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Indriyati Kamil

Padjadjaran University, Langlangbuana University, rindriyati17001@mail.unpad.ac.id

Oekan Abdullah

Faculty of Social and Political Science, Padjadjaran University, oekan@unpad.ac.id

Herlina Agustin

Faculty of communication, Padjadjaran University, h.agustin@unpad.ac.id

Iriana Bakti

Faculty of communication, Padjadjaran University, iriana.bakti@unpad.ac.id

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ROLE OF STAKEHOLDER COMMUNICATION IN SUSTAINABILITY OF INDONESIA'S CONSERVATION AREA

Indriyati Kamil

Faculty of communication, Padjadjaran University, rindriyati17001@mail.unpad.ac.id

Langlangbuana, University, rindriya73@gmail.com

Oekan S Abdoellah

Faculty of Social and Political Science, Padjadjaran University, oeakan@unpad.ac.id

Herlina Agustin

Faculty of communication, Padjadjaran University, h.agustin@unpad.ac.id

IrianaBakti

Faculty of communication, Padjadjaran University, iriana.bakti@unpad.ac.id

Abstract

Indonesia's environmental policy in the conservation area is carried out by establishing the nature reserve as the highest conservation area in addition to wildlife reserves. The high level of damage in the nature reserve area requires collaboration integrated multi-party. Therefore, preservation activities of nature reserves require stakeholder involvement and multi-stakeholder communication in conservation area management. This study aims to: 1) identify the roles and relationships of stakeholders in preserving the nature reserve area 2) formulating a communication model suitable for conservation of the nature reserve. The research method uses survey methods with qualitative and quantitative descriptive approaches obtained from secondary and primary data sources. Data collection techniques carried out by interviews, observation of documentation and questionnaires. The population in this study is the government, business, and society. This research produces two main points, first the party that has the biggest role in the preservation and sustainability of the nature reserve area that is the government. The relationship between government and society shows the pattern of democratic relations with critical partnerships and reciprocal models. The relationship between the government and the business world (Pertamina Geothermal) shows a form of collaboration. The relationship between the community and the business world (Pertamina Geothermal) shows forms of conflict and corporate relations. Second, to synergize communication between stakeholders, we propose a stakeholder communication model for the sustainability of nature reserves that emphasizes partnership, collaborative work, mutual respect, and assertive communication. The more synergy of stakeholder communication, the more effective the preservation of nature reserves.

Keywords: Communication, Stakeholders, Conservation, Sustainability of nature reserves

Introduction

The existence of conservation forests in various countries in the world is increasingly threatened by human activities such as logging and land conversion (Hughes, 2017; Laurance, 1999, 2007; Popp et al., 2014; Riitters et al., 2002; Youn et al., 2017; (Kofron & Chapman, 1995; Wibowo & Gintings, 2010). Damage to conservation forests has become increasingly massive with the presence of mining companies that carry out exploitation activities. In this region, so that

conservation problems become increasingly complex (Greenpeace, 2005; Gutti, Aji, &Magaji, 2012; Pribadiningtyas, 2013; Setiawan, Budianta, Suheryanto, &Priadi, 2018).

Environmental damage can be interpreted as a process of degradation or environmental damage. Environmental damage is characterized by land, air resources, extinction of flora and fauna, and damage to ecosystems. Forest and environmental protection are directly related to various aspects of life, both economic, social, cultural, political and environmental aspects, starting from the local scale, the national scale, to global scale (Alongi, 2008; Dudley & Phillips, 2006; Hayes, 2006; Zuhri&Sulistiyawati, 2007). The development of forest protection and nature conservation is carried out in an effort to achieve the objectives: (1) the optimal functioning of the forest area, (2) population controlled by natural nurseries and illegal liars, and (3) implementation of economic development efforts for the community (Chazdon et al., 2009; IUCN & Birdlife International Red List, 2015; Mertz, Ravnborg, Lövei, Nielsen, &Konijnendijk, 2007; Nilsson, Baxter, Butler, & McAlpine, 2016; Ransom, Powers, Thompson Hobbs, & Baker, 2014; Russell, Real , & Smith, 2006; Walker, 2007).

Ecosystems in the forest reserve are important to be preserved, not only as of the world's lungs and life support system but also protect endangered animals and habitats. Extinction is a natural process, but the rate of extinction is 10,000 times the natural process, quite alarming (IUCN Red List, 2015). More than 77,300 species have been included in the 2015 International Union for Conservation of Nature (IUCN) Red List. This extinction occurred due to habitat degradation, overexploitation, human conflict with animals, disease and climate change. The threat of extinction of flora and fauna is mainly due to the high rate of population growth in Asia and Africa including Indonesia (Does & Matter, n.d.). The complexity of environmental management in conservation areas cannot be done only by one institution (single institution) but must involve various interested parties, including stakeholders and communities around the area (Beierle&Konisky, 2000; Camargo et al., 2009; Carton &Thissen, 2009; Pinto-Correia, Gustavsson, &Pirnat, 2006). Stakeholders become an important element in the management system of a conservation area (Lekaota, 2015; Nurtjahjwilasa, Kartodihardjo, Nurrochmat, &Justianto, 2015).

