



Article

Ecology of Flora and Fauna in Maninjau Lake

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A B S T R A C T

The Maninjau Lake have been poised several times which caused by the waste of commercial aquaculture feed. The situation resulted in a drastic reduction of several members of the ecosystem in the lake. The reduction of species in an ecosystem will result in the loss of the lexicon related to the species. The current research studies the lexicon of flora and fauna in Lake Maninjau, West Sumatra Province, Indonesia in the context of ecolinguistics. The output of the current study is to provide documentation lexicon which have potential to be extinct due to ecological cases such as natural disasters and human intervention around the Lake Maninjau ecosystem. The data were collected by using observational method and interviews, then the data were analyzed using translational and referential identity method. The flora found in the waters are *enceng gondok*, *lumuik*, *jaiia amun*, *sikajuik lauik*, and *pandan lauik*. Fauna found include *ideh*, *kijing*, *pensi*, *rinyuak*, *bada*, *gariang*, *nila*, *majalaya*, *kolai*, *lele*, *patin*, *udang*, *lintah*, *bujang sambilan*, *asang*, *rutiang*, *langkitang*, *spuik*, *lokan*, and *acek*. Some types of fauna such as *rinyuak* are difficult to find because they polluted by *tubo*. Pollution as an enemy of the ecosystem caused by human greedy behavior is one of the major factors of the language extinction.

I. INTRODUCTION

The use of lexicons in a language is determined by the referents of the lexicon, then the loss of a referent will result in the lost of the lexicon as well. Lexicon related to the environment will depend on the preservation of the environment (Nash & Mühlhäusler, 2014). If there is damage to the environment, the lexicon may be affected, even disappear. This damage can occur due to natural disasters which are caused by the unfriendly attitude toward nature (Chen, 2016).

One of the living environment is a lake that has an aquatic environment and surrounding environments such as hills, forests, and other geographical forms. Human ecosystems and activities in the environment will create a lot of lexicons, starting from the names of plants, animals, to the names of inanimate objects on the lakeside (Bang & Trampe, 2014; Nash & Mühlhäusler, 2014). The language in the community was developed and is passed on from generation to generation through oral and written form. However, if the referent is extinct, the lexicon will also not be

descended. Lake Maninjau, located in West Sumatra, Indonesia is one of the lakes with preservation problems.

The waters of Maninjau Lake have frequently poisoned by the waste of commercial aquaculture feed. This situation resulted in a drastic reduction of several members of the ecosystem in the lake's waters. The reduction of the species in an ecosystem results in the loss of the species lexicon. Language and environment are closely related because language also reflects the reality of human life in certain environments (Kaelan, 2007).

The loss of a lexicon will eventually result in the extinction of a language. Therefore, this study focuses on the analysis of the lexicon of flora and fauna in the waters of Lake Maninjau, West Sumatra Province, Indonesia in the context of ecolinguistic studies. The output of this study is the documentation of potential disappear lexicon due to ecological cases such as natural disasters and human behaviour which may damage the Lake Maninjau ecosystem. Thus, the writing of this article aims to answer the problems regarding (1) lexicon of flora and fauna in the waters of Lake Maninjau and (2) the link between environmental change and the influence of ecology toward lexicon in Lake Maninjau waters.

Ecolinguistics is an interdisciplinary approach of ecology with linguistics (Cowley, 2014; Eliasson, 2015; Kravchenko, 2016). In ecolinguistic studies, ecosystem links are seen as part of human life systems (ecology) with the language used by humans in communicating in their environment (linguistics). The environment is a physical environment which includes many languages in a society (Eliasson, 2015). This multi-lingual situation encourages language interaction. the physical environment with various social conditions affects the psychological state of the speakers in using languages (Al-Goyoni, 2010: 31).

