



WSEAS Transactions on Environment and Development

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E-ISSN: 2224-3496

Volume 15, 2019

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Finding the Pattern of Sustainability Relation on Former Forest Encroachers in the Forest Buffer Zone of TNBBS

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| An investigation of behavior and public opinion, pros-cons of forest encroachment sustainability issues in BBSNP of Tanggamus District, Indonesia | Kartika, T., Budirahardjo, T., Utaridah, N., Friska, U., Kusumastuti, H. | 2019 | WSEAS Transactions on Environment and Development | 1 |

Finding the Pattern of Sustainability Relation on Former Forest Encroachers in the Forest Buffer Zone of TNBBS

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Abstract: - This article describes the pattern done by former forest encroachers in the area of Taman Nasional Bukit Barisan (Bukit Barisan National Park), who live in the forest buffer zone of TNBBS Indonesia. Therefore, comprehensive understanding about culture and communication pattern of the forest encroachers is needed. The finding in this study is the communication pattern of forest encroachers and the fact that family becomes the first part that introduces forest encroachment to the children, and it has been done hereditary. Communication done in the family is categorized as interpersonal communication. The communication pattern of forest encroachers tends to lead to the form of wheel, circular, and chain communication pattern. Communication pattern of forest encroacher shows that there is interpersonal closeness and deviant learning as the result of something that is continuously learnt. The imbalance attitude pushes the conduct of deviation which is forest encroachment.

Keywords: former forest encroacher, interpersonal communication, communication pattern, TNBBS

1 Introduction

This article is a continuation of the research of Kartika et al (2019) [1], discussing forest encroachment and its social problems.

Forests in Indonesia are having many damages caused by human activity. The damage in the forest is known as forest degradation. Some causes of forest degradation in Indonesia are as the following: 1. Direct causes, which are human activity and deforestation agent: at least two direct causes of deforestation: (1) illegal logging and (2) forest fires caused by human activity. Forest fire in its relation with human activity is that: Indonesia has been having two large plagues of fire in the last 30 years: in 1982/1983, the fire damaged 2.7 million acres of forest, and in 1997/1998 5.4 million acres of forest were damaged [2]. Forest degradation actually is a big problem in Indonesia, even the development plan in industrial sector in Indonesia will add the burden of forest destiny in Southeast Asia, including the stock of carbon [3]. Other study is that there has been degradation in Tesso Nilo National Park in Riau. In Tesso Nilo National Park, Riau, until 2009 has degraded more than 30% of national park area [4].

Taman Nasional Bukit Barisan Selatan South Bukit Barisan National Park (TNBBS) has the area of \pm 356.000 Ha and the water area of \pm 21.60 Ha, is the third biggest national park in Sumatera, Indonesia. This park is as the protection area of living buffer system, the area of wild life diversity preservation, the potency of natural resources and their ecosystems. In 2004 TNBBS was appointed by World Heritage Convention (WHS) as the world heritage with other name of Forest Heritage of Sumatera. Moreover, TNBBS as protection area is appointed to be a national park through the letter of Minister of Agriculture No. 736/Mentan/X/1982 dated 14 October 1982 as wide as 356.800 Ha [5].

The study of this research is done in the forest buffer zone of TNBBS, Tanggamus District. According the government administration, the area of TNBBS is included in the area of Tanggamus District with area of \pm 10.500 Ha, Lampung Barat District is \pm 280.300 Ha and Kaur District is \pm 66.000 Ha [6]. The problems occurring in TNBBS among others are: forest encroachment, area consolidation/security, natural resources preservation, limited agency resources, illegal logging, illegal hunting such as typical Sumatran tigers, birds, and elephants, conflicts between

