Assessing Environmental Information System in Improving Public Participation: Environmental Protection Approach

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Abstract: Environmental protection and management requires an integrated development system that reaches from the center to the regions. This research is aimed to examine and analyze community participation in environmental information systems and factors that influence community participation in environmental information systems. It is an empirical research. Data collection is done by interview method. The data includes primary (interview result) and secondary (books, scientific writings and legislation related to environmental information systems and community participation). The result of research indicated that community participation in vertical participation-based environmental information systems and as a type of participation in decision-making and the degree of participation at the degree of tokenism on the fourth ladder, namely consultation. Factors that influence community participation in environmental information systems are accurate, relevant, timeliness, have benefits and costs to obtain information.
Keyword: Environmental law, information system, community participation

I. INTRODUCTION

The Unitary State of the Republic of Indonesia lies in a cross position between two continents and two oceans with a tropical climate and weather and seasons that produce high natural conditions. Indonesia has abundant biodiversity and natural resources. This wealth needs to be protected and managed in an integrated system of environmental protection and management between the marine, land and air environment based on the archipelago concept. However, Indonesia is also in a position that is very vulnerable to the effects of climate change. Therefore, the environmental of Indonesia must be protected and managed properly based on the principles of state responsibility, sustainability, and justice.

In Arifin's[1] research states that the environmental protection and management requires an integrated development system in the form of a national policy of environmental protection and management that must be carried out in a consistent manner from the center to the regions. Obtaining a good and healthy environment and good health services are human rights. Therefore, according to Asshiddiqie[2] the 1945 Constitution of the Republic of Indonesia is clearly very pro-environment, so it can be called a *green constitution*.

A primary tool to support the realization of good environmental protection and management is the availability of environmental data and information that is packaged in an information system that is adequate, reliable, and updated. The progress of the rapid development of science and technology has led to developments in the field of information and communication technology that are so fast that they provide opportunities in delivering information quickly, accurately and in large volumes to the public. In fact, the use of electronic media is an effective means of distributing information.

The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, in 1992, has resulted in an environmental management strategy as outlined in Agenda 21. In Agenda 21 Chapters 40, mentions the need for governmental capacity in collecting and utilizing multi-sectoral data and information in the decision-making process to implement sustainable development. This requires the availability of data, the accuracy of the analysis, and the presentation of informative environmental information.[3]

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[1] Arifin S. (2012). *Hukum Perlindungan dan pengelolaan Lingkungan Hidup di Indonesia*. Medan: P.T. Softmedia. Compared to Satries W.I. (2011). "Mengukur Tingkat Partisipasi Masyarakat Kota Bekasi dalam Penyusunan APBD Melalui Pelaksanaan Musrenbang 2010". *Jurnal Kybernan,* 2(2): 211-245.

[2] Asshiddiqie J. (2009). *Green Constitution: Nuansa Hijau Undang-undang Dasar Negara Republik Indonesia Tahun 1945*. Jakarta: PT RajaGrafindo Persada, pages 34-35

[3] Aspan Z. (2013). *Konstitusionalisasi Hak Atas Lingkungan Dalam Perkembangan Hak Asasi Manusia di Indonesia*. Yogyakarta: Diandra Creative, pp 34-35

Based on Article 28F of the 1945 Constitution of the Republic of Indonesia, which was later implemented in Act No. 14 of 2008 about the Openness of Public Information, Article 4 paragraph (1) states that every person has the right to obtain public information in accordance with the provisions of this law. On this basis, each public body is required to provide and/or publish information relating to the public interest. Thus, the development of this information system is a new concept in Act No. 32 of 2009 about the Environmental Protection and Management.

This environmental information system produces a right to environmental information, which is a logical consequence of the right to play a role in environmental management based on the principle of openness. The right to environmental information will increase the value besides that it will also open opportunities for the community to actualize their rights to the environment.

At the practical level, the environmental protection and management is a systematic and integrated effort to preserve environmental functions and prevent environmental pollution and/or damage which includes planning, utilization, control, maintenance, supervision and law enforcement. A fundamental problem in in our past governance is the low level of openness, participation and accountability. This is a challenge in providing environmental information systems in the current era of public information openness. Certainly requires cultural change and mindset for various parties, both providers and users of data and information, from the conventional ones to the digital era. From the *direct face to face* became *invisible*. From *paper based* become *paper less*.[4]

As mentioned above, it shows that there is still a lack of awareness of us as human beings about the importance of the environment, both from the performance of the government, and the participation of the community because the environment is a gift from the God that needs to be maintained for the sake of survival together. On this basis, the research is aimed to examine community participation in the environmental information system and to analyze factors that affects community participation in environmental information systems in Makassar city.

