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Publication date

2005

Document Version

Final published version

Published in

The International Archives of ISPRS, Vol. XXXVI, Part 4./W6; ISPRS Workshop on Service and Application of Spatial Data Infrastructre

Citation (APA)

Abdulharis, R., van Loenen, B., & Zevenbergen, JA. (2005). Legal aspects of access to Geo-information within Indonesian spatial data infrastructure. In J. Jiang (Ed.), *The International Archives of ISPRS, Vol. XXXVI, Part 4./W6; ISPRS Workshop on Service and Application of Spatial Data Infrastructre* (pp. 147-153). ISPRS working groups - WG IV/1.

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LEGAL ASPECTS OF ACCESS TO GEO-INFORMATION WITHIN INDONESIAN SPATIAL DATA INFRASTRUCTURE

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KEYWORDS: Access, Geo-information, ISDI, Legal Aspect, NSDI and SDI

ABSTRACT:

Geo-information is a double-edged sword, regarding its powers in providing instant access to vast amounts of data and the opportunity to abuse, to misinform, and to invade the privacy of individuals on a greater scale than ever before [Cho, 1998: 22]. Thus, access to geo-information has always become an essential issue on development of a National Spatial Data Infrastructure (NSDI). Legal aspect of access to geo-information is also becoming one of the most important frameworks of Indonesian Spatial Data Infrastructure (ISDI), which is still being developed at this moment. Since there is no available arrangement on accessing geo-information within ISDI, this paper will explore the most suitable arrangement on legal aspect of access to geo-information by examining the recent progress on legal aspect of access to geo-information in Indonesia and development of ISDI. The recent progress on development of Australian Spatial Data Infrastructure (ASDI), Philippines National Geographic Information Infrastructure (Philippines NGII) and Malaysian Geospatial Data Infrastructure (MyGDI) will be evaluated as well in order to provide recommendation on legal access of access to geo-information within ISDI.

1. INTRODUCTION

Geo-information is a double-edged sword, regarding its powers in providing instant access to vast amounts of data and the opportunity to abuse, to misinform, and to invade the privacy of individuals on a greater scale than ever before [Cho, 1998: 22]. On the other hand, the value of geo-information comes from its use [Onsrud and Rushton, 1995]. Therefore, access to geo-information has become an essential issue on the arrangement of legal aspects of geo-information, particularly those that are related to public access and ownership of geo-information and intellectual property in geo-information. Access to geo-information will ensure the continuation of enhancement of quality of geo-information.

In Indonesia, geo-information is acquired, processed, and maintained by different institutions, especially public institutions. Starting from the year 1993, there has been efforts on organising Indonesian geo-information in a national spatial data infrastructure, which is called Indonesian Spatial Data Infrastructure (ISDI), concerning the trend on the development of spatial information in Indonesia [Matindas *et al.*, 2004]. Another factor that pulled the foundation of ISDI is that, as a member of the Permanent Committee for GIS Infrastructure for Asia and Pacific (PCGIAP), Indonesia has a responsibility to set up ISDI as a node of Asia Pacific Spatial Data Infrastructure (APSDI) [BAKOSURTANAL, 2000].

Legal aspects of geo-information within ISDI are still being investigated. Therefore, this paper will initiate the study of the most suitable policy on access to geo-information, proportionate to legal status arrangement of geo-information, within ISDI by means of existing law and regulations. Another intention of this paper is to offer recommendations towards the arrangement of the policy on access to geo-information within ISDI. To be able to provide recommendations toward the arrangement of the policy on access to geo-information within ISDI, the existing theoretical framework of legal aspects and policy of geo-

information will be brought in. Additionally, the requirements that are needed to link ISDI to APSDI will be used.

The existing laws and regulations concerning access to geo-information in Indonesia will be described as a starting point. Additional information related to the present progress of arrangement of legal aspects and policy of access to geo-information within ISDI will be illustrated as well.

