

PAPER NAME

**Lamp. B20.pdf**

AUTHOR

**Ni Luh Gede Sudaryati**

WORD COUNT

**7351 Words**

CHARACTER COUNT

**40602 Characters**

PAGE COUNT

**13 Pages**

FILE SIZE

**181.8KB**

SUBMISSION DATE

**Sep 1, 2024 7:33 PM GMT+8**

REPORT DATE

**Sep 1, 2024 7:33 PM GMT+8**

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Vidyottama Sanatana  
International Journal of Hindu Science and Religious Studies

Vol. 8 No. 1 May 2024

## ETHNOECOLOGY IN BUYAN LAKE CONSERVATION

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Received: November 20,2023	Accepted: May 10, 2024	Published: May 31, 2024
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### Abstract

*Ethnoecology is the most recent approach to reveal the complexity of the relationship between belief systems (cosmos), knowledge/cognitive systems (corpus) and praxis (sosio-cultural practices) of local communities which can also be understood as local wisdom. The social phenomena and eco-cultural practices of the people in the Buyan Lake area also show this, so they are appropriately explained on the basis of ethnoecological theory. This qualitative study with descriptive interpretative was carried out for six months (May to October 2023) at the Buyan Lake Area locus. The results of the study show that the people in the Buyan Lake Area really respect the gods who are the rulers of nature who protect the environment of the Buyan Lake Area through the cosmos system, both regarding the mystical belief system revealed in the mythology of the forbidden wood, the gombang-rakrik dragons, the duwe animal, the yellow and the iron soan (springs and channels). Likewise, those who are glorified in the aspect of ruling deities in the Hindu pantheon such as Dewi Danu (lakes gods), Dewi Gangga (river gods), Dewi Gayatri (springs gods), Dewa Vishnu (water gods) and Dewa Sangkara (forest gods). The corpus system concerns their knowledge of the capabilities/availability and utilization of various water resources of Lake Buyan. These two ethnoecological systems form perceptions and underlie practical actions in the form of behavioural adaptations for the conservation of the Buyan Lake Area. The sustainable availability of plant resources around Lake Buyan and its fisheries is also part of its use for periodic rituals (ceremonial means).*

**Keywords:** Cosmos, Corpus, Praxis, Ceremonial Means, Lake Buyan Conservation

## I. INTRODUCTION

The Ethnoecological studies are an interesting topic in approaching the study of local wisdom of a community group. The ethnoecological approach completes a comprehensive and holistic understanding, both regarding the belief system that underlies the formation of local knowledge and the daily practices of individuals and collective communities. The ethnoecological approach is interesting to use as a basis for studying cultural practices with ecological nuances in local communities living in the Buyan Lake area. Conservative practices in the protection and preservation of the Buyan Lake area that have been carried out so far. These eco-cultural practices sometimes have a non-logical or mystical content in the packaging of knowledge, ethics and environmental norms which cannot be separated from the underlying ideology, especially the idea of local beliefs and respect for natural forces, the divine aspect glorified by Hindu religious teachings. The results will certainly provide a different and unique perspective from previous studies conducted by other researchers.

Several previous studies in the Buyan Lake area or other areas that are similar to the context of this study are revealed in Candrawan's research (2016) examining environmental conservation in the Tri Danu area based on the concept of Hindu cosmology. The theories used in this study include phenomenology theory, Appadurai's landscape, semiotics, and motivation theory. The results of his study show that the cosmology of Hindu society in the Tri Danu area is wrapped in mythological stories and is still held firmly, but is experiencing shifts due to the modernity of life. The cosmological inhibiting factors of society are internal and external factors. As a result, there is pollution and ebb and flow of lake water, loss of farmers' agricultural land, and a reduction in local flora and fauna. The research provides initial information about the cosmological knowledge of local communities. The difference is that the basis for data analysis in the study that the author will carry out uses ethnoecological theory and an ethno-system approach with an emic and ethical perspective.

Studies regarding the Myth of Danu Bulian as a Source of Knowledge for Preserving Lake Buyan, Pancasari Village, Sukasada, Buleleng, Bali has been carried out by Juliasih et al. (2022). This qualitative study using Pierre Bourdieu's generative structuralism theory reports that myths become cultural capital, social capital, and especially symbolic capital. The struggles in the realm of contemporary life are categorized into conservative, progressive and adaptive societal groups. Compromise and normalization mechanisms are adaptive options and solutions for the middle path of sustainable conservation. The study provides insight into local knowledge ownership that needs to be explored more deeply. The ethnoecological approach in this researcher's study with an emic and ethical perspective will enrich the study of local wisdom which has not been discussed in the study. Apart from that, in this study researchers will also examine the belief systems and perceptions of local communities (knowledge/ cognitive systems) which influence their practice in conservation of the Buyan Lake Area.

