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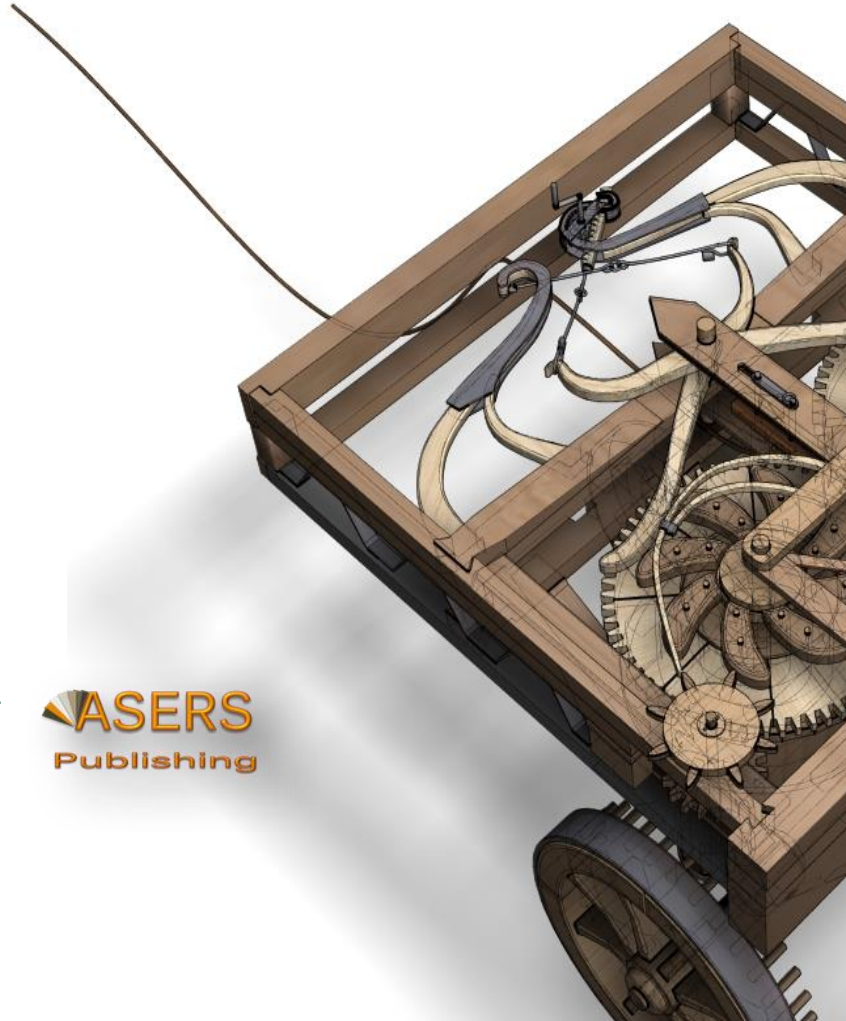
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# Call for Papers Winter Issues 2023 Journal of Environmental Management and Tourism

**Journal of Environmental Management and Tourism** is an open access, peer-reviewed interdisciplinary research journal, aimed to publish articles and original research papers that contribute to the development of both experimental and theoretical nature in the field of Environmental Management and Tourism Sciences. The Journal publishes original research and seeks to cover a wide range of topics regarding environmental management and engineering, environmental management and health, environmental chemistry, environmental protection technologies (water, air, soil), pollution reduction at source and waste minimization, energy and environment, modelling, simulation and optimization for environmental protection; environmental biotechnology, environmental education and sustainable development, environmental strategies and policies.

Authors are encouraged to submit high quality, original works that discuss the latest developments in environmental management research and application with the certain scope to share experiences and research findings and to stimulate more ideas and useful insights regarding current best-practices and future directions in Environmental Management.

Also, this journal is committed to a broad range of topics regarding Tourism and Travel Management, leisure and recreation studies and the emerging field of event management. It contains both theoretical and applied research papers and encourages obtaining results through collaboration between researchers and those working in the tourism industry.