II. METHOD OF RESEARCH

The research is an empirical research that conceptualized sociologically as an empirical phenomenon that can be observed in life where the legal issues can be answered positively by studying the law as a social phenomenon.[5] Obtaining data sources that are used as supporting research are: 1) Primary data, obtained from field research, a research conducted directly on the object to be studied; 2) Secondary data, obtained from library research, namely a research conducted by studying scientific writings, legislation, as well as other sources that already exist and are related to the object of research. The primary and secondary are processed first and analyzed qualitatively and presented descriptively to explain and describe in accordance with the problems closely related to this research, then draw a conclusion based on the analysis.

1. Community Participation in Environmental Information System

Internally, the environmental information system is an attractive environmental database program and equipped with maps and other multimedia features and serves to store, process and publish the environmental data. While externally the programs can be made based on the website so that it is easily accessed by the wider community as sources of information that are useful in terms of regional environment.[6]

The environmental information system is a mechanism for providing access to the public that is managed by the government or it can be said that the environmental information system is an information system issued by the authorized agency that prepares channels about environmental information in its territory, for example issued by the Regional Environmental Agency. This is still far from what is mandated by the environmental law itself because there is no regulation that regulates the environmental information system itself so that the Regional Environment Agency as an informant also not understood too much.

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[4] Djajadilaga M *et. al.* (2010). *Pedoman Umum Pembangun Sitem Informasi Kualitas Lingkungan*. Jakarta: Kementerian Lingkungan Hidup, p. 62

[5] Sunggono B. (2012). *Metodologi Penelitian Hukum*. Cetakan ke-13. Jakarta : PT Rajagrafindo Persada, page 21

[6] The International Federation for Human Rights Annual Report 2014 explains many links between land protection security and protection at all to the pleader of human right that advocating land rights. Furthermore, this publication also explains the increasing global trend throughout the year in the space of competition for land struggle for the interests of large-scale investments, such as agro-industry, extractive industry, logging, infrastructure expansion aimed at fulfilling global financial speculation. In Asia, land conflicts are not only represented by the situation of Indonesia, but also some countries such as Cambodia (advocacy of land rights confession for indigenous groups) and Palestine (independence confession of Palestinian also has close ties to land rights issues). In Latin America, as in Colombia (issues of land ownership in conflict time and post-civil conflict), Brazil (issue of land ownership for indigenous groups). In Africa, such as Liberia (issue of land tenure devoted to the palm oil industry), Ethiopia (coercion by State for 1.5 million people to move to villages in villagization program."

The position of the environmental information system in Act No. 32 of 2009 about the Environmental Protection and Management is a reflection of the participatory principle contained in this law. Participatory principle is one of the important principles besides as an effort to empower the community in the implementation of environmental management, it also to improve the quality of government decisions related to the environment.[7] Hence, Lothar Goundling[8] states that the basis of community participation by giving correct and accurate information, the quality of decisions taken by the government will be better. In this process, guarantees are needed for access to information, access to participation, and access to justice in administrative procedures for government decision-making in the environmental field. A better quality of decision will increase the willingness of the community to accept the decision, thereby reducing the case submitted to the court.

Decisions of development both at the center and in the regions are a set of activities that contain programs and activities made by the government or local government in solving the problems. Decisions made are not solely coming or made just like that without the selective process that goes through. The decision arises from various rational efforts or actions of the makers or policy makers at the center and in the regions. Rational decision-making is a decision that is produced on the basis of complete, detailed, and relevant information related to problems faced by the community, government, and regional government. For this reason, it is necessary to have data or information that is really relevant and sufficient in describing the problems that occur. The process of managing data becomes information and as foundation in decision-making by Levin:[9]
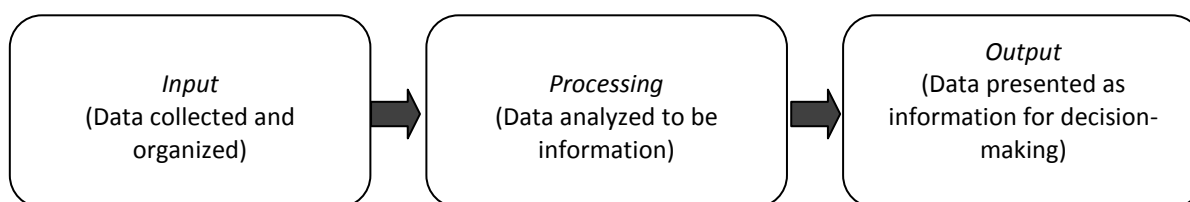

Figure 1. Levin's Management of Data Into Information, Secondary Data (edited)

At the stage of making the first break, the introduction of problems, data or information plays an important role. Complete information will determine the quality of problem identification. Good information is information that is useful for policy makers in making decisions, namely complete information that contains or describes variables or components of the problem. Errors in presenting alternatives, even up to determining alternatives to be taken for decision making.