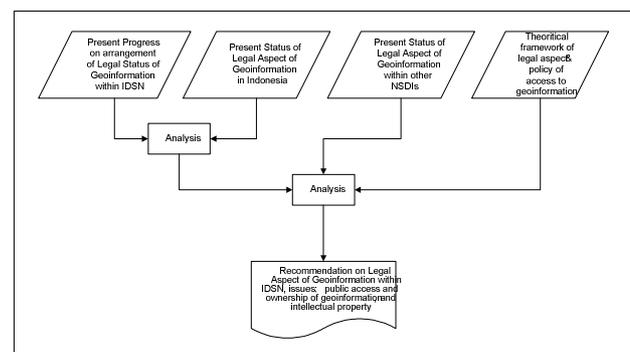


Figure 1. Research framework on examination of legal aspects of geo-information within ISDI

Next, the existing scheme of legal aspects and policy of geo-information in Indonesia will be compared to the existing theoretical framework of legal aspects and policy of geo-information. Additionally, the legal scheme and policy of access to geo-information within Australian Spatial Data Infrastructure (ASDI), the Netherlands National Geo-information Infrastructure (the Netherlands NGII), the Philippines NGII and Malaysia Spatial Data Infrastructure (MySDI) will be investigated.

2. THE THEORETICAL FRAMEWORK OF ACCESS TO GEO-INFORMATION

The most suitable policy on access to geo-information within ISDI will be evaluated by means of public access to geo-information and intellectual property of geo-information as the research framework of this paper. Thus, this section will be divided into three subsections, which are the theoretical framework of public access and ownership of geo-information, intellectual property of geo-information and access to geo-information within NSDI.

2.1 Public Access to Geo-information

According to Cho (1998), public access to geo-information has two opposite political-strategic points of view. Public access to geo-information will allow the monitoring of the government's performance by the taxpayer. On the other hand, access to geo-information could also become a means of funding the continuous processes of updating geo-information.

The government's approach on sharing geo-information is depending on the policy of access to government-held information. There are at least two main policies on sharing of information, which are freedom of information and cost recovery.

Freedom of information acts generally provide citizens with access to official documents held by the authorities, and with an opportunity to observe the political and administrative decision-making process in order to foster the democratic legitimacy of the decisions taken [Kabel, 2000]. It has been observed that an open access environment may be more successful in promoting innovation and economic efficiency in the long run than one where fees are charged and restrictions placed on the subsequent use of that information [Onsrud, 1992]. In order to implement the freedom of information, there should be definitions on objects that are covered by the freedom of information regulations. The purposes for which access is requested also should be taken into account. On the other hand, cost recovery principle has effect of establishing a method of offsetting the costs of developing, establishing, operating, and maintaining a data collection system [Kabel, 2000].

In spite of the different approach on access to government-held information, it should be assured that at least one out of five objectives below is achieved [Clarke, 1991; Cho, 1998]:

1. Maximise data access in order that the maximum potential social and economic benefits arising from data usage may accrue;
2. Ensure the primacy of the public interest role of public agencies as data producers;
3. Ensure equity of access;
4. Avoid the creation of a government information monopoly;
5. Encourage the development of value-added industries.

2.2 Ownership of Geo-information

While geo-information is ready to be distributed, the ownership of geo-information issue then will be raised, either within the scope of freedom of information and cost recovery policy. The custodian, the producer and owner of information, will make sure that it will have a bunch of rights on information it produced after it has accomplished its obligation to provide information.

Intellectual property could become a means to protect the right of custodian to information. According to Cho (1998), intellectual property by tradition refers to the right conferred by the grant of copyright in literary, artistic and musical works. Cho (1998) also mentioned that recently patents and trademark have been acknowledged as intellectual property as well.

Even though it is still being debated, copyright could protect the ownership of geo-information. Even several countries stated that map and database are protected under their copyright act. There are two purposes of copyright [Kidwell, 1989; Holland, 1994], which are to encourage publication and distribution of information and to protect the author's investment in productive pursuits.

