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Economics Valuation of Mangrove Forest in Supporting the Blue Economy and the *Maqaṣid Al-Sharia*: A Case Study of Guraping Mangrove Forest, Sofifi, North Maluku

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Abstract. *This research aims to evaluate the economic value of the Guraping mangrove forest in Sofifi, Indonesia, and its alignment with blue economy principles and Maqaṣid al-Sharia objectives. This research uses a mixed-methods approach, combining quantitative and qualitative methods. Data were collected through surveys using questionnaires from 100 tourists, interviews with key informants, observations, and literature reviews. The results of the valuation economy support the concept of the blue economy and Maqaṣid al-Sharia. Guraping's mangrove forests positively contribute to the blue economy with direct and indirect use values. Besides, this economic valuation is also relevant in achieving Maqaṣid al-Sharia goals that emphasize the conservation of nature and sustainable socio-economic well-being.*

Keywords: *Blue Economy; Economic Valuation; Guraping Mangrove Forest; Maqaṣid al-Sharia; Sofifi*

Abstrak. *Penelitian ini bertujuan untuk mengevaluasi nilai ekonomi hutan mangrove Guraping di Sofifi, Indonesia, serta kesesuaiannya dengan prinsip ekonomi biru dan tujuan Maqaṣid al-Sharia. Penelitian ini menggunakan pendekatan campuran, yang menggabungkan metode kuantitatif dan kualitatif. Data dikumpulkan melalui survei dengan kuesioner kepada 100 wisatawan, wawancara dengan informan kunci, observasi, dan tinjauan pustaka. Hasil penilaian ekonomi mendukung konsep ekonomi biru dan Maqaṣid al-Sharia. Hutan mangrove Guraping memberikan kontribusi positif terhadap ekonomi biru melalui nilai pemanfaatan langsung dan tidak langsung. Selain itu, penilaian ekonomi ini juga relevan untuk mencapai tujuan Maqaṣid al-Sharia yang menekankan konservasi alam dan kesejahteraan sosial-ekonomi yang berkelanjutan.*

Kata kunci: *Ekonomi Biru; Penilaian Ekonomi; Hutan Mangrove Guraping; Maqaṣid al-Sharia; Sofifi*

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Introduction

Indonesia is an archipelagic country consisting of 13,667 islands and has a coastline of 54,716 km. Naturally, coastal areas and beaches are suitable habitats for mangroves. Mangroves have considerable significance and importance from an ecological, social, and economic perspective (Sandilyan and Kathiresan, 2012; Triyanti et al., 2017). Mangroves are an important ecosystem that supports the blue economy (Irman and Akbar, 2021; Mahmud, 2018; Radiarta et al., 2015), which focuses on the sustainable and environmentally sound use of natural resources, mainly marine resources.

Mangroves have several critical environmental functions, namely, helping in controlling erosion because mangrove roots can hold the soil and prevent erosion (Chow, 2018; Hadi et al., 2021); helping in carbon sequestration as mangroves are known as effective carbon absorbers (Jennerjahn, 2020; Sondak, 2015); and assisting in waste management as mangroves can break down organic material in waste thrown into the sea (Robertson and Phillips, 1995). Mangroves are considered an essential solution in supporting sustainable economic development because they have critical environmental functions and can be used in various economic sectors such as agriculture, fisheries, and tourism (Barbier, 1993; Rönnbäck, 1999; Vo et al., 2012).

The blue economy concept is in line with *Maqaṣid al-Sharia*, which emphasizes human welfare through maintaining five basic needs: 1) protecting of religion (*hifẓ ad-dīn*); 2) protecting the soul (*hifẓ an-nafs*); 3) protecting of rationality (*hifẓ al-'aql*); 4) protecting offspring (*hifẓ an-nasl*); and 5) protecting assets (*hifẓ al-māl*) (Asy Syatibi, 2008). In the context of natural resource management, *Maqaṣid al-Sharia* sees that natural resources are a mandate (trust) given by Allah to humans (Al Madani et al., 2020; Firdaus, 2022) and should be used wisely and responsibly for the benefit of humanity as a whole. Therefore, natural resource management must pay attention to its impact on human welfare and must consider reducing harmful effects on the environment and natural resources, including mangrove forests, with all their potential and significance.

Indonesia is home to 23% of the world's mangrove ecosystem, with an area of 3,364,076 Ha (Harjanti and Susmiyati, 2021; Nugraha et al., 2022). However, 637,624 hectares of them are in critical condition (Harjanti and Susmiyati, 2021; Solikhah, 2021). In line with this, data from the Center for International Forestry Research (CIFOR) shows that the rate of mangrove land degradation in Indonesia is 52,000 Ha/year. One region in Indonesia particularly affected by mangrove land degradation is North Maluku Province, especially the Guraping Mangrove Forest

in Sofifi City. This is evidenced by a 58.4% decline in the mangrove forest area in Sofifi since 2010 (North Maluku Provincial Forestry Service, 2022).

Various efforts have been made to reduce mangrove degradation, mainly through the rehabilitation of mangrove forests. A typical rehabilitation activity is the replanting of mangrove plants in designated areas. This initiative aligns with the essence of *Maqaṣid al-Sharia*, particularly in nature conservation, by preventing *mafsadat* (*hārm*), which should always be a priority. However, these efforts are not always successful due to several factors, including the community's perception that mangrove forests do not provide direct socio-economic benefits and a lack of awareness regarding their conservation, especially in Sofifi. Therefore, more comprehensive efforts are needed to enhance the value of mangrove forests to the community, such as conducting an economic valuation of the Guraping mangrove forest.

Economic valuation is the process of determining the economic value of a project or asset (Bockstael et al., 2000). In this case, the economic valuation of mangrove forests is the process of determining the economic value of mangrove forests. The mangrove forest economic valuation method can be used to determine the economic value of mangrove forests and evaluate projects related to mangrove forests (Vo et al., 2012) to ensure that its management is appropriate in supporting the realization of a blue economy based on a *Maqaṣid al-Sharia* perspectives, such as human welfare, justice, and ecosystem protection.

Numerous studies have examined the Guraping Mangrove Forest, including its ecological condition (Angkotasan & Marasabesi, 2019), the development of mangrove forest ecotourism (Taha & Hindersah, 2019), the feasibility analysis of mangrove forest tourist attractions (Latupapua & Fanny, 2022), and strategies for developing these attractions (Latupapua & Siahaya, 2023). However, research on the economic valuation of the Guraping Mangrove Forest remains unexplored. While several studies have addressed the economic valuation of mangrove forests in Indonesia from a broader economic perspective, incorporating Islamic values (Bana et al., 2019; Novizantara et al., 2022; Sakti & Fauzi, 2020; Widiyanto et al., 2013), research integrating the blue economy concept with *Maqaṣid al-Sharia* principles in the economic valuation of mangrove forests is still limited. Furthermore, a case study on the Guraping Mangrove Forest in Sofifi, North Maluku, has not been conducted before.