Tight environmental protection will have a significant impact on the economy of a society and the country (Shrimali&Kniefel, 2011; Wang, Jiang, & Wang, 2011; Demirbas, 2009; Frondel, Ritter, Schmidt, & Vance, 2010; Guttiet al. , 2012). The problems are how to make the environment and development go hand in hand (Filho, Shiel, & do Paço, 2015) and how development can be sustainable and natural resources can be better maintained and not destroyed (Locke & Dearden, 2005; Truffer&Coenen, 2012). Environmental issues, however, have broad interrelationships; not only having interrelation in ecosystems but also having a big impact on human life (Sobur, 2005).

Some facts related to the high environmental damage in Indonesia due to human activities including the deforestation rate that reached 1.8 million hectares/year which resulted in 21% of the 133 million hectares of Indonesia's forests lost (IUCN, 2017). The loss of forest causes a decreasing in environmental quality and increasing of events natural disasters, and the creation of a threat to the preservation of flora and fauna. However, hundreds of rare Indonesian plants and animals endangered. According to IUCN Redlist records, 76 Indonesian animal species and 127 plants are in the highest threat status, namely Critically Endangered (Critical) status, and 205 animal species and 88 plant species are Endangered, and 557 animal species and 256 Vulnerable status (IUCN, 2017).

Indonesia has very high biodiversity and ranks among the top five in the world in that field. Various types of animals and plants are found in Indonesian soil. This makes Indonesia one of the countries with world biodiversity (MacKinnon, 1993). In this case, Indonesia is also superior in the eyes of the world and is considered as one of the centers of diversity (Astirin, 2000). To maintain this diversity, Indonesia needs the synergy and collaboration of stakeholders, not only the

government as a policy regulator but also the community and other stakeholders to maintain the nature reserve. The role of stakeholders has a strategic position in determining the sustainability of conservation areas (Niemelä et al., 2005; Scandellius & Cohen, 2016). There are still problems regarding encroachment, utilization of protected plants and animals, geothermal drilling activities within the nature reserve and non-environmentally friendly tourism are indications that management is not yet optimal Indonesian nature reserve. Communication can be an important aspect that can contribute to the effectiveness of environmental management (Bakti, Hafiar, & Budiana, 2017; P, Sudjoko, & Ni, 2018). Management of conservation areas, especially conservation of nature reserves requires synergistic and assertive communication support from stakeholders (Westberg, Hallgren, & Setterwall, 2010). The role of communication is very strategic to synergize relationships between stakeholders (Gouveia, Fonseca, Câmara, & Ferreira, 2004; Scandellius & Cohen, 2016). Based on this phenomenon, research on the role of stakeholder communication in the conservation of nature reserves and their ecosystems is important to do. This research offers the concept of conservation area management based on strict communication and collaboration between stakeholders to produce new concepts and models for the preservation of nature reserves so as to eliminate conflicts of interest.

The results of this study are expected to be used as input for stakeholders in efforts to build cross-border communication and mutual understanding for the sustainability of conservation areas in the future.

Literature Review

Stakeholders become an important element in the management system of a conservation area. The role and participation of stakeholders will determine whether the preservation of conservation areas can be succeeded or not. Each stakeholder has different roles, participation, influence, and interests that can be categorized into active or passive actions. The role and the active participation of stakeholders can support the achievement of success in the conservation management system with the expected target. The role of stakeholders is needed in developing appropriate and sustainable conservation policies (Jodi L. Delozier, M.S., 2018).

The role and participation of stakeholders greatly influence the performance of management that can produce good results for the management of conservation of nature reserves. More and more stakeholders are involved and participating in conservation programs making conservation areas and conservation efforts more successful (Sandker et al., 2010; Camargo et al., 2009). The nature reserve is a complex ecosystem that involves many parties in its management. Conservation management needs to be done collaboratively (Faso & Somé, 2009; Randolph & Bauer, 1999). Collaboration between government, business, community, and other stakeholders is crucial in managing natural resources to achieve the goal of sustainable development in 2030 (United Nations, 2017).

Communication of stakeholders is important in efforts to preserve the environment. Communication that is built between the government, private sector and society should be oriented on the same point of view, mutual trust and common platforms (Wiratno, 2018). Brody and Portney, cited by Hawkins and Wang (2011), stated that theoretically and empirically a collaboration of the participation of stakeholders, especially by residents, is very important for the success of the implementation of the program.