A landscape ethnoecological study reported by Danur (2005) carried out in the traditional village of Tengangan Pengrisingan, Bali, found that the spatial or cultural land classification of the village community referred to religious concepts. The concept of cosmology influences spatial planning and traditional building layout. Furthermore, the concept of balance between the macrocosm (universe) and the microcosm (humans) influences the practice of harmony with the environment. The practice of community life guidelines also refers to the balance of the relationship between vertical and horizontal aspects, which is symbolized by the image of the *tapak dara* (plus sign) as well as the concept of *tri hita karana* (three harmonies) which is a balance of divine aspects (positive energy) and demonic aspects (negative energy). The study of the landscape classifies land into three landscapes, namely: macro (territory), *meso* (settlement), and micro (site), which includes *alas* (customary forest), *carik* (rice fields), *tegal padang* (grazing area), *sema*

(cemeteries), and housing. The study was conducted in a traditional mountain village, so it does not describe the ethnoecological study of indigenous communities living in the lake area with unique local knowledge regarding cosmos-corporis-praxis, namely belief systems, knowledge/cognitive systems, and utilization/conservation practices which are the focus of this study.

Thus, the ethnoecological study of local communities in the Buyan Lake area will provide a comprehensive picture of the complexity of the relationship between belief systems (cosmos), knowledge/cognitive systems (corpus) and praxis or the estuary of these two systems in cultural practices with conservation or eco-nuances. culture in the Buyan Lake Area.

## II. METHOD

The theoretical basis for obtaining data in research characterizes research as scientific work (Sugiyono, 2011). The theoretical basis that will be used to assist the data analysis process and solve this research problem cannot be separated from ecological and cultural science, namely Cultural Ecological Theory and Perception Theory.

### (1) Cultural Ecology Theory

Ecology is a science that studies the interrelationships between living things and their environment, both living and non-living. The living environment concerns all conditions, forces and objects that exist in a unified space where organisms exist and interact with each other. Ecology as a science is the main basis of environmental science (Soerjatmadja, 1981). Humans, who are part of living creatures, in particular have roles and behaviour that are very important for ecology (Soerjani, 1987). Furthermore, according to Julian Haynes Steward, cultural ecology theory is a science that examines the relationship between human adaptation and a particular environment. Cultural ecology theory develops an ethnoecological approach (Poerwanto, 2006).

Ethnoecology is a scientific discipline that examines the lives of traditional communities in

interpreting ecology, living in harmony between the natural environment and the social environment. Traditional societies live very close to nature and understand its characteristics so they are able to adapt well. Thus, humans have a big role in utilizing and maintaining its sustainability (Ahimsa & Hedy, 2007). Ethnoecology studies the point of view of certain groups of people on the natural environment related to belief systems, knowledge systems, intended use, and opportunities for resource utilization. So, with local knowledge, local communities are able to manage, including preserving natural resources, well (Suryadarma, 2005; Sztompka, 2002).

So, by focusing on belief systems (cosmos) and knowledge or cognitive systems (corpus), including sets of practices (praxis), ethnoecology offers a holistic and integrated study to understand the process of human adaptation in the use of the natural environment. This approach provides space for understanding the relationship between biodiversity conservation and the complexity of belief values, knowledge systems and practices of indigenous peoples in the use of space in the Buyan Lake area.

### (2) Perception Theory

Perception is an individual's point of view on an object that occurs because of a stimulus, then a reaction arises from the individual in the form of rejection or acceptance of that stimulus (Saribanon, 2007). Individual perceptions not only provide reactions to objective conditions, but also interpret these conditions according to their interests (Sztompka, 2004). According to the functional approach, the process of forming perceptions includes: (a) information in a community reaches individuals, (b) then the information received is selected by the individual, (c) in the selection process by the individual, various interpretations of the information emerge, (d) the variety of individual interpretations of information is greatly influenced by their knowledge and experience, (e) individual interpretations will also mutually

influence patterns of reciprocal interaction in its organization, (f) organization influences the process of reciprocal selection, (g) then from the mutual process influence between knowledge, experience and interpretation, as well as organization and selection, it will influence the formation of an individual's perception of an information object and (h) then, based on the individual's perception, it will then influence directing a person's behavior in doing something that is accepted and understood (Harianto, 2001).