Besides copyright, trade secrecy could also become a means to protect the rights of custodians on geo-information they produced. Information is valuable. Therefore, trade secrecy stated that custodian has proprietary rights in it regardless of whether that custodian originated it [Holland, 1994].

2.3 Access to Geo-information within NSDI

The term Spatial Data Infrastructure (SDI) is frequently used to indicate the relevant base collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data [Nebert, 2001]. According to Nebert (2001), the SDI provides a basis for spatial data discovery, evaluation, and application for users and providers within all levels of government, the commercial sector, the non-profit sector, and academia and by citizens in general. According to U.S Federal Geographic Data Committee (2004), National Spatial Data Infrastructure defined as the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors and the academic community.

Within APSDI, policy on sharing fundamental spatial data intends to avoid data duplication and provide better data for decision-making. The purpose of establishment of this policy is to establish a set of principles for the responsible management of critical regional resources and commits all countries in the region to cooperate in the implementation of the APSDI [PCGIAP, 2000]. Custodianship is also becoming the key feature of the infrastructure model of APSDI [PCGIAP, 1998]. According to PCGIAP (2000), operational and business needs, technical capability and availability of resources may be considered as the criteria in the allocation of data set custodianship. Moreover, the most appropriate custodian may be chosen from the organisation that requires the highest standards of quality.

Furthermore, PCGIAP (1998) proposes that custodians with data distribution responsibility must administer licensing conditions for the access and use of data by external parties. PCGIAP divides the access policies based on public interest or commercial approach. PCGIAP supports the concept of a regional directory of spatial data and believes it is important that there is free access to metadata. For that reason, PCGIAP will develop access policies regarding the current government policies and the relevant laws regarding copyright and government information [PCGIAP, 1998].

In relation to the access condition principle held by PCGIAP, each member of PCGIAP should ensure easy, efficient and equitable access to fundamental geo-information [PCGIAP, 2000]. The so-called fundamental geo-information is those that

are related to regional economic, social and environmental issues. According to PCGIAP (2000), each member of PCGIAP should also apply conditions that do not inhibit fundamental geo-information use.

3. PRESENT LEGAL STATUS OF ACCESS TO GEO-INFORMATION IN INDONESIA

Most of the geo-information that existed in Indonesia is public geo-information. Thus, the identification of present legal status of geo-information in Indonesia could be narrowed by identifying the present legal status of public geo-information in Indonesia. Present legal status of public geo-information in Indonesia could be seen from two different acts, which are State's Non-tax Income Act and Copyright Act.

The purpose of Act of Republic of Indonesia no. 20 year 1997, which is also called State's Non-tax Income Act, is to encourage public institutions to be able to finance themselves. Another purpose of this act is to decrease, or even to be able to terminate, the subsidy from the government. As it is regulated by State's Non-tax Income Act, the income that came from the management of government fund and from the government services is sheltered under this act.

According to Act of Republic of Indonesia no. 19 year 2002, which is called Copyright Act, maps and databases are included in fields that are protected by copyright. Based on paragraph 1 of article no. 2 of Copyright Act, the copyright protection is granted to either personal or legal bodies. Considering most of producers of geo-information in Indonesia are public institutions, Indonesian Copyright Act protects geo-information up to 50 years from the first publication of the geo-information itself.

In contrary with the State's Non-tax Income Act, Copyright Act could not be applied on products that are published and/or reproduced by government and being used by means of educational purposes, researches, reporting, criticizing, or problem analyses that are not going to cause inconvenience to creator.

Recently, private sector has started to get involve on production of geo-information in Indonesia. In this case, Copyright Act is the only means to protect rights of private geo-information custodian in Indonesia.

