

IMPLEMENTATION OF A GREEN ECONOMY IN SUMBER GADUNG TO PREVENT EXISTING NATURAL AND HISTORICAL DAMAGE AND IMPROVE THE CITIZENS' ECONOMY

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ABSTRACT

*Indonesia is a country with a million cultures and local wisdom spread throughout the region. Myths are one of the various local pearls of wisdom that are still maintained today in Indonesian society. There is a myth about Bader Fish as a symbol of local wisdom and the preservation of natural resources in Sumber Gadung, Watesnegoro Village, Mojokerto Regency. Bader fish (*Barbonymus gonionotus*) is a fish from the family Cyprinidae. The local people of Watesnegoro Village believe that the fish in the Sumber Gadung pond is the embodiment of the Majapahit soldiers who guard the village. Based on this, the idea and purpose emerged to discover the wisdom in Sumber Gadung, how much influence the myth has on people's behavior towards the surrounding nature, and how significant the role of the community in efforts to preserve natural resources in Sumber Gadung. The type of research used is a quantitative approach. The results of observations, interviews, and observations will be processed to obtain an honest answer. The myth that develops in the community can become a pearl of interesting local wisdom, which makes Sumber Gadung a natural tourist attraction. In addition, this myth is an impetus for the community to maintain, care for, preserve, respect, and love the surrounding natural environment, especially local wisdom, which is the hallmark of a place. These myths are very closely related to magical things but also have an impact on the environmental awareness of the surrounding community. The benefits of the Bader Fish in Sumber Gadung are a tourist attraction and ecosystem stability. In the myth circulating in Sumber Gadung itself, Bader fish is a fish that comes by itself. Sumber Gadung is thick with myths so that residents have confidence in the culture passed down from their ancestors. Sumber Gadung is one of the most recommended tourist attractions because it is very shady and comfortable for anyone who wants to unwind for a moment from the heaviness of the activities carried out. Because of that, Sumber Gadung became one of the places that have Economic Green potential that we should save for the next generation.*

Keywords: Bader Fish, Conservation, Local Wisdom, Myth, Sumber Gadung

INTRODUCTION

Ecogreen or will know as Green Economy is one of the concepts that construct an economy with the orientation of environmental insights. Based on a roadmap that was issued by BAPPENAS, there are nine sectors such as industry, energy, transportation, forestry, waste or sewage, agriculture, fishery, maritime, water resources, and sanity that can be developed (Prabowo, et al., 2022). The process of heading the Green Economy requires great commitment because the problem of reducing the function of natural resources, environmental energy sources and foods is still happening. Exploitation activities by human behavior who does not really care about the environment itself (Makmun, 2016). So, this Green economy concept needs to more function again, so that the construction of an economy with the orientation of environmental insights can be reached as well (Prabowo, et al., 2022).

Indonesia has a lot of public places that attract tourists that are affected by the green economy. There are National wasur, Ecogreen Park, Jatim Park, Purwodadi Botanic Garden, Cangar waterfall, and so much more. There are even some villages that apply and support the green economy. One of those villages is Wates Negoro which is located in District Ngoro, Mojokerto Regency, East Java Province, Indonesia. Watesnegoro already has a history of the Majapahit empire, because it is located in the main center of the establishment of the Majapahit empire. In this village, there are known springs named Sumber Gadung which are thick with myths believed by the surrounding community. Based on the Big Indonesian Dictionary, the myth was revealed as a story from a region that explains the origins of the universe, humans, and the region itself related to gods or occultists, so the story would become a hereditary belief by the ancestors or predecessors of the area. But, based on popular scientific dictionaries, myth was described as a story that relates to primitive beliefs about the life of the occult realm, arising from human efforts that are unscientific and not based on real experience to explain the world or the surrounding nature. In Sumber Gadung, people strongly believe in the myths that stick to the word of mouth that has existed for a long time.

According to the results of an interview with one of the caretakers of Sumber Gadung, Mr. Sudarsono said that this Gadung Source is one of the relics of the Majapahit kingdom. Sumber Gadung itself is a place where there is a natural spring that flows from the ground. The difference between this source and other springs around it is its use. The surrounding springs such as Hemisphere Temple or Tetek Source and Tirta Jolotundo as bathing places and sanctifying themselves by royal officials different from Sumber Gadung. The Gadung source, which releases very clear water, has been used as irrigation for rice fields since long ago by local residents until now. This is a special attraction for visitors. The source of Gadung found in the border area of Mojokerto Regency and Pasuruan Regency certainly cannot be separated from the flow of surrounding springs. Geographically the two districts are close to each other and even next to each other. Hemisphere Temple or Sumber Tetek in Wonosunyo Village, Gempol District, Pasuruan Regency is one of the springs that is close to Sumber Gadung. Tirta Jolotundo Temple is a spring located in Seloliman Village, Trawas District, Mojokerto Regency where this spring is also believed to be used as a treatment as well as water in Sumber Gadung.