In environmental preservation efforts, all stakeholders must involve in a participatory process, have equal opportunities to speak freely, empower participants, and agree together with mutual respect (Leeuwis 2009). Communication between stakeholders is conducted not only as a

communicative message but also as an egalitarian dialogue for emancipation from environmental actors (Melkote 2001). These environmental actors can be grouped into three main domains; public, private, and community actors (Rodger, Moore, & Newsome, 2009). Communication between the three actors can be effective when there is a similarity between a frame and a field (Barnlund, 2019).

A communication process between stakeholders can be successful if the message and meaning conveyed by the communicators can be received well by the participants or communicants. However, sometimes the communication process cannot run well because of the distortions that can ultimately hinder the process of communication between these stakeholder actors (Rogers & Hart, 2002). Also, communication can have a systemic impact. As a result, communication failures can become a failure of a message. This communication failure is important to be studied concerning various disorders that may be caused when communication takes place to inhibit the communication as Effendy (2003) revealed, among others: interference, interests, hidden motivation, and prejudice. Every element or component in the communication process shows the quality of communication itself. Problems will arise if one of the elements of communication experiences obstacles causing the communication to be ineffective.

The essence of communication is interaction. Related to the importance of paying attention to communication and interactions that occur between actors in environmental change, Qadim HS (2012) in his research assesses the quality of interactions that occur between actors with several categories:

1. Effectiveness of communication between one actor and another can be categorized as good (G) if there is an interaction between personal and institution, coordination every year, a source of conflict, and collaboration;
2. The effectiveness of communication between one actor and another can be categorized as moderate (M) if there are interaction and coordination every year, the action is not sustainable according to the needs of the moment and not synergistic, there is a conflict of interest, and a momentary collaboration occurs;
3. The effectiveness of communication between one actor and another can be categorized as lacking (L) if there are interaction and coordination but it is not synergistic, as needed and not sustainable, and there is a conflict of interest;
4. The effectiveness of communication between one actor and another can be categorized as poor (P) if the interactions that occur are indirect, temporal. Also, there is no time benchmark, not synergistic, and there is a conflict of interest;
5. The effectiveness of communication between one actor and another can be said to be zero (Z) if there is absolutely no interaction, either direct or indirect conflicts of interest continue to occur.

In the context of conservation areas, communication is believed to provide a platform capable of facilitating the process of exchanging information, knowledge, and wisdom to achieve mutual understanding among the stakeholders involved.

Environmental preservation can be assessed from three perspectives; protect and enhance the natural environment (ecological health), maintenance and productivity of plants and livestock (economic viability), and social acceptance that refers to independence, equality, and improvement of quality of life (Ardian, 2019). Efforts to protect conservation areas require the cooperation, coordination and collaboration of the parties to achieve the goals of natural reserve management (Utami&Pancasilawan, 2017). The state as a regulator has a role to strengthen community

empowerment through capacity building, provide access to utilization for the community, involve local communities in managing information, and secure and maintain conservation areas. These efforts must be made to minimize the degradation of ecosystems caused by illegal logging, encroachment, hunting, illegal grazing, and other land uses that change the landscape of the nature reserve. Stakeholders are responsible for environmental damage caused by illegal processes and not by natural processes. Communication between stakeholders aims to build synergy, build community empowerment, as well as to optimize services and access to information about nature reserves, especially for the surrounding village community (Sanjaya, 2016). Communication between stakeholders also plays a role in developing partnerships in the conservation of natural resources and ecosystems (Camargo et al., 2009).

Methods

The research method according to Creswell (2013) is a way to get solutions to various research problems. The research method used in this study is mixed methods called descriptive qualitative and quantitative. Descriptive research is used to analyze data by describing the collected to be analyzed and interpreted according to the purpose of the study.

In this study, the type of data used includes primary and secondary data sources. The primary data sources were obtained through interviews and observations in the Kamojang Nature Reserve area. Meanwhile, the secondary data sources were obtained through literature books, internet, laws, conservation guidelines and other documents taken from offices, related to the institutions, and the community. The determination of the data analysis method used is strongly influenced by the research objectives and data types. Data analysis conducted in this study uses quantitative and qualitative approaches, where quantitative approaches are further divided into quantitative methods, called descriptive and inferential methods. The quantitative data analysis method used by researchers is Pearson Product Moment using SPSS 19.0 for Windows. This study tries to build a comprehensive picture of the problems observed, so it needs diverse perspectives in identifying various factors related to situations and conditions, to gain an authentic understanding of the respondents' experience and to gain a new understanding of the role of stakeholder communication in the sustainability of the reserve area natural. Thus it can interpret the role of stakeholders, the effectiveness and communication barriers in building collaborative work to establish communication networks in the preservation of the Kamojang nature reserve area. Following is the operational definition table for research:

Table 1. Definition of Operational Research

No	Variable	Sub Variable	Indicator
1	Stakeholder Communication (X)	The Role of Government (X1) Community Role (X2) Private Role (X3)	X1.1.Influence and Interest on the area X1.2.Communication intensity X2.1.Community participation in the preservation of nature X2.2. Interest in the area X2.3.Communication intensity X3.1.The contribution of businesses to the preservation of nature X3.2.Interest in conservation areas X3.3.Communication intensity
2	Sustainability of the Nature Reserve (Y)	Barriers to Conservation of Regions (Y1) Effectiveness of Area Conservation (Y2)	Y1.1. Disturbance Y1.2. The importance Y1.3. Prejudice Y2.1.Similarity of the Frame of Reference for preservation area Y2.2.Relations between stakeholders

Results and Discussion

1. The role of stakeholders in the preservation of nature reserves
Based on quantitative statistics the following data are obtained:

Table 2. Data Processing Results

Variable	Coefficient	T	Sig.	Results
Government	0.302	0.507	.000	Important
Society	0.140	2.350	.021	Important
Business Actors	0.212	0.300	.005	Important

From the table above can be obtained equation as follows:

$$Y = 1,590 + 0,302 X1 + 0,140 X2 + 0,212 X3$$

Sig. 0,000 0,021 0,005

The equation can be interpreted as follows:

1. X1 (government) regression coefficient is 0.302, which has a positive effect on Y (sustainability of nature reserves). It means that if the role of the government (Ministry of Forestry Environment, Natural Resources Conservation Center, Indonesia Forest Company, Local Government) is much better with the assumption that other variables are constant, then the sustainability of the Kamojang nature reserve can increase by 0.302.
2. Regression coefficient X2 (Community) of 0.140, has a positive influence on Y (sustainability of nature reserves). It means that if the community's role is getting better with the assumption that other variables are constant, then the sustainability of the Kamojang nature reserve can increase by 0.140.
3. Regression coefficient X3 (Business Actor) of 0.212, has a positive effect on Y (sustainability of nature reserves). It means that if the non-governmental role (Pertamina Geothermal and the private sector) is better with the assumption that other variables are constant, then the sustainability of the Kamojang nature reserve area can increase by 0.212.

From the estimated results, it can be seen that the role of the government (Ministry of Forestry Environment, Natural Resources Conservation Center, Indonesia Forest Company, Local Government) has a higher role than other stakeholders in carrying out management activities and conservation of Kamojang nature reserve, which based on a regression coefficient of 0.302 (non-standardized coefficient) and Beta 0.507 (standardized coefficient) with a significant amount of 0,000. This is because the government (Ministry of Environment, Conservation Center, Perhutani Public Corporation, Regional Government) has the competence and the authority as a conservation area holder. Also, Law No. 5 of 1990 concerning Biological Conservation, which ratified the Convention on Biological Diversity (CBD) and as a substitute for several laws and regulations from the Dutch colonial era, strengthen the government's role to control and manage the conservation areas.

The next step is to examine the role of stakeholder communication on the sustainability of the Kamojang Nature Reserve in Indonesia. With a joint value = 0.05 with conventional df at the real level numetor = 2 and df denominator = 40 (obtained from the results $df = k (nk-1) = 3; (82-3-1) = 3; 78$ known $F_{table} = 2,720$ and $F_{fithithmetic} = 146,959$, because $F_{fithithmetic} > F_{table}$, H_0 is rejected, and H_a is accepted Based on the significance value of the SPSS output by looking at the probability of significance (P-value) = 0,000 or 0% less than 5%, then H_0 is rejected, H_a is accepted, which means that stakeholder communication has a significant role in increasing the preservation and sustainability of the Kamojang Nature Reserve in Indonesia. So, the hypothesis is proven.

Next, the coefficient of determination test is performed to determine the relationship between two or more independent variables on the dependent variable simultaneously. R values range from 0 to 1 if the value is closer to number 1 means the relationship between the independent variable and the dependent variable is getting stronger, or vice versa, if the value is close to zero, the relationship is getting weaker. The results of the coefficient of determination test can be found in table 3.

Table 3. Test the coefficient of determination

Model	R	R Square	Adjusted R Square	Std.Error of The Estimate
1	0,442	0,195	19.5%	80.5

Based on the data in Table 3, it can be seen that the result of R value is 0.442. It means that the relationship between the independent variables (X1, X2, and X3) in their role as stakeholders is in a moderate or moderate position towards the preservation of the Kamojang Nature Reserve. Based on table 3 also, it can be explained that the value of R (R square) is 0.195 or 19.5%. This shows that the percentage of contribution of the influence of independent variables (X1, X2, and X3) which is the role of stakeholder communication to the dependent variable (Y), namely the sustainability of conservation areas in the Kamojang nature reserve by 19.5%, while the remaining 80.5% is influenced by other variables not included in the research model.

