Power and Interest of Actors in Using Tempe Lake in South Sulawesi, Indonesia

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Power and Interest of Actors in Using Tempe Lake in South Sulawesi, Indonesia

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Abstract:
Lake Tempe is one of the largest lakes in the South Sulawesi Province, Indonesia. In the usage of this lake, many actors or stakeholders are involved with their respective powers and interests. This article aims to analyze the strengths and interests of the stakeholders involved in the use of lakes during the rainy and dry seasons. Research on this matter has not been widely carried out in the Tempe Lake area. Existing research generally revolves around food production and consumption, community resilience, social capital, sustainability of the lake, fish production and sediment deposit of the lake. Therefore, this topic becomes interesting to be researched. The research was conducted in the Ileo Village in Tempe Sub-District, Wajo Regency. This study uses a qualitative approach. Data were obtained through interviews with many informants who understand the lake situation. The results showed that there were two main patterns in the usage of Lake Tempe: the use for fishing activities and the use of *koti* land that arose due to the receding lake water. For the usage of the fishing area, the actors are fishers, whitewater/*anakarung*, head of village (*lurah*), head of the fisheries service, fishery entrepreneurs, *pappalele* traders (small traders), fish stalls/shops, *Macoa Tappareng*, Fisheries Officer, and the regent. For the use of *koti* land, the stakeholders are farmers, village heads, agricultural extension workers, farmers, kiosks/shops. These stakeholders, both in the use of fishing ground and in the use of *koti* land, have the power to distribute and to use. Their interests are economic benefits, lake regularity, and regional income. The study findings imply that understanding the strengths and interests of lake stakeholders will make it easier for local authorities to manage the lake well.

Keywords: Tempe Lake; fishing area; Koti Land; power, interest.

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演员在使用南苏拉威西岛坦佩湖的力量和兴趣，印度尼西亚

摘要:
坦佩湖是印度尼西亚南苏拉威西省最大的湖泊之一。在这个湖的使用中，许多行为者或利益相关者都参与了他们各自的权力和利益。本文旨在分析在雨季和旱季使用湖泊的利益相关者的优势和利益。对此事的研究尚未在坦佩湖地区广泛开展。现有的研究一般围绕粮食生产和消费，社区恢复力，社会资本，湖泊的可持续性，鱼类生产和湖泊的沉积物沉积。因此，这个主题变得有趣的研究。该研究在瓦乔*摄政*坦佩分区的伊利奥村进行。本研究采用定性方法。数据是通过采访了解湖泊情况的许多线人获得的。结果表明，坦佩湖的使用有两种主要模式：捕鱼活动的使用和由于湖水后退而产生的科蒂土地的使用。对于捕鱼区的使用，演员是渔民，白水/阿纳卡龙，村长（卢拉），渔业局局长，渔业企业家，帕帕莱莱商人（小商人），鱼摊/商店，马科阿*塔帕伦，渔业官员和摄政王。对于科蒂土地的使用，利益相关者是农民，村长，农业推广工作者，农民，售货亭/商店。这些利益攸关方，无论是在使用渔场还是在使用科蒂土地方面，都有权分配和使用。他们的利益是经济利益，湖泊规律性和区域收入。研究结果表明，了解湖泊利益相关者的优势和利益将使地方当局更容易管理好湖泊。

关键词: 坦佩湖;钓鱼区; 科蒂土地;权力, 利益.

1. Introduction

Tempe Lake is the largest lake in South Sulawesi Province of Indonesia which is located in Wajo, Soppeng, and Sidendreng Rappang (Sidrap) districts. From an environmental perspective, Lake Tempe is the source of fish production.

Environmental damage and degradation in the upstream part of the rivers that empties into Lake Tempe resulted in serious sedimentation in this lake (Kasim et al., 2016). The JICA's research (1993) found that every year there is a siltation of 15-20-cm thick and tends to increase every year. Currently, the maximum depth of the lake at the peak of the dry season is only about 0.5 meter (Pawitan & Haryani, 2011). Because of silting, the waters of Lake Tempe expand and cause flooding during the rainy season, while, during the dry season, the residents around the lake can use the areas that are no longer inundated to plant various kinds of seasonal crops such as crops and vegetables (Astuti & Rachim, 2019; Julzarika et al., 2019).

In 1948–1969, Lake Tempe was recorded as a lake capable of producing 55,000 tons of freshwater fish per year. At that time, it was called the “fish bowl” of Indonesia. In 1975, fish production from the lake was reported as only 4,000 tons/year or 200 kg/ha/year, and this production was relatively the same until 1977. This decline in production was due to overfishing as the number of fishers increased (Pratiwi et al., 2019; Aletor, 2021), sedimentation (Goharrokhi et al., 2021; Wynants et al., 2020), and climate change (Cohen et al., 2018).

Type of fish commonly found in the Tempe Lake such as cork fish (*Channa striata*), betook fish (*Anabas testudineus*), siamese fish (*Trichogaster pectoralis*), Java sepat (*Trichogaster trichopterus*), catfish (Clarias batrachus), goldfish (*Cyprinus carpio*), tawes fish (*Barbodes gonionotus*), nilem fish (*Osteochilus hasselti*), tilapia fish (*Oreochromis mossambica*), parrot fish (*Oreochromis niloticus*), bunaka fish (*Bunaka gyrinoides*), bungo fish (*Glossogobius giuris*), eel fish (*Monopterus albus*) and mullet fish (*Mugil cephalus*) (Makmur et al., 2014).

Lake Tempe has abundant resources and is a public or common resource (Hardin, 1968), therefore many parties have an interest in this lake both as a source of livelihood, a place of livelihood (settlement), and a source of government income. The stakeholders of the lake may include small fisheries, small farmers, fishery companies, government departments, local administrative bodies, international agency and conservationists, civil society, and private sector (Grimble & Wellard, 1997; Belay & Bewket, 2013; Vogel & Meyer, 2018; Mekuria et al., 2021).