The last closest source of spring water is the Dhuwur Source. Sumber Dhuwur is currently used by the surrounding community as a tourist attraction, even in the dam, the high source is used by residents as a place for water duck boats. Unlike other springs, which are believed to have their own myths and mystical stories. Of all the sources, the caretaker of Sumber Gadung said that there is still a connection between the flow of water in the soil and all the springs mentioned. Indeed, geographically the

sources are geographically spaced close together. Sumber Gadung is in Watesnegoro Village, Ngoro District, Mojokerto Regency. The pond located in Sumber Gadung is very sacred to the surrounding community. There is a lot of large fish in the Sumber Gadung pond. The fish is believed by the surrounding community to be the incarnation of the ancient Majapahit warrior who had died. The surrounding community believes that there are shelters and protectors for these fish. The fish in the pond have been around for a long time. There is a belief that the fish presents itself. The fish in the pond is Bader Fish. Local residents made the Bader Fish a mystery because there was an event where all the Bader Fish in the pond suddenly disappeared all by themselves. Residents believe that if Bader fish suddenly disappears, there will be a bad condition for them. There was once a condition where the Bader fish that lost all this came back again. But the appearance of Bader fish here began a little bit in 1999. No one can predict when the Bader Fish will disappear and return. The surrounding community also didn't know where the Bader Fish was going when the fish disappeared from the pond.

One of the myths that developed in Sumber Gadung is never to catch or consume Bader Fish in the Sumber Gadung pond. Once in a rainy season where there were fish farmed by residents that were released because they were carried away by the rain and entered the pond. The existence of a growing myth makes residents dare not take fish that have entered the source of the Gadung, be it fish that come by themselves or the fish of residents who enter there because they are carried away by the rain. If anyone still dares to take the fish then it is believed A family will get bad things, whether it's an illness, being visited by supernatural beings, or other calamities. Bader fish is one of the fish that is widely consumed by the rest of Indonesia and one of the fish native to Indonesia, especially the island of Java, hence the Latin name is *Puntius javanicus*. However, it changed to *Puntius gonionotus* and finally changed to *Barbonymus gonionotus* (Amri and Khairuman, 2008). In the myths circulating in the Gadung Source itself, the Bader fish is a fish that comes by itself. This fish is believed to be the guardian of the source. In addition to Bader fish, there are also Mujair fish (*Oreochromis mossambicus*), Tilapia (*Oreochromis niloticus*), and Koi (*Cyprinus rubrofuscus*).

The water at the Gadung source is believed to provide healing for some people. But many also don't believe this myth because it goes back to our beliefs. The myth in Sumber Gadung is that in addition to the waitress in the form of a bader fish, there is also a very large snake. Residents also believe that there are several special days when the residents or guards of this Gadung Source show their form as Bader fish with a large size once the size of a baby with a body only head and skeletal bones to the tail. Residents believe that when the condition of Sumber Gadung was still natural, this place was very mystical. Despite all these myths, residents love the surrounding environment until they hold many positive activities such as doing mutual aid or devotional work to clean the environment around Sumber Gadung.

Therefore, the purpose of this study is to look at the management of tourist villages, where the management is community-based and has a green economy concept. Then to observe the local wisdom that is here, find out how influential the myths that develop so that residents love the environment, and observe the attitudes and behaviors of residents towards environmental awareness that they have had for a long time. From these things, there is an interest in reviewing what is in this Gadung source so that other people out there imitate the attitudes or positive things of the residents around Sumber Gadung in loving the environment and ancestral heritage that exist so that it remains sustainable. It's not just about attitudes and myths developing. This research also aims to find information on how they can still maintain this tradition and economy even though technology, culture, lifestyle, and people's thinking began to develop rapidly during the Covid-19 pandemic.