Based on the problems and urgency that have been explained previously, it is essential to research the economic valuation of mangrove forests in supporting the blue economy and the *Maqaṣid al-Sharia* perspectives by taking Guraping

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Mangrove Forest, Sofifi, North Maluku as the case study. It is expected that this research will provide important information about the economic value of mangrove forests, recommend suitable decisions for sustainable mangrove management, and ensure its accordance with the principles of the blue economy and *Maqaṣid al-Sharia*.

Literature Review

As a biological resource, mangrove forests possess diverse potentials that contribute to human welfare. Mangrove forests serve as coastal protection, habitats for various species, and providers of natural resources that can be utilized sustainably. However, the utilization of mangrove forests is currently considered suboptimal and unsustainable. To optimize the utilization of mangrove forests, it is necessary to conduct benefit and cost calculations for these activities, including assessing the economic value associated with mangrove forest resources. This approach will help determine more rational alternative choices for the utilization of mangrove forest resources.

The Guraping Mangrove Forest, located in the heart of Sofifi City, is at risk of degradation due to the pressure of development as Sofifi becomes the capital of North Maluku Province. Additionally, increasing tourism activities and population growth could exacerbate this situation. According to data from the North Maluku Province Forestry Service (2022), mangrove forest degradation in Sofifi has reached 58.4% since 2010. This situation demands structured efforts for the restoration and management of mangrove forests based on economic value and environmental sustainability.

Several studies discuss the economic valuation of mangrove forests. Kepel et al. (2017) conducted a study on the economic valuation of mangrove forests by measuring the economic value of carbon storage, estimated using two approaches: free market prices and mandatory market prices through the Clean Development Mechanism (CDM). The study was intended as an initial source of information to formulate sustainable and long-term mangrove ecosystem management policies.

Next, Bana et al. (2019) conducted a study in the West Kendari Sub-district, Kendari City, by identifying the utilization of mangrove forests, the benefits and functions of the mangrove ecosystem, and indirect benefits. The findings indicated that the economic value of mangrove forests is crucial, and therefore mangrove forests need to be preserved. Another study by Novizantara et al. (2022) in Bengkalis used the Total Economic Value (TEV) framework to estimate the

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benefits of mangrove forests. This research emphasized the importance of mangrove ecosystems for the economic stability of coastal areas.

Other studies show that mangroves are an important ecosystem that supports the blue economy (Irman and Akbar, 2021; Mahmud, 2018; Radiarta et al., 2015). Mangroves play a role in various aspects of the blue economy, such as agriculture, fisheries, and tourism. Additionally, research that discusses the *Maqaṣid al-Sharia* perspective in mangrove forest management, such as the study conducted by Sakti et al. (2020), in Banyuurip Ecotourism, East Java, demonstrates that mangrove ecosystem management not only considers economic and environmental aspects, but also preserves religious, soul, and intellect values in accordance with the principles of *Maqaṣid al-Sharia*.

In efforts to enhance the protection and sustainability of mangrove forests, the results of economic valuation can serve as a foundation for sound and sustainable mangrove forest management. The blue economy approach and the *Maqaṣid al-Sharia* perspective can provide solutions for managing mangrove forests sustainably. The implementation of these approaches is expected to be applied in managing the Guraping mangrove forest in Sofifi, to achieve a balance between the economy, the environment, and social justice.

Environmental Fiqh

The environment in the Qur'an encompasses various concepts such as *al-'alamin* (species), *al-sama* (time and space), *al-arḍ* (earth), and *al-bi'ah* (environment). These variations in the Qur'an essentially reflect the spirit of *rahmatan li al-'alamin* (a mercy to all creations), wherein the environment includes the entirety of the universe. The concept of *rahmatan li al-'alamin* encourages Muslims to act as stewards of the earth, preserving its ecosystems and recognizing the importance of maintaining balance and harmony in both terrestrial and extraterrestrial environments (Abrar, 2012).

Environmental fiqh or *fiqh al-bi'ah* etymologically consists of two components, namely *fiqh* and *al-bi'ah*. The root word *fiqh* comes from *faqiha-yafqahu-fiqhan*, which means *al - 'ilmu bis-syai'* (knowledge of something). Fiqh, in terminological terms, is the science that studies practical Shari'ah rules based on detailed evidence (Isdianto et al., 2020). Meanwhile, *al-bi'ah*, according to Masyhadi (2021) refers to the environment, defined as the relationship between space and everything within it, including objects, events, conditions, and all forms of life, including humans and their behavior. All these elements influence the natural environment, play a role in sustaining life, and contribute to the well-being of humans and other creatures.

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Maqaṣid al-Sharia

In general, *maqaṣid al-sharia*, according to Ibnu Asyur (Sarwat, 2019), is defined as follows:

> المعاني والحكمة الماحوظة الشاريع في جميع أحوال التشريع أو معظمهما
>
> *"A collection of meanings and wisdom derived by the legislator from all or most of the laws."*
>
> المقصود الشارع لتحقيق مقاصد الناس النافعة أو الحفظ مصلحتهم العامة تصر الخاصة الكيفيات
>
> *"Matters intended by the Shari' (Allah) to realize beneficial objectives for humanity or to preserve their general welfare in their specific actions."*

Based on the above definitions, it can be concluded that the essence of *Maqaṣid al-Sharia* is *maslahah*, that which brings welfare and goodness to human life. *Maqaṣid al-Sharia* serves as an essential foundation in establishing the pillars of religion, namely *maslahah*, which yields five fundamental needs (*mashlahat daruriyat*) that must be protected. According to the majority of scholars of *usul al-fiqh*, these five fundamental needs are: 1) protecting of religion (*hifẓ ad-dīn*); 2) protecting the soul (*hifẓ an-nafs*); 3) protecting of rationality (*hifẓ al-'aql*); 4) protecting offspring (*hifẓ an-nasl*); and 5) protecting assets (*hifẓ al-māl*) (asy Syatibi, 2008).

Blue Economy

The Blue Economy is an economic concept that integrates the principles of sustainable development with the use of marine resources. This concept is based on the idea that the ocean and its ecosystems can serve as vital economic sources, as long as sustainable and responsible management practices are implemented. The main goal of the blue economy is to create economic prosperity while minimizing negative environmental impacts (Prasutiyon, 2018).

The blue economy represents a new model from economic and social perspectives. Unlike the red economy model, which pollutes the environment, and the green economy model, which focuses solely on alternative energy, the blue economy draws inspiration from nature, takes only what it needs, and symbiotically coexists or mutually benefits the surrounding environment (Sulistyowati et al., 2021). This approach also promotes resource efficiency, reduces waste, and enhances recycling within production processes (Septiandika et al., 2022).