Ecolinguistics is closely related to some other studies (Haugen, 1970), including 1) comparative historical linguistics, languages

of the kingdom in a geographical environment as the focus of the study to find its historical genetic relation. 2) Demographic Linguistics is to study a particular language community in an area to describe the number of resources (and quality) the use of language-languages and their spheres and varieties and their registration (sociolect and function). 3) Sociolinguistic studies between language structures and the structure of the speakers. 4) Dialectology which studies dialects and languages used by language communities including new habitats or migration vernacular with their ecological dynamics. 5) Dialectology which maps internal variations of the language system. 6) philology which examines the potential of culture and tradition of writing, its propositions and meaningful links with the study or fading of local writing culture and traditions. 7) Prescriptive Linguistics which examines the life force of certain languages in the area of standardization of spoken language and language of grammar writing (as local content which does require certainty of normative and pedagogical standard language). 8) Glotopolitics studies empowering organizations or institutions to handle language problems (specifically in the era of regional autonomy, special ethnics and mentoring offices and/or language centres). 9) Ethnolinguistics studies language choice, style, mindset and imagery in relation to the pattern of language use, the ritual languages of advertising discourse creations based on local languages. 10) Typology dissects the degree of universality and the uniqueness of languages.

Prior to this study, research had been carried out in the area of Lake Maninjau concerning the lexicon in ecolinguistics perspective (Almos and Pramono, 2015). Ecolinguistic studies related to water have been carried out on the Kei language lexicon in the marine environment. This research was conducted by Renjaan by using qualitative and quantitative methods on the marine lexicon in Kei in the Ohoi Warbal community, Kei Islands, Maluku Province. The average knowledge of the language community of the marine

lexicon is 80% because the community ecological entity is still high due to the referents from the lexicon are still in existence and are still in use. While based on observations, ecolinguistic studies of the lexicon of flora and fauna in the waters of Lake Maninjau have not been found.

Lake Maninjau is one of the famous tourist attractions in Sumatra with the beauty and uniqueness of the environment. This lake is a caldera from past volcanic eruptions. The natural beauty of this lake that can be enjoyed through Kelok 44, Puncak Lawang, Ambun Pagi, and other tourist attractions which is one of the tourist destinations that are always visited by local and international travellers. In addition, a lake is also a place for the livelihoods of local people and some businessmen around, including traditional fishermen and the management of commercial freshwater fish cages.

The ecology hazard in Lake Maninjau frequently poisoned the lake and kill the lake habitant. Around 20 species of 34 species of Lake Maninjau fish were no longer found (lipi.go.id, 2017). This is caused by overfishing, poisoned fisheries and household waste, and predatory fish.

In addition to the problems caused by the waste of fisheries and household businesses in the Lake Maninjau area, the erosion may also aggravate the ecosystems. High rainfall often results in landslides around the lake. This erosion process occurs due to the transfer of land functions to agricultural land, plantations and settlements. Previously, the land was a forest covered with trees with roots that could strengthen the soil so that erosion became minimal during the rainy season.

However, population growth that requires settlements and livelihoods reduces the amount of forest so that erosion occurs easily. Erosion that occurs around the lake results in reduced variations in ecosystems. This phenomenon, of course, has an impact on ecology and this ecological change is hypothesized to lead to linguistic changes, especially lexicons, in Lake Maninjau.

II. METHODS

The data were collected using an observation method and interview. Observational method is a method of obtaining data by listening to the use of language (Sudaryanto, 1993: 133). Meanwhile, the interview method is a method of obtaining data in the form of conversation and contact between researchers and informants (Sudaryanto, 1993: 137; see also Mahsun 2005).

To obtain the data of this study, several data collection techniques were used; (1) Conversational Participant technique which carried out by listening to speakers in the events of the speech of the Minangkabau speakers by engaging or participating when listening. Researchers involved in dialogue, researchers only as observers, who listened to what was said. (2) Elicitation, a technique of providing data which is characterized by the presence of researchers, playing an active role in filtering as much data as possible from informants by asking various questions, especially related to the topic they like. (3) Recording, a technique of providing data by recording data. The researcher recorded the informant's speech, on the questions asked to the informant. This recording is done using a recording device. (4) Note taking, this technique is used to overcome data loss or data blur from recording results.

The data were analyzed using the identity method. The identity method used in this study is the translational identity method and referential identity method. The translational identity method is used to analyzed a language which differs from the delivering language. To explain the meaning of culture, the referential identity method is used. Language reference is the fact or an external element of language designated by linguistic units (Kridalaksana, 2008: 208).

The analysis begins with immediate constituent analysis by sorting out linguistic units using linguistics competence of the speaker (Sudaryanto, 1993: 21; Kesuma, 2007: 51). The linguistic competence of the

researcher is used to figure out the linguistic units align with the referents.