wildlife and human, regional boundaries regulation, and spatial/zoning that is not really steady. The former encroachers live in around the forest buffer zone of TNBBS. One way to overcome forest encroachment is by developing locals who live in the closest areas from TNBBS forest. The closest areas from TNBBS forest are as the forest buffer zone. One area that directly borders with TNBBS as well as the forest buffer village is Margomulyo Village, Way Semaka Sub-District, Tanggamus District. Problems related to the area of TNBBS among others are: 1. Taking firewood from the remains of coffee tree stems that are still in TNBBS, 2. Taking forage from exotic plant which is calliandra, 3. Taking non-wooden forest products from plants of ex-encroachers in 1970s and RHL (Forest and Land Rehabilitation–FLR) plants in 2011 among others archidendron pauciflorum and parka speciosa [7]. The activity of former forest encroachers keeps them from encroaching forest more. Their homes bordering with TNBBS cause them to easily enter the area of TNBBS. In addition, between the area of TNBBS and buffer zone, there is no strong border/barrier/wall. The border between the area of TNBBS and forest buffer zone is only a road.

Encroacher can be defined as an individual or a group in a small number or a group in a small number, occupying a forest area for plantation or farming area that is temporary for a quite long time in the state forest area. Encroacher activity is not only limited to plantation or farming business, but also can be in the form of forest plunder to take its woods or other forms of business that create the area as a business place illegally. The encroachment of forest area is more likely caused by the lack of business are of the locals around the forest. The means are done more to the interest of individual as the result of the urgency of business narrowness. Including in this category is the locals that are still practicing moving cultivation pattern.

The effort to overcome the problem of forest encroachment is a very important matter because it involves the importance of many parties. The handling efforts that have been done by Balai Besar Taman Nasional Bukit Barisan Selatan (South Bukit Barisan National Park Hall) cooperating with other law enforcement apparatus (Police, Attorney and Courts) are repressive and preventive actions that always involve the locals. Those efforts have not been able to overcome the encroachment problems in the area of TNBBS, so the preservation and integrity of the area cannot be achieved.

It is very important to understand communication pattern occurring among encroachers of South Bukit Barisan National Park. Moreover, if the communication pattern can be known, it makes it easy to develop the working program of TNBBS. It aims for forest encroachers to not conduct mistakes in the form of turning plantation area of TNBBS for living. Communication pattern is a simple illustration from the process of communication showing the relation between one communication component and other component. The development of human relation gives effect on the way human communicate. The closeness of someone with others does not only depend on the aspect of how the message is delivered, but also from the process and the way of communication applied on each individual.

In certain cases, the effect of relation among forest encroachers is so close to the sustainability of their activity. The relation among encroachers is very beneficial for their life. They can work together for the sustainability of the encroachment. Friendship quality, then, is a function not only of the experienced support with the relationship but also by the characteristic mutuality of support and caring that defines close friendships [8]. This is the urgency of this study. One cause of the encroachment occurrence is a good relation among encroachers. It must be known by parties who are anti-encroachment. This relation among encroachers must be known by some parties to identify their activities.

Many things have been done by researchers to reveal their resources behaviour. Human is generally motivated to protect what they assume they have. In its principle, COR theory is used by encroachers. Conservation of Resources (COR) theory states that human is motivated to protect their present resources and obtain new resources. Generally, this theory is applied on human wherever to protect their resources [9]. It is also assumed to occur in the area of former encroachers in the area of TNBBS, Tanggamus District.

Other corresponding theory is PA (PA: Protection Area) stating that human actually will protect their area that will affect their behaviour [10]. It is also meant that the relation among forest encroachers is valued good and will protect their area together. Sometimes, PA theory or Pas (Protection Areas) is used to justify their status as local attitude. Positive local attitude toward PA is an important potential component from each of the justification, especially in developing countries where the human pressure on natural resources is usually high. However, the positive attitude toward

PAS is still limited. Here, we review the literature on local attitude heading to protection in developing countries [11].

Human does not only protect what they think they have from others, but also will keep them from other enemies, such as animals. The conflict between human and elephant does not only occur in Indonesia, but also in other countries such as Assam, India. Prolonged conflict of human and elephant is generally caused by forest encroachment massively. It is a priority problem for the living sustainability of Asia Elephas Maximus elephant in Asia [12].