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Economic Valuation of Natural Resources

Economic valuation is defined as an economic activity that assigns a quantitative value to goods and services produced by natural resources, based on either market value or nonmarket value after proper identification (Hasibuan, 2014; Samudro, 2006). According to Bockstael et al. (2000), economic valuation is the process of determining the economic value of a project or asset. In this context, the economic valuation of mangrove forests refers to the process of determining the economic value of mangrove forests. The economic valuation method for mangrove forests can be used to assess their economic value and evaluate projects related to mangrove forests (Vo et al., 2012).

In evaluating the economics of natural resources, one framework commonly used is Total Economic Value (TEV). According to Salma and Susilowati (2004), TEV can be divided into two components, use value and non-use value. The use value consists of direct use value, indirect use value, and optional value. Meanwhile, non-use value consists of existence value and bequest value. The mathematical equation for calculating TEV (Djijono, 2002), is as follows:

$$TEV = DUV + (IUV+OV) +(XV+VB)$$

Information:

TEV : Total economic value

DUV : Direct use value

IUV : Indirect use value

OV : Option value

XV : Existence value

VB : Bequest value

Methods

This research was conducted in the Guraping Mangrove Forest area, Sofifi, North Maluku. A mixed-methods approach, combining both quantitative and qualitative methods, was used to gather comprehensive data. Quantitative data were collected through surveys with questionnaires. The study population consisted of 3,400 tourists who visited the Guraping Mangrove Forest in 2022 (North Maluku Province Forestry Service 2023). Respondents were selected using accidental sampling, with a total sample size of 100 tourists, determined using the Slovin formula with a 10% margin of error.

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Quantitative data analysis focused on calculating the Total Economic Value (TEV), specifically considering use value, including both direct and indirect use values. The mathematical equation for calculating TEV is as follows:

$$TEV = DUV + IUV$$

Information:

TEV : Total Economic Value (IDR)

DUV : Direct use value (IDR)

IUV : Indirect use value (IDR)

Direct Use Value

Direct benefits can be measured by calculating the value of tourism using the Individual Travel Cost Method (ITCM) by calculating the average value of individual consumer surplus per visit. Tourism value is calculated using a mathematical equation according to Igunawaty (2010), as follows:

$$Dx = Qx = \alpha - bP$$

Information:

Dx : visit request function.
Qx : number of visits.
α : constant.
b : regression coefficient.
P : travel costs (IDR).

Next, the consumer surplus per individual per year is calculated using a finite integral, using the lowest and highest price limits through a mathematical equation as follows:

$$CS = \int_{P0}^{P1} f(Px)dP$$

Information:
CS : consumer surplus (IDR)
P1 : Pricetop (IDR)
P0 : Pricelowest (IDR)

The direct economic value of the Guraping Mangrove Forest can be calculated by multiplying consumer surplus by the total tourist visits that occurred in the last year.

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Indirect Use Value

Indirect benefits are calculated by the value of mangrove forest environmental services based on their function. Valuation of mangrove forests is based on the value of environmental services measured by indicators of Carbon Stock, preventing abrasion and preventing seawater intrusion. The mathematical equation for calculating the value of indirect benefits is as follows:

$$IUV=IUV1+IUV2+IUV3$$

Information:

IUV : Indirect use value (IDR)
IUV1 : MarkCarbon Stock (IDR)
IUV2 : MarkAbrasion preventer (IDR)
IUV3 : MarkSea water intrusion prevention (IDR)

Carbon Stock Value

The observation was conducted in the Guraping Mangrove Forest, where two 10 x 10-meter plots were selected as samples from two different zones: the front zone and the back zone. Carbon stock calculations were performed by assessing both aboveground and belowground biomass, which were then analyzed using MonMang 2.0 software. The resulting biomass values were converted into carbon values using a biomass-carbon conversion factor of 46.4% (Kauffman et al., 2011).

The economic valuation of mangrove forests as carbon stores is calculated based on the Clean Development Mechanism of US$ 15.68, where this price is taken from 2010 global market data (Ullman et al., 2013). The US$ 1 conversion price used in this research is IDR 15,941,659 (October 2023). Thus, the Clean Development Mechanism for the economic valuation of mangrove forests as carbon stock is IDR 249,965.21 per tCO2e. The mathematical equation to calculate the indirect benefit value of mangroves as carbon stock is as follows:

$$IUV1 = \text{Carbon Stock} \times \text{IDR } 248{,}965.21/tCo2e$$

Abrasion Prevention Value

The valuation of mangrove forests as a means of preventing coastal erosion considers their physical function as natural barriers. In this context, the value of the mangrove forest is estimated based on the cost of constructing erosion-resistant embankments. To calculate this cost, the shadow price approach is used, referencing the construction standards for abrasion-resistant embankments set by

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the Ministry of Public Works (Kementerian Pekerjaan Umum). Standard costs for abrasion-resistant embankments with a durability of 5 years according to the standards of the Ministry of Public Works (2014) in Yunitasari et al. (2020) is IDR 5,839,880.00 per meter. The mathematical equation for calculating the abrasion prevention value is as follows:

$$IUV2 = \text{Mangrove Forest Area} \times R\ 5{,}839{,}880 : 5 \text{ years}$$

Seawater Intrusion Prevention Value

The economic valuation of mangroves' role in preventing seawater intrusion is based on the community expenditure cost approach, which considers the cost of meeting household clean water needs. This value is deemed equivalent to the function of mangroves in preventing seawater intrusion, assuming the area lacks mangroves. The mathematical equation for calculating the value of avoiding seawater intrusion is as follows:

$$IUV3 = Qt \times HA$$

Information:

Qt : Average water requirements (year/m3)
HA : Water Price per cubic (IDR)

The domestic clean water needs of communities around the Guraping Mangrove Forest are projected using the formula for clean water needs and total water needs (PUPR, 1996) as follows:

$$Qmd = Pn \times q \times fmd$$

Where:
Qmd : Clean water needs
Mr : Number of residents in n-year
q : Clean water requirements per person/day (80 liters/day)
fmd : Factor maximum days

$$Qt = Qmd \times 100/80$$

Where:
Qt : Average water requirements
100/80 : water loss factor 20%

Qualitative data were collected through interviews, observations, and literature reviews. Interviews were conducted with key informants selected using

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a non-probability purposive sampling method. The informants were chosen for their deep understanding of the value and function of the mangrove ecosystem, sustainable resource management, and alignment with Islamic principles. These key informants included representatives from the North Maluku Provincial Forestry Service and academics. Qualitative data were analyzed using source triangulation to ensure validity and reliability. This process involved comparing data from interviews, secondary data from literature and reports by the North Maluku Provincial Forestry Service, and direct observations of the Guraping mangrove ecosystem.

