THE PERSPECTIVES OF LOCAL WISDOM IN CONSERVATION AND BIODIVERSITY MANAGEMENT OF FISH SPECIES AT RANGAU RIVER, RIAU PROVINCE, INDONESIA

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Abstract. This descriptive research was conducted at Rantau Kopar village, Rokan Hilir District from January to June 2017. The reason for this study is due to the drastic declining of biodiversity of fish species at Rangau river despite the existence the local wisdom to protect the watershed in the area. It is aimed to discover the perspectives local wisdom in preventing the decreasing of fish biodiversity at Rangau river. The employed sampling technique was snowball technic sampling which involved 30 respondents. The primary data were obtained using observation and interview; the secondary data (documents). Data consist of community composition, livelihood, community participation in preserving the local wisdom, the synergy between the local wisdom and the policies of the local administration. The data were computed in percentage and were analyzed descriptively. The findings demonstrated that the local wisdom was compiled by the local community whose livelihood as fishermen. Conversely, in 2017, the local people did not comply with both sanction and the local customary law, there had been careless exploitation of the water across the watershed to be oil palm plantation area and the increasing number of oil palm farmers. This study concludes that the main threat facing the local wisdom is that the policies of local administration are not synergic with the local wisdom as stipulated in the regulations and conservation of the area across the watershed of Rangau. The implication of this study is used for the supplementary materials for the bioetnomalay subject in the Indonesian education.

Keywords: *local wisdom, biodiversity of fish, Rangau River, Indonesia*

INTRODUCTION

In Riau province, local people have suffered from the forest fire for more than 17 years. The most severe bush and forest fire disaster occurred in 2014 where the width of areas hit by forest fire reached 302.279,43 Ha. The hot spot and width of the bush and forest fire in Riau had been spread in some regencies/cities. Among others was ROKAN HILIR District with the width of burnt land was 2.504 ha (Suwondo et al., 2015).

Commonly, the impact of this forest fire disaster on the ecosystem has been directly felt in the form of the longer period of the dry season and the shorter of the rainy season than before. The effect of deforestation not only merely cause the acceleration of climate change, but also affect the microclimate change occurs surrounding area of Rantau Kopar, ROKAN HILIR, such as there is no regular flooding in the main river anymore, and the peatland across the watershed of Rangau river had been dry (Yustina, 2016). This extreme climate change occurs even though the local wisdom has been practiced in maintaining the conservation of the area across Rangau watershed.

Local wisdom means knowledge, policy and decision making related to the resolution in order to achieve social harmony and the balance of the ecosystem. The success of wisdom is comprehended and acknowledged when a decision is accepted and implemented wholeheartedly and sustainably by all relevant parties, particularly in seeking a resolution where the decision had been made correctly and appropriately viewed from both their achieved goal and interest (Amri et al., 2013). The environment wisdom is a set of knowledge developed by a group of the local community which had been accumulated from the long experience when exploring nature in a reciprocal relationship (human and nature) sustainably and in a harmonious rhythm (Kemen LH, 2008).

The local people in Rantau Kopar village originally come from the indigenous tribe (Sakai tribe). Sakai people have a strong tradition of maintaining their local wisdom hereditarily, particularly in making use of natural resources. The local wisdom in exploiting the resources across Rangau River watershed has been undergone for a long time inherited in the form of a compromise between local social group and the tribal chiefs. One of the aims of the local wisdom of the Rangau watershed in Rantau Kopar is to avoid the shortage of commercial fish and protect the fish population and their habitat from extinction. Based on those above, this indicates that the local wisdom does not have a significant role in maintaining the ecosystem and biodiversity of fish species at Rangau river.

According to Yustina (1998), there are a variety of fish species at Rangau river, Riau that consist of 21 families, 44 genera, 70 species. Dorlan and Yustina (2002) said that at the peat swamp area across the Rangau watershed, there is 13 group of blackfish which is economically valuable, either used for daily consumption for ornamental. A further study conducted by Yustina (2016), there were only 12 fish family left, 17 genera and 23 species. This study implies that the declining of the biodiversity of fish is quietly high.

