

# Strategy to Improve the Behavior of Fishermen in Preserving the Residential Environment in Coastal Areas of South Sulawesi Province

Rahmansah, Bakhrani Abdul Rauf, Faizal Amir, Mithen Lullulangi, and Muhammad Ardi

*Dosen Fakultas Teknik Universitas Negeri Makassar*

## **Abstract**

This research aimed to investigate various aspects related to improving the behavior of fishermen in preserving the quality of the residential environment and the influencing factors. The experiment was carried out across three regions in the South Sulawesi Province, namely Bone, Pangkajene Islands, and Pinrang Regency, with a total of 150 households as respondents. The focus was to understand the behavior of fishermen towards the environment, as well as knowledge of ecosystems, housing, and local wisdom. The results showed that the behavior particularly towards environmental care was low. Knowledge of ecosystems, housing, and local wisdom was also relatively low, while understanding of the environment was at a moderate level. Furthermore, factors such as motivation, attitude, commitment, self-control, environmental concern, and income were found to be on the lower side. These results provided a clearer picture of how to enhance the awareness of fishermen and actions to preserve the environment. In this context, environmental knowledge could serve as the main focus in strategy implementation.

**Keywords:** *Strategy, Fishermen's behavior, Residential environment, Coastal areas.*

## **Introduction**

The population growth in the South Sulawesi Province, particularly among fishermen, clearly indicates the need for the provision of healthy housing as a place of residence and for nurturing families. Ardi (2017)<sup>[1]</sup> considers housing as one of the basic human needs, parallel to the demand for food, clothing, education, and health. This is consistent with Indonesia Law Number 32 of 2009 concerning Environmental Protection and Management, which underscores the importance of development optimized by the use of natural resources appropriately and efficiently. Furthermore, as stated by Ardi (2019)<sup>[3]</sup>, behavior that enhances environmental quality at home or in housing is influenced by various factors including knowledge, attitude, motivation, social and economic conditions, alongside the surrounding environment. In this context, changes in community behavior aimed at improving

environmental quality are closely related to the core values. Hawkes (2017)<sup>[4]</sup> suggests that societal values or "society values" are the main foundation in development aimed at achieving a better quality of life.

This research aimed to accomplish several objectives, namely: (1) Identify effective strategies to encourage fishermen to be more caring and active in maintaining cleanliness and sustainability of the environment around their residences, (2) Examine and evaluate the level of knowledge about ecosystems, the environment, housing, local wisdom, as well as scrutinize the motivation, attitudes, commitment, self-control, concern, and income levels, (3) Identify key strategies in enhancing the behavior of fishermen in environmental maintenance when simultaneously implementing five, four, three, and two independent variables, and (4) Uncover crucial strategies in improving behavior when only one independent variable is implemented by relevant parties or stakeholders.

By focusing on different independent variables, this research was conducted to discover the best strategies for improving the behavior of fishermen to become more proactive in caring for their residential environment. This can be achieved by implementing multiple independent variables simultaneously or by focusing on one variable separately.

## Literature Review

In this research, various perspectives related to the concept of home, behavior, knowledge, and environmental elements were presented. According to Ardi (2017)<sup>[1]</sup>, a home is a residence that meets the standards of a decent life. This is consistent with Law Number 4 of 1992<sup>[1]</sup>, which defined a home as a building used for residence or a place for family development. Ardi (2018)<sup>[5]</sup> also refers to this concept as a place for humans to engage in the processes of socialization, social interaction, and cultural recognition. Meanwhile, Nurhasan (2010)<sup>[6]</sup> views a home as the primary means to optimize human resource potential, playing a crucial role in improving societal morality.

The understanding of behavior, according to Viethzal and Deddy (2013)<sup>[7]</sup> entails all activities, actions, and appearances of humans towards the physical and social environment. Myers (2012)<sup>[8]</sup> states that individual behavior is influenced by various factors including knowledge, attitude, motivation, values, beliefs, abilities, environmental conditions, and specific situations. The concept of knowledge, according to Notoatmodjo (2010)<sup>[9]</sup> and Suriasumantri (2010)<sup>[10]</sup>, refers to all information obtained through scientific reasoning, while Suriasumantri (2010)<sup>[10]</sup>, mentioned that knowledge consists of cognitive, affective, and psychomotor components.