Results and Discussion

Description of Research Objects

The Guraping Mangrove Forest is administratively located in Guraping Village, Sofifi City, North Maluku Province. Geographically, it spans from 0°50' South Latitude to 0°29' North Latitude and 127°30' East Longitude. The total area of the Guraping Mangrove Forest covers 150.3 hectares, extending from Kaiyasa Village (Tanjung Sora) to Guraping (Bukit Gosale). Guraping Mangrove Forest is about 5 km from the sub-district city, 27 km from Ternate City, and 19 km from Tidore Islands City. Guraping Mangrove Forest can be accessed using a speed boat with a travel time of 30 to 60 minutes from Ternate City. Meanwhile, if you use a ferry from Ternate City, you can reach it in approximately 120 minutes.

The Guraping Mangrove Forest area is home to various species of plants and animals that are important for coastal ecosystems. This area is dominated by mangrove types of Soki-Soki (Rhizophora mucronata spp), Dau (Bruguire spp), Kira (Xylocarpus granathum sp), posi-posi (Sonneratia alba, sp) and other species. Apart from that, the animals that live in the Guraping Mangrove Forest are remarkably diverse. Animals that can be found in this area include monitor lizards, lizards, freshwater turtles, bush rats, storks, swallows, king prawns, and other animal species.

The Guraping Mangrove Forest is one of the mainstays of tourism managed by the Forestry Service through the Unit Pelaksana Teknis Daerah Kesatuan Pengelolaan Hutan/ Regional Technical Implementation Unit of Forest Management Unit (UPTD KPH) Tidore Islands. Of the total area of the Guraping Mangrove Forest, approximately 3 hectares have been developed with infrastructure, including footpaths, observation towers, gazebos, and cafes. The development of such facilities is crucial for managing tourist destinations as it enhances the quality of visitor experiences, generates additional income through businesses like cafes,

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and supports the maintenance and preservation of the surrounding environment. By providing controlled access to certain areas, these facilities help protect sensitive mangrove ecosystems while promoting sustainable tourism.

Economic Valuation of Guraping Mangrove Forest

Economic valuation is the process of determining the economic value of a project or asset (Bockstael et al., 2000). In this case, the economic valuation of mangrove forests is the process of determining the economic value of mangrove forests. The mangrove forest economic valuation method can be used to determine the economic value of mangrove forests and evaluate projects related to mangrove forests (Vo et al., 2012). The economic valuation of the Guraping Mangrove Forest includes the identification of direct use value and indirect use value.

Identify Direct Use Value

Direct use value is the economic benefit obtained from the direct use of natural resources or the environment. From the results of observations, the community's direct benefit from the presence of the Guraping Mangrove Forest area is tourism use (recreation).

Identification of direct benefits (direct value) of the Guraping Mangrove Forest is carried out by calculating the tourism value using the individual travel cost method (ITCM). In this research, travel cost calculations are carried out by calculating individual consumer surplus per visit. According to Nicholson (1991), the mathematical equation for calculating tourism value using the travel cost method is as follows (Igunawaty, 2010):

$$Dx = Qx = \alpha - bP$$

Next, to determine consumer surplus, the mathematical equation used is as follows:

$$CS = \int_{P0}^{P1} f(Px)dP$$

From the regression results between the variables number of visits (Qx) and travel costs (TC), the demand function is obtained as follows:

$$Dx = 2{,}536 - 0{,}000001588P$$

Furthermore, based on the calculation of consumer surplus using the limited integral equation, the consumer surplus of the Guraping Mangrove Forest is obtained as follows:

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Table. 1 Guraping Mangrove Forest Consumer Surplus

Information	Unit
Average travel expenses	IDR 243,370.00
Consumer Plus (Per Visit)	IDR 1,148,091.14
Consumer Surplus (Per Year)	IDR 2,525,800.50
Actual Revenue (1 Year)	IDR 17,000,000.00
Potential Value (1 Year)	IDR 8,587,721,700.00

Source: Primary data processed, 2023

Based on Table 1 above, the consumer surplus per individual per year is IDR 2,525,800.50, with the average number of visits to the Guraping Mangrove Forest being 2 times. Consumers experience a surplus because their willingness to pay exceeds the actual costs incurred, with the average travel expenses to the Guraping Mangrove Forest amounting to IDR 243,370.00. The consumer surplus per individual per year is IDR 2,525,800.50, or IDR 1,148,091.14 per visit. To calculate the direct economic value, the consumer surplus per individual per year (IDR 2,525,800.50) is multiplied by the total number of visitors in 2022, which is 3,400. This gives a direct economic value of IDR 8,587,721,700.00 per year for the Guraping Mangrove Forest.

Identify Indirect Use Value

Guraping Mangrove Forest is a designated conservation area aimed at protecting and preserving the sustainability of its mangrove ecosystem. The indirect value refers to the benefits derived from the mangrove ecosystem's environmental services, which are assessed based on their functions, such as carbon sequestration, erosion prevention, and protection against seawater intrusion.

Carbon Stock Value

Carbon stock is a key environmental service provided by mangrove ecosystems. The economic valuation of mangrove forests as carbon sinks is calculated based on the Clean Development Mechanism (CDM). Market carbon values are essential, as regulations mandate companies and governments to reduce and limit greenhouse gas emissions, making the role of mangroves in carbon sequestration increasingly valuable (Dicky et al., 2018).

The economic valuation of mangrove forests as carbon stock in the Clean Development Mechanism is US$ 15.68, and this price is taken from 2010 global

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market data (Ullman et al., 2013). The US$ 1 conversion price used in this research is IDR 15,941,659 (October 2023). So, the Clean Development Mechanism for the economic valuation of mangrove forests as carbon stock is IDR 249,965.21/tCO2e.

The results of calculating mangrove biomass and estimating Carbon Stock per hectare of mangrove are as follows:

Table 2. Biomass and Estimation of Carbon Stock in Guraping Mangrove Forest

Plots	Biomass		Total Biomass (Kg)	Total Average Biomass (Tons/ha)	Total Carbon Stock Average (ton-C/ha)
	Above Ground Biomass (Kg)	Below Ground Biomass (Kg)			
1	348.04	127.62	475.66	48.49	22.50
2	356.56	137.59	494.14		

Source: Primary data processed, 2023

Based on Table 2, the total mangrove biomass in Plot 1 was 475.66 kg, with 348.04 kg of aboveground biomass and 127.62 kg of belowground biomass. In Plot 2, the total biomass was 494.14 kg, with 356.56 kg of aboveground biomass and 137.59 kg of belowground biomass. The average biomass produced by the Guraping Mangrove Forest is 48.49 tonC/ha. This biomass value is then converted into carbon using a biomass-carbon conversion factor of 46.4%. As a result, the average estimated carbon stock per hectare in the Guraping Mangrove Forest is 22.50 tonC/ha. Overall, the total carbon stock in the 150.3 ha Guraping Mangrove Forest is 3,381.6 tonsC. The economic value of this carbon stock, calculated using the Clean Development Mechanism, is IDR 845,319,848.92.

