Utilizing the Potential of Local Wisdom and Infrastructure Development of Old village of Tiangwangkang, Tembesi Sub-District, Batam City

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Abstract: Indonesia is a country located in Southeast Asia and has more than 17,000 islands in it. One of the provinces in the form of islands is the Riau Archipelago Province which is close to Singapore and Malaysia, so that many tourists also visit the province, such as Batam City. In Batam City there are several tourist objects such as the Batam Botanical Garden, Welcome to Batam, and also Ocarina Park. Apart from tourist attractions in the city center, Batam City also has beach tourism destinations such as Melayu Beach, Melur Beach and many other beaches. Old village can also be an option for tourists to visit because there are many cultural values of local wisdom that are still maintained and preserved in it. One of them is the old village of Tiangwangkang which is in the Tembesi Village, Sagulung District.

Old village of Tiangwangkang has the potential to become a tourist village because it has a strategic area, which is close to the beach and also close to the Barelang Bridge. However, there are several problems in the area such as road problems, street lighting, and also several other public facilities to support the accessibility of the community and tourists later. Therefore, it is necessary to develop infrastructure and also arrange it so that the village is worthy of being a tourist village. This research uses a descriptive method as well as a potential analysis to see the potential of this region. Old village of Tiangwangkang has the potential to become a tourist village because it has local wisdom that is still maintained and has beautiful views. However, to become a tourist village that is appropriate and can prosper the local community, it is necessary to develop infrastructure and arrange it so that the old village of Tianwangkang can become a tourist destination that is comfortable and worth visiting.

Keywords: Infrastructure, Local Wisdom, Old Village of Tiangwangkang, Sagulung District

A. Introduction

Batam, a city in the Riau Archipelago, in 2019 was designated as the second national contributor to foreign tourists after Bali. The Central Statistics Agency (BPS) reported that the number of foreign tourist visits to the Riau Islands in January-June
2019 reached 1.13 million, an increase of 17.42 percent or 267,307 visits compared to the same period in 2018 (Wartono et al., 2023).

One of the economic tourism sectors that can become the focus of the Batam City Government is the development of old village of Tiangwangkang (Y. F. Sidabutar, 2022). In this Old village there are lots of potentials that can be explored in terms of culture, history and nature (Purwasih et al., 2023). However, there are several problems in realizing this because in terms of infrastructure and building other public facilities, old village of Tiangwangkang is still in the unfulfilled category, for example, the lighting of the village road, there is no clear marker for old village of Tiangwangkang, there is no proper waste management so the impression of the old village is unclean and unorganized (Y. F. Sidabutar & Indra, 2021). The purpose of research on the utilization of local wisdom potential and infrastructure development in old village of Tiangwangkang, Tembesi Village, Sagulung District, Batam City is (1) Making old village of Tiangwangkang a tourist destination characterized by local wisdom owned by Batam City and in the future it will become a tourist icon which is the main destination for local and foreign tourists and (2) Making old village of Tiangwangkang an example in developing infrastructure in the old village area, driving the economy, as well as a connecting place between islands around Batam Island (Jumriani et al., 2021). The purpose of the research used was to obtain some of the potentials possessed by old village of Tiangwangkang, such as (1) Knowing the potential utilization of local wisdom in the old village of Tiangwangkang Kel. Tembesi, Kec. Sagulung City of Batam and (2) Knowing the infrastructure development that has been and will be carried out by the Batam City Government for development in the old village of Tiangwangkang area, Kel. Tembesi Kec. Sagulung (Danuwidjojo et al., 2021).

Old village of Tianwangkang has problems which are challenges that must be resolved in regional planning (1) The potential for local wisdom in old village of Tiangwangkang has not been utilized optimally and (2) Infrastructure development in old village of Tiangwangkang has not been fully developed (Rahmawati & Astuti, 2019). This is a problem that the local community can solve with the help of the Batam City Government so that the area can be better (Y. F. D. Sidabutar & Indera, 2021). Landmarks are one of the elements that form the city's image in the form of easily recognizable buildings to ensure the location of a place that has tourism potential so as to attract tourists to visit. Landmarks in Batam City include the Barelang Bridge, Laluan Madani Fly Over, Sultan Mahmud Riayat Syah Grand Mosque, Base Camp Simpang Roundabout and Barelang Simpang Roundabout (Sutianto et al., 2023).

