

The Sustainability of Eco-Lexicons in Socio-Ecological Spatial Dynamics of the Rice Fields' Community in Central Tapanuli, Indonesia

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Abstract—This paper aims to describe the sustainability of the eco-lexicons of rice fields in Barus, central Tapanuli, Indonesia. The theory used is an eco-linguistic theory emphasizing the survival level of the Barus Malay language (BML). The data were collected using the listening method with the basic tapping technique and the verbal method with the encouragement technique. From the results of the analysis, it could be seen that the lexicons of rice fields in BML consist of 10 lexicon groups, namely (1) the lexicons of the rice field, (2) rice field's objects, (3) crop production equipment, (4) rice, and secondary crops, (5) agricultural tools and machinery, (6) flora lexicons in rice fields, (7) fauna lexicons in rice fields, (8) fishing gears, (9) medicinal plants in rice fields, and (10) bird catchers. There were 190 noun lexicons and 40 verb lexicons from the ten lexicons. The total lexicons found in rice fields and farms in the Barus district were 239 lexicons. Using 239 eco-lexicons of rice fields, the survival rate of the noun lexicons of the rice field was 95% and the verb lexicons 96.3%. This percentage showed that the eco-lexicons of rice fields in the Barus district still exist in the cognitive skills of the Barus Malay-speaking community.

Index Terms—language survival, eco-lexicons, rice fields

I. INTRODUCTION

Because each region has its unique language and customs, many different cultures differ from one area to another (Asmara & Khamimah, 2019). The Barus Malay language (abbreviated as BML) describes the reality of the environment and the speaking community. BML plays an essential role as a communication tool, a unifying tool, and a revealer of the identity of the speaking community. It is also well-known as a milestone of Malay language development (Sahril, 2020). As a communication tool, BML builds a network of interactions between the speaking community and the natural environment, and the speaking community and the socio-cultural environment. Then, BML creates harmony between people's sociological and ideological functions as a unifying tool. BML can reveal and record everything within the speaking community as an identity revealed.

The cultural landscape is rapidly changing. As a result, social civilization, including language, faces a significant challenge, particularly in light of the effects of the globalization era and cross-cultural migration and the shift in norms in society and the environment (Faridah et al., 2014). As time goes by and the social dynamics of people's lives are the living spaces of these languages, the original terms used have begun to shift, change, or be marginalized by terms outside of BML, which the speakers increasingly accept. For example, the Barus community who live close to rice fields or farmers are familiar with the terms *pangku* as 'hoe' and *sabik* as 'sickle.' However, with the development of an increasingly sophisticated era that affects the social interactions of the people, there, the rice fields' terms are increasingly eroded because they have been replaced with new terms.

Rice fields are the core of agriculture in Indonesia because most Indonesian people make rice as a staple food and other agricultural products. The character of soil fertility in most parts of Indonesia is growing and developing, supporting rice cultivation in rice fields (Ladyanna & Almos, 2019). The rice field eco-lexicons are part of the local language vocabulary full of cultural wisdom. They lived centuries ago and still exist today and have a reciprocal relationship between language and their environment, both on a macrocosmic scale and a microcosmic scale. Inside them, a material culture product originates in the natural environment. In the eco-lexicons are stored wealth of meaning and value of human life. The whole process of rice fields is full of noble cultural symbols, including symbols in the form of language. This is understandable because the function of rice fields is essential in life, as are many ethnic groups in the Indonesia archipelago region.

The environment and language in the speaking community also change over time. The most rapidly evolving linguistic level is the lexicon level. This change is influenced by three dimensions, which are ideological, social or sociological, and biological dimensions. Changes in the language of an environment are studied in eco-linguistic studies. From an eco-linguistic perspective, language and its speaking community are seen as organisms that live systematically

with other organisms in life (Mbeti, 2009). This study analyzes some of the lexicons of rice fields in the Barus Malay language. The lexicons of rice fields will show the form of wealth and culture of the environment that coexists with the life of the local community. In other words, this research will reveal various lexicon inventories stored in the rice fields reflecting the use of the BML.