Abrasion Preventive Value

The valuation of mangrove forests as a means of preventing coastal abrasion is based on their physical role in protecting the coastline. This value is estimated by considering the costs of constructing abrasion-resistant embankments. The mangrove ecosystem plays a crucial role in reducing coastal erosion, particularly in preserving the Sofifi City area from land loss due to continuous wave action. Without a natural barrier, the erosion process can significantly diminish land area. Since the indirect benefits of the Guraping Mangrove Forest cannot be easily quantified in market terms, their value is measured using the cost approach, specifically by calculating the expenses involved in building abrasion-resistant embankments.

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To estimate the cost of constructing abrasion-resistant embankments, the shadow price approach is used by referring to the standards of the Ministry of Public Works (KPU), which apply to the construction of abrasion-resistant embankments. Standard costs for abrasion-resistant embankments with a durability of 5 years according to the standards of the Ministry of Public Works (2014) in Yunitasari et al. (2020) is IDR 5,839,880.00 per meter. So, the benefit value of the mangrove forest ecosystem as preventing abrasion in the Guraping Mangrove Forest area is IDR 175,546,792.80/year.

Seawater Intrusion Preventive Value

As a preventive measure for seawater intrusion, the economic valuation of the Guraping mangrove forest is calculated using the community costs approach to meet domestic clean water needs. This value is considered comparable to the role of mangroves as a preventer of seawater intrusion if the area does not have mangroves.

The domestic clean water needs of communities around the Guraping Mangrove Forest are projected using the formula for clean water needs and total water needs (PUPR, 1996) as follows:

$$Qmd = Pn \times q \times fmd$$

$$Qt = Qmd \times 100/80$$

Table 3. Population of the Community Around the Guraping Mangrove Forest

No	Village	Population (2022)
1	Kaiyasa	683
2	Galala	3,325
3	Guraping	3,102
	Total	**7110**

Source: BPS City of Tidore Islands, 2023

The projection of domestic clean water needs is based on the population in 2022 and the assumed daily clean water usage per person, as outlined by The Directorate General of Human Settlements, Department of Public Works (1997). According to planning criteria, given that the population around the Guraping Mangrove Forest (Kaiyasa Village, Galala Village, and Guraping Village) is under 20,000, which qualifies it as a rural area, the planned unit consumption for Home Connections (SR) is 80 liters per person per day. Additionally, for Public Hydrants (HU),

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the consumption value is set at 30 liters per person per day. Based on these assumptions, the projected water needs for the communities around the Guraping Mangrove Forest are as follows:

Table 4. Projection of Domestic Clean Water Needs

Description	Unit	Year 2022	
Population (2022)	soul	7110	
Connection Type		SR	H.U
Connection Percentage	%	70%	30%
Number of Connection Users	soul	4977	2133
Water Requirement Standards	l/o/d	80	30
Water Requirements	l/s	4.61	0.74
Total Water Requirements	l/s	5.35	
Q Non-Domestic	l/s	0.53	
Q Total	l/s	5.88	
	m3/s	0.006	
Q Avg	l/s	4.71	
	m3/s	0.005	
Q Lost	l/s	1.18	
	m3/s	0.0012	
Q Maximum	l/s	5.18	
	m3/s	0.005	
Q Peak	l/s	7.06	
	m3/s	0.007	

Source: Primary data processed, 2023

Based on Table 4 above, in 2022, the average water requirement will be 4.71 liters/second or 148,534,560 liters/year. The average price of clean water per 1,000 liters in Tidore Islands City is IDR 75,000.00. If the Guraping Mangrove Forest did not exist, the community would incur an annual expenditure of IDR 11,133,193,500.00 to obtain clean water as an alternative to the mangrove forest's function.

Total Indirect Use Value

The results of identifying the indirect use value of the Guraping Mangrove Forest based on its Carbon Stock value, abrasion prevention value, and seawater intrusion prevention value are as follows:

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Table 5. Total Indirect Use Value of Guraping Mangrove Forest

No	Information	Value (Rp/Year)
	Indirect Use Value	
1	As a Carbon Stock	IDR 845,302,351.35
2	As an Abrasion Preventer	IDR 175,546,792.80
3	As a Preventant for Sea Water Intrusion	IDR 11,133,193,500.00
	Total	**IDR 12,154,042,644.15**

Source: Primary data processed, 2023

Table 5 presents data on the indirect economic benefits provided by the Guraping Mangrove Forest. These mangrove forests play a crucial role in mitigating climate change by acting as carbon stores, contributing approximately IDR 845,302,351.35 annually. Additionally, they protect the coastline from abrasion, with an economic value of IDR 175,546,792.80 per year. The most significant economic benefit, however, comes from preventing seawater intrusion, valued at IDR 11,133,193,500.00 annually. In total, the indirect value of the Guraping Mangrove Forest is estimated at IDR 12,154,042,644.15 per year.

Total Economic Value of Guraping Mangrove Forest

The results of identifying the economic value of the Guraping Mangrove Forest, Sofifi, are as follows:

Table 6. Total Economic Value of Guraping Mangrove Forest

No	Information	Value (Rp/Year)	Percentage (%)
A	**Direct Use Value**		
1	Direct use value	IDR 8,587,721,700.00	41.40
Total Direct Use Value		IDR 8,587,721,700.00	41.40
B	**Indirect Use Value**		
1	As a Carbon Stock	IDR 845,302,351.35	4.08
2	As an Abrasion Preventer	IDR 175,546,792.80	0.85
3	As a Preventant for Sea Water Intrusion	IDR 11,133,193,500.00	53.68
Total Value of Indirect Value		IDR 12,154,042,644.15	58.60
Total Economic Value of Guraping Mangrove Forest		**IDR 20,741,764,344.15**	**100**

Source: Primary data processed, 2023

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Table 6 above comprehensively describes the various components of economic value produced by mangrove forests in Guraping. The data is divided into two main categories: Direct Use Value and Indirect Use Value.

In the Direct Use Value category, mangrove forests contribute a large amount of direct economic value, amounting to IDR 8,587,721,700.00 per year, where this value is only calculated based on the tourism value using the individual travel cost method. However, these direct benefits contribute around 41.40% of the total economic value of mangrove forests in Guraping.

In contrast, in the Indirect Use Value category, mangrove forests have a much more significant role in supporting the regional economy. As a carbon stock, mangrove forests are valued at IDR 845,302,351.35 per year (4.08%). As a prevention of abrasion, mangrove forests are valued at IDR 175,546,792.80 (0.85%). More importantly, as a means of preventing seawater intrusion, mangrove forests provide a substantial economic contribution, namely IDR 11,133,193,500.00 (53.60%) per year.