Stakeholder attributes are usually identified through their power and interest (Guðlaugsson et al., 2020). By using a 2x2 matrix, we can find four types of stakeholders based on their power and interests: 1) Stakeholders who have great power and big interests who have legal authority to regulate resources. These stakeholders are usually referred to as key or primary stakeholders; 2) Stakeholders who have great power but small interests; 3) Stakeholders who have small power but big interests. The second and third forms of stakeholders are usually referred to as secondary or supporting stakeholders; 4) Stakeholders who have small power and interests who can be called follower stakeholders (Crosby, 1991; Mitchell et al., 1997; Mekuria et al., 2021).

The relationship between power and the interest of stakeholders in the usage of natural resources is one of the important topics in the study of political ecology. Bryant and Bailey (1997) explain that political ecology is a field of study that studies the socio-political aspects

of environmental management, with the main assumption that environmental change is untechnical in nature, but is a form of environmental politicization involving actors with interests both at the local level, regionally, as well as globally. However, Walker (2005) defines political ecology as a dialectic between society and land-based resources, includes the dialectic between classes and groups within society itself.

There are two general meanings of the term political ecology: (1) Political ecology as a political (academic and movement study) concerned with environmental (damage) problems; (2) Political ecology as an approach in the study of human ecology that involves socio-economic analysis, political processes, or ecological phenomena (Abdoellah et al., 2020).

Several studies on Lake Tempe have been conducted, including analysis of actors and development directions of the Tempe Lake area, dynamics of social network structures and contestation in the collaborative management of Lake Tempe (Said et al., 2019), customary sanctions for violation of *Ennenge* (the six), rafting rules in the fishing process in Tempe Lake (Andrews, 2018; Haerunnisa et al., 2015; Suliawan & Priyatna, 2008); political ecology of consumption and production in Tempe Lake (Ali et al., 2017); food consumption and production in Tempe Lake, South Sulawesi, Indonesia (Ali et al., 2019) and community resilience in dealing with Tempe Lake disaster (Yusran et al., 2019). However, there has been no in-depth research on the power and interest of stakeholders in the management or usage of Lake Tempe. This study is intended to explain this issue.

2. Methodology

This study uses a qualitative approach to explore and describe stakeholder's power and interest in using Tempe Lake at South Sulawesi, Indonesia. The study was conducted on January 13–20, 2021, in Ileo Village, Sub-District of Tempe, District of Wajo.

Field data collection was conducted through observation, analyses of government documents, and in-depth interviews with 11 participants: village headman, fishers (three persons), farmers (three persons), Head of Sub-District (*Camat*), Head of Fisheries and Marines Office, field official, and a boat owner.

Primary data of this study were obtained through direct observations, in-depth interviews of informants, and photographs at the site and aboard ship traveling to and from the site (Creswell, 1994). Secondary data were obtained from the village administration such as population, area, boundaries, number of heads of households, and other village administrative records. Having returned from the field, further analysis of the data alerted the authors to gaps that were filled by contacting the relevant informants.

3. Results and Discussion

3.1. Ecology of Tempe Lake

Tempe Lake is located approximately 192 km to the north of Makassar (the capital city of South Sulawesi Province). The lake belongs to three districts: Wajo District, Sidenreng Rappang (Sidrap) District, and Soppeng District, with a total size of 47.800 hectares. Approximately 70% of the lake area belongs to Wajo District.

Geographically, Tempe Lake is located at 4°00′00″–4°15′00″ SL and 119°52′30″–120°07′30″ EL. The rainfall in the lake is 1.400–1.800 mm/year. The water depth in the middle of the lake during wet season was 3 m, whereas that in the dry season was only 1 m. During the dry season, the area of the lake is only 1000 hectares, whereas, under normal conditions, the lake area is 15.000–20.000 hectares (BPS K-Wajo, 2019).

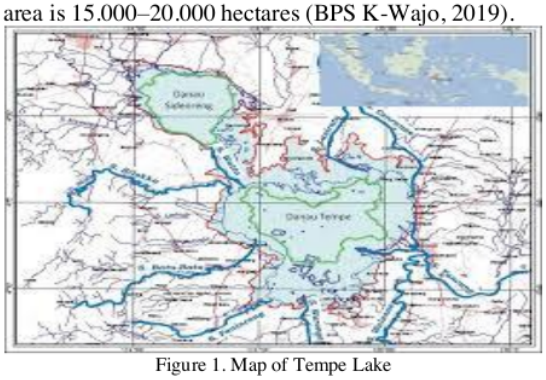

Figure 1. Map of Tempe Lake

Some rivers run down to and become the source of sedimentation of the lake: (1) *Bila* River that covered by 3 watersheds from Enrekang, Sidrap and Wajo Districts; (2) *Walanae* River covered by watershed from Soppeng, Bone, Maros and Wajo Districts; (3) Some small rivers such as *the Wette'e* River, *Batu-Batu* River, *Waronge* River, and *Tancung* River that also contribute to sedimentation of Tempe.

The climate around the lake is characterized by a tropical monsoon with a clear distinction between the dry and wet seasons. Wet season was in March–July, the dry season was in August–February. During the dry season, when the water level in the lake decreases significantly, land around the lake has been used by the local community to grow rice and other food crops, such as corn, beans, etc. The number of people inhabiting around the lake was about 31.800 (2020) who worked as fishers, farmers, cattle raisers, silk craftspersons, traders, and government officials.

3.2. Usage Patterns of Tempe Lake

3.2.1. Usage as Fishing Ground

In the past, fishing ground in Tempe Lake was only known two types: fishing ground owned by the royal family (called *Akkarung*) and that utilized by common people (free fishing ground) (Naing & Iskandar, 2015). Nowadays, several types of fishing grounds have been

seen in the lake.

3.2.2. Akkarung

Akkarung fishing ground is an area under control or owned by the royal family. The size of the akkarung was fixed. The right to use this area, including the land that appeared when the water in the lake decreased, solely belonged to the royal family. The royal family usually gave his right to use the akkarung to other people by share or rental system.