This study seeks to explore the factors of the decreasing of fish species which is assumed to be linked with the local government policy in treating the local wisdom. Both obstacles and challenges which have been the hindrances in the local wisdom implementation across the Rangau watershed and contribute to the declining biodiversity of fish species at Rangau river.

This study, therefore, needs to be conducted so that the information on threats encountering the local wisdom can be discovered. It is aimed at evaluating the threats encountering the local wisdom practice across Rangau watershed in preventing the decreasing biodiversity of fish species at the Ranga River, Rantau Kopar.

The information on this study can be implicated as an input in supplementary materials as an effort to invent the challenges facing local wisdom. The environment phenomenon

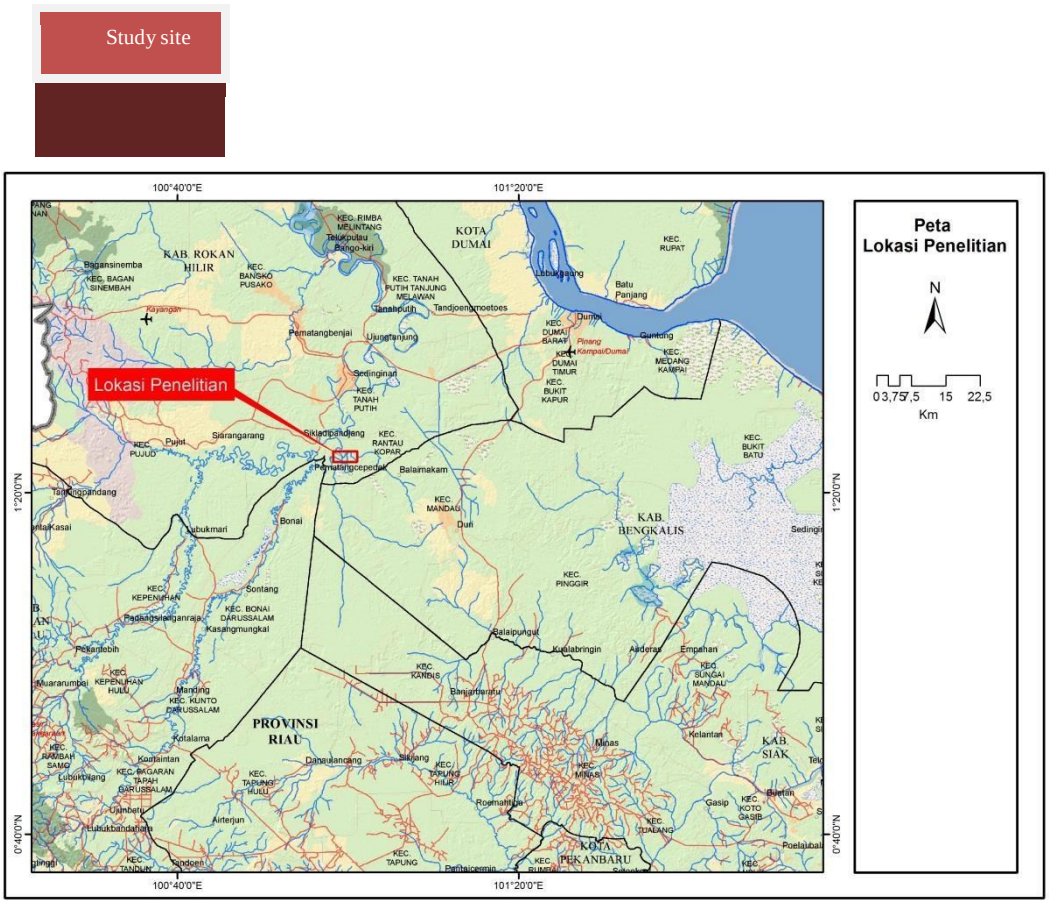
on the local wisdom contextually is essential for environmental management and biodiversity. It is vital for environmental learning (Yuli Priyanto, 2013), as well as the practical materials for bioetnomalay (Darmadi and Suwondo, 2016).