Speakers and people who speak any language must know, master, and use a set of words or discourses related to their environment, both social and natural environment, which is the initial hypothesis of this research. It is essential for the author to re-discover the various eco-lexicons of the rice field environment that was restored in Barus, Central Tapanuli. The conservation of the eco-lexicons in BML must be done immediately so that the language does not change or even become extinct. Suppose the phenomenon of language change has been seen. In that case, the track record needs to be traced, and the cause needs to be investigated and observed so that later there will be an appropriate solution to prevent the language change from spreading.

As one of applied linguistics, ecolinguistics helps expose and challenge texts, as well as contributing to the search for new ones and examining ideologies, metaphors, frames, and a range of linguistic forms of language (Adliza et al., 2021; Dharmawati & Widayati, 2021; Ekawati, 2013; Marhadi et al., 2019; Mliless & Larouz, 2018; Purnomo, 2021; Septevany et al., 2019; Tualaka, 2016; Yusuf et al., 2021). It exists to address environmental issues by examining the historical and cultural languages within the human ecosystem. It exists to address the environmental problems by examining the historical and cultural languages within the human ecosystem. Ecolinguistic studies investigate language changes related to environmental factors, including natural and cultural social environments. Language activity is a permanent human activity. Some people argue that language needs to be preserved to develop continuously. The language users can determine the survival of the language. Then, the closer people's lives are to an object, the more variances in how they express their opposition to it (Fuad et al., 2018).

Language and environment have a strong relationship. This relationship is created based on the interrelation, interaction, and interdependence of humans, language, and their environment (language/eco-linguistic ecology parameters). It means that changes from the (physical) point of view of the environment can lead to changes in language or vice versa. Here, humans are placed as actors. Humans are the dominant component of the environment. Human nature is a social being, so language exists in the speaking community. It is present in verbal and written communication and interaction. Thus, the dynamics of people's lives, environmental changes, and the dynamics of language are three interrelated things influencing each other.

The terminology of language elements, sound systems, and word meanings reflects the relationship between language and the environment. At the vocabulary level, the attachment appears. The total vocabulary represents the characteristics and uniqueness of the supportive community's physical and cultural background. As a result, language and environment work together to form a system. Ecolinguistics situates human and cultural resources in the natural environment, verbally represented by language. Ecolinguistics studies language's relationship to the natural or social background, including language and cultural symbols representing verbal symbolic causality between humans and humans, humans and gods, and humans and their natural surroundings (Rosidin & Muhyidin, 2021).

The lexicon is defined as 'vocabulary,' i.e., the language component that contains all the information about the meaning and use of words in the language; the richness of words owned by a language. The lexicon includes components that collect all information about words in a language, such as semantic, syntactic, morphological, and phonological behavior. At the same time, vocabulary emphasizes the richness of words owned by a person or language. The diversity of environmental languages manifested in the lexicon, which consists of the eco-lexicon, is a form of interaction between a certain language and a particular environment.

The environment's vocabulary, or eco-lexicon, is a collection of nuances of culture and natural richness in its surroundings, i.e., human, cultural, and societal wealth (Widayati & Hasibuan, 2018). A language community owns it represents cultural values and local ecological wisdom that related to the processing of natural resources to meet the needs of life (Rosidin & Muhyidin, 2021). Putri and Nurita (2021) assert that environmental factors can harm some lexicons in society. When it comes to human greed for nature to invest, the interaction between ecosystems and language is even more crucial. The language of the lexicon will change throughout time. However, it cannot be denied that the genetic revolution not only causes positive changes but also has the potential to cause adverse changes due to changes in the lexicon's function. Some lexicons have lost their true meaning due to changes in the lifestyle of the people.