The context of perception in this research is how the community understands local knowledge about environmental conservation related to norms, prohibitions, beliefs, community's agreements (*perarems*), myths, and so on. This perception will influence people's behavior in utilizing and managing the environment in the Buyan Lake area.

### III. RESULTS AND DISCUSSION

Ethnoecology is the study of interactions between local communities and their environment, including natural water resources. This includes understanding the culture, traditional knowledge, and practices used by local communities to utilize and protect their environment. Conservation of aquatic resources is an effort to maintain and protect aquatic ecosystems, including the flora and fauna that live in them. This study explores the role of local communities in contributing to the conservation of aquatic resources and whether there is conflict or cooperation between conservation efforts and the economic needs of communities.

#### **Ethnoecology and Concept of Local Wisdom**

Law Number 32 of 2009 states the meaning Environmental protection and management is: "a systematic and integrated effort carried out to preserve the function of the environment and prevent environmental pollution and/or damage which includes planning, utilization, control, maintenance, supervision and law enforcement".

Furthermore, Sunaryo et al. (2007), stated that water resource conservation is an effort to

manage water resources starting from planning, implementation, monitoring, evaluating conservation implementation, and utilization of water resources, as well as controlling the destructive power of water. Conservation aims to maintain the existence and sustainability of water resources so that they remain available in quality and quantity to meet the needs of organisms now and in the future.

One of the efforts to manage the environment of water resources is by implementing appropriate technology. Some technologies that can involve the community in their application are reduce, reuse and recycle water. Technology and methods and guidance can be provided by the government, universities and research institutions but community involvement is absolute (Hehanusa, 2015). A similar statement was made by KLH (2008), that lake ecosystem management must involve various sectors or must be multi-stakeholder in nature, requiring collaboration from various parties including government, communities and activists, the business world and what is no less important is the very important role of the community.

Balinese people have long had experience and local wisdom in managing water for hundreds of years. Various terms related to positions and provisions regarding water management have been mentioned in a number of ancient Balinese inscriptions from the IX-XI Century, including Samngat Nayaka (officer who manages water), Ser Danu (officer related to lakes), Pa Air and Rotting Banyu which allegedly the same as the water tax. The existence of these positions and water taxes indicates that water is a very vital water source, so special officials are needed to supervise water use (Ardika, 2015).

Environmental management in this research examines local wisdom or knowledge of the community around the Buyan Lake area in the use and management of the environment in environmental conservation. According to Republic of Indonesia Law Number 32 of 2009, local wisdom is: "Noble values that apply in community life, including: protect and manage the environment sustainably".



Koentjaraningrat (2010) states that the term local culture or local wisdom can be understood as the views of local people, ideas and values that are wise and wise, which are internalized and become the life guides of the people. Noble values in local wisdom are in the form of norms, knowledge, resources, skills, social processes and customs that apply in the life of local communities. Niman (2019) also stated the same thing, that local wisdom involves various good values, full of wisdom and becomes a guide for the lives of the people.

This research reveals the complexity of local knowledge or wisdom regarding thought patterns, perceptions and behavior of local communities in the Buyan Lake area which is the result of community adaptation to their environment. The results of adaptation are summarized in the cosmos, corpus and praxis systems of society in utilizing and managing the environment for their living needs while maintaining environmental sustainability.

The most important aspect of ethnoecology, as is mostly expressed in ethnoscience or ethno-systems, concerns concentration on presenting knowledge from a cultural perspective, because cultural aspects are the most important component in human activities (Brosius, 1986). The ethno-system approach includes emic and etic approaches to certain ethnicities. This approach is to reveal the interrelated relationship between local communities (ethnic) and the natural environment, based on the local community's perspective (emic), in the use and management of the lake area, not based on the perspective of researchers or outside communities (etic).

These two main perspectives on social knowledge through emic and ethics, although related to the epistemological context, these approaches are not methods, but are research structures. This means that in the emic approach, the structure of community knowledge is explored by collecting qualitative data through interviews, observation and documentation. The various aspects of local community knowledge/ cognition are then described based on what the community experiences and feels. The authenticity is

presented as it is as obtained from the community. Including knowledge that goes beyond the power of rational reasoning, it is still identified as a form of protection of specific cultural property. Furthermore, the knowledge obtained from local communities needs to be explained in the form of rational ideas or verified scientifically through an ethical approach. The aim is that the study of ethnoecology as part of biological science continues to reflect scientific principles or principles of science, namely through scientific methods to fulfill scientific truths about knowledge. Ethnoecological studies attempt to collaborate emic and ethical concepts in understanding the subject of study comprehensively.