METHODS

Study Site

The procedures and data analysis. For field study, study site is included (Figure 1).

The Map of the study site



Picture-1. The map of study site at Rantau Kopar, Pasir Putih Subdistrict, Rokan Hilir Regency, Riau Province, located at $1^{0}22^{'}10^{"}$ north longitude and $100^{0}57^{'}42^{"}$ east latitude, at the height of 7 meters above the sea level crossed by Rangau River, which both its upstream and downstream meet at the Rokan river. Rantau Kopar has width area of 26.000 ha with the used space which is classified into 3 parts: Residence, irrigation and plantation/Farming.

Procedures

a. Length of Study and Site

This is a descriptive research which describes a problem related to the facts on the ground. It was conducted at Rantau Kopar village, Rokan Hilir District, from January to June 2017.

b. Sampling Technique and Respondent

The employed sampling technique was the snowball sampling technique by focusing on the respondents who understand deeply about the local wisdom in this area. A total number of the respondent were 30: 5 were the tribal chiefs, 20 local people/the young generation, and five government officers who represent forestry service office, fishery service office, The local development Agency, and the village head.

c. Data Collection Technique

The data consisted of primary (observation and the closed interview) and secondary data (document). The employed data collection techniques were observation and the guided closed interview. The implementation of data analysis of the present local wisdom covers community composition and the people's livelihood, community participants towards the local wisdom, the synergy between the local wisdom with the local administration policy.

d. Data Analysis

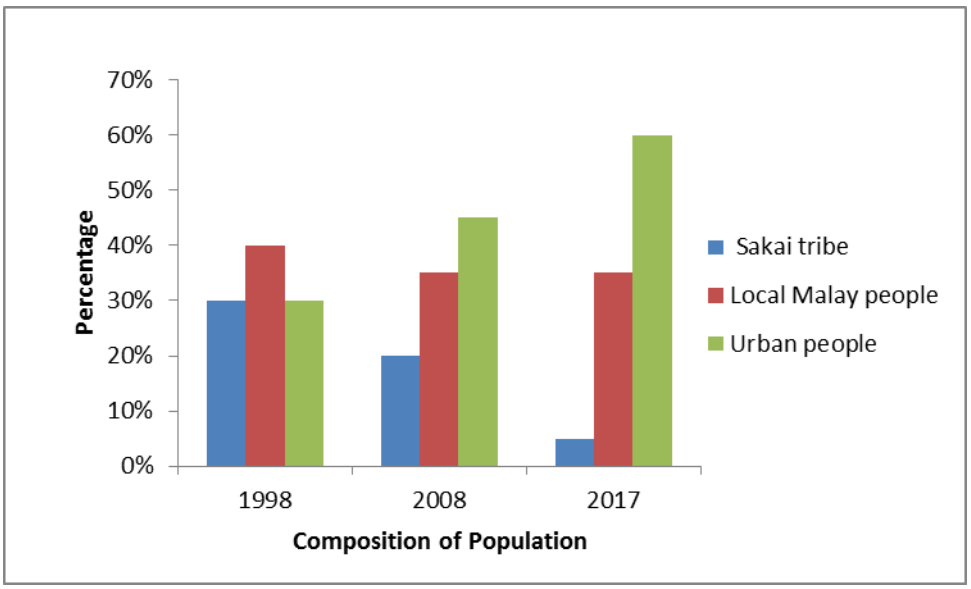
The collected data were tabulated, and percentage were computed, afterward, the data were analyzed descriptively