The total economic value of mangrove forests in Guraping reaches IDR 20,741,764,344.15 per year. The total economic value of the mangrove forest in Guraping when compared with the Tidore Islands City Government's Regional Original Income (PAD) in 2022 is IDR 33,291,865,000, so the total economic value of the Guraping mangrove forest is equivalent to 62.33% of the Tidore City Government's Original Regional Income Islands in 2022. This value shows that the Guraping mangrove forest has significant economic value when compared with the Original Regional Income of the Tidore Islands City Government in 2022. This condition highlights the importance of preserving and managing mangrove forests in an economic and environmental context. This data provides a clear understanding of how mangrove forests are not only ecological assets, but also significant economic assets in supporting the sustainability of the region. Utilizing data like this provides a strong basis for developing wise and sustainable mangrove forest conservation policies in Guraping.

This research yields different results compared to the study by Bana et al. (2019) in West Kendari District, where the total economic value of mangrove forests is IDR 528,947,987.00, with the most significant contribution from direct use value (36.64%) through shellfish harvesting and ecotourism. The indirect use value accounted for 27.16% as a carbon dioxide absorber, existence value for 5.79%, and choice value for 30.41%.

However, this study aligns with the findings of Widiyanto et al. (2013) in Wedono Village, Demak, where the dominant contribution to the mangrove

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forest's economic value comes from indirect use value (89.5%), including its role in nurturing ecosystems and preventing abrasion. The direct use value is 8.5%, and the option value is 2%, with a total economic value of IDR 2,037,005,895.00 per year.

Similarly, research by Novizantara et al. (2022) in Bengkalis Regency's mangrove forests reports comparable results, with a total economic value of USD 5,888,794.99 per year. The highest value comes from indirect use (86.36%), followed by existence value (7.86%), direct value (3.35%), and option value (2.43%).

According to Widiyanto et al. (2013), the variations in these findings can be attributed to factors such as differences in exchange rates between the IDR and USD, the size of the mangrove ecosystem, price discrepancies, and the diversity of uses within local communities.

Economic Valuation of Guraping Mangrove Forest in Supporting the Blue Economy

The blue economy is the concept of sustainable economic development by utilizing natural resources wisely and sustainably to produce more goods and value while addressing social problems (Banu, 2020). This concept focuses on the sustainable use of marine resources to improve human welfare. Mangrove forests play a vital role in strengthening the blue economy in various ways (Prayuda & Sary, 2019).

The mangrove forests serve as an ecotourism resource, enhancing the local economy and supporting sustainable development. As a fisheries resource, mangrove forests contribute to increasing fishery production, thereby helping food security. Additionally, these forests provide valuable resources such as firewood and batik dye, which can boost local production and add value to regional products. Mangrove forests also act as an oxygen resource and carbon sink, helping to maintain the balance of marine ecosystems and mitigate the impacts of climate change. Furthermore, when managed within the blue economy framework, mangrove forests enable coastal communities to utilize natural resources while fostering positive social impacts sustainably.

Thus, the development of a blue economy through mangrove forest management can provide significant benefits for local communities and the surrounding environment, such as improving the local community's economy, supporting environmental sustainability, and increasing food security and biological resources.

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Zulhan Arifin Harahap revealed that the sustainable management of mangrove forests is a necessity (Interview with Zulhan Arifin Harahap, Marine Sciences Academic, Khairun University, June 22, 2023). Zulhan Arifin Harahap explained that mangrove forests, along with other coastal ecosystems such as seagrass beds and coral reefs, are key supports for wildlife and local communities in coastal areas and small islands. Sustained mangrove management brings significant ecological and social benefits. Through effective management, the mangrove ecosystem can be preserved and its health improved. This, in turn, ensures that the ecosystem continues to provide essential benefits, such as serving as a vital habitat for wildlife and a source of livelihood and coastal protection for local coastal and small island communities.

Sustainable management of mangrove forests is essential because mangrove forests (as well as seagrass beds and coral reefs) are natural ecosystems in coastal areas and small islands that support wildlife and local communities. By ensuring the preservation of the mangrove ecosystem, the health of the mangrove ecosystem can even be improved, which in turn guarantees the sustainable benefits of the mangrove ecosystem, both as an essential habitat for wildlife and as a source of livelihood and as a coastal protector for local coastal communities and small islands.

The economic valuation of the Guraping Mangrove Forest plays a key role in supporting the blue economy concept, which aims to integrate aspects of environmental conservation with sustainable economic development in the marine and fisheries sector. Mangrove forests are coastal ecosystems that are rich in biodiversity and have a vital role in maintaining marine ecosystems and protecting beaches from abrasion. The Gurapping mangrove forest has significant economic value, which contributes positively to the blue economy. The economic value of mangrove forests in Guraping covers various aspects, such as providing wood, fishery products, coastal protection, as well as the potential of the tourism sector which relies on the beauty and diversity of the mangrove ecosystem. The presence of mangroves provides an ideal habitat for fish and various marine organisms, thereby supporting the local fisheries sector (Sila, 2022).

Apart from that, mangrove forests also function as natural fortresses that protect beaches from erosion, storms, and rising sea levels. This reduces the risk of damage to coastal property and infrastructure, thereby saving on restoration and repair costs. The mangrove forest in Guraping also acts as a tourist attraction that supports the growth of the tourism sector. Tourists come to this area to enjoy the natural beauty and activities such as birdwatching, hiking, and nature photography.

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In order to improve the management of the ecological and economic functions of the Guraping mangrove tourist attraction in a sustainable manner, it is necessary to develop ecotourism that involves the community. The management of the Guraping Mangrove Forest can generate economic benefits for local communities while supporting the development of the blue economy. This aligns with the statement by Fachrurrazi Djauhari, who emphasized that the government and managers view mangrove forests as a potential ecotourism resource. This perspective helps protect mangrove forests from degradation caused by infrastructure development. It provides opportunities for education and awareness, particularly for the younger generation, about the importance of mangrove ecosystems (Interview with Fachrurrazi Djauhari, Head of the Forest Product Utilization and Processing Division, North Maluku Provincial Forestry Service, June 26, 2023).

In the context of the blue economy, the economic assessment of mangrove forests in Guraping proves that conservation and sustainable use of this natural resource can produce significant economic benefits. By considering these aspects, local governments can design policies and programs that support the preservation and good management of mangrove forests. These steps will ensure that the blue economy in the region continues to thrive while preserving valuable coastal ecosystems.