4. PROGRESS ON THE ARRANGEMENT OF LEGAL STATUS OF ACCESS TO GEO-INFORMATION WITHIN ISDI

Even though it is not directly stated, ISDI will implement the custodianship principle in the future. This scheme could be seen from the recommendation of National Coordination Meeting on Survey and Mapping in 2000. It was stated that establishment of spatial data custodian will become one of the institutional aspects within the development of SDI which should be synergised [BAKOSURTANAL, 2000].

Although the establishment of ISDI has been discussed since 1993, the precise arrangement on legal status of access to geo-information has not been regulated yet. The last ISDI meeting on 2003 in Yogyakarta, Central Java, Indonesia, was still discussing about the data custodianship and the need of the establishment of national clearinghouse prototype. Even the

national committee of ISDI is not established yet, which affected the progress of the development of ISDI to almost nothing.

5. ACCESS TO GEO-INFORMATION WITHIN OTHER NSDIS

5.1 Australia Spatial Data Infrastructure

Australia has been very active in SDI development and could be considered as one of the leading actors on it in Asia and Pacific [Masser, 2002]. Another reason to choose Australia as an example of arrangement of legal status of geo-information is that on one hand Australia is implementing freedom of information and on another hand is applying the cost recovery principle on distribution of geo-information.

Access to geo-information within Australia is regulated by two principles, which are freedom of information in one hand and cost recovery principle for geo-information on the other hand. The Australian Freedom of Information Act 1982 (Cth.) gives rights to members of the public to access the official documents of the Commonwealth government and its agencies [Cho, 1998]. This act is important because it could increase the ability of Australian to participate in society [Australia Parliament of, 1991].

The Australian Freedom of Information Act 1982 allows the members of the public to access a government's document by writing a request to the relevant government agency to give all details necessary to identify the subject document [Cho, 1998]. Also according to Cho (1998), the commercially valuable documents and confidential business information are generally exempt from disclosure.

Geo-information is included among the valuable documents since the producers should pay huge amounts of money for acquiring them. Besides collecting them, geo-information producers should also maintain geo-information. The cost of maintaining data in general will be much bigger than the collecting costs. Therefore, the producers have rights to own the geo-information. The principle that allows data producers to own the data is usually called custodianship principle. According to Australia New Zealand Land Information Council (ANZLIC), a custodian of a fundamental data set, or a component of that data set, is an agency recognised by ANZLIC as having the responsibility to ensure that a fundamental data set is collected and maintained according to specifications and priorities determined by consultation with the user community, and made available to the community under conditions and in a format that conform with standards and policies established for the national spatial data infrastructure [ANZLIC, 1996]. By implementing the custodianship principle, the geo-information could be licensed for particular uses and where the intended uses are deemed inappropriate the custodian may refuse to supply the data [Cho, 1998].

The freedom of information and cost recovery principle are considerably related to the pricing policy. To facilitate the implementation of Australian Freedom of Information Act 1982, geo-information in Australia could be accessed by anyone. But because geo-information is valuable and expensive-to-get information, there has been classified different policy on pricing and transfer of geo-information for public and private sector. For example, Western Australia Land Information System (WALIS) classifies the access to geo-information for

government and outside government bodies according to commerciality of the usage of geo-information [Patel, 2003]. See Figure 2 for details.

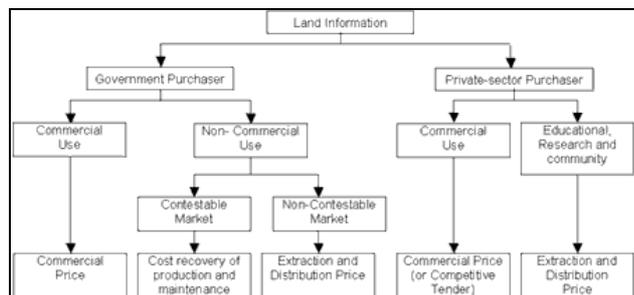


Figure 2. Pricing and transfer policy in WALIS [Patel, 2003]