As well as in Abijata-Shalla Lake National Park, Ethiopia, there is a conflict between human and wild animals. The existence of human habitation requires farming area and grazing land. This study is done on 360 households in four chosen villages. As many as 96% respondents depend on the land for earning income that makes the competition with wild animals directly and intensely [13]. The conflict also occurs in Bangladesh. In mangrove forest of Sunderbans Bangladesh, there has been a conflict between human and wild animals especially tigers, because the locals whose lives depend on the forest have made the tigers disturbed by human [14].

Living sustainability of people around Sumatera inland, it is true that they are still affected by the forest around them. They live not only facing animals around them, but among them, with different ethnics, cause them must be strong. The study in Sumatera with the study on three different ethnics, 15% is Batin Sembilan, 40% is Malayan locals, and 45% is Immigrant households. Three ethnic groups live near forest restoration area in Sumatera, Indonesia. The study result shows that the occupation of indigenous people is still closely related to the forest resources. 36% from their total of yearly income is from forest resources [15].

More comprehensive process is certainly needed, in order to keep the nature preservation, the relation of human and the relation of animals. More flexible approach to the locals by conservation regulation from local officials creates the conservation more useful for nature sustainability. It is done in in Tanzania [16]. It is for regulating the forest that involves community.

It is expected, by knowing the sustainability pattern of former encroachers that its solution is to break the chain sustainably and firmly.

2 Methodology

This study is a descriptive qualitative study aiming to describe and reveal a problem, condition, even as it is or to reveal the fact more comprehensively. In this study, the type of descriptive qualitative is used to describe communication pattern occurring in former encroachers of Taman Nasional Bukit Barisan Selatan, Tanggamus District. Data resources consist of: interview, observation, and literature review. Interview to the informant is done in accordance with the focus of this study which is about communication pattern of TNBBS former encroachers. The number of informants consists of 9 former forest encroachers and 20 workers in Protected Forest Management Unit of Kota Agung Utara. The nine informant of former encroachers are sorted as informants 1-9, and the twenty persons who work at Protected Forest Management Unit of Kota Agung Utara are sorted as informants 10-29. Those twenty persons are: forest rangers, field counselors, administration team, devoted foresters (field officers). The object of this study is the locals from Margomulyo Village, Way Semaka Subdistrict, Tanggamus District. Margomulyo Village is a village that is near and bordered directly with the forest area of TNBBS. This village is the forest buffer zone of TNBBS located at an altitude of 500 0-600 masl. The majority of the locals is Javanese, which is 226 households, Lampung Tribe of 4 households. The total population in 2015 was 230 households or 759 people, males as many as 392, and females as many as 367. Margomulyo Village consists of 2 hamlets, which are Hamlet I and Hamlet II. The occupation of the locals in Margomulyo is dominated by farmers/cultivators as many as 600 persons, 1 civil servant, 120 labors, 15 merchants, and 20 others (fisherman, random jobs). The potency in Margomulyo Village is the plantation products which are coffee, pepper, and nutmeg [17].

3 Discussion

Buffer zone is an area located outside the Nature Preservation Area, both as other forest area, free state-owned land and burdened rights land that is needed and able to keep the integrity of Nature Preservation Area. The management on the buffer zone is still on the right hands, While the managing ways must follow the regulation determined in Government Regulation of RI No. 68 Year 1998 about Nature Reserve Area and Nature Preservation Area [18]. In other words, buffer area/zone is an

area naming functionally because this naming is based on the function of the area as protection or buffer for other areas. Therefore, this zone is a benchmark toward the damage of the area that will be preserved.

As the follow-up, the assertiveness from the government to prohibit forest encroaching activity is necessary, for example, on other cases the previous protected forest was a remote area, now it has been an area needed to be evaluated as the result of city development. In the protected forest area of Mondah in Gabon, the north of Libreville, 40% of its area has been missing for 80 years, including 24 endemic species that are threatened by urbanization [19].