Economic Valuation of Guraping Mangrove Forests in Supporting the Achievement of *Maqaṣid al-Sharia* Goals

Mangrove forests, as coastal resources, have enormous potential to support life, primarily through their biological, chemical, physical, and economic functions. However, the high demand for land along coastal areas for purposes such as housing, ponds, industry, and infrastructure, together with a lack of coordination and integration of the value of mangrove forest ecosystems in regional planning, has led to the conversion of many mangrove forest areas for other purposes. It is important to note that mangrove forests have great economic-ecological value and can support the achievement of the goals of *Maqaṣid al-Sharia*, namely protecting the five basic needs (protecting religion, soul, mind, offspring, and property).

The economic valuation of mangrove forests has significant relevance in the context of achieving the goals of *Maqaṣid al-Sharia*, which is a framework for understanding sharia principles in Islam. Mangrove forests, as abundant coastal ecosystems with ecological, social, and economic benefits, are in line with the goals of *Maqaṣid al-Sharia*, which emphasize the importance of nature conservation, social welfare, and a sustainable economy.

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In order to achieve the goals of *Maqaṣid al-Sharia*., it is important to develop a strategy for the sustainable use of mangrove forests, which not only considers economic aspects but also ecological and social aspects. Therefore, sustainable development in the capital city of Sofifi must be in line with fundamental Islamic legal principles, which aim to prevent damage and achieve prosperity for all humankind (Ibrahim et al., 2019). This will ensure that mangrove forests continue to contribute to nature conservation, community welfare, and economic justice in accordance with Islamic values. Apart from that, maintaining economic sustainability can also support the achievement of other *Maqaṣid al-Sharia*. goals, such as protecting religion, soul, mind, and descendants. Therefore, the economic valuation of mangrove forests can support the achievement of *Maqaṣid al-Sharia*. objectives. The following is the relevance of the five elements of *Maqaṣid al-Sharia*. to the preservation of the Guraping Mangrove Forest, Sofifi, North Maluku, for the community.

First, *hifẓ al-dīn* (protecting religion) is closely linked to the preservation of the mangrove forest ecosystem. Protecting the environment, particularly mangrove forests, is not only an ecological responsibility but also a religious obligation in Islam. The preservation of nature is seen as a way to safeguard human life and uphold ethical values in alignment with Islamic teachings. In the context of *Maqaṣid al-Sharia*, the concept of *hifẓ al-dīn* is closely tied to human efforts to follow Allah SWT's commands and avoid His prohibitions. One of Allah's commands is to protect the environment, including mangrove forests, as a trust given to humans as stewards (*khalifah*) of the Earth.

This aligns with the Quranic verse in Surah Al-A'raf (7:56): "And cause not corruption upon the earth after its reformation. And invoke Him in fear and aspiration. Indeed, the mercy of Allah is near to the doers of good." This verse emphasizes the responsibility to preserve the Earth, highlighting the moral duty to protect natural resources for the benefit of all (Qur'an Kemenag in Word). The Guraping mangrove forest, as part of the coastal ecosystem, plays a vital role in supporting *hifẓ al-dīn*. Economic valuation highlights the significant contributions of mangrove forests in maintaining environmental balance through various ecological functions. One key contribution of the Guraping mangrove forest is its role in carbon storage. This function not only aids in mitigating climate change but also aligns with Islamic principles to avoid causing damage on Earth, as emphasized in Surah Al-A'raf (7:56).

In the context of *hifẓ al-dīn*, the challenges and efforts to preserve the Guraping mangrove forest reflect the implementation of Islamic values in upholding

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Allah SWT's trust in the Earth. Preservation efforts by the government and local communities demonstrate a profound understanding of the importance of maintaining the Guraping mangrove ecosystem as part of religious obligations. Fachrurrazi Djauhari, in an interview on June 26, 2023, highlighted the wise actions taken by the North Maluku Provincial Government to reduce mangrove degradation. These efforts include public awareness campaigns, mangrove rehabilitation, boundary marking, and enforcing forest protection laws. These measures not only reflect a strong commitment to ecological responsibility but also embody a spiritual responsibility toward the environment.

According to Firdaus (2022), the principle of *Maqaṣid al-Sharia* emphasizes that humans have the responsibility to manage the universe well as part of religious obligations, not cause damage to the earth, act efficiently in the use of resources, and strive to create a peaceful, just and inclusive society. By preserving mangrove forests, humans can receive blessings from Allah SWT and strengthen their spiritual connection with Him. Well-maintained mangrove forests bring blessings to surrounding communities and create an environment that aligns with Islamic values.

Second, the protection of the soul (*hifẓ al-nafs*) is closely linked to the preservation of mangrove forests, as these ecosystems act as natural barriers safeguarding coastal communities from disasters such as coastal erosion, seawater intrusion, and storm surges. By preserving mangroves, the community's safety and well-being are protected, aligning with the Islamic principle of safeguarding life. In Guraping, mangrove forests are essential in preventing seawater intrusion and mitigating coastal erosion. These functions provide significant ecological benefits while directly protecting the lives of communities dependent on coastal ecosystems. By reducing coastal erosion and seawater intrusion, mangroves help prevent the loss of homes, infrastructure damage, and health issues linked to increased salinity.

Furthermore, mangroves play a crucial role in climate change mitigation as they act as carbon sinks, effectively sequestering carbon and contributing to the fight against global warming (Jennerjahn, 2020; Sondak, 2015). This capability helps reduce the adverse effects of climate change, which can pose serious threats to human life. From the perspective of *hifẓ al-nafs*, the role of mangroves in preventing coastal erosion, mitigating seawater intrusion, and absorbing carbon underscores their importance in life preservation efforts.

In the context of protecting the environment, including preserving the mangrove ecosystem, protecting the soul (life) implies that humans, as potential creatures, have the main task of managing and prospering the earth, as well as

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the obligation to create goodness (Firdaus, 2022). For this reason, protecting the soul also means ensuring the continuation of a healthy and dignified life for all humankind. Thus, this concept contains human values that encourage the creation of a safe, prosperous, and sustainable environment for all, including preserving mangrove forests.

Third, *hifẓ al-nasl* (protecting offspring) emphasizes the importance of safeguarding the future of upcoming generations. According to Erianto et al. (2024), maintaining environmental ecosystems is crucial for ensuring the well-being of future generations *(hifẓ al-nasl*), while environmental degradation disrupts the natural cycle of life. In the context of mangrove forest conservation, sustaining this ecosystem ensures a lasting legacy for future generations. By protecting mangrove forests, we not only preserve the balance of coastal ecosystems but also guarantee that future generations can continue to benefit from a healthy, sustainable environment. Mangrove forests are crucial for the sustainability of coastal ecosystems. They act as buffers against coastal erosion, provide habitats for marine species, and support local communities by offering resources. Additionally, mangroves serve as significant carbon sinks, helping mitigate climate change and maintain environmental stability. Their ecological functions not only deliver substantial economic value but are also vital for human survival.

