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The Role of Community Behavior in Mangrove Natural Resource Management: A Case Study in Kota Pari Village

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Abstract. This study aims to ascertain and analyze the effect of community behavior on the mangrove natural resource management strategy in Kota Pari Village, Pantai Cermin District, Serdang Bedaga Province. Conservation efforts on mangrove forests have significant significance in relation to the function and role of mangroves, as they comprise physical, biological, ecological, and socioeconomic roles. The management of mangrove forests in multiple regions has had a substantial impact on the ecosystem. As a result, mangrove forest areas must be investigated in detail, in depth, and as soon as possible, as it is common knowledge that various development activities conducted in mangrove forest areas have resulted in a number of quite complex and concerning problems. According to the findings of this study, community behavior has a positive and significant impact on policy strategies. Positive and significant effects of community behavior on the management of mangrove forest natural resources. The management of mangrove natural resources is impacted positively and significantly by policy strategies. Through Policy Strategies, community behavior has a positive and significant impact on the management of mangrove forest natural resources. On the basis of the findings of this study, it is anticipated that residents of Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency will be able to increase the income of low-income residents.

Keywords: Community Behavior, Strategy, Management, Mangrove Forest Resources.

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1. Introduction

A mangrove forest is defined as a group of plants made up of different species from different tribes but with the same morphological and physiological adaptations to tide-influenced habitats (Sukardjo, 1989). Mangrove forests are also recognized as a high-potential natural resource, growing and developing well in tropical environments, particularly in reasonably protected coastal locations. Mangrove forests rely on tidal water flows, freshwater streams, and sedimentation from land, including waste from human activities such as pollution, plantations, and agriculture, to survive. The most influential factors, however, are wind, currents, undersea reliefs, and a certain amount of material carried by river flows (Percival & J.S. Womersley., 1975). The mangrove ecosystem is one of the coastal habitats. Mangrove habitats provide home for a variety of estuary biota, including fish, shrimp, crabs, birds, and others. Mangroves also play a role in nutrient cycling, influencing the structure, function, and balance of nutrients in an ecosystem. Because mangroves act as biofilters, binding agents, and pollutant traps, a healthy mangrove ecosystem can help to keep the aquatic environment in balance (Barr et al., 2020). Mangrove forests are made up of a variety of woody and densely foliage plants (Edy et al., 2009). Its roots, stems, leaves, and fruit are all edible (Turisno et al., 2018).

Mangrove forests have numerous benefits and have the ability to improve the economic status of coastal towns in addition to serving as a habitat for living creatures. These advantages stem from renewable natural resources such as fish, shrimp, and other economic biota; sources of firewood and processed food; and the potential for an educational and tourism area (Yani, 2015). However, today's pollution or contamination from industrial, residential, agricultural, and overfishing has harmed these resources. As a result, the water quality for pond farming has decreased. Opening mangrove habitats for aquaculture, conversion of mangrove forests for settlement, industry, and other economic interests weaken mangroves' function as natural coast guardians. Instead, it elevates the possibility of beach abrasion. Mangrove ecosystem loss causes both physical and biological coastal harm (Ariyanto, 2013). This reduces the carrying capacity of the shore, jeopardizing the sustainability of coastal ecosystems as well as the economic, social, and environmental existence of coastal people (Zikra, 2009).

Kota Pari Village is a beach community in North Sumatra. Coastal areas that are prone to harm must be appropriately managed so that they can be used to suit the community's needs. Management policies must be able to balance the amount of resource use for the economy without jeopardizing future generations' requirements. Plans for coastal development and development of coastal areas require careful consideration to ensure that the damage caused by mangrove forest destruction and land use change is not repeated (Harahap, 2010). Coastal populations, which seek livelihoods and activities in and around mangrove forests, are one of the groups thought to be able to manage mangroves. These folks typically make a living as fishermen, farmers, or farmers. Unfortunately, their understanding of mangroves and how to maintain mangrove ecosystems remains limited. This is due to the lower level of education that is considered less qualified. People believe that mangrove forests cannot help communities rise above poverty, hence they are frequently overlooked by the community.