According to the analysis of the author, the position of the environmental information system in the protection and management of the environment is closely related to community participation. Without community participation, the environmental information system is only a database containing environmental information, while the participation of the community in an environmental information system will result in a decision or policy on the environment that has quality and value. Because a policy will affect the actions and actions of the community, it will generate data that can be processed into information that will affect each decision.

To clarify which process is called participation and not participation in this sense the concept of eight ladder of community participation (Eight Rungs On Ladder of Citizen Participation) is used according to Sherry. R. Arstein. The eight stairs are manipulation, therapy, information, information, consultation, placation, partnership, power (delegate power) and citizen control.

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[7]   Akib, M. (2013). *Politik Hukum Lingkungan (Dinamika dan Refleksinya Dalam Produk Hukum Otonomi Daerah)*. Second edition. Jakarta: PT RajaGrafindo Persada, page 124.

[8]   *Loc.Cit.*

[9]   Etin Indrayani, *et al.* (2013). *Sistem Informasi Manajemen Pemerintahan Konsep dan Aplikasinya pada Organisasi Pemerintahan/Pemda*. Sumedang: Institut Pemerintahan Dalam Negeri (IPDN) Press., page 131.

[10]   *Ibid*, page 131.

the environment that has quality and value. Because a policy will affect the actions of the community, it will generate data that can be processed into information that will affect each decision.

In this sense, the concept of Sherry R. Arstein used to clarify which process is called participation and not-participation in the Eight Rungs on Ladder of Citizen Participation. The eight ladders are[11] manipulation, therapy, information, consultation, placation, partnership, delegate power and citizen control. In the bottom ladder which is categorized in the degree of non-participation puts the form of participation called manipulation and therapy. The third, fourth, and fifth ladders are information, consultation, and placation were categorized in degrees of participation, then the top three ladders are categorized as degree of citizen power namely partnership, delegate power, and citizen control.[12]

In this case, the degree of community participation can already be categorized in the degree of participation (*degree of tokenism*) and precisely in the fourth ladder, namely *consultation*, where there is two-way communication but is still a ritual or formality participation, there is hope that community participation has been heard but no aspiration guarantee has yet been implemented. This degree of participation can continue to rise if the government as an information provider understands the importance of ontology,[13] epistemological,[14] and axiological[15] environmental information systems. In addition, the need for the role of third parties in this case the role of academics as a third party that can improve quality through contributing ideas in the form of opinions about the importance of this environmental information system.

Community participation in the environmental information system based on the concept of eight ladder of community participation by Arstein can continue to rise based on:

1.   Community involvement that fully supported on the basis of the government' openness to involve the community starting from involvement in decision-making in the form of listening to input and ideas and making these inputs and ideas as the basis for making-decisions or policies related to environmental issues.

2.   Community involvement in the implementation of activities, both in the form of energy and budget contributions. For example, involving the community in activities related to a policy such as the management of green-open spaces such as providing land and participating in planting trees.

3.   Community involvement in taking benefits by looking at the quantity of output of a policy or program that provides direct benefits to the community.

4.   Involvement in evaluation related to measuring the success of a policy or program based on the success of achieving the goals and benefits of the program.

If four elements have been implemented, if linked to the concept of eight ladder of participation by Arstein ideally the degree of community participation in the environmental information system is at least in the category of degree of citizen power which is on the sixth ladder of partnership where the community have an influence on the decision-making process of community participation (groups of poor/vulnerable people) have entered the space of determining the process, results and impact of policy by conduct partnerships that the community has been able to negotiate with "power holders" in parallel positions.

2.   Designing Community Participation in the Environmental Information Systems

It shows that the position of the environmental information system in the environmental protection and management is closely related to community participation. Without community participation, the environmental information system is only a database containing environmental information, whereas the participation of the community in an environmental information system will result in a decision or policy on the environment that has quality and value. However, a policy will influence the actions and actions of the community will generate data that can be processed to be information that will affect each decision.