Besides above principles, Australia is the first country that applies the anti-competitive law within the states and the government business enterprises [Cho, 1998]. According to Cho (1998), Part IV of the Trade Practices Act 1974 (Cth.) prohibits various forms of anti-competitive conduct, such as contracts which substantially lessen competition, price fixing among competitors, the misuse of market power, resale price maintenance, mergers and acquisitions. Followed by the Competition Principles Agreement to implement the federal government reforms in 1995, the principles on structural reform was set. The agreement that was signed by Council of Australian Government (COGIS) is established to avoid public monopolies, promote competitive neutrality between the public and private sectors, promote prices oversight of utilities and other corporations with a significant monopoly power, a regime to provide access to essential facilities, and a program of review of legislation restricting competition [Cho, 1998]. ASDI development is also involving public and private sector. Public and private developments have all been a part of the ASDI mission to deliver quality spatial reference information [Cho, 2005].

5.2 Philippines NGII

Philippines is now still working on developing its NSDI, which is called National Geographic Information Infrastructure (NGII) there. The establishment of Philippines NGII was initiated in July 1999 by the project entitled "The Establishment of a Technical, Operational and Legal Framework for the Management of Geographic Information in the Philippines" [Cruzado and Crisostomo, 2001].

In relation to access to geo-information within Philippines NGII, the formulation of policies on marketing and copyright and practical procedures for distributing digital products are the key points within NGII development framework. Inter-Agency Task Force on Geo-information Information (IATFGI), which task is to promote and coordinate the efficient development, management and utilization of geographic information in the country, defines the custodianship as the key feature of the NGII model. As the custodianship concept in Australia, custodian agencies may include some or all aspects of data acquisition, storage, maintenance, quality assurance, security, access, documentation and distribution [IATFGI, 2000b]. According to IATFGI (2000b), custodians also have certain clearly defined rights. These may include the right to charge a fee for data access, to market and distribute the data to certain classes of users, and to access and use the data administered by other custodians. The custodianship concept also includes

statutory or legal responsibilities, operational needs, technical capability and availability of resources within the allocation of data set custodianship.

In addition to the custodianship concept, policies on National Geographic Information Council (NGIC) data sharing, copyright of geospatial data and marketing of geospatial data are also being reviewed [IATFGI, 2000a]. In the future NGIC will become a permanent administrative body to plan, coordinate and formulate policies on GI and GIS-related activities in the country that do not yet exist [Cruzado and Crisostomo, 2001].

According to IATFGI (2000a), the purpose of establishment of policy on NGIC data sharing policy is to facilitate the efficient sharing of geo-information by minimising duplication in digital data capture activities. Draft on NGIC data sharing guidelines included policies below [IATFGI, 2000a]:

1. A Memorandum of Agreement (MoA) is necessary and must be secured before the implementation of data sharing among government and/or private agencies. The MoA is used to safeguard the interest of the owner agency and ensure the integrity of data. It should contain, among others, the digital data to be acquired, the price, the purpose for which the data will be used and conditions of data exchange;
2. The digital data obtained from the source agency shall be solely used for the purpose stated in the MoA and under no circumstance can they be sold to other users. In addition, the acquiring agency shall be responsible for safeguarding data from unauthorized access or use;
3. In the absence of NGIC standard pricing scheme, the cost of digital data shall be determined through mutual agreement between the contracting parties;
4. The acquiring agency shall always cite the original data source and assumes all responsibilities as to the use, analysis and interpretation of the data being requested;
5. Both source and acquiring agencies shall agree and specify a warranty period during which unreadable data files can be returned or replaced, free of charge;
6. To enhance sharing, all data producers/users shall publish a yearly bulletin of all their data holdings for consumption by other government agencies;
7. The acquiring agency must inform the source agency on any updates done on the original data and both agencies can enter into another agreement for data exchange unless the previous MoA has covered this aspect;
8. Signatories of the MoA shall see to it that its provisions are strictly observed. Any violation thereof shall be brought to the attention of concerned authorities for legal sanctions.