2. Literature Review

3.1 Mangrove

To avoid confusion with woods composed of mangrove trees (Rhizophora), the name "mangrove" is used instead of the term "mangrove." Mangrove forests have a flat and dense canopy with leafy tree species. Mangrove forest, according to the order published by the Directorate General of Forestry No. 60 / Kpts / DJ / 1978, is a type of forest found along the shore or estuary of a river that is influenced by tides. Mangrove forests are another name for some mangrove forest ecosystems. According to (Noor et al., 1999), referring to mangroves as mangroves appears improper because mangroves are one of the names of plant species groups found in mangrove forests. Mangroves are plant communities that cover a portion of tropical tidal land. The plant populations that make up mangrove communities are unscrupulous and scrubless, with no taxonomic affiliation.

3.2 Management

Management is a procedure that provides oversight on all issues related to policy implementation and goal achievement. In general, management is the action of transforming anything such that it is good, heavy, and has high values from the start. Management may also be defined as doing anything to make something more appropriate and acceptable for needs in order to make it more helpful. According to (Sholikah &; Oktarina, 2019), management is employed as a technique of successfully and efficiently coordinating actions with and through others. Management, or management in general, is frequently connected with actions in organizations such as planning, organizing, managing, leading, and supervising. Management is derived from the verb manage, which means to handle or manage. It may be stated that management involves more than just performing an activity; it also encompasses management activities such as planning, implementing, and overseeing in order to achieve goals effectively and efficiently.

3.3 Community Behavior

Oktaviana (2015) defines behavior as "all biological manifestations of the individual in interacting with the environment, ranging from the most visible to the most invisible, from the felt to the most

unfelt." All types of human experiences and interactions with their environment result in behavior, which manifests as knowledge, attitudes, and behaviors. Notoatmodjo (2010) defines behavior as an individual's response / reaction to external or internal stimuli. While (A. Wawan &; Dewi M., 2011) define behavior as "an action that can be observed and has a specific frequency, duration, and purpose, whether realized or not." Behavior is made up of several components that interact with one another. Skinner (A. F. Skinner, 1938) stated in (Notoatmodjo, 2010) that behavior is a person's response or reaction to a stimulus (stimuli from outside).

3.4 Strategy

David (2010) says that a plan is a way to reach long-term goals. A business plan can include expanding into new areas, making your business stand out from the competition, buying other companies, making new products, breaking into new markets, reducing the number of employees you have, selling off some of your assets, going out of business, or starting a joint venture. According to Tjiptono (2016), a strategy is a set of general ways to put a thought or plan into action in a certain amount of time. Strategy can be described from two different points of view: what an organization wants to do and what it actually does (Tjiptono, 2016). From what we've learned so far, we can say that strategy is a process of planning done by a company, a person, or a leader who takes into account both internal and external factors in order to help the company reach its goals and stand out from its competitors.

3. Methods

This study used the following kinds of data (Sugiyono, 2018):

a) Quantitative data is data that is given in the form of numbers. In mangrove natural resource management policy plans, this data is given in the form of community behavior.
b) Qualitative data comes in the form of sentences, words, or pictures. This data comes in the form of a profile of Pari City Village, the subject of the study.

This study's scope is as follows (Sugiyono, 2018):

a) Interviews with community members and village officials in charge of managing the mangrove forest's natural resources are an example of primary data.
b) A profile of Kota Pari Village is an example of secondary data, which is a source that does not give data directly to the data collector.

Data collection techniques in this study are (Sugiyono, 2018): 1) Literature study. Research cannot be conducted independently of the scientific literature, so literature studies are essential to the research process. Literature studies also have a strong bearing on theoretical studies and other references pertaining to values, cultures, and norms that develop in the social situation under study. Literature on the impact of communities and village apparatus on mangrove natural resource management policy strategies is studied in order to get relevant data. This stage serves as a theoretical foundation and direction for problem analysis. 2) Field study. This technique is implemented by collecting data directly from the object under study in order to obtain the necessary information and describe the actual problems that exist in the village's environment. Interview and observation are used for data collection in this study.