Burtch and Grudnitski[16] stated that there are 3 (three) main pillars that determine the quality of information, namely *accuracy*, *timeliness* and *relevance*, plus the value of information and it is determined by 2 (two) things namely the benefits and costs of getting it. Information is a supporting information system based on information systems technology. Information must be accurate means that information must be free of errors. Accurate also means that information must clearly reflect the intent. Information must be accurate because from the source of information to the recipient of the information there is likely to be a lot of noise that can change or damage the information. Accurate components include completeness, correctness and security.[17]

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[11]   Rizqina, F. (2010). *Partisipasi Masyarakat dalam Implementasi Kebijakan Manajemen Berbasis Sekolah di Kecamatan Kalideres Kotamadya Jakarta Barat*. (Thesis). Jakarta: Universitas Indonesia, page 24.

[12]   Santosa, M.A. 2001. *Good Governance & Hukum Lingkungan*. Jakarta: ICEL, page 138.

[13]   Ontology is seeing or viewing something in mechanistic, mathematic, and systematic manner

[14]   Epistemology is seeing or viewing something that can be seen in aspects of social, cultural, law, and others.

[15]   Axiology is seeing or viewing something from the benefits and target.

[16]   Jogiyanto. (2008). *Metodologi Penelitian Sistem Informasi*. Yogyakarta: Andi, page 10.

[17]   Imam Nursyihab. *Kualitas Informasi*. Available online at: http://www.slideshare.net/imamnursyihab/kualitas-informasi, Accessed on 20 February 2018

a.   *Completeness*, an accurate information must have good completeness, because if the information generated in part will certainly influence the decision-making or determine the overall action, so it will affect its ability to control or solve a problem properly.

b.   *Correctness*, an information generated by the data processing must be correct in accordance with the calculations in the process.

c.   *Security*, an information must be secure from all noise that can change or damage the accuracy of the information with the main purpose.

Ideally, in the environmental information system, the community provides input and advice to the government regarding the needs and environmental problems in their region. For example, the right to give advice on drainage management, the community participates in green-open spaces such as providing land, planting trees, and other environmental policies.

In Makassar city, the implementation of the environmental information system is available but not in accordance with the mandate required by Act No. 32 of 2009 about the Environmental Protection and Management due to the lack of regulation that regulates the implementation of the environmental information system and in this case minister that regulates the clarity of the boundaries of the environmental information system such as guidance on environmental information systems at an internal level regarding this information system. In addition, the human resources such as information providers, namely the Regional Environmental Agency do not understand the importance of the environmental information system and especially not understand the components that should be contained in the environmental information system (Sembiring, 2014).

In the Regulation of Environmental Minister No. 6 of 2011 about Public Information Services in Article 11 paragraph (1) No. 6 of 2011 about Public Information Services stated that the provision of public information as referred to in Article 9 letter *a* comes from: a. the main source of work units in the ministry; b. the supporting sources from government agencies and other non-governmental institutions: 1. Other government agencies; 2. An agency that is responsible for environmental affairs in the province or district/municipal; 3. donor agencies; 4. Company; 5. Non-structural state institutions; 6. College; and/or 7. Community groups concerned about the environment and non-governmental organizations. Based on these regulations, it can be concluded that the information must be available and announced by public information providers by information providers.

Factors that affecting the community participation in the environmental information system are the information itself, but the information must have quality information related to the accuracy, relevance and timeliness of the information and the value of information relating to the benefits and costs of obtaining the information, where there is already a place for the availability of environmental information, but the quality and value of the information that has not been fulfilled, such as the completeness of available data, if available it is hampered in terms of data management both in technical and data processing into a separate information that has not been understood by data processors who are tasked with updating the information data so that it can be accessed. In addition, the lack of human resources who has capability in managing data and operating the system is a problem because more data is managed than the personnel that operates the system.

III. CONCLUSION

Community participation related to the environmental information system is in the degree of participation and categorized in the degree of tokenism, precisely in the fourth ladder, namely *consultation*. Factor that affecting community participation in the environmental information system are the information itself which is viewed from accuracy, relevance, timeliness, benefits and costs of obtaining information that is far from what is expected by Act No. 32 of 2009 on the Environmental Protection and Management. The form, type of participation, and degree of participation are not static and rigid that cannot change. In the environmental information system, the community participation is greatly influenced by information, while the information must be accurate, relevant, timeliness, and have benefits and are easy to obtain. It can be obtained by making implementing regulations regarding the environmental information system that can be used as a Standard Operating Procedure and capacity-building for human resources within the institution.

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