LITERATURE REVIEW

Sumber Gadung was one of the widest springs in Wates Negoro village. Sumber Gadung was believed to be one of the other Majapahit Royal's known sites. These springs became a bathroom for royal officials during the Majapahit empire. Currently, these springs are used by local residents for daily needs, even for the other residences from Manduro and Wonosari villages (Nikmah et al., 2018). There are three places where the springs are located. The first place has an area of 9×5 meters, the second place was 4×3 meters, and the last place was 6×5 meters (Yudo, 2010). Each of these places is not used by residents for daily needs, because in these places there are some fish link Bader fish, tilapia fish, carp fish, and goldfish. The fish follow the connected water flow until they reach the second and third reservoirs. Fish. Water from the first reservoir is channeled to the second reservoir, where local residents use it for washing clothes and bathing, the area of the second reservoir is 12 m² with a length of 4 meters and a width of 3 meters. Furthermore, the water continues to flow to the third reservoir. The water is used by residents to bathe livestock, the area of this place is 30 m² with a length of 6 meters and a width of 5 meters. Water from the third reservoir is channeled to the rice fields for irrigation (Yudo, 2010).

METHOD

This research used a qualitative approach, namely the ethnographic method of communication and literature study. The data collection process uses observation techniques and interviews conducted for one month. The research was conducted in Wates Hamlet, Watesnegoro Village, Ngoro District, Mojokerto Regency. Researchers use record-and-record techniques. The tools used during the study were stationary to record the results of interviews and cameras to document everything in the field. In addition, researchers also conduct literature studies by searching and viewing existing literature to obtain data related to the resulting analysis. The data collected were analyzed descriptively and qualitatively with sociocultural theory (Gubrium et al., 1992).

RESEARCH RESULTS AND DISCUSSION

Bader fish was one of the endemic animals known as "Putihan Bader". Bader fish are commonly found in Indonesia and other countries in Southeast Asia such as Malaysia, Philippine, Thailand, Vietnam, Laos, and Australia. (Proese & Pauly, 2018). Bader fish can be cultivated on the beach side until 800 meters above sea level. This fish could live in temperatures between 25–30 Celcius. Bader fish was animal lived in the river with great tide. Their body was slim to face water conditions (Ricker, 1975). Bader fish can also receive additional foods such as kitchen scraps, bran, and meal (Richter 2007). Bader is classified as a plant-eating fish. The larvae of the tawes fish feed on unicellular algae (unicellular) and delicate zooplankton. Adult Bader fish love to

eat leaves such as taro and cassava leaves as well as aquatic plants such as *Hydrilla verticillata*. Bader fish are easy to breed in nature but also not difficult to develop in ponds and rice fields (Susanto, 2000).

Kingdom: Animalia
Filum: Chordata
Kelas: Actinopterygii
Ordo: Cypriniformes
Family: Cyprinidae
Genus: *Barbonymus*
Spesies: *B. Gonionotus*

Bader fish are medium in size, a total length of up to 330 mm. Side strokes 29-31 pieces. 3 – 3 ½ scales between the side strokes and the ventral fins. Anal fin with 6 ½ forked fingers. Body height at the beginning of the dorsal fin is 2,4-2,6 versus the standard length (i.e. length without caudal fin). Head length 4-4.3 versus standard length. The beginning of the dorsal fin is approximately parallel to the scales of the 10th side stroke, behind the beginning of the ventral fin, and separated from the crown by 11 scales. Dorsal fin formula IV (hard radius, spines).8 (soft radius); anal fin III.6; pectoral fins I.14-15; and pelvic fins I.8. The last hard fingers (i.e. the largest spines) of the dorsal fin with strong serrations on the back side. The tail stem is surrounded by 16 scales (Richter 2007).

Sumber Gadung is one of the largest springs in Watesnegoro Village. The source located in Wates Hamlet, Watesnegoro Village is one of the cultural heritage of the many relics scattered in the Mojokerto area which was once the site of the center of government of the Majapahit Kingdom. This source is believed to be the bathing place of the royal dignitaries during the Majapahit Period. In the current era, the spring water is used by local residents to meet their daily needs both by residents around the village and residents from outside the village, for example, residents from Manduro Village and Wonosari Village. The function of this spring is very important for the life of living things and the natural balance of the area. This spring is located in Watesnegoro Village, Ngoro District, Mojokerto Regency (Nikmah et al., 2018). There are three springs there. The first water reservoir has an area of 45 m², a length of 9 meters, and a width of 5 meters. This shelter is not used by local residents for daily activities. This place is where many fish are found such as bader, mujair fish, carp, and tilapia. The fish follows a connected stream of water so that it comes to the second reservoir and the third reservoir. The fishes. Water from the first reservoir is flowed to the second shelter, in that place it is used by local residents to wash clothes and take a bath, the area of the second shelter is 12 m² with a length of 4 meters and a width of 3 meters. Further, the water continues to flow to the third reservoir. The water is used by residents to bathe livestock, the area of this place is 30 m² with a length of 6 meters and a width of 5 meters. Water from the third reservoir flows to the rice field area for irrigation (Yudo, 2010).