III. RESULT

Lexicon of Flora and Fauna of Lake Maninjau

In this section describes the lexicon of flora and fauna in the waters of Lake Maninjau. Explanations will be classified in the lexicon of flora and Mexican fauna. Here's the next explanation.

a. Flora Lexicon in Lake Maninjau Waters

Flora is the entire plant species (Almos, Reniwati and Pramono, 2014: 306). Lexicon of flora in the waters of Maninjau Lake were found, including *kalayau*, *lumuik*, *jaiia amun*, *sikajuik lauik*, and *pandan lauik*.

Kalayua is water hyacinth (*Eichornia crassipes*). This plant has lilac or lilac flowers. The leaves are green and shiny when exposed to sunlight. In addition, the leaves are round egg-shaped. This water plant lives on the surface of the water and propagates vegetatively. The process of breeding this plant is very high and has a great ability to adjust it to changes in environmental conditions. According to local people, sometimes this water hyacinth will grow and fill the lake, and as far as the eye can see only water hyacinth is visible. Water hyacinths that grow on the surface of the lake are not cleaned. However, this plant will sink by itself.

Lumuik or moss (bryophyta); green and yellow plants are small. Grow in groups to form pads or overlays. *Jaiia amun* is a plant like seaweed. Then, *sikajuik lauik* and *pandan lauik* are plants that are similar to perennial flowering plant. Because this plant is found inside the lake, people call it *sikajuik lauik* and *pandan lauik*.

Sikajuik in Indonesian is called *putri malu* (perennial flowering plant). While *lauik* is a designation of lake waters by the community around the lake. Therefore, *sikajuik lauik* is a ground plant which also found inside the lake.

b. Lexicon Fauna in Lake Maninjau Waters

Fauna is the whole life of animal habitat (Almos, Reniwati, and Pramono; 2014). *ideh*, *kijing*, *pensi*, *rinyuak*, *bada*, *gariang*, *nila*, *majalaya*, *kolai*, *lele*, *patin*, *udang*, *lintah*, *bujang sambilan*, *asang*, *rutiang*, *langkitang*, *sipuik*, *lokan*, and *acek*.

A small fish in Lake Maninjau called *ideh*. *Kijing* is a large freshwater mussel which is found around Lake Maninjau. The Latin name for this type of shellfish is *Anodonta woodiana*. *Pensi* or *Corbiculamoltkiana* is a type of freshwater shellfish that lives in the waters of Lake Maninjau.

Rinyuak or *Rinuak*, is a very small fish that lives on Lake Maninjau. In the past, the population was very abundant in this lake, so it was easily captured. Many types of food can be processed with the basic ingredients of these small fish. In fact, it has become one of the food ingredients for the famous souvenirs from Lake Maninjau. However, at this time, it was increasingly difficult to obtain so that the food made from palm oil became very expensive. This is caused by poisonous pollution which the community refer as *tubo*.

Bada is one type of fish in Lake Maninjau which according to the surrounding community can only be found in Lake Maninjau. This sweet and savory fish has the Latin name *Rasbora argyrotaenia*. This fish is also one of the fish whose processed is often used as souvenirs typical of Lake Maninjau. This fish breeds naturally in lake waters without being cultivated.

Gariang is one of the fish that can still be found around Lake Maninjau even though it is increasingly scarce due to pollution that occurs in the waters of the lake. The scientific name of this fish is *Neolissoschilus* and this fish is also a native species of Lake Maninjau.

Tilapia is one of the fish cultivated in the waters of Lake Maninjau. *Tilapia* is one of the economic commodities of the Lake Maninjau community. The Latin name of this fish is *Tilapia nilotica*. *Majalaya* is one type of

goldfish that is cultivated around the waters of Lake Maninjau. *Kolai* is a type of fish endemic to Sumatra which can also be found in Lake Maninjau. In other Minangkabau language isolates this fish is also called *kalua* or *kalai*.