The journal takes an interdisciplinary approach and includes planning and policy aspects of international, national and regional tourism as well as specific management studies. Case studies are welcomed when the authors indicate the wider applications of their insights or techniques, emphasizing the global perspective of the problem they address.

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## Management of Bioculture Potential with Environmental Perspective Based on Local Wisdom

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**Abstract:** This paper analyzes how the system for managing bio culture potential is based on the local wisdom of the Duanu tribe, Indragiri Hilir Regency, and aims to develop a strategy for managing potential with an environmental perspective based on the local wisdom of the community. In this regard, is used a mixed method by distributing questionnaires, a sample of 100 respondents using a purposive sampling approach, and data collection techniques using surveys, interviews, and observations. The findings of this study conducted the strategy formulation by determining alternative strategies obtained from the results of the SWOT analysis. The tool used in this analysis is the Quantitative Strategic Planning Matrix to see the priority strategies and set the environmental perspective based on local wisdom.

**Keywords:** bioculture; environment; local wisdom.

**JEL Classification:** F64; M14; Q51; R11.

### Introduction

Bioculture (bioculture) is a combination of biological and cultural factors that influence human behavior (Boyd 2006). Human behavior and culture arise from complex connections among genetic dispositions and environmental circumstances, from the physical aspects of the biosphere to imaginary cultural concepts.

Indigenous community behavior patterns tend to be oriented toward cultural values and local wisdom. Dachlan (2013) and Prasojo (2011) state that indigenous peoples contain strong cultural values and have potential local wisdom supported by various aspects such as natural resources and human resources. The

majority of indigenous peoples live in coastal areas (Dachlan 2013, Prasajo, 2011). By carrying out the concept of local wisdom, the community can maintain tradition during the development of the modernization era.

The consistency of the Duanu Tribe community in Indragiri Hilir Regency in managing menongkah products to how they maintain local wisdom in menongkah activities is a challenge if they want to apply new things in their lives. It is hoped that the biocultural approach will change the behavioral patterns of the Duanu people to explore their potential and participate in the use of information technology without having to eliminate the side of local wisdom as a form of economic, ecological, and social balance. This suggestion is in accordance with the results of Pujiwiyana's research (2010) which states that the use of information technology is able to shape the capabilities of modern society based on local understanding. So, it is essential to have a potential management strategy with a biocultural approach whose output is a novel way of processing shellfish products so that it can improve the community's economy, and good environmental management while maintaining the culture and values of local wisdom of the Duanu Tribe community in Indragiri Hilir Regency.

From this background, the researchers want to conduct their studies on strategies for managing the potential of bioculture, with an environmental vision of the Duanu tribe based on local wisdom. These are the problems that can be achieved:

- How are the environmental condition in the residential area and the displacement of the Duanu Tribe, Indragiri Hilir Regency?
- What are the social conditions in dealing with the use of information technology in the Duanu tribal community, Indragiri Hilir Regency?
- What is the appropriate amount of income for the Duanu tribal community in Indragiri Hilir Regency each month?
- How is the strategy model for managing bio culture potential based on the local wisdom of the Duanu tribe in Indragiri Hilir Regency?

## 1. Literature Review

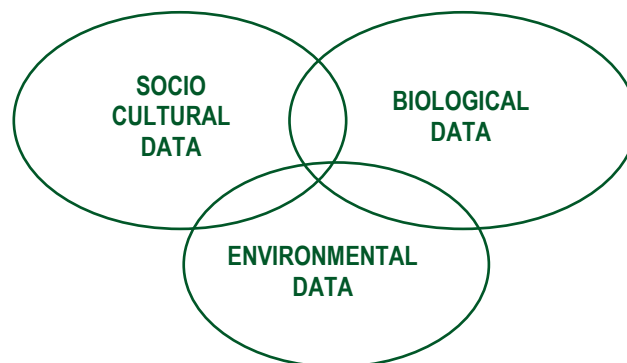
### 1.1. Bioculture Concept

In the humanities, researchers have relied on culture, as it is the only causal factor limiting human behavior and cultural production, but the emergence of multiple disciplines shows a more complex human image as biocultural beings (Boyd 2006). Some physical and chemical parameters of the river water were recorded monthly at three stations representing the upper, central and lower reaches of the Subyang River. In each station (Darmadi Ahmed) the left, central and right bank of the river was taken in 2023.