3.2.3. Cappeang

This area is located close to *the akkarung* fishing ground. It was usually near the edge of the lake. In the past, this area was given to officials of the kingdom, but, this time, the area is under the control of local authority (Pemda). One who would like to occupy this area must apply by paying a sum of money for three years. In the past, when the lake water was in stable condition, the *cappeang* was used to catch fish all year around. But now, this fishing ground will disappear when the lake water runs away in the dry season.

3.2.4. Palawang

Palawang is a catch area after *cappeang*, located about 100 meters from the edge of the lake (*sipattembakeng* = one shoot distance) with clear boundaries indicated by *belle* (bamboo pench) with high of 1.25 meters. Right to use a *palawang* was also obtained through an auction held by a local authority.

3.2.5. Bungkatoddo

Bungkatoddo is a fishing ground located close to the center of the lake. This area is quite deep, and, therefore, catching can be done every day. *Bungkatoddo* created by sticking many bambooto hold water hyacinth (enceng gondok = *Eichorniacrassipes*). Since many bamboos are used to catch the water hyacinth, the *bungkatoddo* was filled with floating hyacinth and became a good place for fish to look for food and as shelter. The size of a *bungkatoddo* averagely was 125 m x 125 m. The right to its use was obtained through an auction held by the district authority. According to an informant, the auction price of a *bungkatoddo* could be up to Rp. 150 million/year, depending on its size.

Figure 2. Foto Bungkatoddo

3.2.6. Salo-Salo (Small Rivers)

Around the Tempe Lake, there were so many *salo-salo* as places for fish to breed. These *salo-salo* occurred only in the dry season. Some *salo-salo* were formed naturally, and some were artificial. The right to use this fishing ground was also obtained through an auction held by a local authority.

Figure 3. Photo of salo-salo (small river)

The free fishing ground (FFG) is an area outside the above-mentioned fishing ground, and anyone can catch fish in this area. Its location could be at the middle of the lake or between *bungkatoddo, palawang, or cappeang*. Although everyone can catch fish in FFG, they must obey custom regulations, such as that they are not allowed to catch fish starting from sunset on Thursday until 2 o'clock on the next day or Friday (after Jum'at Pray).

3.3. Usage as Agricultural Land

During the dry season, the water level in the Tempe Lake has decreased significantly and creating an extensive land that can be used to grow seasonal crops such as corn, rice, soybean, and watermelon. This land is locally named Koti Land (*Tanah Koti*). Koti in the Buginese language means "taking something from a box or container." Therefore, Koti Land means a piece of land that was acquired through a lottery, by taking a random number from a box. This number indicates the location of the land. There was no exact size of Koti Land, but it was predicted to be about 1,200 hectares per year. According to the village headman (*kepala kampong*), fishers and farmers have the right to cultivate Koti Land through a lottery of 1500 m^2 per person. Those who won the lottery of Koti Land, but did not cultivate it, can sell the cultivation right to others or allow other farmers to cultivate it through the share crop system. According to Pak Bahar, a farmer and local leader in the area, much of the koti land was already permanently owned by some farmers.

Koti Land is divided into four categories. The first class is called *Tanah Koti Langga I* (first-grade Koti Land). This land is located at the upper outskirt of the lake, around 100 meters from the edge of the lake. The second is called *Tanah Koti Langga II* (second-grade Koti Land) that located around 100–200 meters from the edge of the lake. Third is *Tanah Koti Langga III* (third-grade Koti Land), which was about 200–300 meters from the lake edge; and fourth is called *Tanah Koti Langga IV, which* was close to the water lake. According to the District Regulation of Wajo No. 9 Year 2013, the retribution of the first-grade *Koti* Land was Rp. 60.000/Ha/year, the second grade Koti Land was Rp. 30.000/ha/year, the third grade was Rp. 20.000/ha/year, and the fourth grade was Rp. 15.000/ha/year.

3.4. Stakeholders in the Management of Lake Tempe

There are many stakeholders involved in the usage of Lake Tempe. But the main stakeholders or actors

include fishers, farmers, *pappalele* traders, farmer shops/fisher shops, fishery entrepreneurs, *anakarung* (descendants of kings), local government at the village level, local government, district level, *Macoa Tappareng*, NGOs and lake transport entrepreneurs (Pratiwi et al., 2019; Pawitan & Haryani, 2011; Surur, 2011; Dahliana et al., 2018; Naing & Iskandar, 2015).

3.4.1. Fishers

The fishers are the group with the longest interest in the use of Lake Tempe through the fishing business. There are two groups of fishers: *Pakkaja* and *Lalla*. The *Pakkaja* are fishers who work to catch fish every day, while the Lalla are fishers who only catch temporarily. The Lalla are traditional fishers, who use simple fishing tools such as traps, nets and fishing rods. The fish catch is in the form of endemic fish such as *sepat* fish (*Trichopodus pectoralis*), *tawes* fish (*Barbonymus gonionotus),* gabus fish (*Channidae sp.),* etc. So fishers are just really taking the fish from the lake. The amount of catch is not too much; it is only used to meet family needs, and its part is sold to the nearest market.

3.4.2. Farmers

Farmers are later comers who take advantage of the land that arises when the lake water recedes in the dry season. They obtain management rights over the land from the local government. This land is named Tanah Koti. They use the land they control by planting short-lived plants during the receding period of the lake water (approximately 3–4 months) such as rice, secondary crops, corn, and melons. Farmers who use koti land tend to increase in number along with the increasing area of land formed due to receding lake water.

3.4.3. Arung (Kings)

Arung (kings) or *anakarung* (descendants of kings) are parties who have received special privileges granted for a long time (since the days of the kingdom or before independence) who from generation to generation have the right to use the lake area. The territory they control is around the edge of the lake, which is flanked by two small tributaries (*salo-salo*). This area is not used directly by the *arung* but is given to other people, especially those closest to *the Arung* with a system of profit sharing, rent or pawning.