By preserving mangrove forests, we ensure the continued availability of essential natural resources, such as food, carbon storage, and protection against coastal abrasion, seawater intrusion, and natural disasters. A healthy mangrove ecosystem also fosters better living conditions, benefiting the well-being of present and future generations. In this sense, conserving mangroves is an investment in a better future. Protecting mangrove forests supports the creation of a sustainable environment for future generations. This commitment aligns with the values of *hifẓ al-nasl*, where environmental preservation plays a key role in ensuring a dignified and sustainable life for those to come.

Zulhan Arifin Harahap (interview, June 23, 2023) also emphasized that in order to ensure the future sustainability of the Guraping mangroves, strict regulations must be enforced. Careful mangrove management, based on comprehensive environmental studies, must be conducted to prevent land conversion that could damage the mangrove ecosystem. With clear regulations and the continuity of policies supporting mangrove conservation, we can ensure that mangrove forests will continue to provide ecological and economic benefits for future generations. In this regard, mangrove conservation not only fulfills environmental and economic responsibilities but also reflects the implementation of the principle of *hifẓ al-nasl*

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in *Maqaṣid al-Sharia*. By preserving mangroves, we safeguard the survival and well-being of future generations and ensure the inheritance of a healthy, sustainable environment that supports human life in the long term.

Fourth, the relevance of *hifẓ al-'aql* (protecting rationality) in preserving the mangrove forest ecosystem is essential. According to Firdaus (2022), maintaining rationality involves using human reasoning to develop technology that manages Earth's resources, while contemplating the universe to honor God's greatness and fulfill life's needs sustainably. In the context of mangrove preservation, maintaining rationality entails using reason to design and implement policies that promote the sustainability of mangrove ecosystems. This includes developing environmentally friendly technologies for their conservation and restoration, while considering the welfare of local communities and other ecosystems in the process. Maintaining rationality also involves recognizing the vital role mangroves play in balancing marine and terrestrial ecosystems, respecting them as part of Allah's creation that must be preserved and utilized sustainably.

The Guraping mangrove forest, for instance, holds significant ecological and economic value, underscoring the importance of a scientific approach in managing mangrove ecosystems. Scientific methods such as carbon analysis and economic valuation provide a rational foundation for understanding the comprehensive benefits of mangroves, enabling informed decisions for their preservation. In Guraping, efforts like mangrove rehabilitation, boundary marking, and ecotourism development demonstrate how human intellect can ensure the ecosystem's sustainability. From an Islamic perspective, maintaining intellect also means reflecting on the importance of mangroves in maintaining harmony between marine and terrestrial ecosystems. Mangroves offer extraordinary ecological functions that deserve protection and sustainable use. By using reason effectively, mangrove management in Guraping can align with Islamic principles that prioritize public interest and sustainability. Through a rational, science-based approach, humans can optimize the benefits of mangroves while preserving the ecosystem. Therefore, maintaining rationality in mangrove management is an integral part of implementing *Maqaṣid al-Sharia*, aiming to create a balance between human needs and environmental preservation.

Fifth, in terms of *hifẓ al-māl* (protection of assets), mangrove forests contribute to the well-being of local communities by providing livelihoods through sectors such as fisheries and tourism. In addition, mangroves protect coastal communities from natural disasters, such as storms and floods, which can threaten the welfare of these communities. Sustainable management of mangrove forests and their wise utilization can create long-term economic resources, reduce economic disparity, and

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improve wealth distribution. These outcomes align with the principles of Islamic economics, which emphasize justice and fair distribution of economic resources.

The principle of *hifẓ al-māl* teaches the importance of preserving wealth and ownership fairly and ethically. By applying this principle, individuals are encouraged to handle resources responsibly, avoid actions such as fraud or exploitation, and adhere to fair trade principles (Bakar et al., 2020). Maintaining wealth also calls for the use of resources in productive and blessed ways. In this context, preserving mangrove forests as part of safeguarding wealth is both a productive and blessed act, as mangroves provide various ecological, social, and economic benefits for humans and their surrounding environment.

Mangrove forests make a tangible contribution to the welfare of society through their economic functions. In Guraping, mangroves play a vital role in providing direct benefits, such as income from ecotourism, as well as indirect benefits, such as preventing coastal erosion and saltwater intrusion. This shows how mangroves are an asset that must be protected, as their sustainability directly impacts the economic stability and well-being of coastal communities.

Moreover, when mangroves are overexploited or left to deteriorate, the economic and social consequences can be harmful. Continuously pursuing wealth by exploiting nature brings harm to humanity. The destruction of mangrove ecosystems is a grave mistake, like patching one hole while digging another. Acquiring wealth through environmental degradation ultimately leads to the need to allocate significant resources toward mitigating the damage caused, potentially depleting available resources in efforts to restore the environment, including the mangrove ecosystem.

With wise management, the mangrove ecosystem can become an inclusive resource that helps reduce economic inequality within communities. Protecting mangrove forests brings broad and sustainable benefits, contributing to economic stability, safeguarding social life, and maintaining environmental balance for current and future generations, in line with the objectives of *Maqaṣid al-Sharia*.

Conclusion

This research aims to analyze the economic value of mangrove forests in the capital city of Sofifi, as well as how the monetary value of mangrove forests can support the realization of a blue economy and support the achievement of *Maqaṣid al-Sharia* goals in the area. This study draws several conclusions. First, the total economic value of the Guraping Mangrove Forest in Sofifi, covering an

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area of 150.3 hectares, is IDR 20,741,764,344.15. This value is composed of a direct use value of IDR 8,587,721,700.00 per year and an indirect use value of IDR 12,154,042,644.15 per year.

Second, the economic valuation of the Guraping Mangrove Forest is crucial in supporting the blue economy concept, which seeks to combine environmental conservation with sustainable economic development in the marine and fisheries sectors. The Guraping mangrove forest holds substantial economic value, contributing positively to the blue economy. An economic assessment of the mangrove forests in Guraping demonstrates that their conservation and sustainable use can generate significant economic benefits.

Third, the economic valuation of mangrove forests has relevance in the context of achieving the goals of *Maqaṣid al-Sharia*, which is a framework for understanding Sharia principles in Islam. Mangrove forests, as abundant coastal ecosystems with ecological, social, and economic benefits, are in line with the goals of *Maqaṣid al-Sharia* which emphasize the importance of nature conservation as well as sustainable social and economic welfare. Mangrove forests contribute to the welfare of local communities by providing livelihoods through the fisheries and tourism sectors. Sustainable management and responsible use of these forests can generate long-term economic benefits, reduce economic disparities, and promote a more equitable distribution of wealth. These outcomes align with Islamic economic principles, which emphasize fairness and the just distribution of resources.

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