Human behavior is not the fruit of culture, nor is it the result of biology. Human behavior and human culture arise from the complex interplay between genetic attitude and environmental conditions. Environmental conditions range from the physical aspects of the biosphere to hypothetical cultural structures. The aim of this work package is to create a comprehensive biocultural theoretical paradigm that considers biology and culture as causal factors in the history of human evolution (Davis and Morris 2007).

Biocultural diversity consists of the diversity of life, in its manifestations – biological, sociocultural and environmental, in complex socio-ecological systems (Maffi 2008). McElroy (1990) says that deep bioculture is calculated in an integrated model, as shown below in Figure 1 below:

Figure 1. Biocultural integrative model



## 1.2. Environmentally Friendly Bioculture Potential Management

Environmentally friendly resource management means resource management without sacrificing environmental aspects in the process, or in other words, being environmentally friendly. Environmentally sound management aims to maintain environmental functions in line with the utilization carried out. Environmentally sound resource management is generally carried out by maintaining biological resources such as mangrove forests in aquaculture areas. Environmentally minded can be interpreted as a perspective on the environment, the ability to understand ways of adjustment or placement in the environment.

Environmentally sound resource management is generally carried out by maintaining biological resources such as mangrove forests in aquaculture areas. Environmental insight can be interpreted as a perspective on the environment, the ability to understand ways of adjustment or placement in their environment. The environment consists of 3 components, namely: first, Abiotic or Physical components (water, soil, air); second, biological or biotic components (flora, fauna, microbes and their elements (water/fauna/culture and others)) and third, Cultural components (social, economic, cultural). These three components are mutually influenced or have an influence on fellow components (Tandjung 2001).

Environmentally minded comes from the word's insight and environment. Insight by means of perspective. Meanwhile, the environment in Law Number 32 of 2009 about Ecological Shield and Management is the agreement of space with all objects, power, conditions, and living things, including humans and their behavior, which affect nature itself, the continuity of life, human welfare, and extra alive things.

## 1.3. Local Wisdom

Local wisdom is the identity or cultural identity of a nation that causes nations to absorb, as well as other nations coming from culture/outside, into their natures and abilities (Wibowo, 2015). Identity and identity, of course, are adapted to the direct vision of the circus community so that there are no changes in values. Local wisdom is one of the means of cultivating culture and defending culture itself from foreign cultures that are not good. Local wisdom is a view of life and knowledge, as well as the living strategies of local communities to respond to various problems to meet their needs.

The forms of local wisdom are the harmony of diversity as a social practice based on cultural knowledge. The types of local wisdom in society can be like cultures (values, rules, ethics, beliefs, customs, customs, and special norms). Among the noble values related to local wisdom are love of God, his character and content, his responsibility, discipline, independence, honesty, respect and courtesy, compassion and care, trust, creativity, hard work, never defeated, justice and leadership, kindness and humility, tolerance, love of peace and unity (Haryanto 2014).

According to Mitchell (2003) in Sedyawati (2006) and Njatrijani (2008), local wisdom has six dimensions, namely:

1. Dimensions of Local Knowledge. Each community has the capacity to adapt to their environment, as they have local knowledge to control nature. Also public knowledge about climate change and other natural phenomena. (Fifi Nofiyanti 2021).

2. Local Value Dimensions. Each society has local norms or values regarding the actions or behaviors that all members come together and agree on, but these values will vary depending on the progress of the community. The values of actions or behaviors integrated in one group will not necessarily be agreed or admitted in other community groups. Like Daya, she has a habit of tattooing and piercing some parts of her body.