The origin of Sumber Gadung is a relic since the Majapahit Period and began to be used as a tourist attraction about 10 years ago. The beginning of this tourist attraction was once a native spring used for irrigation of rice fields during the royal period from south to north of the region with water sources that never dry even in the dry season. The Gadung Source has streams that are interrelated with the surrounding sources, namely the Jolotundo Spring and the Tetek Source. Sumber Jolotundo was once a bath of the royal family during the Majapahit period, Sumber Tetek used to be a place of worship, while the last one was Sumber Gadung which functioned as irrigation/irrigation used during the royal period. All three sources have their own magical stories that are behind their existence. Here there are many Bader Fish which are known as mystical fish by local residents. Bader fish itself is a fish that has been discovered several centuries ago. According to the caretaker in Sumber Gadung, there was an event where the Bader fish in Sumber Gadung disappeared due to a natural disaster around there where there was a flood that caused the spring to overflow. Since then, many residents' fish have entered the source, such as mujair and tilapia, which are the inhabitants of the source along with the bader fish. Residents believe that if the Bader fish suddenly disappears, it will mark the appearance of a disaster or bad omen and if conditions have improved, this Bader fish will come back again. In the myths circulating in the Gadung Source itself, the Bader fish is a fish that comes by itself. This fish is believed to be the guardian of the source and is considered the incarnation of the high-ranking soldiers of the Majapahit Kingdom.

Sumber Gadung itself is a place where there is a natural spring that flows from the ground. Sumber Gadung is famous for its uniqueness, namely the condition of the water that comes out of the ground is very clear and there are many minerals contained in it. In addition, the existence of Bader fish that is attached to mystical things and the mythical subject of society is an attraction in itself. There is one story where this fish used to have fish belonging to residents that escaped because it was carried away by the rain and entered the pond. The growing myth about residents' fish being carried away by the rain is never to take fish that have entered the source of the gadung, whether it is fish that comes by itself or residents' fish that enter there. If someone is still desperate to take the fish, one family will get bad things, whether it is a disease, being visited by supernatural beings, or other disasters. Water derived from gadung sources is also believed to be efficacious in curing as a cure for all diseases. Not only for Mojokerto residents but also for residents outside the city. Such as Nganjuk, Surabaya, Sidoarjo, Gresik, and Pasuruan.

Many overhauls were carried out by residents to maintain this Gadung Source as a form of sustainable efforts such as repairing the periphery of the source or dam. In addition, trees that have been uprooted for a long time are replaced or planted with new ones. Sumber Gadung is one of the facilities owned to help meet the food and clothing needs of local residents because it can help irrigate the rice fields used by residents to meet their needs. In addition, Sumber Gadung also began to be used as a tourist attraction. Even before being affected by Covid-19, many residents' activities, and many out-of-town tourists also came, and as one of the natural attractions that must be visited when passing through the Ngoro district. The water in this source does look calm, but in fact, the water in this source flows and never dries even in the dry season. Once during the rainy season, the fish here came out into the rice fields because of heavy rain, floods, and sources that flowed quickly. This myth in Sumber Gadung also believes that fish that have gone to the rice fields can be caught because they have been allowed and indeed given by the waitress or ancestors of the Gadung Source. The myth in Sumber Gadung is that in addition to the waitress in the form of a bader fish, there is also a very large snake. Residents also believe that there are certain days when the residents or guardians of this Gadung Source show their form as Bader fish with a large size the size of a human baby with a body of only a head and skeletal bones to the tail.

Residents believe that when the condition of Sumber Gadung was still natural, this place was once a place sacred to the people of the Majapahit era.