(Sugiyono, 2018) says that a population is a generalization made up of things or people with certain qualities and traits that experts set out to study and then draw conclusions about. This study includes the complete population of Kota Pari Village. The concept of sample in research refers to a subset of a population that is selected according to a specific procedure in order to accurately represent that population. The sample represents a portion of the characteristics possessed by the population. This sampling is conducted if there is a large population in the research and the study's implementation is restricted. The sampling criteria must be genuinely representative so that the collected data can accurately represent the entire population.

Based on what was said above, the researcher chose to use non-probability sampling to get samples. (Sugiyono, 2018) says that "purposive sampling" is a non-probability sampling method that doesn't give every member of a community or every element an equal chance of being chosen for a sample.

(Sugiyono, 2018) describes purposeful sampling as a sampling technique with specific considerations. This technique is utilized by Aweld because it is appropriate for quantitative research or non-generalizable studies (Sugiyono, 2018). This study's sample consisted of 30 community members and village officials from Kota Pari Village.

The data analysis method is a part of the data testing process. The results of data testing are used as sufficient evidence to draw conclusions from study (Sugiyono, 2018). In research, the goal of data analysis is to solve research problems, give answers to suggested problem formulations, and provide information that can be used to draw conclusions and make suggestions that can help shape future research policies.

The Partial Least Square (PLS) method was used to look at the data in this study. PLS is a method for making predictions that can be used instead of ordinary least square regression (OLS), canonical correlation, or structural equation modeling (SEM). PLS is also very useful when there are a lot of independent variables or predictors that are linked to each other, or when the number of predictors is higher than the number of cases. PLS brings together some of the things that PCA and multiple regression do. The process of using PLS is done in two steps. First, by leaving out a number of hidden factors that explain the many ways that independent and dependent variables can be related. Second, use the breakdown of the independent variable (Sarwono and Narimawati, 2015) to predict the value of the dependent variable.

4. Result

4.1 Outer Model Testing (Measurement Model)

This research model will be analyzed using the Partial Least Squares (PLS) technique and the SmartPLS 3.0 program. Yamin and Kurniawan (2009) state that PLS is one of the alternative methods of Structural Equation Modeling (SEM) that can be used to solve problems in highly intricate relationships between variables, even when working with a small sample size of data (between 30 and 100 samples) and non-parametric assumptions (meaning that the data do not come from a single distribution).

1. PLS Model Analysis

The first model in the study was carried out using all indicators in each construct. The first model is analyzed using the reference base of the model framework on, Figure follows:

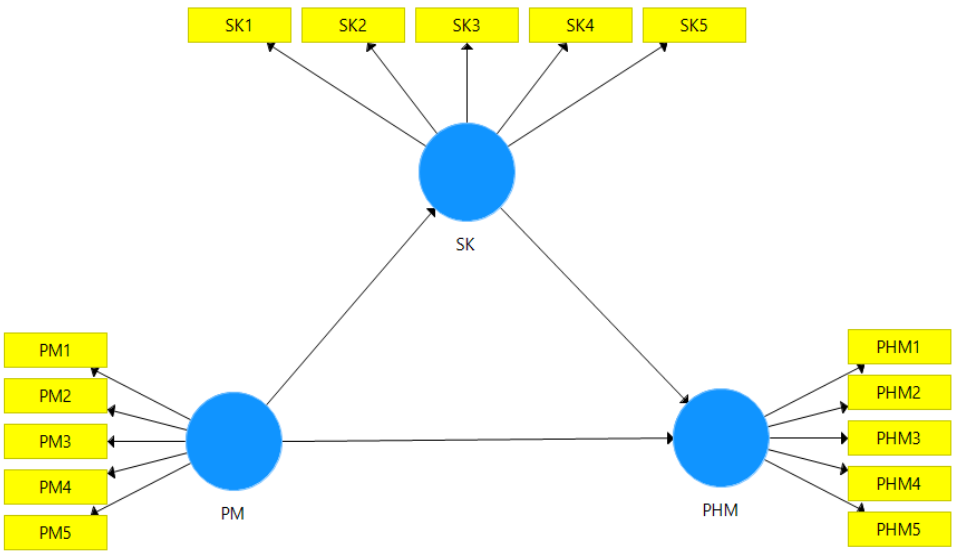

Fig. 1. First Model Framework.
Source: SmartPLS 3.0, 2023

Based on Figure 1, each research variable was subjected to a First order analysis. This is performed to

determine the suitability of each indicator on each reference dimension for reducing research indicators. If the indicators of each dimension are trustworthy and accurately measure each dimension, then the relationship between variables can be predicted with greater precision.