3. Dimensions of Local Skills. Every society has the ability to survive (survive) to meet the needs of families or satisfy what is called the survival economy. It is a way of sustaining human life that depends on nature, from hunting, gathering and farming to domestic industries.

4. Dimensions of Local Resources. Each Community will use local resources according to its needs and will not exploit them on a large scale or commercialize them. The community must balance the balance of nature so that it does not have a dangerous impact on it.

5. Dimensions of Local Decision-Making Mechanisms. Each community has, above all, its own municipal government, called tribal government. The tribe is a legal institution that orders citizens to act in accordance with long-agreed rules. So if someone breaks those rules, they will rely on a series of sanctions, such as decision-making, passing by the tribal leader.

6. Dimensions of Local Group Solidarity. Men are social beings who need the help of others to do their job, as men cannot live alone. Humans work together to protect the environment.

## 2. Research Methods

This research on biocultural potential management strategies for the Duanu Tribe community in Indragiri Hilir Regency uses a mixed-method approach. The mixed process approach in this study uses a sequential mixed method, especially in the consecutive explanatory strategy. The first stage is to conduct interviews and then analyze qualitative data about how social conditions are with the local wisdom of the Duanu Tribe in Indragiri Hilir Regency to answer the second problem formulation. The next step is to conduct a survey by distributing questionnaires to obtain quantitative data, namely how the potential of bioculture can empower the community while still being based on the Duanu Tribe community in Indragiri Hilir Regency.

This research was conducted in Indragiri Hilir Regency. The aim for selecting this position is that the Duanu Tribe still has a fairly high poverty rate because the community is not open to the development of information technology to develop a creative economy. The sampling method was chosen with the consideration that there is no heterogeneous sample because it is in the same area or location, without paying attention to certain characteristics of the respondents. The sample consists of 100 respondents.

The technique used in this research is a survey, interview, and observation. The data analysis technique used in this study, according to Miles and Huberman (1984), is a qualitative analysis method in Sugiyono (2013:246), which suggests that in the qualitative analysis of the data activities are carried out interactively and that they are produced permanently so that the data are saturated. The analysis of the data used will be carried out through a formulation of strategy, specifying alternative strategies obtained from the results of the SWOT analysis. The tool to analyze this stage is the use of the QSPM matrix (Quantitative Strategic Planning Matrix). The QSPM matrix is used to see priority strategies for managing the Duanu tribe's capacity to rape, based on the local wisdom of Hilir Regency. The TT alternative strategy is the most active alternative strategy for the empowerment of the Duanu community of Indragiri Hilir Regency.

## 3. Findings, Results and Discussion

### 3.1. Hypothesis Test

Based on the data and information collected from respondents who have been determined such as; gender, age, occupation, education level, income level, and other variable data can be explained as follows:

- Gender

Table 1. Gender data

No	Gender	Frequency	Percentage
1	Man	79	79%
2	Girl	21	21%
Amount		100	100%

- Age Level

Table 2. Respondents' age level

No	Age	Frequency	Percentage
1	<18	0	0%
2	18-24	3	3%
3	25-31	18	18%
4	32-38	26	26%
5	>39	53	53%
Amount		100	100%

- Respondent's type of work

Table 3. Respondents' occupations

No	Work	Frequency	Percentage
1	Student	0	0%
2	Government Employees	0	0%
3	Private Sector Employee	0	0%
4	Self-employed	1	1%
5	Farmer	0	0%
6	Fisherman	99	99%
Amount		100	100%



- Respondent's education level

Table 4. Respondents education level

No	Level of education	Frequency	Percentage
1	SD	96	96%
2	SMP	3	3%
3	SMA	0	0%
4	Bachelor	1	0%
Amount		100	100%

- 4. Respondents' Income Level

Table 5. Income level of respondents

No	Income	Frequency	Percentage
1.	< Rp. 1.500.000	97	97%
2.	Rp. 1.500.000 - Rp. 3.500.000	2	2%
3.	Rp. 3.500.000 - Rp. 5.000.000	1	1%
4.	> Rp. 5.000.000	0	0%
Total		100	100%