RESULTS AND DISCUSSION

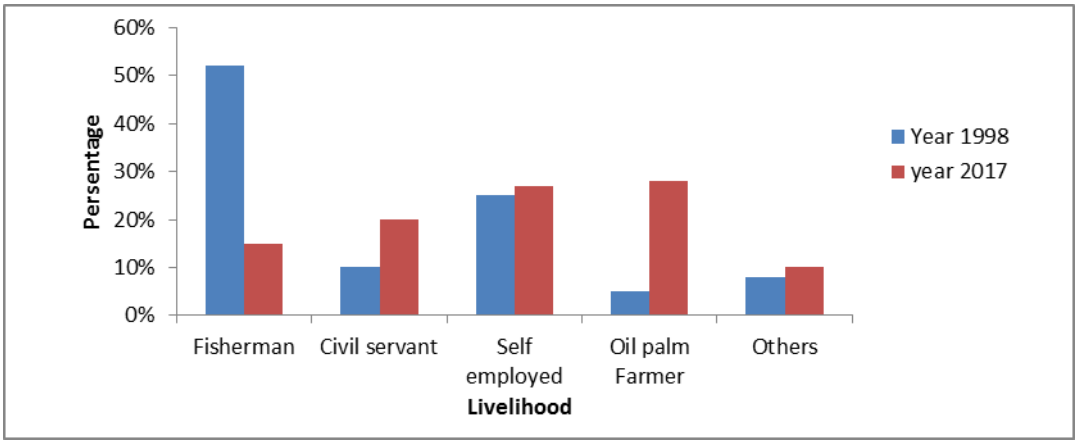
The results makeup of the composition of the population (picture 1) and livelihood (picture 2), the community participation in practicing the local wisdom (table 1 and 2), and the synergy between the local wisdom and the policies of local administration

Results-1: Composition of population and Composition of Livelihood at Rantau Kopar in 1998 and 2017.

The highest composition of the population at Rantau Kopar in 1998 was usually composed of Malay community at ROKAN HULU and ROKAN HILIR and indigenous tribe (Sakai tribe), and the lowest was urban people. On the contrary, in 2017, the highest number was urban people and the lowest was Sakai tribe (picture 2).



Picture 2. The Composition of population community Sakai Tribe, Rokan Malay and Urban people at Rantau Kopar 1998, 2008, and 2017.



Picture 3. The Composition of Livelihood at Rantau Kopar in 1998 and 2017.

Viewed from the livelihood (economic sources) of the population in 1998, it was discovered that the majority of the population worked as fishermen and the lowest composition of livelihood was oil palm farmers. Conversely, in 2017, the most dominant livelihood was oil palm farmer, though the other livelihoods were relative and had increased slightly: Civil servant and self-employed (Picture 3).

Results-2. The community participation in the local wisdom programs, in 1998 and 2017.

The community participation in the local wisdom programs, in 1998 (table 1) was generally positive. The average score was 83% which were categorized as obedient to the local wisdom, 12,75% were disobedient, and 4,25% were not familiar with the local wisdom across Rangau watershed.

Table 1. Community Participation in the Local Wisdom Program for the Marine Environment Exploitation across Rangau Watershed, 1998

Local Wisdom	Community Participation (%)			Category
	Positive	Negative	unfamiliar	
Use the types of fishing gear	80	17	3	Obedient
Species & size of the taught fish	80	12	8	Obedient
The zone and the forbidden time of catching	85	12	3	Strongly obedient
Optimization of the conservation zone across Rangau Watershed	87	10	3	Strongly obedient
Average scores	83	12.75	4.25	Obedient

Community participation in the local wisdom practices: the obedience to the local wisdom on the use of fishing gear (80%) was categorized as obedient; the species and size of the caught fish was 80% which was categorized as obedient; Zone and the forbidden time of catch was 85% and it was categorized as strongly obedient; and the optimization of conservation zone across Rangau watershed was 87% which was categorized as strongly obedient.

The community participation in promoting local wisdom in 2017 (table 2) seems to have been drastically declining. The percentage is as follows: 49% was categorized as disobedient in the local wisdom practice; 37,5% stated that they were not familiar with the local wisdom, and only 16.67% were obedient/participated in the local wisdom practice.