Copyright in Philippines is regulated by Republic Act No. 8293, which is known as Intellectual Property Code of Philippines of 1997. The general term of copyright in Intellectual Property Code of Philippines means the exclusive right given to author to reproduce, publishes, perform, broadcast and adapt a work [IATFGI, 2000a]. Under Section 172 of Republic Act No. 8293, literary and artistic works, including diagrams, maps, charts or plans, are protected. Within the future Philippines NGII, the

member of the NGIC will become the custodians of the geo-information.

According to Section 176 of Republic Act No. 8293 the government works are not protected by Intellectual Property Code of Philippines of 1997. But, NGIC as a public institution still could grant a right or license to use their products by another agency or individual through a Memorandum of Agreement (MoA) entered into by and between them [IATFGI, 2000a]. This exception is stated within the same section of Republic Act No. 8293 as the prior approval of the government agency or office wherein the work is created is needed. In the future Philippines NGII, NGIC will implement the custodianship principle.

Exemption could be applied to the use of printed maps and geo-information within the scope of research, teaching and study. In case of printed maps, the use of 10% of printed material, such as map for educational purposes and non-business research, does not attract a license fee [IATFGI, 2000a]. According to IATFGI (2000a), NGIC considers A4 size of reproduction of maps at their original scale for educational purposes to be acceptable for copying. The exemption will be omitted when the copyright material is used in a commercial venture.

The last policy draft related to access to geo-information that is still being discussed is marketing policy draft. The objectives of this policy are to encourage use, discourage duplication, provide equity of access and reduce cost of using geospatial information held by NGIC agencies member [IATFGI, 2000a]. Philippines NGII marketing policies are listed below [IATFGI, 2000a]:

1. Through NGIC, a list of geospatial data available at the member-agencies will be provided in public either through World Wide Web or other means.
2. NGIC member-agencies will improve access to geospatial data and will encourage data sharing in accordance with data sharing policies of the NGIC. This policy applies only to available and unrestricted data at the NGIC member-agencies.
3. NGIC member-agencies must not make available geospatial data that may violate individual privacy, commercial confidentiality and national security.
4. NGIC member-agencies will have to establish license agreements with the user of the geospatial data to set out terms and conditions. The user will only be licensed to use the data, and the ownership of the data should not be transferred. Clients or licensees should not provide copies of the geospatial data to third parties unless explicitly permitted to do so by the license agreement.
5. Licensee must adhere to the data standards set by the NGIC as the geospatial data conform to NGIC data standards.
6. Licensing agreements between the NGIC member-agency and the private sector who requests for geospatial data for commercial purposes must address as a minimum the following:
 - a. Details of the metadata of the geospatial data;
 - b. The conditions under which the license may or may not provide copies of the data to third parties;
 - c. Terms, charges and conditions in the license agreement including penalties for infringement;

d. The management of intellectual property in accordance with the Philippine IPR Act of 1997;

7. Where the license is permitted to sell the information to multiple third parties, the following specific issues must be addressed:
 - a. Payment schedule including royalty payments;
 - b. Certificate of product modification from the source of the geospatial data if the licensee modified, integrated, updated or added value on the original product;
 - c. Access of the original owner of the information to the list of clients where the data were distributed;
8. Pricing of individual datasets or geospatial products should be determined by the owner of the data. Pricing may vary depending upon the cost of acquiring the data, value-added features and maintenance. Any editing or transformation of the original data at the time of the request will be negotiated separately;
9. Data quality of all geospatial information from any NGIC member-agency should adhere to the best quality possible which can be applied to any geospatial data.

5.3 Malaysian GDI

Until 2003, Malaysian Geospatial Data Infrastructure (MyGDI) has been applied within six states in Malaysia [Ahmad, 2004] and involving 46 data supplier and user agencies [bt. Sachlin, 2004]. At this moment, MyGDI is now moving forward in order to be fully implemented within eight other states in Malaysia by the end of 2005 [Ahmad, 2004].