The main approach to the analysis of this study uses an ethno-system approach by placing an emic and ethical perspective regarding the relationship of indigenous communities around Lake Buyan with their natural environment. Focuses on the complexity of the practice of utilizing and managing biological wealth (praxis), which is based on a strong belief system (cosmos), and knowledge/cognitive system (corpus) related to perceptions and conceptions of environmental conservation in Lake Buyan. These three things refer to the complexity of the Corpus-Cosmos-Praxis relationship (Toledo, 2002).

### **Eco-Cultural Communities in the Buyan Lake Area**

System cosmos or beliefs of a religious and mythological nature, a corpus system that concerns aspects of local wisdom knowledge that is irrational and rational knowledge that is physical. In general, these two ethnoecological systems will be applied in the praxis or daily practices of local communities living in the Buyan Lake area, as described below.

#### **a. *Cosmos* System**

System cosmos concerning the field of belief or belief in divine powers that exist outside of humans, local community beliefs or local geniuses have been glorified with gods and goddesses in the Hindu pantheon and strengthen the cosmos system of local communities living in the Buyan Lake area.

This form of trust and belief or *sraddha* and *bhakti* of local residents has solidified in the form of worship buildings, either in the form of a shrine or a temple complex with a number of shrines inside to enshrine various manifestations of God.

A number of sacred sites and temple buildings are located in the Buyan Lake area, namely Ulun Danu Bulian Temple, Luwur Sari Temple, Gunung Anyar Temple, Tajun Temple, Beji Yeh Mas Temple, Soan Kuning Springs, Soan Besi Springs, and Batu Meringgit Site. Within the scope of the sacred temple area in the village settlement, there are also Pura Kahyangan Tiga Pancasari Traditional Village and Pura Kawitan (genealogy) from the Aryan, Pasek, and Pande clans who live in harmony carrying out joyful and sorrowful activities in one area of the Pancasari traditional village (*Bendesa* (Traditional Village Leader) Pancasari, interview July 5, 2022).

The existence of temple buildings and sacred places means that all components of society take real action to maintain the purity of the lake environment in general as the headwaters of the island of Bali. One of them is by maintaining forests and springs as sacred temple locations and sources of life continuity. The way to do this is by building a joint commitment to preserve the lake through belief in the truth of existing myths and balancing it by maintaining cleanliness, planting trees in several hill locations that have collapsed, increasing community environmental knowledge, improving physical waste disposal systems and buildings. It is also fundamental for the younger generation to reintroduce traditional conservation concepts that have been forgotten in today's life, through local content in education in schools.

Religious ceremonies are also held periodically, including *piodalan* (temple festival) at the Ulun Danu Bulian temple, Beji Yeh Mas temple, and other temples around the Buyan Lake area which are held every 210 days cycle. Ceremonies in the waters of Lake Buyan, such as *aci pakelem mancawarna* (annual), *aci pakelem utamaning utama* (five years),

*nangluk merana* (during the epidemic), *ngaturang suwinih* (post-harvest), *mapag toya* (beginning of the planting season), *wana kertih*, *danu kertih*, and *Tawur Agung Panca Balikrama*. This *Tawur Agung* refers to the guidance of the manuscript *Purana Bhuana Bangsul*. In the manuscript it is stated that the *catur danu* (four lakes) which consists of Lakes Batur, Beratan, Buyan and Tamblingan is the upstream or center of Balinese life so it must be purified periodically through the *tawur agung* (Head of Candikuning Village and *Bendesa* Pancasari, interview 5 July 2022). The meaning of all these ceremonies is to direct the community to protect the sacred lake area with concrete behavior, namely by keeping the environment clean, preventing it from waste pollution, annual tree planting movements, and gradually returning to organic farming.

Most of the inscriptions found in the lake area in Bali state that Balinese kings from the 10th to 12th centuries were concerned with saving forests and lakes. These two areas are understood to have an important position in underlying Balinese civilization. The manuscripts of Balinese Inscriptions I and II found in the villages on the edge of the lake clearly state the rules for land use around the lake, even the people of the ancient Balinese era had land divisions or zoning. In detail, the copper inscription states the division of land. There is agricultural land, grass fields for animal feed, and land for planting wood for building materials. Apart from that, it also states the area for breeding, crossing horses, and the amount of tax imposed. They know that some types of grass for animal feed can overcome the absorption of the roots of certain trees. The trees around the lake will gradually dry out if grass is planted in the same area which has very high-water absorption capacity (Goris, 1986).