On the way to the Barelang Bridge via the Trans Barelang Road, you will pass the Barelang Intersection Roundabout, Residential Areas, Commercial Areas, Government Areas and Tourist Areas (Purwasih et al., 2023). The tourist areas in question are the old village of Tianwangkang, Dendang Melayu Beach, Harris Resort, Barelang Seafood and the Barelang Bridge (Dahari et al., 2022). Old village of Tianwangkang is one of the 37 old villages in Batam City. Old village of Tiangwangkang is in the south of Batam Island, before the Raja Fisabilllah Bridge or
better known as Bridge 1 Barelang (Palit et al., 2022). The majority of the residents of old village of Tianwangkang are the sampan or sea tribe who have settled on the inland coast of Batam Island since the 1900s. Old village of Tiangwangkang was originally inhabited by 7 heads of families who had kinship with other marine tribes in the Riau Archipelago, now old village of Tiangwangkang is inhabited by 63 heads of families (203 residents) (Purba et al., 2019).

Tiangwangkang is a small village in the south of Batam Island, to the right of Bridge 1 Barelang (Sutianto et al., 2023). The people who inhabit this old village are the Sampan tribe or the sea tribe. At first the sea tribes were nomadic on the seas, but several heads of families decided to settle in the Tiangwangkang area and started doing charcoal cooking activities as a new livelihood apart from marine products (Wartono et al., 2023). The Laut tribe who live in Tianwangkang are thought to have existed since the 1960s. There are several versions of the origin of the name Tiangwangkang. The first version of the origin of the name Tiangwangkang comes from a Chinese ship named Tiangwangkang which anchored on the coast of this village, since then residents have known this area as the Tiangwangkang village. The second version is that there is a large orange tree that grows in this area, the orange tree is called Wangkang, so this area is called Tiangwangkang.

B. Methods

The location of this research is in old village of Tiangwangkang Tembesi Village, Sagulung District, Batam City. The method used in this study is descriptive qualitative with the SWOT method. The observation process was carried out in order to observe and collect information through monitoring in the field and also see directly the structure of the local community’s life order and also analyze the advantages and disadvantages of the area and then a study will be carried out from these observations (Nurlina et al., 2023). Not only observing but also conducting interviews with local residents and also the RTs in old village of Tianwangkang. This study will also display a table description of the potential areas obtained based on the data and will present photos of the potential areas.

Overall, the study aims to provide a comprehensive understanding of the potential areas in old village of Tiangwangkang Tembesi Village and how the community can leverage them to improve their lives (Nugraha et al., 2023). That seems to be the main goal of the study to identify the strengths, weaknesses, opportunities, and threats of the area and provide recommendations on how the local community can utilize their resources and potentials to improve their quality of life. By conducting observations, interviews, and analyzing data, the study aims to provide valuable insights into the current state of the village and how it can be developed sustainably in the future.

C. Results and Discussion

Old village of Wangkang has several potential strengths that can be explored in terms of local wisdom and also infrastructure development that can be carried out in the future, the following can be obtained, including:
1. The location of old village of Tianwangkang is near Bridge 1 Barelang and has a direct border with Harris Resort. This location makes it easy to access for tourists who want to visit the old village of Tianwangkang and enjoy the natural and cultural beauty that is there. It's interesting to know that it is located near Bridge 1 Barelang and has a direct border with Harris Resort, which makes it easily accessible for tourists who want to visit the old village of Tianwangkang. This proximity to the resort and the bridge may also provide opportunities for the local community to develop their tourism industry and attract more visitors to the area. By leveraging their natural and cultural beauty, they can promote the village as a unique and authentic destination for tourists who want to experience local life and culture.