Lele is one type of fish that is popular in Indonesia. This fish is the main menu in various restaurants. The fish with the Latin name *Clarius batrachus melanoderma* is also a commercial fish in Lake Maninjau. In addition to living freely in nature, these live fish are also farmed by people in special ponds. *Patin* with the Latin name *Pangasius nasutus* is also a fish that can be found in almost all of Indonesia and is commonly consumed by the public. As with catfish, catfish is also cultivated by the Lake Maninjau community.

Udang is one of the commodities with high economic value in some of the vegetation farmed by the people of Lake Maninjau. *Udang* that live on the lake is, of course, freshwater shrimp with the Latin name *Crustacea*. *Lintah* is one of the aquatic animals that are shaped like worms. This animal has a blood suction at the end of its body. The Latin name of this animal is *Hirudinae*.

Bujang sambilan is a large type of fish (up to 2 meters) that will appear at certain times. According to the Lake Maninjau people, this fish is a form of nine young men who plunged into the crater - which was the forerunner of Lake Maninjau - and turned into a fish. This fish is related to the legend of Lake Maninjau which has been descended orally over generations in Lake Maninjau.

Asang is a type of fish that is a native species of Lake Maninjau and threatened with extinction due to pollution. *Rutiang* is a type of freshwater fish which in Indonesian is known as cork fish or its Latin name is *Channidae striata*. This fish is a predatory fish. *Langkitang* is a soft bodied animal (mollusca) with a size of up to 4 cm which lives in fresh water. This animal uses a stomach to move (gastropod).

There are also another lexicons, such as *sipuik* or a snail and *lokan*, a shellfish that lives in fresh water. *Acek* known as *pacet* in Indonesian is a blood-sucking animal with the Latin name *Haemadipsa teylandica*. This animal is a family with earthworms. However, it has five pairs of eyes and a sucker on its head.

Ecolinguistic Study of Lake Maninjau's Lexicon of Waters

Language cannot be separated from humans because language always follows every activity in its environment (Almos and Pramono, 2013: 1). In connection with that opinion, language and environment have a close connection. The environment will affect the language of the community around the environment. Slow damage to the environment will damage the language. If the habitat or part of the environment extinct then the referent of a lexicon may extinct as well. When a lexicon is not frequently used, the inheritance process will be disrupted and it will disappear.

The waters of Lake Maninjau have been poisoned several times by the community around the lake called *kanai tubo* (exposed to poisoned). As a result, the poisoned water becomes black and gives off a foul odor. The fish in the local farm die which lead to a big loss for the fish farmer. Small fish and native lake fish that live freely in the lake also contribute to poisoning and death. These fish carcasses are very bad for the health of the community around the lake.

Because of the damage to this nature, some fish that are the original habitat of Lake Maninjau cannot be found anymore, such as *batok*, *sidat* and *cide-cide*. In addition to the types of fish that have not been found again, there are also fish that are hard to find because they are already on the verge of extinction, such as *asang* and *rinyuak*. Meanwhile, this fish can only be found in Maninjau Lake or referred to as Lake Maninjau endemic fish. If this fish really does not exist, then the lexicon will be lost as well. As a result this lexicon inheritance process will stop and the next

generation will no longer recognize this lexicon.

This damage was allegedly also caused by human activities that did not consider the balance of the ecosystem in action. The number of farming that are very large along the lake waters, besides resulting in less aesthetically pleasing lake views, also results in pollution. Valley of fish feed that settles at the bottom of the lake in a certain time will rise to the middle and the surface of the lake which is loaded with habitat for various types of fish. This lake is a tectonic and volcanic lake. Surrounding communities assume the blackening of lake water that has decayed and resulted in the death of fish caused by *tubo* which may also be due to the volcanic activity of the lake.

The research in this article does not discuss the cause of the pollution of lake water, but the pollution of lake water causes disturbed ecology so that the language lexicon of the surrounding community will also be disturbed and even threatened with extinction.

and fauna found in the waters of Lake Maninjau. The lexicon of flora found are among others *kalayau*, *lumuik*, *jaiia amun*, *sikajuik lauik*, and *pandan lauik*. Meanwhile, the lexicon of fauna found in the waters of Lake Maninjau are *ideh*, *kijing*, *pensi*, *rinyuak*, *bada*, *gariang*, *nila*, *majalaya*, *kolai*, *lele*, *patin*, *udang*, *lintah*, *bujang sambilan*, *asang*, *rutiang*, *langkitang*, *sipuik*, *lokan*, and *acek*. The link between the change of the environment and the exposure on the ecology of the lexicon in the waters of Lake Maninjau is a manifestation a close relation between the language and the environment. The environment will affect the language of the community around the environment. Environmental damage will gradually damage the language. Some fish that are the original habitat of Lake Maninjau cannot be found anymore. If the fish really does not exist then the lexicon from the names of these fish will be increasingly used less frequently. As a result, the lexicon inheritance process will stop and the next generation will no longer recognize the lexicon again.