2. Convergent Validity

When determining Convergent Validity, the loading factor value is used to examine the reliability items (validity indicators). A question item's loading factor is the connection between that item's score and the indicator construct indicator's score, which in turn assesses the contract. If the loading factor is more than 0.7, then the results can be trusted. The maximum allowable loading factor was 0.7 in this investigation. Following SmartPLS 3.0 analysis of the data. Tables like the one below can be used to display data regarding loading factors.

Table 1. Value of Loading Factor.

Variable	Indicators	Outer Loading
Community Behavior (X)	PM1	0.816
	PM2	0.989
	PM3	0.838
	PM4	0.737
	PM5	0.990
Management of Mangrove Forest Natural Resources (Y)	PHM1	0.800
	PHM2	0.888
	PHM3	0.880
	PHM4	0.845
	PHM5	0.853
Policy Strategy (Z)	SK1	0.774
	SK2	0.748
	SK3	0.730
	SK4	0.780
	SK5	0.907

Source: SmartPLS 3.0, 2023

Table 1 shows that most indicators for each variable in this study have loading factors more than 0.70, indicating that they are reliable. Convergent validity is met, as indicated by a loading factor of 0.70 or higher for a set of variable indicators. Indicators of variables with loading values below 0.70 are not very reliable and should be taken out of the model, while those with loading values above 0.70 are very reliable and should be left in.

3. Composite Reliability

Composite reliability values can be used to assess the dependability of constructs or latent variables in addition to convergent validity and discriminant validity of the outer model. A construct is considered trustworthy if its composite reliability is 0.70 or higher. The table below displays the SmartPLS output findings for the composite reliability value.

Table 2. Composite Reliability Value.

Variable	Composite Reliability
PM (X)	0.849
PHM (Y)	0.931
SK (Z)	0.883

Source: SmartPLS 3.0, 2023

Table 2 shows that across the board, composite dependability is at or above 0.70. All buildings are extremely dependable with the resultant value, as long as it exceeds the minimum required imbibing value.

Convergent and discriminant validity are used to evaluate the model's applicability in the real world. Examining the Average Variance Extracted (AVE) value in each construct is how convergent validity is determined; an acceptable construct will have an AVE score of > 0.5. Results of the SmartPLS Algorithm applied to the AVE value are shown in the table below.

Table 3. Average Variance Extracted (AVE).

Variable	Average Variance Extracted (AVE)
PM (X)	0.860
PHM (Y)	0.960
SK (Z)	0.934

Source: SmartPLS 3.0, 2023

Table 3 displays that the Average Variance Extracted (AVE) for each construct in the final model is more than 0.5, indicating model fit. Convergent validity has thus been established for the suggested structural equation model.

4.2 Inner Model Testing

The inner model (structural model) is assessed when the outer model's requirements have been met. The internal model can be assessed by calculating the r-square (reliability of the indicator) for the dependent construct, and the t-statistical value of the path coefficient test. The proposed research model's prediction skills are better the greater the r-square value. The significance of a hypothesis test can be inferred from the value of the path coefficient.

1. Variant Analysis (R2) or Determination Test

To find out how much of an impact the independent variable has on the dependent variable, statisticians use a technique called Variant Analysis (R2), often known as a determination test.

Table 4. R-square value.

Variable	R Square
SK (Z)	0.566
PHM (Y)	0.729

Source: SmartPLS 3.0, 2023

The r-square value in Table 4 indicates that Community Behavior can explain 56.6% of the variance in Policy Strategies constructs, while the remaining 43.4% is explained by constructs outside the scope of this study. In the meantime, Community Behavior was able to explain 72.9% of the variance in Mangrove Forest Natural Resources Management conflict variability, while the remaining 27.1% was explained by constructs outside the scope of this study.