3.4.4. Local Governments

Within the local government stakeholder group, there are government officials such as the village head, a sub-district head. This group is directly related to stakeholders relating to lake usage. At the district level, there are the Department of Fisheries and Marine Affairs, the Department of Agriculture, the Office of Revenue. Each of these agencies has officers who are in direct contact with the lake community such as Fisheries Extension Officers from the National Fisheries and Marine Affairs Office, Field Agricultural Extension Officers from the Food Agriculture Service, Retribution Collector Officers at Fish Landing Points (TPI) from the Revenue Service. They are local government instruments that implement the rules and policies of the District Government (Bupati).

3.4.5. Fishery Entrepreneurs

A fishery entrepreneur is a person or business entity with the right to use the lake area from the Regional Government. They obtain it through an auction held by the local government. Those who have higher prices will take the right to use the lake area.

3.4.6. Fishery/Farm Shops

A fishing gear provider is a fishery shop that sells fishing equipment needed by fishers and fishery entrepreneurs. They sell fishing gear such as fishing rods, nets, nets and so on. Meanwhile, the providers of agricultural production facilities are farmer shops located near the lake or in the district market. These stakeholders provide farmers' needs in farming such as seeds, fertilizers, medicines, and equipment.

3.4.7. Pappalele

Pappalele are traders who buy fishers' catch either directly at the fishing location or at the fish landing place (TPI). They bring their fish to the nearest markets in Wajo district or take them to other nearby districts.

3.4.8. Macoa Tappareng (Elder of the Lake)

Macoa Tappareng is the person chosen by the fishing community to regulate the use of the lake based on local wisdom. He who determines when to catch fish, when not allowed. He is also the one who will carry out penalties for fishers who break the rules. Besides, he also leads the lake rituals, which are held every year.

3.5. Power and Interest of Stakeholders in the Usage of Tempe Lake

In the above section, we have stated the actors or stakeholders (Jumiati et al., 2018; Ali et al., 2017) related to the utilization of Lake Tempe. The following explains the power and interests (Ali et al., 2017; Fuchs et al., 2016) of these stakeholders in using Tempe Lake, determining the fishing area and distribution of koti land.

3.5.1. Usage of Fishing Area

The main actors who have the power to determine fishing grounds are fishers, village government, district government, *macoa tappareng,* and fisheries entrepreneurs. Fishers have the power to catch in designated free waters, namely fishing areas outside the areas controlled from generation to generation by *arung* and fishery entrepreneurs. The farmer has the power to use a predetermined fishing area. The village government has the power to determine fishing grounds outside the fishing grounds stipulated by the district government, usually the area is small. This power is in the form of the power to distribute the fishing area to

individual fishers who want to get a permanent fishing area. Individual fishers who are granted permanent fishing grounds must pay the village head an amount depending on the location of the fishing grounds. District governments have the power to determine large areas for fishing, such as *bungkatoddo*. The power of the district government is the power to distribute through an auction process to fishery entrepreneurs. The auction price is determined on the basis of the Regional Regulation. Fishery entrepreneurs have the power to use the fishing grounds they have won through an auction process.

Macoa tappareng is a person assigned through an election made by a fishery stakeholder. They have the task or power to organize ceremonies related to lakes and abide by customary rules related to lake management. In summary, the types of power held and the interests of stakeholders in the usage of the fishing area are shown in the following table.

Table 1. Power and interest of actors in determining fishing areas in Lake Tempe (2021)

No	Actor	Power	Interest
1	Fishers	Fishing in free fishing area	The catch is for own consumption and for sale
2	Village Government	Limited distribution	Incomes per village
3	Fisheries office and fishery field officers	Providing information and technical guidance on lake usage	The lake is put to good use
4	District government	Making policies related to lake usage	The lake is put to good use
5	Fishery entrepreneur	Utilizing the area obtained by the auction system	Local government income
6	Pappalele (Trader)	Marketing the fishers' catch	Profit
7	Fishery shop	Providing fishing tools for fishers	Profit
8	Macoa Tappareng	Conducting rituals and implementing customary rules	Profit Order in the use of lakes

Types of power held by stakeholders in the usage of the fishing area are in the form of power to distribute, power to use, power of guidance for usage, and power to provide facilities and marketing. The power to distribute is owned by the village and sub-district heads. The power to use is owned by fishers, fishery entrepreneurs. The power of guidance belongs to the Fisheries Office/Field Fishery Extension Officer and *Macoa Tappareng*. The fisheries kiosk/shop and *pappalele* traders have the power to provide facilities and marketing.

3.5.2. Usage of the Koti Land

As mentioned above, the *koti* land arises on the edge of a lake because of the lowering of the lake water level. This land is large enough to be used to grow food crops such as rice and secondary crops. Several actors are involved in the usage of the *koti* land: farmers, village heads, sub-district heads, the Food Agriculture Office/Field Agricultural Extension Officer, farm kiosks/shops, collectors. Farmers are the actors who have the greatest interest in the distribution of *koti* land. These farmers can be purely as farmers who live on the edge of the lake or fishers who want to work on *koti* land.

The village head is the foremost actor in the distribution of *koti* land. Through the knowledge of their citizens, they can determine who can and should not get a piece of *koti* land. The results of the village head's inventory of who has the right to cultivate the *koti* land are then submitted to the village and sub-district heads for approval. The village head and the village head witnessed the distribution of *koti* land.

The Food Agriculture Office is the agency responsible for providing technical guidance in the use of koti land for planting food crops (seasonal). Implementing technical guidance is carried out by Field Agricultural Extension Officers.