Table 2. The Community Participation in Practicing the Local Wisdom for the Marine Environment Exploitation across Rangau watershed in 2017

Local Wisdom	Community Participation (%)			Category
	Positive	Negative	unfamiliar	
Use the types of fishing gear	10	47	43	Disobedient
Species & size of the taught fish	10	47	43	Disobedient
The zone and the forbidden of catching time	15	50	35	Disobedient
Optimization of the conservation zone across Rangau Watershed	15	55	30	Disobedient
Average Scores	16.67	49.75	37.75	Disobedient

Of the four analyzed aspects, it discovers that 55% of the community do not comply with the optimization of the conservation zone across Rangau watershed. They are categorized as passive and disobedient participants. On the other hand, only 15% who comply with the conservation zone across Rangau watershed. Meanwhile, in terms of The zone and the forbidden of catching time, 50% do not participate and they are categorized as disobedient. There are only 15% who complies with the zone and the forbidden of catching time. In the species and size of the taught fish, 47% are categorized as disobedient to the local wisdom. On the contrary, only 10% are categorized as obedient to the local wisdom.

Table 3. **The Synergy between the role of traditional leader and policies of local administration in 1998 and 2017 in practicing the local wisdom across Rangau watershed, Rantau Kopar**

The local wisdom aspect	1998	2017
1.Dissemination	From the traditional leader to the village elders and young generation. It has been passed down from generation to generation verbally	There is no effective dissemination as the traditional leader is written not involved in the government organizational structure. The local wisdom was passed down in a certain community (Sakai and Rokan Malay)
2.The rules on the exploitation of the watershed area	Referring to the tradition which had been agreed upon by the young generation	Conflict of interest between tradition and the policy of exploitation and the land planning license across the watershed
3.Sanction for violation	The social sanction based on the tradition in the form of ostracization	The social sanction is not strictly due to the ignorance of society and the nonexistence of written sanction

The synergy between the policy of a community leader in a society in the local wisdom program and the role of traditional leaders and the policy of the local administration, which can be viewed from 3 aspects (Table 3) in 1998, demonstrates that: 1) the role of community leader and traditional leaders in dissemination of local wisdom seems dominant, 2) community leader and traditional leaders are very active in monitoring the use of marine resources across watersheds of Rangau river, 3) Those who violate the customary law will be persecuted by the community leader

In 2017, The synergy policy of community leader towards the local wisdom with the relevant parties have declined: 1) the dissemination of the local wisdom has received less support from the relevant parties; the exploitation of Rangau watershed, the policy of local administration did not involve the role of traditional leaders in the form of written regulation on zone exploitation across the watershed of Rangau water at Rantau Kopar; 3. The sanction for the violation of the local wisdom does not receive scholarly attention from the relevant parties in the written form. Consequently, the sanctions imposed on those who violate the rules was never applied as rules in the social life.

The findings demonstrate that in 1998, the local wisdom of Rangau watershed was abode by the local community (Sakai and Rokan Malay people) who's the dominant livelihood was fishermen. However; in 2017, the policies of local administration which is not synergy with the local wisdom where the sanction for the violation of customary law seems to be powerless.

DISCUSSION

The declining of the local community, particularly Sakai tribe community, indicates that there has been a change of habit which is commonly brought by the urban people and is contrary to the local wisdom of Sakai tribe. As a consequent, Sakai tribe moved into the jungle or hinterland. Such situation reached the climax in the period between 2000 to 2008 and had resulted in the land use conflict in the form of conservation zone exploitation across the watershed which has changed the land to be oil palm plantation. It was initiated by both the local community and the urban people.

The policy for issuing the license for the land use across Rangau watershed did not seem to involve the traditional leader and cultural leaders who serve as policymakers for the local wisdom. The local wisdom policies have been neglected and are replaced by the policies of land use license of local administration. Such an issue has been a challenge for the existence of local wisdom and is required to restore the role of traditional authorities. The impotence of traditional authorities has been misused to violate the values of local wisdom. This prolongs conflict has caused some local community to be marginalized.