![Figure 1. Appearance of the Barelang Bridge and Harris Resort from the Old Village of Tianwangkang](image)

2. Old village of Tianwangkang has the potential to become an alternative port for tourists who want to visit nearby islands, such as Lance Island, Panjang Island, and Akar Island. This port provides an alternative choice for tourists and increases accessibility for the islands, thereby increasing tourism in the region. To know that old village of Tianwangkang has the potential to become an alternative port for tourists who want to visit nearby islands such as Lance Island, Panjang Island, and Akar Island. This can indeed increase the accessibility to the islands and provide more tourism opportunities for the region. By utilizing the natural resources and developing the infrastructure around the port, the local community can attract more tourists and create economic opportunities for themselves. It can also help in reducing the pressure on the existing ports and providing tourists with more options to explore the region.
3. Old village of Tianwangkang has a fairly large area and has the potential to be developed as a culinary tourism destination. Currently, there are only two large restaurants there, but there are still many areas that can be developed as culinary tourism spots. Utilization of this area as a culinary destination will provide added value to tourism in old village of Tianwangkang and help boost the local economy. That old village of Tianwangkang has the potential to be developed as a culinary tourism destination. With its large area and unique local cuisine, the village can attract more tourists who are interested in exploring the local culinary scene. By developing more restaurants and culinary spots, the local community can provide a diverse range of food options for tourists and create more job opportunities for themselves. Moreover, this can help promote the local food culture and heritage, which can further increase the appeal of the village as a tourism destination. Overall, the development of culinary tourism in old village of Tianwangkang can bring added value to the tourism industry and boost the local economy.

4. Old village of Tianwangkang has its own uniqueness, where there are three adjacent places of worship and form a symbol of religious tolerance and moderation. The existence of this place of worship shows that the people in old village of Tianwangkang live in harmony and accept different beliefs. This is an attraction for tourists who are looking for a place with an atmosphere that is inclusive and peaceful. The village has three adjacent places of worship, which symbolize religious tolerance and moderation. This diversity of beliefs and the peaceful coexistence of different religions can indeed be a unique attraction for
tourists who are seeking a cultural experience that promotes inclusivity and harmony. The village's promotion of religious tolerance can also help promote the message of peace and mutual understanding, which can further enhance the village's appeal as a tourism destination. Overall, the village's commitment to religious harmony can not only provide a cultural experience for tourists but also send a positive message of inclusivity and mutual respect.

Figure 4. Places of Worship of 3 People of Different Religions in Old Tiangwangkang Village

5. Old village of Tiangwangkang has a rich history and culture, including the existence of a charcoal kitchen which is an important asset for the local economy. This charcoal kitchen place can be developed as a source of income for the community and become the forerunner of economic development in the region. Optimum utilization of this charcoal kitchen can help strengthen the local economy and promote community welfare. That old village of Tiangwangkang has a rich history and culture, including the existence of a charcoal kitchen, which is an important asset for the local economy. With its potential as a source of income for the community, the charcoal kitchen can become a forerunner of economic development in the region. By promoting and utilizing this unique local resource, the local community can create jobs and businesses that are based on their traditional practices and culture. Moreover, the development of the charcoal kitchen can also help preserve and promote the local heritage, which can further increase the appeal of the village as a tourism destination. Overall, the optimum utilization of the charcoal kitchen can help strengthen the local economy, promote community welfare, and preserve the local heritage for future generations.
6. Old village of Tianwangkang has amazing natural wealth, including a large area of mangrove forest. This area can be managed and developed as an attractive mangrove forest tourist spot for tourists. Tourists can enjoy the natural scenery and find out more about the uniqueness and benefits of mangrove forests. Utilization of this area as a tourist spot can help strengthen tourism in old village of Tianwangkang and advance the local economy.

![Figure 5. The Charcoal Kitchen Place of the Local Community of the Old Village of Tianwangkang](image)

![Figure 6. Mangrove Forest in the Old Village of Tiangwangkang](image)

Apart from the potential strengths, there are also weaknesses in old village of Tianwangkang that need to be found for solutions for future improvement:

1. On the Trans Barelang Main Route, there is no clear sign indicating the location of the old village of Tianwangkang. This makes it difficult for visitors to find the location and makes it less attractive to tourists.

