

The Local Wisdom of Mangrove Ecosystem Management based on Time Allocation in Coastal Community

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Abstract: This research aims to describing the form of management mangrove ecosystem based on local wisdom in mangrove community at Jaring Halus Village, Secanggang District, Langkat Regency. Analysis is done on some factors that affect working time allocation of coastal community in mangrove management based on education level, training, the distance of house from coastal, non-mangrove time allocation, working time tradition and level of dependency. The result of this research shows that the attempt of introducing the mangrove sustainability management has been creating the newest of local wisdom that never existed before. Some of the coefficient which were training that has been attended before, the distance between house and coastal area, non-mangrove time allocation and tradition of working time, had significantly influenced to mangrove working time allocation. The method that were used was the combination of qualitative and quantitative using descriptive analytic and multiple linier regression.

1 INTRODUCTION

The east coastal area of North Sumatera has 43.133,44 km² width and has coastal line 545 km. Its has six small island that has dominated by lots of mangrove community. Based on theoretical, mangrove community has an important ecosystem in coastal area, biologically, economically and physics-chemistry. Based on Nasution *et al.* (2012) showed that mangrove ecosystem area at east coastal line of North Sumatera starts from north of Langkat Regency to the south of Labuhan Batu Utara Regency, through 38 districts, 8 districts at Langkat Regency, 2 districts at Medan City, 4 districts at Deli Serdang Regency, 5 districts at Serdang Bedagai Regency, 7 districts at Batubara Regency, 6 districts at Asahan Regency, 3 districts at Tanjung Balai City, 3 districts at Labuhan Batu Regency, and 2 districts at Labuhan Batu Utara Regency.

The research of Onrizal (2010) about the reformation of the width scope mangrove forest at North Sumatera with the measurement from year 1977, 1988/1989, 1997 and 2006 became narrower. If we compare with the mangrove forest at 1997, at 1988/1989, 1997, and at 2006, mangrove forest at

south coastal of North Sumatera has become less and less. It only 14,01% (88.931 Ha), 48,56% (53.198 Ha) and 59,68% (41.700 Ha) from first 103.415 year 1977. The reducing of mangrove ecosystem make the researcher interest to study with local wisdom on focused. It has been built to manage for needs at local community in Langkat coastal Regency. It was one of the dynamic of mangrove ecosystem management in Langkat Regency.

Some of stakeholders that become part of mangrove ecosystem at some places with some interest. The needs of reboisation, rehabilitation, restoration and the needs to empowering community to be the conservative community, productive, innovative and independent. Jaring Halus Village, Secanggang District at Langkat Regency get some learning in developing and strengthen local wisdom in mangrove management. So, the research problems are (1) How was the mangrove ecosystem management based on local wisdom of coastal community at Jaring Halus Village Secanggang District at Langkat Regency? (2) How was the working time allocated and what kind of work in

coastal community at Jaring Halus Village Secanggang District Langkat Regency?

2 MATERIAL AND METHODS

This research was the combination research of qualitative and quantitative. The qualitative research was used by case study method to describe comprehensively about some forms of mangrove management based on local wisdom with question “how” and “what” (Moleong, 2000). The quantitative approach in this research was the approach used some variables that affect working time allocation of coastal community in mangrove management at Langkat Regency.

The research location is at Jaring Halus Village Secanggang District, Langkat Regency. The primary data is collected from depth interview, focus group discussion (FGD), questionnaire. The secondary data are collected from the documents of some institutions and statistical data. To analyze the mangrove ecosystem management based on local wisdom, descriptive qualitative analysis is used with the study of the forms of mangrove management. Working time allocation is analyzed by using descriptive analysis.

3 RESULT AND DISCUSSION

3.1 The Local Wisdom of Mangrove Management

The relationship between local community and coastal area could not be separated from the system of fisherman occupation and the existing of mangrove ecosystem that has become an unity. The communal identity borns from their closeness with the coastal area as the place to live in. The re-analysis of Sahala Harajaon Concept nowadays, in cultural and the increasing of public services that visit Samosir Regency as a tourism destination. The geographic factor showed that the adaptation ability of community make the relationship with coastal area facing from the community tale. The visitation of Abu Bakar Bin Awang to this place in the effort of land clearing; to make a village. Abu Bakar Bin Awang made an agreement with a big tree in this village. The community said that the tree was a kind of mangrove variety. It is called as ketapang tree.

When the Jaring Halus Village was established, ketapang tree was a sacral plantation that need to be

conserved and protected. They realized that to protect mangrove also means protect their lives from the waves and storm that always happened. The awareness has exist since Jaring Halus Village established, but the level of awareness is still low. This was proven by the community which still cut the mangrove tree for their interest, and letting somebody stole the mangrove at Jaring Halus area.

The communal awareness to manage mangrove sustainably strengthened by some non government institutions that concerned about environment. They came and gave learning and protecting for mangrove forest area. They are JALA, YAGASU and SNSU. They could change the form of their thinking about mangrove. They understand more how the function of mangrove to coastal area. So, they have more awareness to protect and conserve their mangrove forest.

The local wisdom that developed in community was manifestation of community adaptation ability to the transformed environment; not only from the ability of community to keep their occupation as a fisherman; but the ability to keep the mangrove ecosystem exist. The area of mangrove at Jaring Halus was so big. From the result of observation and interview, local community was no need to replanting all covered of mangrove forest; because ecologically mangrove could grow itself and fastly (Valiela *et al.*, 2001). But, there are some area that need to be planted, so the mangrove could grow wider and wider.

The local wisdom of Jaring Halus Village community become strengthened with some empowerment programme that have been done by some non government organizations. These programmes not only conservation programmes but also introducing knowledge about mangrove management productively and sustainably. They have been trained about making chips, tea, dodol from mangrove.

The learning process of local community about mangrove management by Steward was a part of community adaptation and some of culture part that affected by human efforts in taking benefit and managing the environment (Mitchell *et al.*, 2003). These benefit process were hoped by some non government organizations could create some positive behavior in managing mangrove sustainably. But, in fact, the learning process could make the local wisdom to conserve mangrove. The sustainable of managing mangrove productively and sustainably disappeared.

3.2 Time Allocation and Kind of Working at Coastal Community

Based on the data analysis in time allocation of coastal community households at Langkat Regency; seen on this table:

Table 1: Time Allocation and Kind of Working at Coastal Community Households.

No.	Kind of Working	Time Allocation of Households (hour/week)
1.	Ecotourism guide	15,57
2.	Making chips	8,89
3.	Making tea powder	8,66
4.	Making syrup	7,52
5.	Making dodol	11,43
Total		52,07

Source: Primary Data Processed, 2018.

Based on Table 1, it could be seen that each week, at coastal community households of Langkat Regency, the ecotourism guiding spent 15,57 hours, chips production spent 8,89 hours, tea powder production spent 8,66 hours, syrup production spent 7,52 hours and making dodol spent 11,43 hours.

4 CONCLUSIONS

Based on the result of data analysis and discussions, so this research has some conclusions:

1. The adaptation process of Jaring Halus Village community, Secanggang District at Langkat Regency has a manifestation from local wisdom of conservative behavior at mangrove. The local community has a strength culture about mangrove conservation.
2. The forms of local wisdom of Jaring Halus Village Community, Secanggang District, Langkat Regency in mangrove management as a part of mentality formed component in community thinking (infrastructure) that was combined with some introducer values (suprastructures) by some institutions that care of mangrove conservation and management.
3. The ecotourism guiding was the most important sector at mangrove community households. The households spent the most working time to be the ecotourism guide.

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