3.1 Knowledge and Forest Encroachment Activity Obtained from Parents

Nine informants are former forest encroachers. They followed encroaching forest with the reason following their parents who moved from one place to another in 1979s. These informants are now former encroachers because they followed their parents' activities. However, they still have the remains of crops in TNBBS. It makes them quietly still follow to cultivate land in TNBBS. Margomulyo Village is one of buffer zones of TNBBS, but the phenomenon is that there is still forest encroachment occurring in the national park. Forest encroaching activity that continuously occurs is feared to damage the ecosystem in the national park. The effort from South Bukit Barisan National Park Hall in handling encroacher was started by giving counseling to the community about the importance of forest buffer zone for protecting the area, but actually it is still full of violations by the community. Based on the interview, the locals of Margomulyo Village often have activity in TNBBS. The locals of Margomulyo Village, since they were young, have been introduced to it by their relatives especially their parents about TNBBS. Each person is able to adapt by following their parents. Moreover, there are also the locals who are introduced to it by fellow locals who are able to conduct the activity in the national park. The invitation of locals creates similar perception which is to conduct similar activity. The sense of belonging or family and similar feeling to the reason of economic deprivation make them conduct encroachment together.

It is similar to the one stated by informants 1, 2, 3, 4, 5, 6, 7, 8, and 9, stating that family and community are the first part that introduced the encroachment activity in national park. The

activity occurring in the national park is conducted based on the interaction among families and neighbors. The informants also explained that the invitation coming from the family causes the activity can be conducted well because there is cooperation. Opened attitude of each local and family makes them consider encroachment as the main activity for living.

Encroaching activity done by the locals of Margomulyo Village occurs because there is homophyly. Homophyly occurs because similar people are close to each other creating the existence of interest. The emerging similarity such as economic deprivation makes the locals communicate each other to avoid poverty. This communication occurring creates the desire to encroach forest. Interpersonal communication occurs because of the existence of high empathy from fellow locals of Margomulyo Village. In communication, there is influence and influencing between both sides and more that is the occurring process of static event.

3.2 Behaviour and Interaction of Forest Encroachers Affecting Forest Encroachment

The interaction occurring in community of Margomulyo Village is really influencing in national park forest encroaching activity. The locals often face to face that causes intense communication, so they influence each other to conduct forest encroachment. That belief is described by the interview from informants 1, 2, 3, 4, 5, 6, 7, 8, and 9 stating similar thing that encroaching activity is done together. There is no inviting each other to open, but it is done because the formation of perception to conduct land opening in national park. The perception is formed when the locals interact to each other because of the existence of closeness personally so that interpersonal communication occurs among them. The next is the interview result about land distribution in the area of TNBBS. One informant which is informant 1 explained: "There is no distribution, so it is greediness. It is up to them to open. So, only us who know it. If there has been opened, we will not disturb the land. Free opening land is also done together". (Interview on 15 November 2016).

The following is figure 1, showing that the border of forest buffer zone and South Bukit Barisan National Park is only a village road.



Fig.1. It explains that researchers were in the forest buffer zone of TNBBS. On the right side of the road, it shows that there is no wall, barbed wire, or others as the security. Someone might enter freely in the area of TNBBS (research observation on 24 July 2017).

Furthermore, informant 1 explained that the cause of land opening in TNBBS: “moving from the village because there was no land, and seeing the area, so I followed them. Seeing there is a house in the forest, so I was also caught by forest ranger. Following, and because following the parents since young (who also opened the land in the area of national park). So, people are free to open.” (Interview on 15 November 2016).

Informant 3 also explained that in the village there a volleyball player group (volleyball club). The locals often gather to play or only to see. With the existence of this volley club, the locals often interact and exchange information about land opening in national park. Because of economic factor, there is no one inviting to open the land in the national park, but because of the envy to others who are able to open the land in the forest area. Often gathering in volleyball club makes the locals interact to each other and tell information about land opening in TNBBS. Land opening is also done together (Interview on 16 November 2016).