Another attraction of Sumber Gadung Tourism itself is that tourists can feed the fish contained in the pond. Only by paying one thousand rupiahs per plastic can visitors enjoy the excitement. In addition, there are playgrounds for children such as swings, prosotans, and seesaws. There is also a gazebo or pavilion used for picnics and rolling out mats with the family. The road access needed to get to Sumber Gadung from the main highway is also reachable and easy to pass. The effects of the pandemic that occurred throughout 2020 and 2021 affected many residents' activities and also affected the number of visitors who came to the Sumber Gadung tourist attraction. The number of visitors before the pandemic was estimated to be 25 to 50 visitors per day. When PSBB got started, the implementation of other health protocols caused the number of visitors to plummet. Sumber Gadung is also used to meet the needs of bathing, washing clothes, and swimming for local residents. Residents used to use detergent or soap to bathe and wash in one of the existing ponds, this is what finally more or less affected the quality of the water in Sumber Gadung to be not as prime as before. However, residents are also starting to realize and think of ways so that residents' daily activities do not affect or damage the ecosystem because the Gadung source has water that flows continuously into the irrigation of rice fields and to source one that contains a lot of fish. Residents also pay attention by minimizing the use of detergents or harmful chemicals when doing activities near the source.

Despite all these myths, residents love the surrounding environment until they hold many positive activities such as doing mutual aid or devotional work to clean the environment around Sumber Gadung, especially since there are village moor, puppetry, and TPS places. Residents strongly trust and still preserve the ancestral heritage that is thick with beliefs and traditions. Before the pandemic, many activities were carried out by local residents. For example, on certain days there will be puppetry and ludruk performances intended as offerings to ancestors and a form of gratitude from the residents for the existence of Sumber Gadung. In addition to paying attention to the environmental conditions around the source, socialization related to the importance of conservation of the existence of bader fish species also needs to be done. One of the efforts that can be done is to cultivate from bader fish species in Sumber Gadung. This can be done by local residents, namely by always maintaining and paying attention to the quality of water and feed from Bader Fish. Tourists can also be invited to carry out environmental conservation activities carried out by local residents when visiting this site so that it is not only materially profitable but at the same time educates residents regarding the importance of preserving the environment.

In addition to the mystical stories and tourist attractions owned by Sumber Gadung, there are also various potentials in terms of education and scientific development. Research from the field of bioecology can be carried out, namely researching water quality and environmental quality around the source. In addition, other studies can also be carried out such as analyzing the characteristics and similarities of genes of bader fish species that exist in other regions. In terms of education, gadung resources are also very worthy to be used as objects for making learning media based on local wisdom and their relationship with environmental materials. With community conservation efforts that highly uphold local wisdom both in terms of social, cultural, and of course economic. This is very profitable if green economic activities are highlighted and promoted to the general public to get a plus in the eyes of the community. Public interest in clean and beautiful tourism is found in this Gadung Source. The application of the Green Economy is very much considered in maintaining the essence and maintaining the noble value that exists, especially the belief in the myth of bader fish circulating. The community carries out economic activities around Sumber Gadung by opening coffee shops, snack stands, and fish food stands for visitors who want to feed bader fish in the Sumber Gadung. Many tourists come to feed the fish. This activity really helps the economy of the residents and also helps the preservation of bader fish in Sumber Gadung. Feeding fish is included in conservation activities and buying fish meals to residents who sell is a form of economic activity. This can be said to have become the implementation of Green Economy activities in Sumber Gadung.

CONCLUSION AND SUGGESTION

The local wisdom in Sumber Gadung is like the residents' belief in a very thick myth, besides that the number of Bader Fish is very large with a large size, the unspoiled surrounding scenery in the form of a large expanse of rice fields, and ancestral customs are continued and passed on to the successors of young people there. The existence of myths that develop and the nature and mindset of the community about the importance of maintaining the traditions passed down by the ancestors unknowingly make them have a passion for protecting the environment and cultivating a spirit of conservation. In addition, it strongly reflects the basic nature and attitude of running a green economy. Some residents also sell around the Sumber Gadung location but still pay attention to the cleanliness and naturalness of the surrounding environment which makes tourists feel comfortable when they come to visit. Residents and vendors there also provide many trash cans for visitors who want to take out the garbage after eating or drinking. The myths that develop in society have a positive impact on how they have the habit of growing plants, maintaining ecosystem balance, maintaining fish populations, and preserving cultures that have been passed down by ancestors. The attitudes and behaviors of citizens towards environmental awareness that they have had for a long time are worthy of appreciation. They always teach the things passed down by their ancestors to the next generation, so that the existing traditions are maintained even in the current era of advanced technology. Since technology has grown and dominated this life, people use technology as their support in carrying out existing traditions. So people are more helped because of this technology. As a good society, we should model positive things that develop in the Sumber Gadung environment, especially the nature and attitude of being environmentally conscious in carrying out economic activities. The existence of a growing myth makes it a motivating factor for people to protect the surrounding environment and makes it a special attraction for tourists. A strong belief in society in the myths and ancestral heritage makes the tradition of ancestral heritage survive, although the development of technology, culture, lifestyle, and people's thinking began to develop rapidly due to the influence of globalization.