Table 2. Power and interest of actors in using Koti Land in Lake Tempe (2021)

No	Actor	Power	Interest
1	Farmers	Taking adventure or cultivating the Koti Land	Production for household consumption and sales
2	Village of Kampong	Inventory of those entitled to Koti Land	The Koti land equally distributed
3	Village Headman	Distributing Koti land to farmers	Incomes per village
4	Head of sub-district	With the village of kampong, distributing the Koti land	District income
5	Food agriculture office and field agricultural extension service	Approving the distribution of the Koti land Providing technical guidance for cultivating food crops on Koti soil	Production and productivity

The types of power held by actors in the use of koti land include the power to distribute; power to use; power of guidance for use; and power to provide facilities, sales, and marketing. The power to distribute is held by the village and sub-district heads. The power to use is held by the farmer who has the right to cultivate the crops, whereas the power of technical guidance is held by the Food Agriculture Service/Field Agricultural Extension Officer. The farm shops and traders hold the power to provide facilities, sales, and marketing.

4. Conclusion

Based on the results of the analysis in this study, it can be concluded as follows:

1. There are two patterns of lake usage: usage as a fishing area that is used throughout the year and the use of lakeside land, which is quite extensive because of receding lake water in the dry season;

2. Usage as a fishing ground, there are five forms of usage: the area given by the royal family (arung) to use it; Cappeang area (edge of the lake), which is used by the public; the Palawang area after the Cappeang area whose usage is given to certain people through an auction process; Bungkatoddo Region, an area located around the middle of the lake whose usage is also obtained through an auction process; the Salo-Salo Region (Small River), which is an area where small rivers in the lake pass;

3. The utilization of the land around the edge of the lake that appears because of the receding of the lake's water level called Koti land is carried out by dividing it into fishers or farmers through a lottery process. Farmers who receive the lottery must pay a certain amount of money as retribution to the Village Government. Farmers use the land to plant seasonal crops, such as corn, green beans, watermelon, etc.;

4. The main actors in the utilization of fishing grounds are fishers, local government, lake elder, and fishing entrepreneurs, while in the utilization of koti land are farmers, village heads, sub-district heads, Field Agricultural Extension Officers, farm shops, and traders . The actors in utilizing the fishing ground have the power to distribute fishing ground and to provide support. Their interests are mostly for economic gain, regulatory, taxes, and harmony in the lake usage. The actors involved in the usage of koti land have the power to gain benefit, power to distribute, and power to support. Their interests are to obtain cultivable land and taxes.

5. Implications and Further Research

The results of this study have implications that, for the use of lakes in terms of the use of fishing ground and land use that arise because of receding lake water in more sustainable ways, it is necessary to pay attention to the power and interests of stakeholders.

In this study, the power and interests of the stakeholders have been identified, but they still have limitations because they have not analyzed the relationships of the stakeholders. Therefore, in the future, it is necessary to study the relationships and contestations of stakeholders in the usage of Lake Tempe. Additionally, it is also necessary to conduct a study on the discourse of lake management by stakeholders.

References

[1] ABDOELLAH, O.S., SCHNEIDER, M., NUGRAHA, L.M., SUPARMAN, Y., VOLETTA, C.T., WITHANINGSIH, S., HEPTIYANGGIT, A., & HAKIM, L. (2020). Homegarden commercialization: Extent, household characteristics, and effect on food security and food sovereignty in Rural Indonesia. *Sustainability Science*, 15(3), 797–815. https://doi.org/10.1007/s11625-020-00788-9

[2] ALETOR, S. (2021). Environmentally Induced Alternative Livelihood Strategies among the Artisanal Fishers of the Kainji Lake Basin, Nigeria. *Water and Environmental Sustainability*, 1(1), 1–7. https://doi.org/10.52293/wes.1.1.17

[3] ALI, M.S.S., DAHLIANA, B., SALMAN, D., DIRPAN, A., & VIANTIKA, I. (2019). Community resilience in dealing with Tempe lake disaster. *IOP Conference Series: Earth and Environmental Science,* 235(1), 012108. https://doi.org/10.1088/1755-1315%2F235%2F1%2F012108

[4] ALI, M.S.S., MAJIKA, A., & SALMAN, D. (2017). Food Consumption and Production in Tempe Lake, South Sulawesi, Indonesia. *Journal of Asian Rural Studies*, 1(1), 43–52. http://dx.doi.org/10.20956/jars.v1i1.723

[5] ANDREWS, R. (2018). *A holistic management approach: Assessing the sustainability of aquaponics systems using biodigestate as partial alternative nutrient source*. Master's thesis, Stellenbosch University. Retrieved from https://scholar.sun.ac.za/handle/10019.1/103464

[6] ASTUTI, R.S., & RACHIM, A. (2019). Bonding Social Capital in Reducing the Risk of Flood Exposure of Lake Tempe in South Sulawesi. *Advances in Social Science, Education and Humanities Research,* 366, 68–72. Retrieved from https://download.atlantis-press.com/article/125922571.pdf

[7] BELAY, M., & BEWKET, W. (2013). Farmers' livelihood assets and adoption of sustainable land management practices in north-western highlands of Ethiopia. *International Journal of Environmental Studies*, 70(2), 284–301. http://dx.doi.org/10.1080/00207233.2013.774773

[8] BRYANT, R.L., & BAILEY, S. (1997). *Third world political ecology*. London: Routledge.

[9] COHEN, A.S., GERGURICH, E.L., KRAEMER, B.M., MCGLUE, M.M., MCINTYRE, P.B.,

RUSSELL, J.M., SIMMONS, J.D., & SWARZENSKI, P.W. (2016). Climate warming reduces fish production and benthic habitat in Lake Tanganyika, one of the most biodiverse freshwater ecosystems. *Proceedings of the National Academy of Sciences*, 113(34), 9563–9568. https://doi.org/10.1073/pnas.1603237113

[10] CRESWELL, J.W. (1994). *Research design: Qualitative and quantitative approaches*. Thousand Oaks, California: Sage.