This shows the wisdom of local people's knowledge of the characteristics of land, plants and animals as ownership of local wisdom as cultural capital. This knowledge is still held firmly and passed down to today's generations. Only wood that can be taken from the forest is dead or has fallen on its own. This matter still

has to be known to the traditional village administrator or forest officer, known as the *jaga wana* and *jaga teleng*. *Jaga wana* is a community group tasked with guarding the forests around the temple in the Lake Buyan and Tamblingan areas. Meanwhile, *Jaga teleng* is tasked with guarding and caring for the lake waters. *Jaga teleng* is a group of fishermen or Bendega Danu. These officers are still part of the social practice in the *Catur Adat* of Dalem Tamblingan Village, namely Munduk, Gobleg, Gesing, and Uma Jero (*Bendesa Pancasari*, interview 5 July 2022). The existence of *wana* guard officers, *teleng* guards, and social systems are still in effect today. Residential areas or places where local people live directly adjacent to the waters of Lake Buyan are part of Dasong Hamlet, namely the Banjar Yeh Mas area on the South side and Dasong Hamlet on the North side

Apart from using the area for sacred areas, temples, settlements, agriculture, it is also being used for business areas to build various business places around Lake Buyan. The growth of various types of business is closely related to the development of tourist interest, especially natural tourism, to visit to enjoy the beautiful panorama of the waters of Lake Buyan and hills with expanses of green forest in the distance. Natural tourist attractions that are currently developing rapidly are camping grounds and glamping. Previously developed natural tourist attractions, such as fishing and strawberry picking agro-tourism, still have very limited interest. Meanwhile, several selfie attraction spots that were established illegally on the lake have been removed because they were erected without permission on the waters of Lake Buyan.

#### **b. Corpus System**

Knowledge or cognitive system (*corpus*) related to perceptions and conceptions of environmental conservation in the Buyan Lake area. One thing that forms the complexity (*corpus*) of local knowledge is mythology. Mythology can include the story of the creation of the world to the origins of a nation (Amstrong, 2006: 23). Myth is similar to ideology because mythology will appear like

universal truths presented in the memory circle of people's everyday reasoning (Barker, 2005: 93), so that they become collective knowledge or wisdom of local people. Thus, the mythology in this study is specifically extracted from myths that are the collective knowledge of settler communities in the Buyan Lake area that are relevant to conservation efforts or based on ecological ideology. There are a number of myths related to environmental conservation efforts in the Tri Danu area, namely (1) prohibited wood, (2) gombang dragon and rakrik dragon, (3) *duwe* animal, and (4) yellow *soan* and iron *soan*. One by one they are explained as follows.

#### (1) The Myth of *Kayu Larangan* (Banned Wood)

The myth of prohibited wood reveals the local community's belief in the prohibition on cutting down trees which are prohibited wood or wood protected by the kingdom. If you want to cut down a tree, you must get permission from the traditional village. Violators who cut down haphazardly without the knowledge of the traditional village or violate the tradition of prohibited wood being protected wood will be cursed by the ancestors and may be subject to customary fines. Traditional knowledge includes local wisdom or cultural capital and social capital of the local community which is still highly respected and adhered to today. Cultural capital and social capital have been transformed into symbolic capital, because their existence is not merely a myth with mystical and magical nuances. Ownership of cultural, social and symbolic capital is a real practice of local communities in preserving forests and lakes. They really understand its existence as a source of daily life (economic capital) now and in the future.

#### (2) The Myth of the Gombang Dragon and the Rakrik Dragon

The myth of the Gombang dragon and the Rukrik dragon is a popular folklore in the Tri Danu area, because the setting of the story concerns the existence of sacred sites on Lake Beratan, Buyan and Tamblingan (Chandrawan, 2015). The myth of the Gombang dragon and



the Rakrik dragon tells the story of two powerful dragons that live in the lake area. The two of them often fought over their supernatural powers for years, resulting in the destruction of the surrounding environment and the misery of other living creatures. Both of them had great supernatural powers so that the fight was evenly matched, no one lost or won, until Dewa Pucak Mangu intervened to finish it. Naga gombang's magic lies in its vocal cords, while Naga rakrik's is at the tip of its tail. After hearing the location of each supernatural power, the dragons attacked each other again. Naga Gombang managed to peck the tip of Naga Rakrik's tail, whereas Naga Rakrik's vocal cords on Naga's neck were successfully bitten. The two dragons finally collapsed.