### 3.2. Discussion

#### 3.2.1. Bioculture Potential Based on Local Wisdom of the Duanu Tribe in Indragiri Hilir District

Basically, the implementation of community empowerment through a biocultural model strategy is very appropriate to be applied to the Duanu tribal community because the very tight integration of customs and local wisdom will have a positive impact on the Duanu tribal community. However, there are several obstacles that cause the empowerment of this culture model not to be fully implemented which are divided into social aspects, economic aspects, and ecological aspects.

Therefore, SWOT is used to formulate a strategic model of analysis to manage the potential of the Duana tribal culture based on the local wisdom of Hilir Regency. In the analysis of the internal environment of Duanu community empowerment, the strategic internal factors that encompass the strengths and weaknesses of Duanu community empowerment can be identified. Once the internal strategic factors have been identified, an IFAS (Internal Factors Analysis Summary) table is prepared to formulate the strategic factors within Strength and Vulnerability. The results of the identification of strategic internal factors reached 5 factors of robustness and 4 factors of vulnerability. Strengths and weaknesses are given the rating and weight, and the entire score is calculated to see the priorities of the tribal community's strengths and issues. The results of the Duanu tribe's internal empowerment strategy can be seen in the table below:

Table 6. IFAS – EFAS Matrix

No	Internal Strategic Factors	Weight	Rating	Score
<b>A. Strengths</b>				
1	Has a distinctive and identical culture and is based on the preservation of environmental control	0,12	4	0,48
2	Culture of mutual cooperation in work and decision making	0,10	3	0,30
3	Menongkah confirmed as an intangible cultural heritage by the Indonesian Ministry of Education and Culture	0,10	3	0,30
4	High work ethic	0,10	3	0,30
5	Preserving cultural heritage to date	0,12	4	0,48
<b>B. Weaknesses</b>				
6	Weak capture marketing network and lack of business diversification	0,12	2	0,24
7	Low bargaining position of HR due to lack of special advantages and expertise	0,12	2	0,24
8	High levels of poverty and limited infrastructure facilities, and livable housing, tools and technological resources	0,11	2	0,22
9	Low desire to modernize	0,11	2	0,22
Total IF Score (A+S)		1,00		2,78

The strength factor of bio culture potential with empowerment based on local wisdom of the duanu tribal community of Indragiri Hilir Regency consists of 5, namely (1) Having a distinctive and identical culture based on the preservation of environmental control; (2) a culture of mutual cooperation in work and decision-making; (3) Indonesian Ministry of Education and Culture confirms Menongkah as intangible cultural heritage; (4) high work ethic; (5) Preserving cultural heritage to date. The weakness factors for bio culture potential with empowerment based on local wisdom of the Duanu tribal community, Tanjung Pasir Village, Indragiri Regency consist of 4, namely (1) Weak marketing network for catches and lack of business diversification; (2) low bargaining position of human resources due to the lack of special advantages and expertise; (3) The high level of poverty and limited infrastructure facilities, and decent housing, technological tools, and resources; (4) Low desire to modernize.

External strategy factors include opportunities and threats for bio culture potential with empowerment based on local wisdom of the Duanu tribal community, Tanjung Pasir Village, Indragiri Hilir Regency. From the identification of external strategic factors, there are 4 opportunity factors and 4 threat factors. The opportunity and threat factors are then given a rating and weight and a total score is calculated to see the priorities of the opportunities and threats owned by the duanu tribal community.

Potential bio culture opportunity factors with empowerment based on local wisdom of the duanu tribal community of Indragiri Hilir Regency consist of 4, namely (1) potential marine biota diversity; (2) The strategic location of the large fishing ground; (3) good water quality; (4) Availability of budgets related to poverty alleviation, cultural preservation, and environmental preservation both from the central and regional governments as well as foreign assistance. The threat factors for bio culture with local wisdom-based empowerment of the Duanu tribal community in Tanjung Pasir Village, Indragiri Regency consist of 4, namely (1) lack of social access; (2) Damage to aquatic ecosystems due to company and community activities that are not based on conservation; (3) Government assistance programs are still ineffective; (4) Erratic change of seasons.