According to Faizal Amir (2021)<sup>[11]</sup>, an ecosystem is a spatial unit comprising the reciprocal relationships between living and non-living elements that form a system. Ardi (2018)<sup>[5]</sup> mentioned that components in an ecosystem are divided into two main parts, namely biotic and abiotic. The concept of the environment, as expressed by Cunningham (2012)<sup>[12]</sup>, consists of the biotic, abiotic, and social environments, which mutually influence each other.

Attitude, as defined by Azwar (2012)<sup>[13]</sup> and Ardi (2015)<sup>[14]</sup>, is the choice and tendency of a person actions based on daily experiences and knowledge. This feature consists of cognitive, affective, and psychomotor components. Furthermore, motivation in line with Ardi (2015)<sup>[14]</sup>

and Wibowo (2013)<sup>[15]</sup>, refers to the drive of an individual to achieve set goals and is divided into two types namely intrinsic as well as extrinsic.

Commitment, as stated by Yusuf and Syarif (2018)<sup>[16]</sup> and (2015)<sup>[17]</sup>, describes the determination to carry out an activity. In this context, individual characteristics and the work environment are crucial factors that determine commitment. Understanding environmental concerns, according to Yaumi (2014)<sup>[18]</sup>, requires a general attitude toward the environment aimed at achieving harmony, compatibility, and balance in environmental components.

Locus of Control, as explained by Ghufroon & Risnawati (2011)<sup>[19]</sup> and Ardi (2019)<sup>[3]</sup>, refers to paying attention to self-control and responsibility before taking action, with indicators divided into internal and external. Furthermore, KBBI (2020)<sup>[20]</sup> and Simorangkir (2014)<sup>[21]</sup> explain that income is the total receipts obtained by an individual from the sale of goods and services during a specific period.

## Research Methods

This research used a correlational approach and was conducted across three regions in the South Sulawesi Province, namely Bone, Pangkajene Islands, and Pinrang Regency. The locations were intentionally selected using purposive sampling. The population was focused on the heads of households (HH) of fishermen residing in the coastal areas of these three regencies. The sample size was 150 households, with an equal number of 50 households selected from each regency. The sampling was conducted using the systematic random sampling approach.

The research consisted of dependent (Y) and independent (X) variables. The dependent variable was the behavior of fishermen in improving the quality of the residential environment (Y). Meanwhile, the independent variables were (a) ecosystem (X1), (b) environmental (X2), and (c) housing knowledge (X3), (d) local wisdom (X4), (e) motivation to preserve the environment (X5), (f) environmental attitude (X6), (g) commitment to environmental preservation (X7), (h) self-control (X8), (i) environmental concern (X9), and (j) income level (X10).

Data were collected by providing questionnaires and knowledge tests to all respondents to be filled out. The collected data were then analyzed using two approaches, namely descriptive statistical analysis, to provide a general overview of the data and inferential analysis. The applied inferential model was stepwise multiple regression, which aimed to identify factors significantly associated with the variable under investigation.

## Research Results And Discussion

### A. Research result

The descriptive statistical analysis results showed that the average for the behavior of fishermen in improving the quality of the residential environment was 35.26 with a range between 23 to 49. From the perspective of the frequency distribution, this average value was in the low category, showing that the behavior of the fishermen was low.

The descriptive statistical analysis of ecosystem, environmental, and housing knowledge showed mixed results. Ecosystem knowledge had an average value of 5.27 with a range between 2 to 8 and was categorized as relatively low based on the frequency distribution. On the other hand, environmental knowledge had an average of 8.37 with a range between 5 and 12 and was categorized in the medium category. Housing knowledge showed an average value of 5.41 with a range of 2 and 6 and was categorized as relatively low based on the frequency distribution. This showed that the knowledge of fishermen about ecosystems, the environment, and housing in the coastal areas of the South Sulawesi Province ranged from a low to moderate level.

Based on the results, the average score for local wisdom was 8.28, with a range of 5 and 11. According to the frequency distribution, this average value was placed in the moderate category. Analysis of motivation, attitude, commitment, self-control, and concern of fishermen for the maintenance of the residential environment showed similar results. The average score was 37.25, 37.08, 36.87, 37.85, and 35.57 respectively, and the range of values for each variable was between 21 to 48. Based on the frequency distribution, all the average values were in the low category.