When he saw Naga Gombang seriously injured and Naga Rakrik's corpse lying all over Lake Beratan, Dewa Pucak Mangu ordered Naga Gombang to perform austerities in the *sapta patala* (seventh layer of the lower world). Before heading to the hermitage, Naga Gombang met his wife and told her what happened. At the end of the story, he advised that if Naga Gombang wanted to meet him, he would move his body, then the whole world would shake or earthquake, so he advised his wife to hug the joints (building pillars) and say alive! Naga Gombang then said goodbye and headed to the hermitage. After passing the yellow *soan* on the west bank of Lake Buyan, go southwest into the cave towards *Sapta Patala*. The *soan* is in the form of a flowing water basin below the surface of the lake and the place where the Naga Gombang retreat is now built is the Goa Naga Loka Temple (Bendesa Pancasari, interview 5 July 2022).

The mythology of the story of Naga Gombang and Naga Rakrik is the knowledge of local people about the existence of mountains and forests around the lake (Pucak Mangu and Pucak Sangkur), knowledge about water (lake bodies and river flows in lakes/*soan*), knowledge about land (land) and natural phenomenon (Juliasih, et.all, 2022). Local wisdom shows the possession of cultural capital, social capital and symbolic capital in the terminology of Bourdieu's thinking. These

three capitals complement the mystical and magical habitus of the local community. The meeting of capital with mystical and magical habits in the realm or life struggles of the lake area settler communities has supported social practices. In this case, the collective praxis is respecting and maintaining the function of mountains, forests, springs, rivers, lake waters, *soan* (underwater lake rivers), and land so that they live in harmony with other creatures for the continuity of their function or preservation.

### (3) Duwe Animal Myth

The myth of the *duwe* (astral) animal tells of the existence of a number of faunas that live in the waters of Lake Buyan, such as *ulam Agung* 'big fish', crocodiles and dragons. The appearance of a number of *duwe* animals cannot be predicted, only at any time, and can only be seen by certain people. The existence of the *duwe* animal is highly trusted by the local community, so they are obedient not to speak rudely, spit, urinate or defecate in the waters of the lake. If it is violated, it will have fatal consequences for the life of the perpetrator (Bendesa Pancasari, interview 5 July 2022; Juliasih et.al, 2022).

The myth of the *duwe* animal is a source of individual and collective knowledge for settler communities in the Buyan Lake area. Possession of environmental knowledge wrapped in myth is local wisdom or cultural capital. This knowledge has become a guide and control for people's behavior when interacting in lake waters. This also includes social capital and symbolic capital which is strengthened by the foundation of the conservation ideology behind the mythical packaging. The mystical and magical habitus, which is still strongly internalized in every individual, has accumulated accumulatively in collaboration with cultural, social and symbolic capital. The combination has formed a collective practice of preserving water resources in the waters of Lake Buyan with all its biodiversity.

(4) The Myth of Yellow *Soan* and Iron *Soan*  
*Soan* is the local term for springs and water bodies below the surface of the lake. The flow

is difficult to see at high tide, because it is far at the bottom of the lake. There are two large soans that flow from the shores of Lake Buyan, namely the yellow soan and the iron soan. The yellow soan stream is located on the west bank, while the black iron soan is on the east bank of Lake Buyan.

The myth of the yellow soan is closely related to Naga Gombang's journey to his hermitage in Naga Loka Cave. Likewise, iron soan is often associated with the passage of magical duwe animals. This is what causes the two soans to be sacred and kept sacred. The uniqueness of the fish and plants that live in the yellow soan water flow are yellow in color, while those that live in the iron *soan* are blackish in color. If the soan is considered 'polluted', then the *pakelem* ceremony must be carried out, the 'ritual of immersing the ceremonial facilities', in the form of a white duck complete with other offerings (Bendesa Pancasari, interview 5 July 2022; Juliasih et.al, 2022).

