</p> <p>Ideal Ways to Provide data:  --Government initiative and must be made widely available to benefit society  --implement standard data processing and enable people other than observation technology experts to use data  --establish environment to have private entities</p>
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			meet various needs --use the Internet
Malaysia	Security Act	Instruction 20 for Disaster Response  National Space Policy	No restrictions on data distribution until higher than 5 meters spatial resolution. Then inquiry is made into who is buying the data and why. Similar policy regarding topographic maps. A restricted data policy is in review for space and aerial data for both foreign and Razaksat data.  Malaysian Federal Treasury Department sets data pricing policy. Need to sell data at twice the cost to recover costs.  Client's Charter: Provides data and value added products on commercial contract basis. Time line: Digital 5 days Computer printed product 2 – 3 weeks Photographic printed product 2 – 3 weeks Digital or printed value-added product 4 – 6 weeks  Data and information for disaster applications “utmost priority” and as soon as technically possible.
Nigeria	None	Prohibitions of Copyright Act National Geospatial Data Infrastructure Policy Legal Subcommittee	In process by National Geospatial Data Infrastructure Policy Legal Subcommittee (to include data derived from <i>Nigeriasat 2</i> )
Poland	None	None	As per contract with satellite data provider, which incorporates the national licensing requirements to which the satellite data provider is subject.



<p>Russian Federation</p>	<p>Law on Space Activities, Federal Law No. 5663-1, from August 20, 1993, as amended by Federal law No. 147-F3, 1996.</p>	<p>Rules on the Licensing of Space Activities, Rules No. 403 from June 30, 2006.</p>	<p>1996 National Space Policy Concept Unpublished</p> <p>National Remote Sensing Development Concept in progress.</p>
<p>South Africa</p>	<p>South African Space Affairs Act, No. 64, 1995. (Expected to be substantially revised soon.)</p>	<p>None</p>	<p>None specifically related to data from national satellites. Emerging data policy has not yet been published, but the intention is to grant free access to academic and government users. The question of whether commercial users should pay costs has not been resolved yet. Other data generated by publicly funded institutions makes data as widely and as easily accessible as possible, and commercial users are charged.</p>



South Korea	Law on Space Activities, Federal Law No. 5663-1, from August 20, 1993, as amended.  Act on the Promotion of Space Activities, Nov 2005	None	None
Spain	Royal Decree No.278-1995, Space Exploration.	None	None
Thailand	None	None	Policy in process. Expected lower price to government than private sector. Free data for educational use, use report required in exchange. Data access is on a case-by-case basis for the private sector. Free data for disasters. Policy being formulated for THEOS. Should be nondiscriminatory. Will be free for government. A consultant's report will go to GISTDA's Board for implementation. The minister of Science and Technology approves.
Ukraine	Law of Ukraine on Space Activity, No. 503/96-VR. 1996.	Authorized. Some contained in statute.	None.



United Arab Emirates	Federal Act 20 (1991) (Aerial remote sensing.)	None	As per contract with satellite data providers and, by incorporation, national requirements to which the satellite data provider is subject.
United States of America	<p>The 1992 Land Remote Sensing Policy Act</p> <p>National Defense Authorization Act for Fiscal Year 2005</p> <p>The Communications Act of 1934</p>	<p>Agreement Between the Government of Canada and the Government of the United States of America Concerning the Operation of Commercial Remote Sensing Satellite Systems</p> <p>15 CFR Part 960 Licensing of Private Land Remote-Sensing Space Systems; Final Rule</p> <p>U.S. National Space Policy, October, 2006</p> <p>White House, Office of Science and Technology Policy and National Security Council, February 2, 2000 Memorandum of Understanding Concerning the Licensing of Private Remote Sensing Satellite Systems</p> <p>U.S. Commercial Remote Sensing Policy, April 25, 2003</p>	<p>1. 1992 Land Remote Sensing Policy Act: 5622. Conditions for operation</p> <p>(b) Licensing requirements [for commercial systems]</p> <p>Any license issued pursuant to this subchapter shall specify that the licensee shall comply with all of the requirements of this chapter and shall—</p> <p>(1) operate the system in such manner as to preserve the national security of the United States and to observe the international obligations of the United States in accordance with section 5656 of this title;</p> <p>(2) make available to the government of any country (including the United States) unenhanced data collected by the system concerning the territory under the jurisdiction of such government as soon as such data are available and on reasonable terms and conditions;</p> <p>(3) make unenhanced data designated by the Secretary in the license pursuant to section 5621 (e) of this title available in accordance with section 5651 of this title;</p> <p>§ 5651. Nondiscriminatory data availability</p> <p>(a) General rule</p> <p>Except as provided in subsection (b) of this section, any unenhanced data generated by the Landsat system or any other land remote sensing system funded and owned by the United</p>