The relationship between communication and stakeholders as explained by Cox, (2012) is that the communication made by humans in principle is a symbolic action. Our beliefs, attitudes, and behavior towards environmental issues are fully mediated by communication. Thus, the public sphere then emerges as a discursive space for communicating about the environment. The same research was also shown by Duarte Alonso & Nyanjom, (2017) and Jones-Walters & Cil, (2011), that there is a significant role of stakeholders in environmental preservation. This research emphasizes that the participation of the community, the private sector, the state, and other stakeholders constitute four key groups, in determining environmental sustainability. According to Jones-Walters & Cil, (2011), the building consensus through stakeholder participation is a promising new trend and takes into account the interactive character of the communication process.

Influence and Interest of Stakeholders in the Nature Reserve Area

To identify the position of stakeholders based on their strengths and interests in the effort to sustain the nature reserve, the interests and sources of strength of each stakeholder have been identified. The following is a table of weaknesses and strengths of each stakeholder :

Table 4. Weaknesses and Strengths of Each Stakeholder

No	Stakeholders	Interest	Source of Strength
1	Ministry of Environment and Forestry	Protection of the area in order to maintain the authenticity of the area as mandated by its appointment	Natural Resources Conservation Center, conservation of Natural resources resort level
2	Natural Resources Conservation Center	manage conservation areas, especially natural reserve forests, nature reserves and nature park.	Forest ranger

3	Indonesian Forest Company	protection against the function of protected areas as conservation areas	permit holder social forest
4	Local Government	Serve the community and regulate social aspects, economic, cultural and political the community	Policy makers, Plans and Programs Development
5	Pertamina Geothermal Energy Company	Utilize environmental services Geothermal energy	Financial
6	Indonesia Power Company	Generating electricity Geothermal energy	Financial
7	Village Empowerment Institute	Representing the community empowerment	Control function of Village government
8	Youth organization	Facilitating youth participation in community and environmental programs	Organization
9	Environmental Activist	environmental rescue concern protect conservation areas from damage	Social movement Environmental Network
10	Academic	have an interest in environmental sustainability and conservation areas	Expertise in formulating policies
11	Community	land cultivation, water use	play an active role in forest conservation and Reforestation

Based on the analysis of stakeholders, the Ministry of Forestry and the Natural Resources Conservation Center are stakeholders having a high interest as well as having the resources to carry out natural reserve management activities from the planning, implementing, monitoring and evaluating stages. The Ministry of Forestry and the Conservation Center are in the High Interest - High Power quadrant and occupy the position of Key Player. Volunteers and environmental activists have a high concern in preserving nature reserves but do not have the influence and authority to manage the area. The Geothermal Company as a company holding rights to geothermal management in Kamojang based on the Decree of the Minister of Energy and Mineral Resources obtained a permit to utilize the conservation forest area and Kamojang nature reserve based on a recommendation from the West Java Conservation Office. Pertamina companies have an interest in nature reserves as users of geothermal environmental services so that geothermal management in the Kamojang area can run well and sustainably. Volunteers, environmental activists, Geothermal companies and Indonesia Power Company are in the High Interest - Low Power quadrant, and receive positions as Subjects. Indonesia Forest Company (Perhutani) is a stakeholder whose interests in natural resource management are not the main priority but can influence other stakeholders. Indonesia Forest Company has the authority to manage protected forests which are buffer zone areas. The local government of West Java

Province as an operational permit giver has a high influence on geothermal management permits, however, the interests in the area are not too large. Indonesia Forest Company and the local government of West Java province are in the Low Interest - High Power quadrant and occupy the position of Actor. Youth organizations, village and community empowerment institutions are in the Low Interest - Low Power quadrant and occupy a position as a Spectator, where the interests and influence of the nature reserve are not too high. After the identification; the mapping of stakeholder interests and influence in the management of nature reserves in Kamojang, the mapping is carried out in a stakeholder analysis matrix. This matrix consists of 4 quadrants, named the audience (Spectator), Actor (Actor), Subject (Subject) and Player (Player). The position of each stakeholder will be mapped according to the results of the assessment of the level of importance and influence. The following is an illustration of the influence and interests of stakeholders in the Kamojang conservation area:

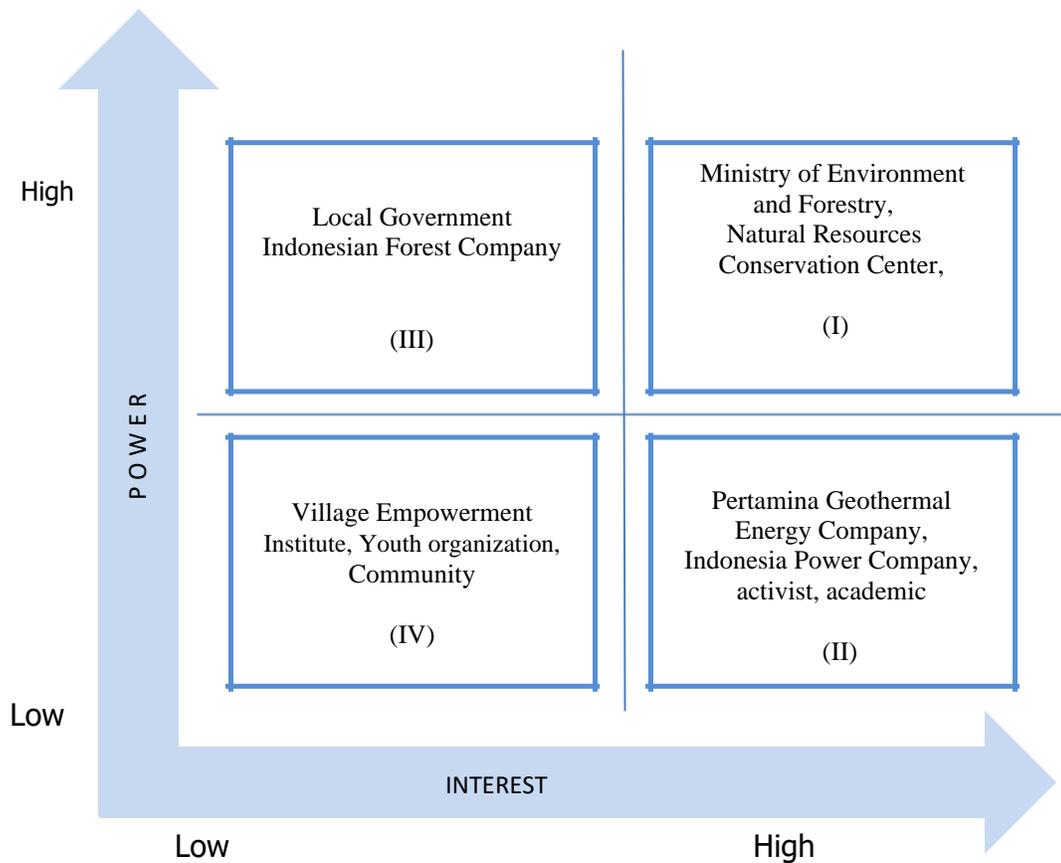


Figure 1. Influence and Interest of Stakeholders

Information :

- (I) key players
- (II) Subject
- (III) actor
- (IV) spectator

Communication Intensity

Communication intensity is the communication process that exists by looking at the quantity in a certain period and puts more emphasis on the quantity delivered interpreted and is expected to be understood by fellow communication participants (Effendy, 2003). The intensity of communication and communication integration will affect the sustainability of the region (Lindenfeld, Hall, McGreavy, Silka, & Hart, 2012). The intensity of communication is the level of depth and breadth of messages that occurs when communicating with others is marked from the frequency of communication, namely the frequency of communication; the duration when communicating, namely the length of time to communicate; attention is given when communicating (DeVito 2011). The communication intensity analyzed in this study consists of the communication intensity between the state and the community, the communication intensity of business actors and the public. The intensity of communication between the state and business actors. The results showed the intensity of communication between state actors, society and business actors can be known as follows:

- a. The relationship of interaction and communication between the government and the community is in the moderate category (M) when the aspirations of environmental activists to review the policy of changing the nature reserve into a nature tourism park, responded positively by the State. The Indonesian Ministry of Environment and Forestry opens a space for communication for public complaints. The government invites the community to build partnerships to preserve conservation areas. The relationship between government and society shows the pattern of democratic relations with a critical partnership and reciprocal model.
- b. The interaction and communication relationship between the government and the private sector is in the good category (G). Communication relations are coordinative and institutional, there is also collaboration in the management of conservation areas. Pertamina Geothermal and Indonesia Power are representatives of business people who use environmental services in conservation areas. Pertamina Geothermal cooperates with the government to conduct a conservation center for endangered species such as the breeding of Javanese eagles and the development of the Kamojang Crater Nature Tourism Park as a form of corporate responsibility for the environment. Communication between countries and businesses is needed in an effort to protect the region and preserve nature reserves. For this reason, stakeholder participation in environmental decision making needs to be institutionalized because it is increasingly sought after and incorporated into national and international policies. The relationship between the government and the business world (Pertamina Geothermal, Indonesia Power) shows a form of collaboration.
- c. Interaction and communication links between the private sector and the community are in the inadequate category (L). Linear communication

relationships and as needed. There is a conflict of interest between the community and companies that utilize the nature reserve area. While problems relating to the surrounding community are social jealousy in meeting life's needs. Community hopes by managing geothermal energy in the Kamojang area, among others, can work as employees in geothermal companies, with the hope of improving their welfare. The relationship between the community and the business world (Pertamina Geothermal, Indonesia Power) shows a form of conflict, and corporate relations.