The myths of the two *soans* are the individual and collective knowledge of the settler community in the Lake Buyan area or what is called cultural capital. Cultural capital has very strong symbolic value. It is this symbolic capital that shapes perceptions and directs social behavior. Cultural, social and symbolic capital has complemented the collective daily behavior or habits of the local community. This is what drives people's behavior to try to protect themselves from throwing away waste, rubbish, urine or activities that will pollute the waters of Lake Buyan.

Apart from knowledge that is abstract in nature with mythological nuances, local people also really understand knowledge related to Lake Buyan that is real (real) related to the conservation of Lake Buyan's aquatic environment, such as daily activities both individually and in groups to preserve the lake with its various biodiversity. This can be understood from the praxis system in adapting to the environment and sustainable use of Lake Buyan's resources.

### **c. Praxis: Adaptation and Utilization Strategy**

In general, the struggle in the realm of today's

life consists of three patterns of thinking and perspectives, namely conservative, progressive and adaptive. First, the conservative viewpoint is promoted by a society that is strongly based on ecological ideology. The structure of their interpretation of the existence of the lake as a source of life "*amerta*" is strictly maintained with a strong belief in the myths of Lake Buyan and the concept of environmental conservation in Hindu teachings. The existence of the lake in the sense of the function of the area is maintained in a sustainable manner by customary or traditional methods, based on knowledge packaged in myths or environmental ethics in oral traditions, belief in the existence of sacred sites, the construction of a number of temples of worship, and celebrated through periodic rites.

The behavior of the local community is also based on traditional legal rules in traditional villages, namely *awig-awig*, especially *pawos palemahan* (environmental section), which is also implemented by obeying the collective and individual members of the traditional village. Traditional rules as local wisdom are also respected by non-Hindu settler communities in the Buyan Lake area in synergy with traditional village organization administrators, government officials and other stakeholders.

In this first perspective, the use of the Lake Buyan water area is only limited to controlled domestic needs and religious activities. The existence of the lake with all its resources is seen as ownership of cultural capital, social capital and symbolic capital. The conversion of these three capitals into economic capital through exploitation is very limited, for example by the convention of determining the number of ownership of fish trap nets and the size of the net holes as large as *telung nyari* ( $\pm$  3 cm) and above, the size and number of ownership of traps, zonation and how to install the two fish traps. , do not use toxic materials or explosives to catch fish, and do not install floating net cages. Strict supervision is also carried out jointly by all components of the traditional village (*jaga wana* 'forest guards', *jaga teleng* 'lake guards', and *pecalang* 'traditional officer'), in collaboration with

forestry officers/forest police. If generally understood, the conservative mindset that underlies indigenous people's practice in understanding the function of lakes refers to socio-religious-ecological patterns.

The establishment of this pattern, in the development of global relations through unlimited information and communication interactions, has influenced the point of view and behavior of some communities in utilizing the potential resources of the Buyan Lake area, which is only limited to meeting current or progressive needs, regardless of the influence on long term for the sustainability of the Buyan Lake area. Such a point of view is placed as a second perspective.

*Second*, the progressive perspective places some people who prioritize meeting immediate needs or daily living needs as the main orientation. This group of people refers to, or is driven more by, market ideology. Their structure of meaning regarding the existence of resources in the Buyan Lake area, views them more as purely natural resources that can be utilized optimally.

Excessive development or utilization to support the needs of the agricultural industry, tourism services and trade in horticultural products which are potential and currently developing rapidly in the region (Bedugul). The Buyan Lake area is placed as a source of fulfilling life's welfare and material wealth is maximally converted into economic resources. Thus, community practice understands the main function of the Buyan Lake area only in socio-economic patterns.

Such socio-economic practices have reduced the function of lakes in general, degraded ecological functions by increasing sedimentation, eutrophication, and exceeding quality standards thresholds. Likewise, it could threaten its socio-religious function as a sacred temple area with a number of sacred sites. Awareness of these things has led to the revitalization of local wisdom in the form of myths that once lived in oral traditions in society, namely related to the concept of magical guardians of the Buyan Lake area, including: the mythology of the gombang

dragon, the rukrik dragon, the *duwe* animal, the haunted base, prohibited wood, etc. The reinterpretation of the existence of temple sites and buildings spread across the Buyan Lake area with a number of rituals carried out by the community so far, shows that existing temples as sacred buildings of worship and rituals carried out are not limited to symbolic activities, but are interpreted as part of real actions of care. environment to protect the Buyan Lake conservation area from excessive daily activities.