![Figure 7. The Entrance to the Old Village of Tianwangkang](image)
2. PJU lights on the main road of Trans Barelang to old village of Tianwangkang are still inadequate. Some parts of the road are still dark and not lit, making the road conditions unsafe for motorists and pedestrians.

3. There are still several water reservoirs around the old village of Tianwangkang that have not been covered. Some of the garbage that is carried from the sea that is under people's houses sometimes has the potential to store stagnant water. This is a great potential for breeding mosquitoes that spread diseases such as Malaria and Dengue Fever. These mosquitoes can spread disease to local residents and visitors.

4. The absence of optimal waste management carried out by the Batam City Government and also the lack of public awareness of the waste management they produce daily, the existence of waste carried by the wind from the sea that has accumulated on the coast of the old village of Tiangwangkang beach area is a challenge in itself in waste management in old village of Tianwangkang.

5. The absence of a pedestrian path from the old village gate of Tiangwangkang to the end of the settlement is an unresolved problem. This condition makes it difficult for residents and tourists who want to walk from one place to another.
Without adequate pedestrian roads, people's mobility is very limited and creates difficulties in traveling.

6. There is no promotion that provides information about the uniqueness and characteristics of old village of Tiwangkang, this has an impact on the lack of public understanding of the culture and traditions that exist in old village of Tiwangkang.

Several threats to the old village of Tianwangkang:
1. Garbage being sent from other places which the waves brought to the coast of old village of Tianwangkang is not only dirty, it also causes disease
2. There are rising tides that make the coastal area sink
3. The existence of Cut and Fill activities brought sediment to the coast, making the sea cloudy around the village of Tua Tiwangkang resulting in reduced catches of fish, crabs, shellfish around the village of Tua Tiwangkang

From the survey results found several opportunities that need to be developed in the old village of Tiwangkang:
1. Has an area that can be developed for culinary tourism, apart from the two existing large restaurants
2. Has a mangrove forest area, which can be managed as a mangrove forest tourist spot
3. Have the opportunity to add to the attractiveness of tourists with a home stay based on local wisdom
4. Has an area that can be developed as an Outbound Place or a small zoo.
5. Having the opportunity to develop marine tourism in the form of fishing spots, sailboat competitions and Sky Diving.
6. Have the opportunity to develop seaweed cultivation, fish breeding independently, and develop a kelong business.

Not only that, we have summarized some of the potential in Local Wisdom Potential.
1. Heritage

Figure 10. the Potential in Local Wisdom Potential Heritage
The history of cultural values can be a potential as an educational (Muna, 2022) tourism object, apart from traveling to enjoy the existing scenery, tourists can also learn the history of the founding of the old village of Tiangwangkang to the history of the sea tribes in the old village of Tiangwangkang. Even though the old Tiangwangkang village is a small village with an area of +/- 7 hectares, it has 3 places of worship from three different religions that are close to each other. The three of them are silent witnesses of the acculturation of the ancestral culture of the Sampan people with the new beliefs they are currently embracing.

2. Regional Planning Facility

The sports facilities owned by the residents of old village of Tiangwangkang are only fields with existing facilities, and also the fields are still in the form of stretches of land lined with makeshift equipment. The government can build facilities in the form of a field to facilitate people who want to exercise or play in their spare time, and maybe a sports tournament can also be held on the field which will certainly enliven the atmosphere of the old village of Tiangwangkang.

In the past the sea tribe had anismism beliefs. Now the Laut tribe already has religions, namely Christianity and Islam, and the uniqueness of old village of Tiangwangkang lies in the adjacent worship facilities. It can be seen that there is already evidence of high tolerance between religious communities in old village of Tiangwangkang. A clapboard church was built in the early 1970s, since the first sea tribes settled on land. Next to the GPIB Zebulon Batam there
is the at taqwa mosque, the coloring of this mosque and church still uses the predominantly Malay green – yellow color. On the left side of the gate there is the Tianwangkang Temple which is dominated by red, green and golden yellow colors. To the left of the monastery there is a seven-level pagoda building.