In accordance with the global policy on ASEAN Economic Community, the land use license should be subject to evaluation as it may trigger to some violations: the transformation of land use and the destruction of natural resources. Some cases of the transfer of land tenure to the others. (to the foreign nationals) may spread widely if such issue is not addressed by the local wisdom.

Local wisdom, in some cases, has proved to be effective and selective to avoid the transfer of land tenure and natural resources to the others, particularly foreign nationals. Some examples can be discovered in West Sumatra, among others is the local wisdom at Kanagarian Aua Kuniang, Bukittinggi. The policy of the local administration to synergize and integrate with the existing local wisdom in deciding both land use and license: inviting Datuak (traditional leader) and elders and decision are made through consultation and consensus. It involves the descendants and tribes. Such decision is aimed at protecting the latest young generation for not being removed from the descendants, tribe and their homeland. (Kemen LH, 2008).

The increasing of urbanization rate (the immigrant community) has caused high demanding of land, clothing, and food need which in turn may trigger the pressure towards the local natural resource. The transformation of conservation land across the watershed into oil palm plantation is therefore expanded widely. This phenomenon is clearly observed with the livelihood change of the local people where most population made a living from fishermen, but in 2017, most of the local people work as oil palm farmers.

The development of the agricultural land of oil palm is followed by the increments of canals. These canals serve as a water transportation route in the peatland so that it will be easier to transport the logs either from the forest or from the peatland, as well as for transporting the oil palm seedlings and other necessary tools which are difficult to transport through the peat swamp area.

The canals have led to the water outage to the tributaries along the Rangau watershed, such as Rangau tributary or black river, Cempedak tributary, and Petani tributary. These tributaries have been microhabitat for the growth and reproduction of fish at Ranga river (Yustina, 1998). Furthermore, the dryness across the tributaries of Ranga river has caused to the dryness of the peatland at the Rangau watershed. Such a condition has triggered the peat fire surrounding the Rangau watershed and the declining of fish biodiversity.

Yustina and Arnentis (2002) said that one of the factors contribute to the decreasing number of the abundance of fish population at Rangau river is overfishing and the catching time which was conducted at the time of reproduction period of fish. However; from the following finding, Yustina (2016) indicates that the declining of biodiversity of fish species at Rangau river is the effect of careless exploitation of Rangau watershed (peat) that function as microhabitat of fish has been changed into the oil palm plantation.

A lack of dissemination on the local wisdom values to the urban community has caused the misperception of the protected peatland use. Such a situation has led to the increasing exploitation of the peatland across Rangau watershed. According to Anja et al (2017), The community perception towards the local natural resources will affect the action on the peatland conservation. The less awareness and perception of the community on the land use has contributed to the change of the peatland function across Rantau Kopar watershed to be palm oil plantation.

Darmawan et al. (2016) said that the peat swamp forest as vulnerable and fragile natural resources bear an environmentally unfriendly character. It, therefore, needs a specific management to prevent the character change that leads to diminishing role particularly when a severe damage of forest occurs. To reduce the forest and land fire, the relevant stakeholders need to intervene in specific policy, particularly for the law enforcement to the perpetrators of a forest fire.

Rugebregt (2015) explains that the environment wisdom of cultural community which basically originates from the system and religious values espoused by the community. By preserving the tradition which has been passed on from generation to generation.
They believe that the tradition which has been inherited by their ancestors can be the only their savior.

Local wisdom has an important role in surviving the daily life of the surrounding community. However, without the existence of strong local wisdom, the conservation efforts in environmental management has led to the uncontrolled land use and the risk of losing some important species (Hidayat 2016).

Local wisdom has a significant role, particularly in the use of fish resource both from the social habit concept and the traditional environment preservation. Tradition/law of local wisdom has a paramount role in leading the fishery sustainable development. It is due to the local wisdom values that contain the sustainable fishery elements (Chaliluddin et al., 2015). The local wisdom in the complexity of community belief has a significant role as an effort in maintaining environmental conservation (Rohana et al, 2016).