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REFERENCES

- Aji, A. S., Hartono, H., & Hidayat, M. S. (2022). The Influence of Viral Marketing and Tourist Motivation on the Decision to Visit the Watesnegoro Gadung Source Fishpond During the COVID-19 Pandemic (Doctoral dissertation, Universitas Islam Majapahit).
- Ayyub, H., Budiharjo, A., & Sugiyarto, S. (2019). Morphological characteristics of silver barb fish population *Barbonymus gonionotus* (Bleeker, 1849) from different water locations in Central Java Province. *Jurnal Iktiologi Indonesia*, 19(1), 65-78.
- Buwono, R.N., Arfiati, D., Muhammad, D., & Arifin, S. (2019). Analysis of Silver Barb (*Barbonymus gonionotus*) gut content in Bengawan Solo River Estuary, Lamongan Regency. *Journal of Aquaculture and Fish Health*. 8(1) 8-14. Retrieved from <http://dx.doi.org/10.20473/jaf.h.v8i1.11364>
- Gubrium, Jaber F and James A. Holstein, (1992). "Qualitative Methods", in *Encyclopedia of Sociology*, Vol. 3. New York: Macmillan Publishing Company.
- Makmun. (2016). Green Economy: Concept, Implementation, and the role of the Ministry of Finance. *Journal Economic and Development*. 19 (2):1-15.
- Nasution, N. A., & Machrizal, R. (2021). Bioecological aspect of lamasi (*Barbonymus gonionotus*) in mailil rever labuhan batu district, Indonesia. *JPBIO (Jurnal Pendidikan Biologi)*, 6(1), 116-124.
- Nikmah, C., Purnomo, T., & Wisanti, W. (2018). Water Quality of Gadung Source of Wates Negoro Mojokerto Village In Terms of Plankton Diversity Index and Oxygen Levels. *LenteraBio*, 7(1), 83–91.
- Prabowo, Rachmat Udhi. Ahmad Nafi. Julian Adam Rijal. (2022). Implementation of Green Economy Repositioning: Improvement StartUp Capacity of The Surrounding Community Meru Betiri National Park. *Agribios Journal Science*. 20 (1).
- Priatna, D. E., Purnomo, T., & Kuswanti, N. (2016). Heavy metal levels of lead (Pb) in water and bader fish (*Barbonymus gonionotus*) in the Brantas river of Mojokerto region. *Lentera* ISSN, 2252-3979.
- Proese, R., & Pauly, D. (2018). *Barbonymus gonionotus* (Bleeker, 1849). FishBase. Available: U.S. Fish & Wildlife Service, 2017, 1-20.
- Qomah, I., Bayu, M. M., & Syamsunarno. (2019). Feminization of silver barb (*Barbonymus Gonionotus*) using estradiol-17 β feminization of silver barb (*Barbonymus gonionotus*). February 2019.
- Richter, T. J. (2007). Development and evaluation of standard weight equations for bridge lip sucker and largescale sucker. *North American Journal of Fisheries Management*, 27: 936-939.
- Ricker, W. E. (1975). *Computation and Interpretation of Biological Statistics of Fish Population*. Ottawa: Department of the Environment. Fisheries and Marine Service. Pacific Biological Station. 382 h.
- Ryan, M. (2010). *Cultural Studies: A Practical Introduction*. Singapore: Blackwell.
- Sartini. (2004). Exploring the Local Wisdom of the Archipelago a Philosophical Study. *Jurnal Filsafat*. Jilid 37, Nomor 2, Agustus 2004, Halaman 111-120.
- Yudo S. (2010). Water Quality Conditions of Ciliwung River in the DKI Jakarta Area in Terms of Organic Parameters, Ammonia, Phosphates, Detergents, and Coli Bacteria. *JAI* 6 (1): 34-42.
- Zulkarnain, L.A., Hastuti, S., & Sarjito. (2017). Effect of Vitamin C Addition to Feed as Immunostimulant on Blood Performance, Dilution, and Growth of Tawes Fish (*Puntius javanicus*). *Journal of Aquaculture Management and Technology*, 6(3), 159-168. Retrieved from <https://ejournal3.undip.ac.id/index.php/jamt/article/view/20430>.

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