[11] CROSBY, B. (1991). *Stakeholder analysis: A vital tool for strategic managers*. Retrieved from http://jjconline.net/abxqrtln368/PAD771/documents/Stakeholder_Analysis.pdf

[12] DAHLIANA, A.B., ALI, M.S.S., SALMAN, D., DEMMALLINO, E.B., & HALIMAH, A. (2018). Farmers' Household Livelihood Resilience in the Lake Tempe Area. *Advances in Environmental Biology*, 12(3), 1–4.

[13] FUCHS, D., DI GIULIO, A., GLAAB, K., LOREK, S., MANIATES, M., PRINCEN, T., & RØPKE, I. (2016). Power: The missing element in sustainable consumption and absolute reductions research and action. *Journal of Cleaner Production*, 132, 298–307. https://doi.org/10.1016/j.jclepro.2015.02.006

[14] GOHARROKHI, M., MCCULLOUGH, G.K., OWENS, P.N., & LOBB, D.A. (2021). Sedimentation dynamics within a large shallow lake and its role in sediment transport in a continental-scale watershed. *Journal of Great Lakes Research*, 47(3), 725–740. https://doi.org/10.1016/J.JGLR.2021.03.022

[15] GRIMBLE, R., & WELLARD, K. (1997). Stakeholder methodologies in natural resource management: A review of principles, contexts, experiences and opportunities. *Agricultural Systems*, 55(2), 173–193. https://doi.org/10.1016/S0308-521X%2897%2900006-1

[16] GUÐLAUGSSON, B., FAZELI, R., GUNNARSDÓTTIR, I., DAVIDSDOTTIR, B., & STEFANSSON, G. (2020). Classification of stakeholders of sustainable energy development in Iceland: Utilizing a power-interest matrix and fuzzy logic theory. *Energy for Sustainable Development*, 57, 168–188. https://doi.org/10.1016/j.esd.2020.06.006

[17] HAERUNNISA, H., BUDIMAWAN, B., ALAM ALI, S., & BURHANUDDIN, A.I. (2015). Management Model of Sustainability Fisheries at Lake Tempe, South Sulawesi, Indonesian. *International Journal of Science and Research*, 4(5), 2319–7064. Retrieved from https://www.ijsr.net/get_abstract.php?paper_id=SUB155624

[18] HARDIN, G. (1968). The Tragedy of the Commons. *Science,* 162, 1243–1248. https://doi.org/10.1126%2Fscience.162.3859.1243

[19] JICA. (1993). *Report of Demersal Fisheries Resource Survey in the Republic of Turkey*. Ankara.

[20] JULZARIKA, A., RADJAMUDDIN, A., REFLINUR, R., YUNITA, R., ENGGARINI, W., & NOVITA, H. (2019). Study of aquatic plants and ecological-physics Tempe Lake, Sulawesi Selatan. *Torani Journal of Fisheries and Marine Science*, 2(2), 105–115. https://doi.org/10.35911/torani.v2i2.7060

[21] JUMIATI, ALI, M.S.S., FAHMID, I.M., & MAHYUDDIN. (2018). Stakeholder analysis in the management of irrigation in Kampili area. *IOP Conference Series: Earth and Environmental Science*, 157(1), 012069. https://doi.org/10.1088/1755-1315/157/1/012069

[22] KASIM, M., IMRAN, A., HAMZAH, A., & PACHRI, H. (2016). Provenance of Sediment Deposits in Lake Tempe, South Sulawesi. *International Journal of Engineering and Science Applications*, 3(1), 87–96. Retrieved from http://pasca.unhas.ac.id/ojs/index.php/ijesca/article/view/281

[23] MAKMUR, S., ARFIATI, D., BINTORO, G., & EKAWATI, A.W. (2014). Morphological, meristic characteristics and mtDNA analysis of hampala fish (Hampala macrolepidota Kuhl & Van Hasselt 1823) from Ranau Lake, Indonesia. *Journal of Biodiversity and Environmental Sciences*, 5(2), 447–455.

[24] MEKURIA, D.M., KASSEGNE, A.B., & ASFAW, S.L. (2021). Assessing pollution profiles along Little Akaki River receiving municipal and industrial wastewaters, Central Ethiopia: Implications for environmental and public health safety. *Heliyon*, 7(7), e07526. https://doi.org/10.1016/j.heliyon.2021.e07526

[25] MITCHELL, R.K., AGLE, B.R., & WOOD, D.J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22(4), 853–886. https://doi.org/10.5465/AMR.1997.9711022105

[26] MULIAWAN, I., & PRIYATNA, F.N. (2008). Valuasi Ekonomi Sumberdaya Danau Tempe, Kabupaten Wajo, Propinsi Sulawesi Selatan: Nilai Bukan Manfaat. *Jurnal Sosial Ekonomi Kelautan dan Perikanan*, 3(1), 79–87. http://dx.doi.org/10.15578/jsekp.v3i1.5844

[27] NAING, N., & ISKANDAR, B.P. (2015). Model of settlements float management based on local wisdom for disaster mitigation in Tempe Lake - Indonesia. *International Journal of Applied Engineering Research*, 10(21), 42329–42335.

[28] PAWITAN, H., & HARYANI, G.S. (2011). Water resources, sustainability and societal livelihoods in Indonesia. *Ecohydrology & Hydrobiology*, 11(3–4), 231–243. https://doi.org/10.2478/V10104-011-0050-3

[29] PRATIWI, N.T., WARDIATNO, Y., & ISWANTARI, A. (2019). Aufwuch community on association to aquatic plant in Lake Tempe, South Sulawesi. *IOP Conference Series: Earth and Environmental Science,* 298(1), 012004.