Some scholars explore the study dealing with lexicon and eco-linguistics in many languages. Tualaka (2016) explores the farming ecollexicon in the Waijewa language. He says that in the Waijewa language, ecollexicons of the verb category are made up of original verbs, and derived verbs form compound words. And which are adjectives, semantically may define the level, and the level does not contain the size, color, or sensory perception. Mulyadi and Kurniawan (2017) explore the linguistic characteristics of the vocabulary of traditional farming equipment in the Bima community undertake research using an ecolinguistic viewpoint backed by lexical semantics. Widayati and Hasibuan (2018) attempt to depict culinary eco-lexicons as a representation of the environmental wealth of the Panai Malay community in North Sumatra, Indonesia, towards its culinary culture through its lexicons. Their research reveals that any language formed by gastronomic diversity implicitly reflects local cultural expertise. Sari (2020) did the other

research to explore language maintenance of dryland farming lexicon by the young speaker of Dawan language using region. She says that Dawanese teenagers, in general, have less knowledge of their language, particularly when it comes to dryland farming, which is one of the society's living resources. Wibowo (2020) attempts to see linguistic categories about the field of agriculture, as seen through the eyes of culture about plants and their environment, the elaboration of local wisdom with regards to plants and their environment about agriculture as a source of subsistence. Referring to the previous studies, this paper aims to describe the sustainability of the eco-lexicons of rice fields in Barus, Central Tapanuli, Indonesia.

II. METHOD

This study employed a qualitative approach. The data were obtained from the results of the lexicon competency test. The results of the interviews were separated by lexicon groups and then translated into units to make conclusions so that they were easy to understand. Furthermore, the data were analyzed using qualitative methods. The answers of each informant were symbolized in the form of numbers in the table. These numbers were then added up and converted into percentages, then tabulated to see specific trends. Quantitative descriptive analysis describes or presents data from the BML vocabulary based on a questionnaire distributed to respondents to determine the level of understanding and persistence of the Barus Malay vocabulary. In analyzing the data, the Barus Malay speaking community's knowledge of the noun and verb lexicons in rice fields was obtained from the lexicon groups of respondents in Barus District. The tested lexicon was on three generations, teenagers (12-24 years), adults (25-45 years), and advanced adults (above 45 years).

III. RESULT AND DISCUSSION

A. *Lexicon of Rice Fields in BML*

The lexicons found in this study originated from the interaction and interrelation of the Barus community with their rice fields environment. Several sub-districts and villages in the Barus sub-district each have a land area that the residents use. These lands are classified as fertile, so that the land use in Barus District consists of residential villages, rice fields, fields, ponds, swamps, etc. Apart from anglers, the people of Barus have income from agricultural products. The area has a stretch of rice fields planted with rice. The community needs rice yields for their daily needs.

Based on the research results, it was found that the rice field lexicons were grouped into ten groups. The grouping was based on topography, objects, and activities in the rice fields and surrounding areas. The lexicon was also organized into two types, the noun, and verb lexicons. From the findings in the field, it was found that there were 199 noun lexicons and 41 verb lexicons. The entire lexicon found in rice fields was 240 lexicons. The rice field eco-lexicons in the Barus Community consist of 10 lexicon groups, (1) the rice field section, (2) rice fields objects, (3) crop production equipment, (4) rice and secondary crops, (5) agricultural tools and machinery, (6) flora lexicons in the rice field environment, (7) fauna lexicons in rice field environment, (8) fishing gears, (9) medicinal plant in rice fields environment, and (10) bird catcher. The lexicons were grouped into two types, noun and verb lexicons. From the ten groups of lexicons, there were 199 noun lexicons and 40 verb lexicons. The entire lexicon found in the rice fields in Barus District was 239 lexicons.

B. *Level of Understanding of Rice Fields Noun Lexicons in BML*

The results of data analysis on understanding the lexicons of rice fields in the BML from three generations in category 1 in general obtained the number of understandings (JP) 5883 (54%). Category 2 had a complete understanding of (JP) 5281 (41%), Category 3 got the number of understanding (JP) 351 (3.2%), and Category D obtained the number of understanding (JP) 425 (1.8%). The highest number of understanding was in category 2, the noun lexicon group of medicinal plant names in rice fields, with (JP) 1740 (45.3%) from the three generations of the age group. Category 4 has the lowest lexicon group in the rice field objects of the noun lexicon group with a total understanding of (JP) 1 (0.1%). From the tested four categories on three age groups, it can be concluded that understanding the BML in the rice fields in Barus District from category one and category 2 of the noun lexicon still exists and survives. Meanwhile, several lexicons also experienced shrinkage, even extinction, seen in category three and category 4. This was due to the diversity of situations, so a linguistic shift led the lexicon to demise. A description of the understanding of the Barus Malay language community will be described based on the age grouping.