The sanctity radius of temples and sacred forest sites is intended to protect them from being touched by the profane activities of local people who live around them and to provide an initial warning to guard their thoughts, words and behavior for outsiders who visit the Buyan Lake area. All of these things can empirically protect the Buyan Lake area so that it continues to exist naturally, namely maintaining forest cover with all its biodiversity, protecting springs and water flows, supporting air, water and soil quality conditions so that they remain at the required quality standards, and other aspects of the ecosystem. In this way, an adaptive perspective is developed based on the ideology of sustainability in society as a third perspective.

*Third*, adaptive perspective. This view of society is based on the ideology of sustainability. Compromise and normalization mechanisms are adaptive options and solutions for a sustainable middle way to preserve the function of Lake Buyan. Efforts have been made with several superior programs, such as revitalization and strengthening local wisdom based on mythology which has proven successful in maintaining the existence of the lake during the traditional era. Re-reading these myths to reveal new meanings that are relevant to the millennial era is absolutely necessary. This is urgently done to direct the community to the real practice of improving the environment.

The implementation of symbolic rituals which are periodically carried out in the Buyan Lake area, by utilizing plant and animal resources from the waters and forests in the Buyan Lake

area, is balanced with concrete actions through environmental conservation actions of the lake and its surroundings. Replanting coffee trees on coastal forest agricultural land owned by local communities, in line with the return of the trend of increasing market demand. Planting coffee trees is combined with superior advocates which will also become shade trees for the coffee plants underneath (*Bendesa Pancasari*, interview 5 July 2022).

Likewise, the development of camping ground rental areas (camping places) has also indirectly hardened the land. Land processing activities will be reduced gradually compared to horticultural farming which requires loose land. Loose land is relatively more prone to erosion during the rainy season. Material carried by erosion can increase sedimentation and eutrophication of 'shallowing' lakes. The trend of increasingly rapid development of natural tourism in the Buyan Lake area also needs to be addressed wisely by stakeholders, both government and private parties. The involvement of all parties to understand the vision and mission of conservation of the Buyan Lake area, in addition to the government, must also involve the participation of all village residents, farmers, fishermen, youth, forest police, forest rangers, lake rangers, tourism actors and visitors to the Buyan Lake area.

Thus, this third mindset, namely the adaptive perspective, prioritizes the ideological foundation of sustainability. In the context of conserving the function of the Buyan Lake area, the understanding is that the lake as a natural resource can be utilized optimally below the quality standard threshold. Exploitation of land in buffer areas for agricultural, residential, tourism and other supporting functions within the limits of its carrying capacity. The rehabilitation program, normalization of the area and waters of Lake Buyan is carried out in conjunction with an integrated domestic and agricultural waste processing program. Participatory patterns and synergy between all components of society and government (across sectors/institutions) according to the role of each lake stakeholder.

This means that there is a compromise between socio-economic-ecology as a pattern of societal practice. This will gradually encourage the achievement of quality standards set by the Natural Resources Conservation Agency and of course the sustainability of the Buyan Lake area into the future.

#### IV. CONCLUSION

Ethnoecology has succeeded in uncovering the cosmos, corpus and praxis systems of local communities in the Buyan Lake area.

1. The local belief system (cosmos) that has been integrated or glorified into the teachings of Hinduism is represented through the implementation of periodic rituals using plant resources in the Buyan Lake area.
2. Likewise, the corpus system is the basis for local knowledge of indigenous peoples in understanding the availability, utilization and conservation of resources in the Buyan Lake area.
3. These two systems (cosmos and corpus) have shaped perceptions and lead to praxis or the complexity of daily practical behavior which leads to eco-culture or conservation of the Buyan Lake area.
4. The behavioral tendencies of society in the Buyan Lake area are divided into three, namely (1) a conservative perspective with a socio-religious-ecological mindset, (2) a progressive perspective with a socio-economic mindset, and (3) an adaptive perspective with a socio-economic-ecology mindset.

The revitalization program in the form of traditional socio-ecological-religious praxis in the form of mythology, sacred sites, cult buildings, and rites or symbolic artifacts as a complex form of local wisdom, needs to be explored for new meanings according to the present, namely those that are relevant to socio-economic patterns. ecology that carries the ideology of sustainability.

This "irrational" based program also needs to be balanced and accelerated through conservation programs with the latest "rational" based approach, namely measurable statistical data on the condition of water quality and the Buyan Lake area, preparation of integrated and



holistic programs across sectors (conservation institutions, agriculture, settlements, tourism, population and customs), and community empowerment with the commitment of other stakeholders in a sustainable manner.

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