To support the foundation of MyGDI, Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) was established on December 1, 2002. MaCGDI has a responsibility to establish policy, standard, technology, research, human resource and professional consultancy service that are needed for the management of geo-information in Malaysia [Ahmad, 2004].

Geo-information in Malaysia is treated as an artistic work and protected under the Copyright Act, which was established on December 1, 1987 [bn. Abdullah, 2004]. As the implementation of the Copyright Act 1987, which is also known as Act 332, custodian of geo-information has a right for licensing geo-information and asking for royalties from value-added geo-information product for commercial purposes [bn. Abdullah, 2004]. The right of custodian of geo-information is stated within Fees and Royalties (Survey Data and Digital Mapping) Order 1997. Based on two regulations above, geo-information custodian has exclusive rights as follows [bn. Abdullah, 2004]:

1. To reproduce geo-information in any material form;
2. To perform, show and play geo-information to public;
3. To communicate geo-information to public;
4. To distribute the copy of geo-information to public by sale or other transfer of ownership and commercial rental to public.

As the Copyright Act and Fees and Royalties Order are directly implemented within MyGDI, geo-information custodianship has an important role on setting up policy of access to geo-information within MyGDI. According to Ahmad (2004), geo-information custodian should fulfil guidelines comprising the principles below:

1. Data custodian is a trustee on behalf of the government;

2. Data custodian is responsible to comply with the required standard;
3. Data custodian must plan and manage their data to meet MyGDI requirements;
4. Data custodian is a liable data supplier;
5. Data custodian is responsible for the integrity of their data ;
6. Data custodian must ensure their data is always available and ready to be accessed by users through MyGDI.

Access to geo-information, including to metadata directory and link to view geo-information, enclosed by MyGDI could be done from MyGDI clearinghouse. MyGDI clearinghouse assists the management of data collection and research activities of the user [bt. Sachlin, 2004]. Besides facilitating sharing of geo-information within MyGDI at federal, state and local levels, MyGDI clearinghouse also provides the necessary connection between data producers, managers and users [bt. Sachlin, 2004]. Thus, also according to bt. Sachlin (2004), agencies can publish and update the metadata as well as the geospatial data. Up to now, there are already existed national MyGDI clearinghouse and five MyGDI clearinghouses on state level.

Concerning access to geo-information within MyGDI, MyGDI will be developed to be able to comprise the following [bt. Sachlin, 2004]:

1. National Geospatial Portal (MyGDI GeoPortal) as logical extension to MyGDI clearinghouse network for applying an open framework for geo-information sharing;
2. National Geospatial Data Centre (NGDC) as national geographic knowledge-base to support the business of the government that requires geographic components and tools to handle and manage geo-information and facilitates cross-agency decision-making.

In the future, every data transaction within MyGDI will be performed by the internet. To facilitate online data transaction, MyGDI eCommerce will be developed.

6. THE LESSON LEARNED FOR ESTABLISHMENT OF LEGAL ASPECTS AND POLICY OF ACCESS TO GEO-INFORMATION WITHIN ISDI

There are five important lessons for the establishment of legal aspects and policy of access to geo-information within ISDI. The first lesson is that it is important to found a permanent administrative body to administer an NSDI. That permanent body has to be lead by an institution that is in charge within the management of geo-information. There should also be guidance on how to establish a NSDI.

The second lesson is that the custodianship principle has an important role on the development of an NSDI. Custodianship could be said as implementation of copyright and trade secrecy. Even though Malaysia and Philippines do not implement freedom of information principle, citizens have rights to access government-held information since taxes paid by citizens are being used for government to perform its duty. By implementing this principle as it is written in APSDI publications, the quality of geo-information will also be ensured by data custodians.

The third lesson is related to the legal scheme and policy of access to geo-information within an NSDI. Since each user of geo-information has different purpose on accessing geo-information, it is important to determine the basic condition of

access to geo-information based on the nature of the user, whether it is public, private or educational institution, and based on the nature of the use, whether it is used for commercial or non-commercial purpose. The legal scheme and policy of access to geo-information should encourage the use of geo-information and discourage duplication.