2. Hypothesis Testing

Inner Model results are used to test hypotheses, and these results can be seen in the form of t-statistics, chi-square values, and r-squared output. Using a combination of a contract, a t-statistic, and a p-value to evaluate the acceptability or rejection of a hypothesis. The SmartPLS 3.0 program was used to evaluate hypotheses in this study. Bootstrapping can be used to find these numbers. T-statistics more than 1.96, a p-value less than 0.05 (5%), and a positive beta coefficient were employed as guidelines in this study. The significance of checking the hypothesis in this study is shown in the table below.

Table 5. Results of Path Coefficients.

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
PM (X) -> PHM (Y)	0.932	0.839	0.223	3.760	0.007

PM (X) -> SK (Z)	0.970	0.973	0.009	113.156	0.000
SK (Z) -> PHM (Y)	0.575	0.582	0.221	2.609	0.009

Source: SmartPLS 3.0, 2023

Based on Table 5, states that the first hypothesis tests whether Community Behavior has a positive and significant effect on Mangrove Forest Natural Resources Management. The test results show that (P-Values = 0.007 < 0.05) there is a positive and significant influence between Consumer Behavior on the Management of Community Mangrove Forest Natural Resources in Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency, so **the first hypothesis is accepted.**

The second hypothesis examines whether Community Behavior has a positive and significant effect on Policy Strategy. The test results show that (P-Values = 0.000 < 0.05) there is a positive and significant influence between Consumer Behavior on Community Policy Strategy in Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency, so **the second hypothesis is accepted.**

The third hypothesis examines whether the Policy Strategy has a positive and significant effect on Mangrove Forest Natural Resources Management. The test results show that (P-Values = 0.007 < 0.05) there is a positive and significant influence between Policy Strategies on the Management of Community Mangrove Forest Natural Resources in Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency, so that **the third hypothesis is accepted.**

3. Indirect Effect

Indirect impact is the amount of influence that comes from variables that act as middlemen. The amount of indirect influence is found by multiplying the direct influence of the independent variable on the mediation variable by the direct influence of the mediation variable on the dependent variable. The table below shows how to calculate the amount of indirect influence of the independent variable on the variable.

Table 6. Indirect Effect Results.

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
PM (X) -> SK (Z) -> PHM (Y)	0.558	0.566	0.216	2.582	0.010

Source: SmartPLS 3.0, 2023

According to Table 6, the impact of community behavior on the policy strategy for managing mangrove forest natural resources in Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency is illustrated. The coefficient of indirect influence of Community Behavior on Mangrove Forest Natural Resources Management through Policy Strategy indicates (P-Values = 0.010 0.05) that Community Behavior has a positive and statistically significant effect on Mangrove Forest Natural Resources Management through Policy Strategy; therefore, the fourth hypothesis is accepted.

5. Discussion

5.1 The Influence of Community Behavior on Policy Strategy

The path coefficient of Community Behavior is 0.97 and the significance is 0.000 0.05, indicating that Community Behavior has a positive and significant effect on Policy Strategy in the community of Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency, based on the results of direct influence testing. The community of Kota Pari Village is aware that mangrove forests play a vital role in sustaining these people's livelihoods. Nonetheless, community attitudes toward the presence of

mangroves fall under the category of unfavorable.

The mangrove forest serves as a recreational area for villagers and non-villagers alike. Some people continue to throw garbage around mangrove forests, construct settlements by chopping down mangrove forests, do not actively clean up garbage from upstream around mangrove forests, and do not regulate the development of existing mangroves. Independently disregard the function, utilization, and processing of mangrove forests. Few individuals recognize the significance of mangrove forests to the surrounding ecosystem. Some individuals take the time to remove trash from the mangrove forest, manage sedimentation, and plant mangrove seedlings. In Kota Pari Village, village officials play a role in regulating the local community's efforts to preserve mangrove ecosystems.