https://doi.org/10.1088/1755-1315%2F298%2F1%2F012004
[30] SAID, M., KUSUMASARI, B., BAIQUNI, M., & MARGONO, S.A. (2019). The Dynamics of Social Network Structures and Contestation in the Collaborative Management of Lake Tempe in South Sulawesi. *Policy & Governance Review*, 2(3), 217–231. https://doi.org/10.30589/PGR.V2I3.106
[31] SURUR, F. (2011). *Pemanfaatan Ruang Danau Tempe oleh Masyarakat Nelayan Tradisional di Desa Pallimae Kecamatan Sabbangparu Kabupaten Wajo*. Bachelor's thesis, Universitas Islam Negeri Alauddin. Retrieved from https://repositori.uin-alauddin.ac.id/6472/1/Fadhil%20Surur.pdf
[32] VOGEL, E., & MEYER, R. (2018). Climate change, climate extremes, and global food production—Adaptation in the agricultural sector. In: ZOMMERS, Z., & ALVERSON, K. (eds.) *Resilience*. Elsevier, pp. 31–49. https://doi.org/10.1016/B978-0-12-811891-7.00003-7
[33] WALKER, P.A. (2005). Political ecology: Where is the ecology? *Progress in Human Geography*, 29(1), 73–82. https://doi.org/10.1191/0309132505PH530PR
[34] WYNANTS, M., MILLWARD, G., PATRICK, A., TAYLOR, A., MUNISHI, L., MTEI, K., BRENDONCK, L., GILVEAR, D., BOECKX, P., & NDAKIDEMI, P. (2020). Determining tributary sources of increased sedimentation in East-African Rift Lakes. *Science of the Total Environment*, 717, 137266. https://doi.org/10.1016/j.scitotenv.2020.137266
[35] YUSRAN, Y., YONARIZA, Y., ELFINDRI, E., MAHDI, M., & SILABAN, R. (2019). Revival of Shifting Cultivation Pattern in Subdistrict of Mapattunggul Selatan, Pasaman Regency, West Sumatera, Indonesia. Proceedings of the 3rd International Conference on Security in Food, Renewable Resources, and Natural Medicines. Retrieved from http://repository.ppnp.ac.id/628/

参考文:

[1] ABDOELLAH，O.S.，SCHNEIDER，M.，NUGRAHA，L.M.，SUPARMAN，Y.，VOLETTA，C.T.，WITHANINGSIH，S.，HEPTIYANGGIT，A.，& HAKIM，L.（2020）。家居花园商业化：范围，家庭特征以及对印度尼西亚农村粮食安全和粮食主权的影响。可持续发展科学，15（3），797-815。https://doi.org/10.1007/s11625-020-00788-9
[2] ALETOR，S.（2021）。尼日利亚凯恩吉湖盆地手工渔民的环境诱导替代生计战略。水与环境可持续性，1（1），1-7。https://doi.org/10.52293/wes.1.1.17
[3] ALI，M.S.S.，DAHLIANA，B.，SALMAN，D.，DIRPAN，A.，& VIANTIKA，I.（2019）。社区应对坦佩湖灾难的韧性。IOP 会议系列：地球与环境科学，235（1），012108。https://doi.org/10.1088/1755-1315%2F235%2F1%2F012108
[4] ALI，M.S.S.，MAJIKA，A.，& SALMAN，D.（2017）。印度尼西亚南苏拉威西省坦佩湖的食品消费和生产。亚洲农村研究杂志，1（1），43-52。http://dx.doi.org/10.20956/jars.v1i1.723
[5] 安德鲁斯，R.（2018）。整体管理方法：评估使用生物发酵剂作为部分替代营养源的水基学系统的可持续性。斯泰伦博斯大学硕士论文。检索自 https://scholar.sun.ac.za/handle/10019.1/103464
[6] ASTUTI，R.S.，& RACHIM，A.（2019）。结合社会资本，减少南苏拉威西的坦佩湖洪水暴露的风险。社会科学，教育和人文研究进展，366，68-72。检索自 https://download.atlantis-press.com/article/125922571.pdf
[7] BELAY，M.，& BEWKET，W.（2013）。埃塞俄比亚西北部高地的农民生计资产和采用可持续土地管理做法。国际环境研究杂志，70（2），284-301。http://dx.doi.org/10.1080/00207233.2013.774773
[8] BRYANT，R.L.，& BAILEY，S.（1997）。第三世界政治生态。伦敦：劳特利奇。
[9] COHEN，A.S.，GERGURICH，E.L.，KRAEMER，B.M.，MCGLUE，M.M.，MCINTYRE，P.B.，RUSSELL，J.M.，SIMMONS，J.D.，& SWARZENSKI，P.W.（2016）。气候变暖减少了坦噶尼喀湖的鱼类产量和底栖栖息地，坦噶尼喀湖是生物多样性最丰富的淡水生态系统之一。美国国家科学院院刊，113（34），9563-9568。https://doi.org/10.1073/pnas.1603237113
[10] CRESWELL，J.W.（1994）。研究设计：定性和定量方法。千橡,加州:鼠尾草.
[11] CROSBY，B.（1991）。利益相关者分析：战略经理的重要工具。检索自 http://jjconline.net/abxqrtln368/PAD771/documents/Stakeholder_Analysis.pdf
[12] DAHLIANA，A.B.，ALI，M.S.S.，SALMAN，D.，DEMMALLINO，E.B.，& HALIMAH，A.（2018）。坦佩湖地区农民的家庭生计恢复力。环境生物学进展，12（3），1-4。
[13] FUCHS，D.，DI GIULIO，A.，GLAAB，K.，LOREK，S.，MANIATES，M.，PRINCEN，T.，& RØPKE，I.（2016）。权力：可持续消费和绝对减排研究和行动中缺失的要素。清洁生产杂志，132，298-307。https://doi.org/10.1016/j.jclepro.2015.02.006
[14] GOHARROKHI，M.，MCCULLOUGH，G.K.，OWENS，P.N.，& LOBB，D.A.（2021）。大型浅水湖内的沉积动力学及其在大陆流域泥沙输运中的作用。大湖研究杂志，47（3），725-740

。https://doi.org/10.1016/J.JGLR.2021.03.022

[15] GRIMBLE，R.，& WELLARD，K.（1997）。自然资源管理中的利益相关者方法：对原则、背景、经验和机会的审查。农业系统，55（2），173-193。https://doi.org/10.1016/S0308-521X%2897%2900006-1