The analysis also showed that the income level of fishermen in the coastal areas was low, ranging from IDR. 2,600,000 to IDR. 5,000,000 per month. Table 1 showed the inferential statistical analysis results of the stepwise regression model when five, four, three, and two independent variables were implemented simultaneously by stakeholders, as well as when one independent variable was implemented separately.

**Table 1. Results of inferential statistical analysis of the stepwise regression model when the five independent variables were implemented simultaneously.**

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	25.69	.000		46,23	.000
X2	4.83	.0004.81		46.18	.000
X5	4.72	.0004.70		45.26	.000
X6	3.84	.0013.81		45.24	.000
X10	3.34	.0013.30		45.20	.000
X3	3.30	.0023.12		43.75	.000

a. Dependent Variable: Y

Table 1 showed that when five independent variables were implemented simultaneously, the selected variables were environmental knowledge ( $X^2$ ), motivation for preservation ( $X^5$ ), attitude ( $X^6$ ), income level ( $X^{10}$ ), and housing knowledge ( $X^3$ ). When four independent variables were implemented simultaneously, the selected variables were environmental knowledge ( $X^2$ ), motivation for preservation ( $X^5$ ), attitude ( $X^6$ ), and income level ( $X^{10}$ ). Furthermore, when three independent variables were implemented simultaneously, the selected variables included environmental knowledge ( $X^2$ ), motivation for preservation ( $X^5$ ), and attitude ( $X^6$ ). When two independent variables were implemented simultaneously, the selected variables comprised environmental knowledge ( $X^2$ ) and motivation for preservation ( $X^5$ ). In the case when only one independent variable was implemented, the selected variable was environmental knowledge ( $X^2$ ).

## B. Discussion

The descriptive statistical analysis results showed that the behavior of fishermen in improving the quality of the residential environment across the coastal areas of the South Sulawesi Province was low. This was attributed to the lack of knowledge about ecosystems, environment, and housing. Furthermore, fishermen also showed inadequate attitude and motivation to preserve the environment. To address this, relevant stakeholders should focus on improving the behavior of fishermen to effectively maintain their residential environment.

In general, ecosystem, environmental, and housing knowledge needs to be improved along with local wisdom, attitude, motivation, locus of control, environmental awareness, and income levels. This could be achieved by providing counseling and training related to housing and the environment knowledge. Furthermore, fishermen need to develop motivation, locus of control, attitudes, and concern for the environment.

The inferential statistical analysis results of the stepwise multiple regression model showed that all independent variables had a significant impact on the dependent variable. When five independent variables were implemented simultaneously to improve the behavior of fishermen in preserving their residential environment, the selected variables were environmental knowledge ( $X^2$ ), motivation for preservation ( $X^5$ ), attitude ( $X^6$ ), income level ( $X^{10}$ ), and housing knowledge ( $X^3$ ). Meanwhile, when four variables were implemented, the selected variables included environmental knowledge ( $X^2$ ), motivation for preservation ( $X^5$ ), attitude ( $X^6$ ), and income level ( $X^{10}$ ). When three variables were implemented, the selected variables were environmental knowledge ( $X^2$ ), motivation for preservation ( $X^5$ ), and attitude ( $X^6$ ). In the case when two variables were implemented, the selected variables comprised environmental knowledge ( $X^2$ ) and motivation for preservation ( $X^5$ ). When only one variable was implemented, the selected variable was environmental knowledge ( $X^2$ ).

## Conclusion

The conclusions of this research were as follows:

1. The behavior of fishermen in protecting the residential environment in the coastal areas of the South Sulawesi Province was at a low level.

2. The knowledge regarding ecosystems, housing, and local wisdom was low, but environmental knowledge was at the medium level.
3. Motivation, attitude, commitment, self-control, concern, and income levels were all categorized as low.
4. Independent variables that could adopted as a strategy to improve the behavior of fishermen include environmental knowledge, motivation, attitude, income level, and housing knowledge. When only four variables were implemented, the variables selected included environmental knowledge, motivation, attitude, and income level. When only three variables were implemented, the variables selected were environmental knowledge, motivation, and attitude. Meanwhile, when only two variables were implemented, the variables selected consisted of environmental knowledge and motivation.
5. When only one independent variable was implemented, the most significant variable was environmental knowledge.

Therefore, the results show that aspects of environmental knowledge play a crucial role in improving the behavior of fishermen regarding maintaining the residential environment in the coastal areas of the South Sulawesi Province.