The lack of connection in the linkages responsibility of traditional leader through the local wisdom of the relevant local administration may lead to the weakness of the law enforcement and social sanction in the community life. This is a challenge for the sustainability of local wisdom. Knowledge of the important role of environment will be fully understood by the traditional leaders which had been passed from generation to generation and has been embed in the dynamic life of local society.

This implies that if the local wisdom is integrated into the written policy, it may be more adaptive and enable to contribute in maintaining the balanced ecosystem across the Rangau watershed. As a result, the elements of fishery sustainability can be reached and the biodiversity of fish species can be preserved.

Wibowo (2015) claimed that the extension of palm oil plantation may destroy the surrounding environment which eventually will convert the forest area. The carbon content at the peatland strongly depends on its thickness. The greenhouse gas emission may occur when the peatland area is converted, and the larger of emission drainage the riskier of the peatland land fire occurs.

Apart from the necessity of the local wisdom role in the natural resource management, Didied et al (2012), argues that local decision-makers are not concerned with the optimal use of local wisdom as an effort to accelerate the local sustainable income for their region. In addition, Burirat et al (2010) in their study on the role of local community in natural conservation emphasizes the cooperation and mutual understanding between the local community and the local government have resulted in a prolong conservation of the resources which had been preserved and passed down continuously. Primyastanto et al (2013) explain the importance of the mental building and a sense of belonging of local society towards the ecosystem and biodiversity which has proved to be effective in maintaining the local natural resources.

In some cases, Lisdiyono (2015) reveals that irregularities related to natural resources management still occurs in Indonesia. Some persons of the local government had allegedly been involved in the exploitation of local natural resources due to the less significant role of local wisdom, such as illegal logging and deforestation. Consequently, it has become the leading factor of the low prosperity development of the local community.

CONCLUSION AND IMPLICATION

The threats encountering the local wisdom at present, among other things are a lack of knowledge on environment and local wisdom on the part of the local community. Besides, the urban community is not familiar with the local wisdom due to little exposure on them, and there is no commitment and written rules to maintain the synergy between the local wisdom and the policy of the relevant local administration. The policy of the land tenure and land use license in the forbidden area across the watershed which is overlapping with the local wisdom. The implication of this study can be used as supplementary material for the instructional process of environmental management in the environmental knowledge and Bioetnomalay subject.

SUGGESTION

This study suggests that further sustainable research is needed which is adaptive to the intervention model of the specific relocation and conservation policy at the peatland of Rangau watershed in the form of a synergic between the local wisdom and the relevant local administration policy.

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REFERENCES

Affandy, D and Wulandari, P. (2012). An Exploration Local Wisdom Priority in Public Budgeting Process of Local Government. *Int. J. Eco. Res*., 3 (5), 61-76.

Anja B, Julia Martin Ortega, Klaus Glenk, Paula Nova. (2017). Conservation in the face of ambivalent public perceptions "The case of peatlands as the good the bad and the ugly". *Biological Conservation; 206 (22), 181-189*.

Ambri, F, Zulfan Saam, dan Thamrin, (2013). The Local Wisdom in Conserving Environment Aquaria Resources for Lubuk Larangan in Pangkalan Indarung village, Kabupaten Kuansing. *Journal Kajian Lingkungan.* Pascasarjana Ilmu Lingkungan Program Pascasarjana. Universitas Riau.

Burirat, Suchart. Thamsenamupop, Kounbuntoam, Sonton. (2010). *A Study of Local Wisdom in Management of the Community Forest in Ban Nong Hua Khon, Tambon Nong Muen Than, at Sanrat District Roi-Et Province*. Pakistani Journal of Social Sciences 7 (2), 123-128.

Chaliluddin, Daniel R. Monintja, Mohammad Imron, Joko Santoso. (2015). Role of local Wisdom in Using Fish Resources in The Aceh Jaya District, Indonesia. Journal of advances social science humanities; 1 (3),17-20.

Darmawan B, Yusni Ikhwan, Sukendi dan Siti Zahrah. (2016). The Sustained Management of Ecosystem Sustainability of Peat-swamp Forest towards the Land

and Forest Fire at Kampar Peninsula, Sumatera. *Journal Manusia dan Lingkungan; 23* (2), 195-205.