[16] GUÐLAUGSSON，B.，FAZELI，R.，GUNNARSDÓTTIR，I.，DAVIDSDOTTIR，B.，& STEFANSSON，G.（2020）。冰岛可持续能源发展利益相关者分类：利用权力利益矩阵和模糊逻辑理论。能源促进可持续发展，57，168-188。https://doi.org/10.1016/j.esd.2020.06.006

[17] HAERUNNISA，H.，BUDIMAWAN，B.，ALAM ALI，S.，& BURHANUDDIN，A.I.（2015）。印度尼西亚南苏拉威西省坦佩湖可持续渔业管理模式。国际科学与研究杂志，4（5），2319-7064。检索自 https://www.ijsr.net/get_abstract.php?paper_id=SUB155624

[18] HARDIN，G.（1968）。公地的悲剧。科学，162，1243-1248。https://doi.org/10.1126%2Fscience.162.3859.1243

[19] JICA. (1993). 土耳其共和国底栖渔业资源调查报告。安卡拉。

[20] JULZARIKA，A.，RADJAMUDDIN，A.，REFLINUR，R.，YUNITA，R.，ENGGARINI，W.，& NOVITA，H.（2019）。水生植物和生态物理研究坦佩湖,苏拉威西塞拉坦. 托拉尼渔业和海洋科学杂志，2（2），105-115。https://doi.org/10.35911/torani.v2i2.7060

[21] JUMIATI，ALI，M.S.S.，FAHMID，I.M.，& MAHYUDDIN。(2018). 坎比利地区灌溉管理的利益相关者分析. IOP 会议系列：地球与环境科学，157（1），012069。https://doi.org/10.1088/1755-1315/157/1/012069

[22] KASIM，M.，IMRAN，A.，HAMZAH，A.，& PACHRI，H.（2016）。苏拉威西南部坦佩湖沉积物的来源。国际工程与科学应用杂志，3（1），87-96。检索自 http://pasca.unhas.ac.id/ojs/index.php/ijesca/article/view/281

[23] MAKMUR，S.，ARFIATI，D.，BINTORO，G.，& EKAWATI，A.W.（2014）。来自印度尼西亚拉瑙湖的汉帕拉鱼（汉帕拉[医]巨斑＆范哈塞尔特 1823）的形态学，分生学特征和 mtDNA 分析。生物多样性和环境科学杂志，5（2），447-455。

[24] MEKURIA，D.M.，KASSEGNE，A.B.，& ASFAW，S.L.（2021）。评估埃塞俄比亚中部接受城市和工业废水的小阿卡基河沿岸的污染概况：对环境和公共卫生安全的影响。赫利翁，7（7），e07526。https://doi.org/10.1016/j.heliyon.2021.e07526

[25] MITCHELL，R.K.，AGLE，B.R.，& WOOD，D.J.（1997）。走向利益相关者识别和显着性理论：定义谁和什么真正重要的原则。管理评论学院，22（4），853-886。https://doi.org/10.5465/AMR.1997.9711022105

[26] MULIAWAN，I.，& PRIYATNA，F.N.（2008）。坦佩湖资源的经济估值南苏拉威西省瓦约摄政时期南苏拉威西省价值不受益海洋和渔业社会经济期刊，3（1），79-87。http://dx.doi.org/10.15578/jsekp.v3i1.5844

[27] NAING，N.，& ISKANDAR，B.P.（2015）。基于当地智慧的印尼坦佩湖减灾定居点漂浮管理模型. 国际应用工程研究杂志，10（21），42329-42335。

[28] PAWITAN，H.，& HARYANI，G.S.（2011）。印度尼西亚的水资源、可持续性和社会生计。生态水文学、水文学，11（3-4），231-243。https://doi.org/10.2478/V10104-011-0050-3

[29] PRATIWI，N.T.，WARDIATNO，Y.，& ISWANTARI，A.（2019）。南苏拉威西省坦佩湖水生植物协会 aufwuch 社区。IOP 会议系列：地球与环境科学，298（1），012004。https://doi.org/10.1088/1755-1315%2F298%2F1%2F012004

[30] 说，M.，KUSUMASARI，B.，BAIQUNI，M.，& MARGONO，S.A.（2019）。南苏拉威西湖坦佩湖协同管理中社会网络结构和竞争的动态。政策与治理评论，2（3），217-231。https://doi.org/10.30589/PGR.V2I3.106

[31] SURUR，F.（2011）。瓦乔摄政区帕利梅村传统渔业社区对坦佩湖空间的利用. 学士论文，阿拉丁国立伊斯兰大学。检索自 https://repositori.uin-alauddin.ac.id/6472/1/Fadhil%20Surur.pdf

[32] VOGEL，E.，& MEYER，R.（2018）。气候变化、极端气候和全球粮食生产--农业部门的适应. 在：ZOMMERS，Z.，& ALVERSON，K.（编辑。）的恢复力。爱思唯尔，第 31-49 页。https://doi.org/10.1016/B978-0-12-811891-7.00003-7

[33] WALKER，P.A.（2005）。政治生态：生态在哪里？人文地理学进展，29（1），73-82。https://doi.org/10.1191/0309132505PH530PR

[34] WYNANTS，M.，MILLWARD，G.，PATRICK，A.，TAYLOR，A.，MUNISHI，L.，MTEI，K.，BRENDONCK，L.，GILVEAR，D.，BOECKX，P.，& NDAKIDEMI，P.（2020）。确定东非裂谷湖泊沉积增加的支流来源. 科学的总环境，717，137266。https://doi.org/10.1016/j.scitotenv.2020.137266

[35] YUSRAN，Y.，YONARIZA，Y.，ELFINDRI，E.，MAHDI，M.，& SILABAN，R.（2019）。印度尼西亚西苏门答腊帕萨曼摄政的马帕通古

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