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### References

- [1] Muhammad Ardi, Bakhrani A. Rauf, dan Mithen. 2017. *Desain Rumah Tinggal Berbasis Kearifan lokal Suku Bugis Yang Berwawasan Lingkungan*. Makassar: Badan Penerbit UNM.
- [2] Undang-Undang Republik Indonesia Nomor 32 Tahun 2009. Tentang Perlindungan dan Pengelolaan Lingkungan Hidup. *Lembaran Negara Republik Indonesia Tahun 2009 Nomor 140*.
- [3] Ardi, M; Rauf, B; Amir, F; dan Mithen. (2019). *Lingkungan, Rumah Tinggal dan Kearifan Lokal Suku Bugis*. Badan Penerbit UNM: Makassar.
- [4] Undang-Undang Republik Indonesia Nomor 4 Tahun 1992 Tentang Perumahan dan Permukiman.
- [5] Muhammad Ardi, Mithen, Bakhrani A. Rauf, dan Faizal Amir. 2018. *Desain Tampak Rumah Tinggal Berbasis Kearifan Lokal Suku Bugis Yang Berwawasan Lingkungan*. Makassar: Badan Penerbit UNM.
- [6] Nurhasan, Indrawati dan Riza Zahrul Islam. 2010. "Pendekatan Desain Rumah Sederhana Sehat (rs sehat) dan Lingkungannya Berdasarkan Arsitektur Islam." *Laporan Penelitian*. Solo: Universitas Muhamadiyah Solo.
- [7] Viethzal, R., & Deddy, M. 2013. *Kepemimpinan dan Perilaku Organisasi*. Jakarta: Rajawali Pers.
- [8] Myers, David G. 2012. *Psikologi Sosial*. Edisi 10, Buku 2. Jakarta: Salemba Humanika.
- [9] Notoatmodjo, Soekidjo, 2010. *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta.
- [10] Suriasumantri, Jujun S., 1998. *Filsafat Ilmu Sebuah Pengantar Populer*. Jakarta: Pustaka Sinar.

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- [11] Faizal Amir; Husain Syam, Muhammad Ardi; Bakhrani, A.R; Haruna; dan Ayuddin. 2021. *Pembinaan Petani Berusaha Tani Dalam Meningkatkan Pendapatan dan Diversifikasi Usaha Tani Secara Berkelanjutan Pada Daerah Irigasi Teknis*. Makassar: Badan Perbit UNM.
- [12] Cunningham, W.P., Cunningham, M.A. (2012) *Environmental Science, A Global Concern. Twelfth Edition*. New York: McGraw-Hill.
- [13] Azwar, Saifuddin, 2012. *Sikap Manusia; Teori dan Pengukurannya*. Yogyakarta: Pustaka Pelajar.
- [14] Ardi. Muhammad. 2015. Perilaku petani tegalan dalam meningkatkan kualitas lingkungan di Kabupaten Soppeng. *Jurnal Scientific Pinisi*, 1 (1), 13-24. Oktober 2015. <https://ojs.unm.ac.id/pinisi/article/view/2113/1052>.
- [15] Wibowo. 2013. *Perilaku Dalam Organisasi*. Jakarta: Rajawali Pers.
- [16] Yusuf, M.R., & Syarif, D. 2018. *Komitmen Organisasi*. Jakarta: Nas Media Pustaka.
- [17] Kusumaputri, Erika Setyanti. (2015). *Komitmen pada Perubahan Organisasi: Perubahan Organisasi dalam Perspektif Islam dan Psikologi*. Yogyakarta: Deepublish.
- [18] Yaumi, Muhammad. 2014. *Pendidikan Karakter Landasan Pilar dan Implementasi*. Jakarta: Prenada Media Group.
- [19] Ghufroon, N dan Risnawati, R. (2011). *Teori-Teori Psikologi*. Jakarta: Ar-ruzz Media.
- [20] Kementerian Pendidikan dan Kebudayaan Republik Indonesia. 2020. *Kamus Besar Bahasa Indonesia (KBBI)*. (Kemdikbud.go.id)
- [21] Simorangkir, Iskandar. 2014. *Pengantar Kebanksentralan Teori dan Praktik di Indonesia*. Jakarta: PT Raja Grafindo Persada.