5.2 The Influence of Community Behavior on the Management of Mangrove Forest Resources

Based on the results of direct influence testing, it is known that Community Behavior has a positive and significant effect on Mangrove Forest Natural Resources Management, where the path coefficient of Community Behavior is 0.932 and the significance is 0.007 0.05, indicating that Community Behavior has a positive and significant effect on Mangrove Forest Natural Resources Management in the community of Kota Pari Village, Pantai Cermin D. The ecological, social, and economic functions and advantages of mangrove forests are diverse. Numerous species of fish, crustaceans, crabs, and even humans, whose lives depend on the existence of mangrove forests, demonstrate the critical importance of mangroves to marine life.

In relation to the significance and sustainability of coastal water areas, specifically Kota Pari Village, the destruction or reduction of mangrove forest areas has an effect on a number of components, including the eventual extinction of all biota that live in the waters surrounding the mangrove forest. Coastal communities are frequently dependent on mangrove forests, as they provide building materials, firewood, fishing grounds, crabs, shrimp, and aquaculture. Therefore, it is essential to optimize the administration of mangrove forest natural resources.

5.3 The Effect of Policy Strategy on the Management of Mangrove Forest Natural Resources

Based on the results of direct influence testing, it is known that the Policy Strategy has a positive and significant effect on the Management of Mangrove Forest Natural Resources, where the value of the path coefficient of the Policy Strategy is 0.575 and the significance is $0.009 < 0.05$, which means that it shows that the Policy Strategy has a positive and significant influence on the Management of Mangrove Forest Natural Resources in the community of Kota Pari Village, Pantai Cermin District, Serdang Bedagai Regency. Increasing knowledge and awareness of the people of Kota Pari Village can be done through processing training, counseling on the importance of mangrove forests, and direct action in the field.

Policy strategies in mangrove forest management such as mangrove seeding and planting, cleaning up waste in the area around mangrove forests, making prohibition boards and others. This strategy is carried out to improve the ability of human resources to conserve mangrove forests. For this reason, leadership-related trainings are needed to open insights, especially about the protection of coastal and marine resources, including mangrove forests in Kota Pari Village.

5.4 The Influence of Community Behavior on Mangrove Forest Natural Resources Management through Policy Strategy

Community Behavior has a positive and significant effect on the Management of Mangrove Forest Natural Resources through Policy Strategies, based on the results of indirect influence testing, where the path coefficient of Community Behavior is 0.558 and the significance is 0.010 0.05. This indicates that Community Behavior has a positive and significant effect on the Management of Mangrove Forest Natural Resources through Policy Strategies.

The potential of mangrove forest resources is extremely promising, but these resources are perishable or easily spoiled foods. Product processing is one of the control measures that are implemented. The processing of catch resources in mangrove forest areas is intended to provide added value for both meeting nutritional requirements and boosting the income of local communities. In the mangrove forests of Kota Pari Village, processing activities are conducted out in accordance with policy strategies aimed at enhancing the community's capacity to utilize resources. Not only are resources such as fish, shellfish,

and prawns utilized, but so are mangrove forests.

6. Conclusion

The need for firmness from the Village Head and all Village Officials to implement existing mangrove forest regulations and actively introduce mangrove forest diversity to the community in the village environment through socialization and to people who come to visit for tourism in the area. The socialization that is packaged attractively is followed by planting and joint maintenance of mangrove forests on an ongoing basis.

Communities that are very good at preserving mangrove forests need to continue to be nurtured and developed. Nurturing people's perceptions is not only by providing knowledge, but also by experiencing mangrove forest conservation, which makes people more interested and enthusiastic. In addition, community empowerment is needed through counseling on the preservation and benefits of mangrove forests, assistance of skilled personnel and capital. Government firmness is also needed in applying mangrove conservation regulations.

It is expected that the next researcher will add other variables for the preservation of mangrove forests in Kota Pari Village.

References

[1] A. F. Skinner. (1938). The Behavior Of Organisms: An Experimental Analysis. Cambrideg, Massachusetts: B.F. Skinner Foundation. ISBN 1-58390- 007-1, ISBN 0-87411-487 X.