The fourth lesson is related to the implementation of copyright act to the legal scheme and policy of access to geo-information. Copyright has become the means for protecting rights of geo-information custodian, especially private sector custodian. Since the only existing acts related to geo-information in Indonesia are contradictive to each other, supportive regulations should be established. Licensing scheme has been used by some NSDIs to support the legal scheme and policy on accessing geo-information within themselves.

The fifth lesson is that access to geo-information within NSDI will and should be performed online by the internet. Most of NSDIs that have been described within this paper are moving towards on providing online access to geo-information. They mostly will and have provided free limited views of geo-information, while full access to geo-information can be acquired by a subscription.

7. RECOMMENDATION

Based on the lessons above, it is recommended to set up several schemes of legal aspects of access to geo-information within ISDI as follows:

1. Institutional framework:
 - e. Launch an ISDI cookbook which includes all of technical, legal and other aspects related to geo-information within ISDI;
 - f. Found a national committee on ISDI as soon as possible, in order to accelerate the development of ISDI;
 - g. Initiate the founding of national clearinghouse prototype as soon as possible;
 - h. Maintain BAKOSURTANAL function as the leader of the development of ISDI since it is a part of BAKOSURTANAL duties to maintain fundamental geo-information;
2. Geo-information custodian:

Include the statement of the implementation of custodianship principle within the ISDI cookbook. This statement will justify the performance of custodianship principle within the founding of ISDI. This scheme could also clarify the criteria to decide the most appropriate geo-information custodians;
3. Legal status of access to geo-information:

Determine the basic condition for accessing geo-information in ISDI. This determination scheme could be examined by verifying aspects as follows:

 - a. Confidentiality of geo-information. It should verify the criteria of confidential geo-information. Nowadays, every geo-information produced by army institutions is classified as confidential geo-information while the same products have been launched by other institution. By verifying the criteria of confidential geo-information, the duplication of geo-information could be avoided and this scheme could also give legal assurance to confidential geo-information in relation to establishment of ISDI as node of APSDI. It is stated

- within the APSDI publication that the access policies depend on each members policies;
- b. Institutions that access the geo-information in ISDI. It is recommended to categorise the institutions as public institutions, private institutions and educational institutions;
 - c. Commerciality of the use of geo-information;
- By examining above aspects, the recommended policy on accessing geo-information in ISDI is described in Figure 2.

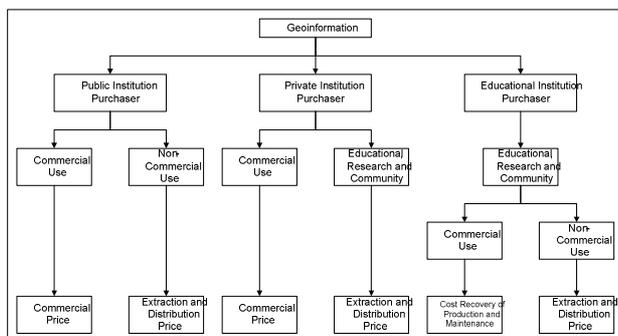


Figure 3. Recommendation on access policy to geo-information within ISDI

4. Copyright issue:

- a. As geo-information within ISDI will become an exemption of copyrighted public geo-information, there should be established supportive acts, or lower level regulations, to clarify this exemption. For example, as a public institution which directly lied under Indonesian president command, BAKOSURTANAL resolutions are at the same level as ministers resolutions. If it is not possible to launch the acts, regulations or recommendations, the alternative is to clearly state the copyright statement within each product of geo-information custodians;
- b. Implement licensing scheme in order to assure the legal status of the use, the reuse, the use periods, the quality and the infringement of violation of copyright act and licensing scheme of geo-information.
- c. Develop special licensing scheme for accessing digital geo-information through the internet.

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