			<p>States Government shall be made available to all users without preference, bias, or any other special arrangement (except on the basis of national security concerns pursuant to section 5656 of this title) regarding delivery, format, pricing, or technical considerations which would favor one customer or class of customers over another.</p> <p>(b) Exceptions Unenhanced data generated by the Landsat system or any other land remote sensing system funded and owned by the United States Government may be made available to the United States Government and its affiliated users at reduced prices, in accordance with this chapter, on the condition that such unenhanced data are used solely for noncommercial purposes.</p> <p>2. National Defense Authorization Act for Fiscal Year 2005, SEC. 1034. Nondisclosure of Certain Products of Commercial Satellite Operations.</p> <p>(a) Disclosure Prohibited.--Land remote sensing information may not be disclosed under section 552 of title 5, United States Code.</p> <p>(b) Land Remote Sensing Information Defined.--In this section, the term "land remote sensing information"--</p> <p>(1) means any data that--</p> <p>(A) are collected by land remote sensing; and</p> <p>(B) are prohibited from sale to customers other than the United States</p>
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			<p>Government and its affiliated users under the Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5601 et seq.); and</p> <p>(2) includes any imagery and other product that is derived from such data.</p> <p>(c) State or Local Government Disclosures.-- Land remote sensing information provided by the head of a department or agency of the United States to a State or local government may not be made available to the general public under any State or local law relating to the disclosure of information or records.</p> <p>(d) Safeguarding Information.--The head of each department or agency of the United States having land remote sensing information within that department or agency or providing such information to a State or local government shall take such actions, commensurate with the sensitivity of that information, as are necessary to protect that information from disclosure prohibited under this section.</p> <p>(e) Other Definitions.--In this section, the terms "land remote sensing" and "United States Government and its affiliated users" have the meanings given such terms in section 3 of such Act (15 U.S.C. 5602).</p>
United Kingdom	Outer Space Act, 1986.	None	None



<b>COOPERATIVE SYSTEMS</b>			
<b>CBERS (Brazil and China)</b>	<p>Complementary Protocol to the Framework Agreement Between the Government of the People's Republic of China and the Government of the Federative Republic of Brazil on Cooperation in the Peaceful Applications of Outer Space Science and Technology on the Cooperation for the CBERS Application System, 2004.</p> <p>For the Government of the Federative Republic of Brazil For the Government of the People's Republic of China CBERS Data Policy</p>	N/A	<p>Summary: Currently under CBERS agreement, open access but possible movement to adopt other policies. Data downlinks licensed based on per-minute fee basis. China and Brazil may agree in a few special cases to transfer data free. Now includes Mozambique, Angola, and some other African countries. CRESDA and Brazilian ground stations have unlimited access. Distributors are licensed. Independent price list for distribution solely within national market. Can not be exported abroad. INPE and CRESDA set international prices.</p> <p>General Considerations: The downlink data is open to any country or organization and is based on the conception that CBERS imagery will be distributed by licensed representatives who operate an application system infrastructure that performs data reception and processing....Each ground station receives the image raw data and processes it into image products, which will then be distributed to users. The licensing of CBERS data downlinks is based on fees which are charged in a per-minute basis. China and Brazil may, in a few special cases, upon mutual consultation, decide on the transfer of data free of charge. The ground stations operated by INPE in Brazil and by CRESDA in China have unlimited access to all data collected within their footprint. The policy for distribution of data</p>



			<p>collected by those ground stations will be defined by each operator.</p> <p>Licensing Policy For International Ground Stations</p> <p>(a) CBERS data reception, processing and distribution to other countries will be carried out by licensed representatives jointly appointed by CRESDA and INPE.</p> <p>(b) The licensed representative will commercialize CBERS data downlink to ground stations on an annual fixed basis, based on a fee determined by INPE and CRESDA. The annual fee will be determined by the conditions of the ground stations, including geographical location and antenna footprint.</p> <p>Product Distribution Policy</p> <p>The commercial agreement between licensed representatives and distributors shall include the following:</p> <p>(a) The right of receiving, processing and distributing CBERS data shall be granted to the distributor by the licensed representative.....</p> <p>(f) Each distributor could set its native price list independently for distribution solely within its respective national market. Images distributed within the distributor's national market may not be exported abroad.</p> <p>(g) When distributing abroad, the distributor must refer to the international price list set by INPE and CRESDA.</p>
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<p><b>COSMO-SkyMed and Pleiades (France and Italy)</b></p>	<p>Ratification and Execution of the Agreement Between the Government of the Italian Republic and the Government of the French Republic on Cooperation in the Field of Earth Observation, Done in Turin, 29th January 2001. Published in the Gazzetta Ufficiale (Official Gazette) 31st January 2004, no 25</p>	<p>N/A</p>	<p>1. The Parties are agreed on the following principles:</p> <ul style="list-style-type: none"> <li>a) The data requested by one or the other of the Defence Ministries shall belong to the Defence Ministry having requested the programming.</li> <li>b) For other data: <ul style="list-style-type: none"> <li>i) the French Party is owner of the data generated by the optical component;</li> <li>ii) the Italian Party is owner of the data generated by the radar component.</li> </ul> </li> </ul> <p>2. Civil and commercial distribution: In accordance with the common provisions on the use of data set forth in Article V, concerning the distribution and commercialisation of products derived from the dual-use satellite system, the Parties shall, in the course of Phase 1, define a common distribution policy. Each of the Parties shall designate a body to act as the interface with civil and commercial users, and to formulate, promote and distribute the data destined for civil and commercial users.</p> <p>(RE: Optical system. As further formulated pursuant to the Turin Agreement) CNES holds copyright License to use granted to defense, cooperating countries, and institutional users for non-commercial use full and exclusive license for data under responsibility of commercial operator. System resources, including data, allocation: 40% = institutional bodies less than 10% = defense</p>
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National Center for Remote Sensing, Air, and Space Law

U.S. Department of Commerce / National Oceanic and Atmospheric Administration