C. *Levels of Understanding of Rice Field's Verb Lexicons in BML*

The results of data analysis showed that the understanding of the verb lexicons in category 1 obtained the number of (JP) of 1470 (55.8%). Category 2 got the number of experience (JP) as many as 856 (40.5%). Category 3 got the number of understanding (JP) 62 (3%). In category 4, the number of understanding obtained (JP) was as many as 12 (0.7%). From the four categories had been tested on the three-generation groups, it can be concluded the verb lexicons still exist and survives even though some of the lexicons had experienced shrinkage or extinction, as seen in category 4 (never heard, seen, and did) with the percentage level reached (0.7%). This was because the spatial dynamics of the Barus people continued to experience changes in a more modern linguistic era. The development of the digital world,

such as social media, also influenced the language there. Linguistic dynamics were one of the causes of the loss of lexicons because the rarely used in daily linguistic interactions. Even though it was a small percentage, attention to lexicons of category four must be carried out and preserved so that the lexicon can be reused and not experience extinction again. In the following, a description of the understanding of the BML community will be described based on the age grouping.

D. Sustainability of the Eco-Lexicon of Rice Fields in BML

For the noun lexicon categories accumulated from categories 1 and 2, about 95% of the people of Barus knew the 199 noun lexicons of rice fields included on the research questionnaire sheet. It means that the eco-lexicons of rice fields in the Barus District survive. Furthermore, about 3.2% of people who knew but had not heard or seen it for a long time did not use the lexicons in their language. In other words, there are several lexicons of rice fields that were under threat. The lexicon with the highest threat level was the agricultural tools and machines lexicons. Therefore, some efforts are needed so that the community remains familiar with the lexicon of farm tools and machines and that the language survives.

Meanwhile, 1,8% of people did not know the 199 lexicons of rice fields included on the research questionnaire sheet. It means that the extinction of the eco-lexicon of rice fields had been found in the Barus Malay language. Most of the extinction of the rice field eco-lexicon was found in the lexicons of medicinal plants in the rice field environment. This showed that traditional medicines sourced from the environment were rarely used, resulting in the use of the lexicons being lost from the cognitive ability of the Barus Malay-speaking community.

From the accumulation of categories 1 and 2, about 96.3% of Barus people knew the lexicons for the eco-lexicon category of rice fields. It proved that the Barus Malay rice field eco-lexicon kept its socio-ecological spatial dynamics up. People often did activities within the scope of rice fields so that the lexicons were stored in the cognitive ability of the speaking community there. Furthermore, as much as 3% of the people still heard but no longer saw and used the lexicons. It showed that the rice field lexicons were under threat. The highest danger lies in the verb lexicon of the rice field section. Not only that, but extinction also occurred in the verb lexicon, which is indicated by the percentage number of category 4, which showed 0, 7% of the people were no longer familiar with the rice field lexicons. Even though the percentage figure was small, it was necessary to make serious efforts for the Barus community farmer groups to introduce and use the rice field lexicons to survive and be known by the community.

IV. CONCLUSION AND SUGGESTION

The eco-lexicon of rice fields in the Barus community consisted of 10 lexicon groups. The lexicon was grouped into two types of lexicon noun and verb lexicons. The ten lexicon groups obtained 199 noun lexicons and 40 verb lexicons. The total lexicons found in the rice fields in the Barus district were 239 lexicons. The rice field noun lexicons reached 95%, which indicated the lexicon survived in its socio-ecological spatial dynamics. Meanwhile, the rice field verb lexicons reached 96.3%, indicating that the lexicons still survived and were known by the Barus Malay-speaking community. However, a lexicon has also begun to be threatened, even become extinct. The factors of the threat and extinction of the lexicons were due to age. This study is limited to discussing the sustainability of eco-lexicons in socio-ecological spatial dynamics of the rice fields' community in Central Tapanuli. Further research is suggested to explore eco-lexicon in other settings such as in the lake, river, and agricultural areas.

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