Darmadi dan Suwondo. (2016). Lubuk Larangan: Pengelolaan Lingkungan Berkelanjutan Berbasis Kearifan Lokal Sebagai Model Praktek Pada Mata Kuliah Bioetnomelayu. The Community-Based Sustained Environmental Management of Bioetno Malay Subject. *Prosiding SEMIRATA Bidang MIPA 2016*, BKS-PTN Barat, Palembang 22-24 Mei 2016.

Dorlan.S dan Yustina. (2002). The Ecology Aspect and The Existence of the Swamp Fresh Water Fish. *Journal Dinamika Pertanian*. xvi (3), 88-98. Terakriditasi.

Hidayat S. (2017). The use by local communities of plants from Sesaot Protected Forest, West Nusa Tenggara, Indonesia. BIODIVERSITAS: 18 (1): 238-247.

Hongjun Wang, Curtis J, Richardson, Mengchi Ho, Neal Flanagen. (2016). Drained coastal peatlands: A potential nitrogen source to marine ecosystems under prolonged drought and heavy storm events. *The science of the Total Environment; 566 (567), 621-626.*

Kementerian Negara Lingkungan Hidup RI. (2008). The Traditional Wisdom of Sumatra Community in Environmental Management. Kemen LH Regional Sesumatera.

Lisdiyono, E. (2015). The Economic Value of Natural Resources and the Principle of Local Wisdom as Environmental Protection Efforts in Indonesia. *International Journal of Business, Economics, and Law*; 7 (Issue 4), 61-76.

Primyastanto, M, Muhammad, S, Soemarno, Efani, A. (2013). Fisheries Resources Management through Empowerment of the Local Wisdom in Madura Straits. *Research on Humanities and Social Sciences*; 3 (6), 13-21.

Rugebregt, R.V. (2015). The Environmental Management Philosophy of Indigenous Peoples in Coastal Marine Area in Maluku; International Journal of Advanced Research; 3 (7): 1322-1329.

Rohana, S, Sumarni, Ach Amirudin. (2016). The Local Wisdom in Conserving Environment. *Journal Pendidikan: Teori, Penelitian, dan Pengembangan; 1(4): 726731.*

Rosna DI, Chornelia A, Mursyidi Ahmad, Kamsi Mistar. (2016). Short Communication: Fish diversity of the Batang Toru River System, South Tapanuli, North Sumatra. *BIODIVERSITAS*; 17 (2), 634-641.

Suwondo, Iskandar, H.Khairum, Isnaini, Prayitno.A, Gunawan.H, Arifudin dan Susilawati. (2015). *The Sustained Environment Management (The Community-based Empowerment Program in Preventing The land and Forest Fire*) UR Press. Pekanbaru.

Wibowo A. (2015). KThe Forest Convention to be Palm Oil Plantation at the Peatland. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan*: 7 (Edisi Khusus): 251-260.

Yuli Priyanto, M.Sasmito Djati, Soemarno, Zaenal Fanani. (2013). The Environment Perspective-Based Education *Wacana. Vol. 16, (1): 41-51.*

Yustina. (1998). *Keanekaragaman dan Distribusi Ikan Di Sepanjang Sungai Rangau Propinsi Riau, Sumatera*. [Tesis]. The Biodiversity and Distribution of Fishes in Rangau River, Riau Province, Sumatera. Graduate Program, Institut Teknologi Bandung.

Yustina dan Arnentis. (2002). The Reproduction Aspect of *Puntius schwanefeldii* Bleeker at Rangau R0iver, Sumatera. *Jurnal Matematika dan Sains ITB*. Vol.7 (1), 5 -14.

Yustina, (2016). The Impact of Forest and Peatland Exploitation towards Decreasing Biodiversity of Fishes in Rangau River, Riau-Indonesia. *IJABERR*. Vol.14 (14), 1043-1055.