[2] A. Wawan, & Dewi M. (2011). Teori dan Pengukuran Pengetahuan, Sikap, dan Perilaku Manusia. Cetakan I. Nuha Medika.

[3] Ariyanto, S. (2013). Kondisi Terkini Budidaya Ikan Bandeng di Kabupaten Pati, Jawa Tengah. Media Akuakultur, 8(2), 139–144.

[4] Barr, J. G., Engel, V., Fuentes, J. D., & Zieman, J. C. (2020). Controls on Mangrove Forest-Atmosphere Carbon Dioxideexchanges in Western Everglades National Park. Journal of Geophysical Research, 115, 1–14.

[5] David, F. R. (2010). Manajemen Strategi: Konsep (Edisi 12). Salemba Empat.

[6] Edy, M., Rudy, L., & Dewi, A. (2009). Fungsi Mangrove Sebagai Pengendali Pencemar Logam Berat. Envirotek : Jurnal Ilmiah Teknik Lingkungan, 1, 33–39.

[7] Harahap, N. (2010). Penilaian Ekonomi Hutan Mangrove dan Aplikasinya dalam Perencanaan Wilayah Pesisir. Graha Ilmu.

[8] Noor, Y. S., Khazali, M., & I N.N. Suryadiputra. (1999). Panduan Pengenalan Mangrove di Indonesia. In PHKA/WI-IP.

[9] Notoatmodjo, S. (2010). Metodologi Penelitian Kesehatan. Rineka Cipta.

[10] Oktaviana, R. (2015). Hubungan Antara Subjective Well-Being Dengan Self Management pada Ibu Bekerja di Rumah Sakit Muhammadiah Palembang. PSYCHE, 9(2), 107–116.

[11] Percival, M., & J.S. Womersley. (1975). Floristics and Ecology of The Mangrove Vegetation of Papua New Guinea (p. 96). Botany Bulletin No. 8, Papua New Guines National Herbarium.

[12] Sarwono, J., & Narimawati, U. (2015). Membuat Skripsi, Tesis, dan Disertasi dengan Partial Least Square SEM (PLS-SEM). CV Andi Offset.

[13] Sholikah, M., & Oktarina, N. (2019). Pelaksanaan Pengelolaan Kearsipan Untuk Menunjang Akuntabilitas Sekolah. Economic Education Analysis Journal, 7(3), 1178–1192.

[14] Sugiyono. (2018). Metode Penelitian Pendidikan (Pendekatan Kuantitaif, Kualitatif, dan R&D). CV Alfabeta.

[15] Sukardjo. (1989). Kimia Fisika. PT Bina Aksara.

[16] Tjiptono, F. (2016). Service, Quality & Satisfaction. Andi.

[17] Turisno, B. E., Suharto, R., & Priyono, E. A. (2018). Peran Serta Masyarakat Dan Kewenangan Pemerintah Dalam Konservasi Mangrove Sebagai Upaya Mencegah Rob dan Banjir Serta Sebagai Tempat Wisata. Masalah-Masalah Hukum Jilid 47, 4, 479–497.

[18] Yamin, S., & Kurniawan, H. (2009). SPSS Complete: Tekhnik Analisis Statistik Terlengkap dengan Software SPSS. Salemba Infotek.

[19] Yani, F. (2015). Peran Pemuda Dalam Mengembangkan Eco Edu Wisata Mangrove Dan Implikasinya Terhadap Ketahanan Lingkungan Daerah (Kasus pada: Perkumpulan Pemuda Peduli Lingkungan "Prenjak" Dusun Tapak, Kelurahan Tugurejo, Kecamatan Tugu, Kota Semarang, Provinsi Jawa Tengah. Jurnal Ketahanan Nasional, 21, 128.
[20] Zikra, M. (2009). Kegiatan Survey Lapangan Untuk Inventarisasi Permasalahan Kerusakan Pesisir Pantai di Kabupaten Tegal, Jawa Tengah. Jurnal Kelautan, 2(1), 20–26.