Land border owned by encroachers is only a small ditch as the mark of ownership. They know it belongs to the locals because when opening the land, it was done together, so they know. With the activity done together, they interact intensely and protect each other (observation in December 2016).

3.3 Interpersonal Communication of Former Encroachers and Forest Person Police

Based on the observation, the activity of the locals is in South Bukit Barisan National Park. Although

recently they have not conducted encroachment massively, they still use forest area to fulfill their cattle needs and firewood. They still take grass and firewood for daily needs. There are some locals who use water springs in the national park to fulfill the fresh water needs. They are allowed to use the water because the locals of Margomulyo Village have not fulfilled the fresh water needs. The locals of Margomulyo Village still use rain water storage for shower needs, and it is only obtained in rainy season.

The relation among former encroachers when they conduct encroachment is really close. They have very strong interpersonal relation. Interpersonal communication is inter-individual communication that is personal both directly (without medium) and indirectly (with medium), for example, face to face conversation, telephone conversation, private letters. The focus of its observation is the forms and the characteristics of relation (relationship), conversation (discourse), interaction, and characteristics of communicators.

This interpersonal relation is shown from the way national park ranger person and encroacher in conducting communication to avoid national park ranger raid. Similar thing is disclosed by informants 4, 5, 6, 7, and 8. They mentioned that when there will be a raid of forest encroachment, there officer person informs them to not enter the area of the forest before they are saved from the raid conducted. One informant explained the way to avoid forest ranger is known from the neighbor (Interview on 17 November 2016). The same statement is also from informant 7, but he mentioned that the announcement is through telephone by fellow former encroachers to save time. Meanwhile, according to informant 6, the fellow former encroachers will inform whether there will be an officer passing in front of their houses. Former encroachers who see the officer will immediately inform their friends.

The nature of communication is the statement process between people stated that thought or feeling of someone to others by using language as the channeling equipment. In human social life, each individual from one to another is varied that interact, affect each other for the interest and benefit of each individual. Interpersonal relation occurring is because the existence of activity done together. The bound is still strong in rural area which supports the strength of interpersonal communication. They involve in communication in the form of dialogue that has multiple function, each becomes speaker and listener in turns. In the process of dialogical communication, it seems that

there is effort from communication participants to have mutual understanding and empathy. Family is the place to communicate between parent and children. This value transformation process is in the development of the children. Interpersonal relation also occurs outside the family, which neighbor. It occurs in Margomulyo Village, where the relation community is involved well.

3.4 Forest Encroachment Prevention

The result of observation and interview in January 2017, the decrease of encroachment was done massively in 2010. At that time, all encroachers who enter the area of Margomulyo Village were lowered from the forest area by joint officers of Indonesian Army, Police, Forest Ranger, Partner of Forest Ranger, and NGO. However, in January 2017, 2 Ha planted land was found in the area of national park indicating that there is still forest encroachment inside the national park. The formation background of Margomulyo Village is because of the locals who have lived inside the forest area. They chose to exit because they knew that the area where they lived was a national park.

To reduce the encroaching activity, TNBBS and NGO (WCS, YABI, WWF) keep conducting counselling and approach to the locals, such as the workshop to make compost, cultivation of seasonal crops, and they are given aid of goats to be cared so that they do not conduct activity inside the national park. This activity is lead by forestry counselling.

Other development to prevent forest encroachment is by using satellite-based monitoring system. This system can detect accurately the lost forest and prevent the lost of habitat. [20]

This application can be used to monitor protected animals in the area such as tigers, elephants, rhinoceros, and other animals.

The opinion of informant 1 from..., stated that the cause of forest encroachment is as the following: "The lack of encroacher's knowledge on how important to preserve the forest and the balance of ecosystem. Forest encroachers, on the average, have middle-low economic level" (Interview on 24 July 2017). The behaviour that can prevent the forest encroachment, according to Informant 15 as a counselor, is as the following: "Law enforcers firmly, the participation of TNI-Army for its security" (Interview on 24 July 2017). The opinion explains that the cause of forest encroachment is the lack of knowledge to preserve nature and the balance of ecosystem. The prevention of the forest encroachment is with firm action and by involving

TNI (Tentara National Indonesia – Indonesian Army).