IV. CONCLUSION

Based on the above analysis, it can be concluded that there are many lexicon of flora

REFERENCES

- Almos, Rona., Reniwati dan Pramono. 2014. "Pantun dan Pepatah Petitih Minangkabau Berleksikon Flora dan Fauna" dalam Jurnal Adabyyat olume XIII no 2, Desember 2014.
- Almos, Rona dan Pramono. 2013. "Penyusunan Ensiklopedia dalam Pantun dan Pepatah Petitih Minangkabau yang Mengandung Teks Flora dan Fauna dengan Penjelasan Etnobiosemantik. Laporan penelitian. Padang: Universtia Andalas.
- Bang, J. C., & Trampe, W. (2014). Aspects of an ecological theory of language. *Language Sciences*, 41, 83–92. <https://doi.org/https://doi.org/10.1016/j.langsci.2013.08.009>
- Chen, S. (2016). Language and ecology: A content analysis of ecolinguistics as an emerging research field. *Ampersand*, 3, 108–116. <https://doi.org/https://doi.org/10.1016/j.amper.2016.06.002>
- Cowley, S. J. (2014). Bio-ecology and language: a necessary unity. *Language Sciences*, 41, 60–70. <https://doi.org/https://doi.org/10.1016/j.langsci.2013.08.007>
- Eliasson, S. (2015). The birth of language ecology: interdisciplinary influences in Einar Haugen's "The ecology of language." *Language Sciences*, 50, 78–92.

<https://doi.org/https://doi.org/10.1016/j.langsci.2015.03.007>

- Kravchenko, A. V. (2016). Language as human ecology: A new agenda for linguistic education. *New Ideas in Psychology*, 42, 14–20. <https://doi.org/https://doi.org/10.1016/j.newideapsych.2015.05.002>
- LIPI. 2017. “LIPI: 20 Spesies Ikan Danau Maninjau Punah” dalam <http://lipi.go.id/lipimedia/lipi:-20-spesies-ikan-danau-maninjau-punah/18337> diunggah pada 26 Mei 2017. Diakses pada 21 Februari 2018, 14.00 WIB.
- Mbete, Aron Mbeko. 2009. “Selayang Pandang Tentang Ekolinguistik: Perspektif Kelinguistikan yang Prospektif.” Bahan untuk Berbagi Pengalaman dalam Matrikulasi Magister Linguistik Program Pascasarjana Universitas udayana, 12 Agustus 2009.
- Mbete, Aron Mbeko. 2009. “Refleksi Ringan tentang Problematika Keetnik dan Kebahasaan dalam Perspektif Ekolinguistik.” Makalah Seminar Nasional Budaya Etnik III, USU Medan, 25 April 2009. Bang, J. C., & Trampe, W. (2014). Aspects of an ecological theory of language. *Language Sciences*, 41, 83–92. <https://doi.org/https://doi.org/10.1016/j.langsci.2013.08.009>
- Nash, J., & Mühlhäusler, P. (2014). Linking language and the environment: the case of Norfolk and Norfolk Island. *Language Sciences*, 41, 26–33. <https://doi.org/https://doi.org/10.1016/j.langsci.2013.08.004>
- Renjaan, Meiksyana Raynold. 2018. “Leksikon Bahasa Kei dalam Lingkungan Kelautan: Kajian Ekolinguistik” dalam ojs.unud.ac.id. Diakses melalui ojs.unud.ac.id/index.php/linguistika/article/download/21891/14523 pada 21 Februari 2018, 13.45 WIB.
- Sudaryanto. 1993. Metode dan Aneka Teknik Bahasa. Seri ILDEP. Yogyakarta: Duta Wacana Universitas Press.