Figure 13. Culinary tour
There are two large restaurants in Tia Tianwangkang Village, namely Kelong Kopak Jaya Restaurant and Citra Utama 188. With abundant marine wealth, and the expertise of the people in searching for marine products, we are ready to serve live and fresh seafood for seafood lovers. This restaurant is a place that can absorb local workers from old village of Tianwangkang. And the raw materials for this restaurant also come from the kelong business of old village of Tianwangkang.

Figure 14. Marine tourism
Marine tourism in old village of Tianwangkang is managed by the community under the name "Barelang Cruise", the route of this tour boat is to go around between the nearest islands at Barelang I Bridge. Taking pictures with the background of the I Barelang Bridge is unique for tourists who come from outside the Batam area.

Figure 15. Socio-Cultural
On average, the livelihoods of the residents of old village of Tiangwangkang are fishermen, seaweed farmers, charcoal makers, kelong businesses and restaurant employees. Currently there are two large restaurants located in Kampung Tianwangkang, namely Kopak Jaya 007 and Citra Utama 188 which are always busy with local and foreign tourists. The seaweed business has quite bright prospects for local residents, the seaweed drying process takes approximately 3 hours

3. Infrastructure Development

![Figure 16. Roads and Power Plants](image)

Previously, Old village of Tianwangkang had not been connected to the Trans Barelang road. Residents still used small boats to travel to Sagulung or other places. After that, a 1.5 km asphalt road was built and equipped with the PLN network for electricity needs in Old village of Tianwangkang. At night, this road is still dark because the PJU lights for lighting are not sufficient.

![Figure 17. Clean Water](image)

For the need for clean water, old village of Tianwangkang has been connected to the ATB (Moya) pipe from Jalan Trans Barelang. From old village of Tiangwangkang then the clean water network spreads to the Other Islands (Lance Island, Panjang Island and Akar Island) via underwater pipes. There are five clean water reservoirs, first from the grand reservoir to Tiangwangkang with a capacity of 200 cubic meters, then it will be channeled using a pump to Lance Island with a capacity of 50 cubic meters. Then to Panjang Island, continuing to Pulau Akar, with a capacity of 50 cubic meters.
each. To distribute clean water, a pipe with a distribution length of 15,180 meters is used, of which around 4,000 meters is under the sea.

Figure 18. Platform

The gate at Tiangwangkang is a link between islands, especially for people heading to Lance Island, Panjang Island and Akar Island. The construction of this concrete platform was carried out in 2017. This concrete platform greatly assisted the movement of people and goods to the surrounding islands. Many of the people of Tipangwangkang became tekong and owned a boat rental business, either as a means of connecting to other islands or as tourist boats that circle the islands around Barelang or for rent for fishing boats to further sea areas.

Figure 19. Wastewater Management (Communal WWTP)

The construction of a communal wastewater treatment plant (WWTP) and a network of wastewater pipes in the old Tiangwangkang village is useful for improving the environmental health of people who usually dispose of their defecation directly into the sea. With the existence of a Wastewater network, the results of defecation are channeled through the Wastewater network to the Communal WWTP. Then the waste water will be processed within a certain time so as to produce Biological Oxygen Demand (BOD) which is environmentally friendly. This Wastewater Installation is connected from all the houses in the Old village of Tianwangkang to 3 Wastewater Treatment sites, besides that there are also several cleaning water tanks.
The construction of the Communal WWTP and Wastewater Network uses community labor as Man Power in the form of Community Self-Help Groups (KSM) who work together in development. The process of building this communal WWTP is carried out by the community independently by working together. Since the Communal WWTP is in the sea, the construction process is a challenge in itself because it depends on the tides. If the low tide is in the early hours of the morning, the people are still enthusiastic about working together until the morning.