3.5 Communication Pattern of Forest Encroachers

The term of communication pattern is usually known as a model but similar meaning, which is a system consisting of various components that relate one to another in order to achieve a goal. The communication occurring between fellow encroachers and forest ranger is the result from social relation.

Former encroachers are the locals who live closely to each other. The social and emotional closeness create communication process and encroachment process easier because among encroachers, they know and understand each other. Interpersonal communication occurring in the community of Margomulyo Village is analyzed from all informant statements that they work together to conduct encroachment. Interpersonal communication is formed because there is a strong bond in the community of Margomulyo Village. The strong bond in the community and forest ranger is proven by the statements from informants 4, 5, and 7.

Communication between forest encroacher and forest ranger, in this case, affects criminals. Sutherland, Edwin H, 1992 explained that criminal behaviour is learned in Interaction with other persons in a process of communication. This case is not common, many forest rangers also have positive attitude to keep the nature preservation. The number of forest rangers who let the encroachment is only few.

They mentioned that there are forest ranger persons who inform them when there will be a raid for encroachment, so they are not allowed to enter the forest area. A good communication that is built in the community makes them to inform each other when there is a warning for not to enter the forest area. They inform each other directly, face to face, or by cellphone. Referring from the interview result to informants, the communication pattern of forest encroachers can be seen as the following:

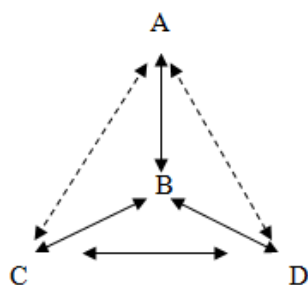


Fig.2. Communication Pattern of Encroachers in TNBBS

Explanation:

A = Parent/Family,

B = Child,

C = The locals of Margomulyo Village,

D = Forest Ranger,

↔ = Interaction,

←- -> = Supporting Factor

Based on Figure 2, the communication pattern occurring in encroachment in TNBBS is prism. Parents have role to direct their child to be encroacher. Parents have quite good experience and are able to make the perception of their child. The interaction occurring in the community is also a factor of smooth the violation of forest encroachment. Moreover, the closeness with forest ranger persons makes them braver to conduct activity inside the forest area of South Bukit Barisan National Park.

According to all informants, they stated that there is omission done by forest ranger persons, so they easily conduct the access inside the forest area of national park. The opportunity to conduct encroaching activity is also compounded by the existence of notification given previously. The access to enter in the forest area of national park is also very close with the locals, and it is only bordered by rural road, so they will know if penertiban will conducted because the officers passed in front of former encroachers' homes. When passing in front of their homes, they will coordinate using cellphone or direct notification.

4 Conclusion

This study is done in the forest buffer zone of TNBBS, Tanggamus District, Indonesia. Interpretive qualitative approach is the right method. The conclusion of this study is Communication of former encroachers of South

Bukit Barisan National Park in family is the main matter to introduce forest encroachment to their children and is able to be conducted from generation to generation. The communication done in the family is included in interpersonal communication category. Communication pattern of former encroachers tend to lead to the wheel, circular, and chain communication pattern. Communication of former encroachers in South Bukit Barisan National Park shows that there are officer persons of TNBBS who have the relation of interpersonal closeness with the locals, so they often interact. Officer persons will inform the locals for not to conduct encroachment inside the national park when the officers will patrol. Communication of former encroachers in South Bukit Barisan National Park shows that there is interpersonal closeness and deviant learning as the result of something that is continuously learned. Imbalance of attitude that pushes to conduct deviation is forest encroachment. This study is descriptive qualitative research, so it is recommended to conduct further study with encroachment problems from the analysis of other social sciences, with different methods.

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