Obstacles and Effectiveness of Nature Reserve Sustainability

The main obstacle in the preservation of the Kamojang nature reserve is limited access to information and regulations about the nature reserve that have not yet reached the community. The Natural Resources Conservation Agency as the spearhead of the government has not played a significant role in the socialization and communication activities of the region. Nature reserve information must be disseminated to the public.

Prohibition of entering the area, prohibition of encroachment, and hunting of rare animals, also, cutting down trees in the area and environmental communication to protect nature reserves. The results of the research in the field show that the dissemination of information about nature reserves arises more from environmental activists than conservation centers so that opinions are formed in the community that information on nature reserves can be obtained from environmental activists and volunteers. Another obstacle is the lack of collaboration and collective work among stakeholders in the sustainable management of nature reserves. Differences in interests in conservation areas are still an obstacle in the preservation and sustainability of nature reserves. Unclear division of zones and zones within conservation areas is a barrier to conservation of nature reserves. Collective work between stakeholders is expected to enhance learning, build social legitimacy for decision making, and build relationships that support learning and adaptation in the long run (SimcicBrønn&Brønn, 2003). Partnerships among stakeholders include; Governments, Natural Resource Conservation Institutions, business people, environmental activists and communities in the region are key factors in the realization of environmental sustainability (Rahajeng&Manaf, 2015; Co-management, 2007). Protection of nature reserves can be pursued through socialization, community empowerment in the field of environment, Literacy and environmental education about conservation areas (Wali, Alvira, Tallman, Ravikumar, & Macedo, 2017).

Communication plays a role in managing and overcoming environmental problems (Westberg et al., 2010). Assertive communication is needed in establishing synergy among stakeholders. Assertive communication skills are needed in the preservation of nature reserves because assertive communication is useful to improve the effectiveness of messages (Irsyadi, 2009). Synergistic communication is built on harmonious relations, dialogues, and collaborative work. Conflicts that occur between stakeholders are overcome by equating perceptions and orientations towards the protection of nature reserves. Transactional communication is a solution to differences in frame of reference and point of view among stakeholders to create a common platform.

Solutions for communication barriers for stakeholders are sitting together, forming communication forums, optimizing communication media as a means of information; Integrated cooperation in the management of nature reserves to support area

protection (Pipaş&Jaradat, 2011). The more synergy of communication, the more effective the preservation of the preservation of nature reserves. To achieve sustained success, commitment and mutual respect between stakeholders are needed (Howes et al., 2017). To synergize stakeholder relationships, we offer the concept of conservation area management based on a communication model that emphasizes partnership, collaborative work, mutual respect, and assertive communication. Here are the proposed communication models for the sustainability of the Kamojang nature reserve conservation area:

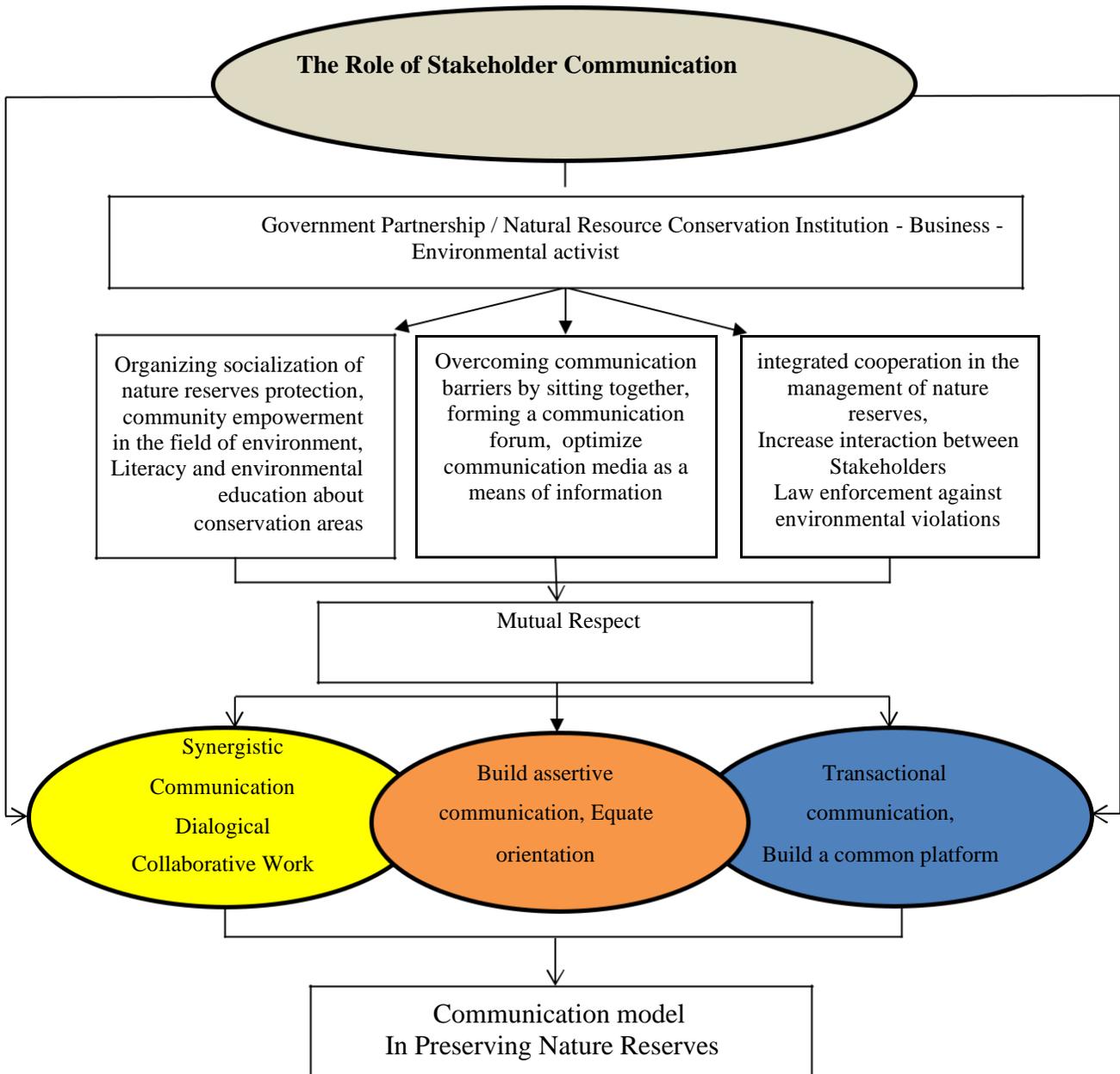


Figure 2. Communication Model for Sustainability of Nature Reserves

Collaboration is a form of constructive and open communication in which the parties involved (participants) work together in solving environmental problems and conflict resolution. Collaboration is manifested in dialogue that focuses on long-term goals, learning processes and power-sharing. The government and conservation center need to create effective conservation management to assist conservation management and can be an option in integrative and multifunctional territorial management. This step can be the main strategy to accommodate the needs of stakeholders and reduce and control the threat of damage to nature reserves. Thus through stakeholder communication, sustainable management of living natural resources can be obtained optimally, that is, ecologically available natural resources remain protected and guaranteed for sustainability, as well as socio-cultural harmony is formed among stakeholders.

Conclusion

This research confirms that state actors are the most important stakeholders in efforts to conserve conservation areas. The state has the role of a regulator and a facilitator in preserving the Kamojang Indonesia reserve. Government actors are the key actors compared to other stakeholders. This is based on the statistical test of the role of stakeholders on the protection of conservation areas in the Kamojang Nature Reserve, which is based on the regression coefficient of 0.302 (non-standard coefficient) and the Beta value of 0.507 (standardized coefficient) with the significance of 0,000.

The communication of stakeholders in the Kamojang nature reserve area is associated with the influence, interests, and intensity of communication, as well as efforts to overcome various obstacles to achieve the effectiveness of the sustainability of the nature reserve. The Indonesian Ministry of Environment and Forestry opens a space for communication for complaints and aspirations from the public. The government invites the community to build partnerships to preserve conservation areas. The relationship between government and society shows the pattern of democratic relations with a critical partnership and reciprocal model. The interaction and communication relations between the government and the private sector are coordinative and institutional, and collaboration in the management of conservation areas occurs. The interaction and communication relationship between the private sector and the community is still linear and formal. The interaction relationships which are manifestations of communication between stakeholders in the region contribute to the sustainability and preservation of nature reserves.

All environmental actors involved need to improve coordination and communication patterns, especially in maintaining the sustainability of nature reserves. The more synergy of stakeholder communication the more effective the preservation of nature reserves. In the future, this research needs to be studied further, related to communication dialectics and stakeholder communication crisis in preserving the environment of the nature reserve. The communication model to overcome conflicts of interest that occur between stakeholders in supporting the sustainability of nature reserves is a synergistic communication model between actors, assertive communication and transactional communication that encourages mutual trust.

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