4. Solution

After reviewing the potential of the Old village of Tiangwangkang, the following will review the infrastructure development that needs to be carried out in the Old village of Tiangwangkang area:

a) It is necessary to add PJU lights in several areas. First, PJU lights must be added from the main Trans Barelang road to old village of Tianwangkang. Second, PJU lights must also be added around residential areas in Old village of Tianwangkang. Therefore, the government must provide adequate attention and support to complete PJU lights in the area.

b) To overcome the problem of seawater abrasion in the old village of Tianwangkang area, preventive measures are needed. Building a retaining wall is one effort to overcome this problem. The retaining wall has the function of limiting the abrasive impact of seawater on the surrounding area, thereby maintaining soil stability and preventing erosion. Therefore, the construction of a retaining wall is very important to do, so that no losses occur due to seawater abrasion and are able to maintain the sustainability of the area. The government must provide sufficient support and attention to build a retaining wall in the area.

c) Make a marker for the old village of Tiangwangkang on the edge of the Trans Barelang Road. This marker is very important to help tourists and the public find the location of the Old village of Tianwangkang. In addition, this marker can also increase tourist attraction and attract public attention to the existence of the old village of Tianwangkang. Therefore, the government must provide adequate support and attention to make the old
village of Tianwangkang marker on the edge of the Trans Barelang Road, so that no tourists or the public have difficulty finding the location and accelerate the development of tourism in the area.

d) It is necessary to apply the pedestrian concept to connect the gate of old village of Tianwangkang to the front of the residential area for the convenience and safety of pedestrians. This will ease access and promote a favorable impression on tourists.

D. Conclusion

With the existence of research on the potential utilization of local wisdom and the development of infrastructure in the village of Tua Tiangwangkang Kel. Tembesi Kec. Sagulung, it can be concluded that: (1) Utilization of the potential of local wisdom to increase tourist attraction can be done in a number of ways including carrying out promotions that provide information about the uniqueness and characteristics of old village of Tiangwangkang. Actions must be taken to overcome these problems, such as adding clear signs, increasing the number of PJU lights, closing all water reservoirs, building pedestrian roads, and promoting the uniqueness and characteristics of old village of Tiangwangkang, in order to improve conditions and increase the potential of this area. as a safe, healthy and attractive tourist destination. It is very appropriate that the potential possessed by the old village of Tianwangkang area must be developed and utilized as best as possible. Batam City Government has an important role in facilitating and helping local communities to overcome existing problems and take advantage of these potentials. By taking into account the strategic location, the potential as an alternative port, a large area to be developed as a culinary tourism spot, the uniqueness of adjacent places of worship, rich history and culture, natural wealth, and a charcoal kitchen which is important for the local community's economy, the development of tourism in old village of Tianwangkang will provide great benefits for the local economy and improve the quality of life of the community. (2) Infrastructure developments that need to be carried out include adding PJU lights to ensure safety and security, building a retaining wall to overcome the problem of sea water abrasion, making a marker for old village of Tiangwangkang to make it easier for tourists and the public to find the location, and applying the pedestrian concept to connect the Gapura old village of Tiangwangkang to the front of the residential area.

The government must provide adequate support and attention to realize the development of this infrastructure, as well as the preservation of local wisdom so that it can ensure comfort, safety and tourism development in the region. The development of the tourism area in question is the development of mangrove tourism, culinary tourism where tourists can cook the desired menu themselves; to add to the attractiveness it is necessary to make a home stay based on local wisdom which has the characteristics of a coastal stilt house. To increase human resources, it is necessary to empower the community for knowledge about seaweed cultivation. It is also necessary to cooperate with Akar Island, Panjang Island and Lance Island for tourist purposes such as fishing spots or sailing boat competitions. With the
utilization of local wisdom and infrastructure development in the old village of Tianwangkang, it is hoped that there will be an increase in the quality of life of the residents, both economically and culturally. Besides that, old village of Tianwangkang can be a tourist spot that has its own characteristics which are a special attraction for local tourists and foreign tourists.

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