### 3.2.2. Strategy Model for Managing the Bioculture Potential of the Duanu Tribe Based on Local Wisdom

Based on the consequences of the study, using the QSPM matrix, this conclusion can be drawn, as follows:

- total attractiveness score (TAS) of the alternative strategy for managing bioculture potential with empowerment based on the wisdom of the Duanu tribal community, Indragiri Hilir Regency to the maximum, namely optimizing the bioculture strategy model through community empowerment has a score of 7.16;
- the strategy of developing new economic opportunities by utilizing the wealth of aquatic resources based on local wisdom and conservation of water areas has a score of 6.92;
- the strategy of training, coaching and developing marketing networks as well as business diversification on the catch has a score of 6.82;
- the appropriate technology transfer strategy the use of menongkah activities and catch processing has a score of 6.71;
- the strategy for business capital assistance, decent housing and education for the Duano tribe's children has a score of 6.70;
- the social security strategy, capital and infrastructure structure from the local government has a score of 6.61, an integrated business development strategy on access to business capital such as corporate CSR, BANK, Cooperatives and BUMDes has a score of 6.54;
- a strategy to integrate the role of government, private, educational institutions and community communities in economic development and development the duanu tribal community has a score of 6.51;
- the strategy for synchronization and program integration between the central government, regional governments, and other stakeholders in poverty alleviation by optimizing local potentials of the region has a score of 6.50;
- the strategy for developing group-based business development patterns has a score of 6.40;
- the strategy involving the role of the duanu tribal community in water conservation activities has a score of 6.35;
- the strategy to improve marine security with community integrity based on the value of local wisdom 6.34.

### Conclusion

The results of the identification of internal strategic factors in the management of bio culture potential with empowerment based on local wisdom of the Duanu tribal community, Tanjung Pasir Village, Indragiri Regency, consisted of 5 strength factors, namely: (1) Having a distinctive and identical culture and based on the preservation of environmental control; (2) a culture of mutual cooperation in work and decision-making; (3)

Menongkah is confirmed as an intangible cultural heritage by the Ministry of Education and Culture of the Republic of Indonesia; (4) high work ethic; (5) Preserving cultural heritage to date. The weakness factors of the 4 are (1) a Weak marketing network for the catch and the lack of business diversification; (2) low bargaining position of human resources due to the lack of special advantages and expertise; (3) The high level of poverty and limited infrastructure facilities, and decent housing, technological tools, and resources; (4) Low desire to modernize.

The results of the identification of external strategic factors consisted of 4 opportunity factors, namely: (1) Potential diversity of marine biota; (2) The strategic location of the large fishing ground; (3) good water quality; (4) Availability of budgets related to poverty alleviation, cultural preservation and environmental preservation both from the central and regional governments as well as foreign assistance. The threat factors consist of 4, namely: (1) the lack of social access; (2) Damage to aquatic ecosystems due to company and community activities that are not based on conservation; (3) Government assistance programs are still ineffective; (4) The erratic change of seasons.

The results of the space matrix for managing bio culture potential are in quadrant one position. The strategy that must be applied in this condition is to support the development policy of the Duanu tribal community in an inclusive, collaborative and aggressive manner (growth-oriented strategy), as follows:

- SO strategy, namely (1) Development of new economic opportunities by utilizing the wealth of aquatic resources based on local wisdom and conservation of water areas; (2) Program synchronization and integration between the central government, regional governments, and other stakeholders in poverty alleviation by optimizing local potentials; (3) Development of a group-based business development pattern.

- WO strategies for managing bio culture potential with empowerment based on local wisdom of the duanu tribal community in Indragiri Hilir Regency, namely (1) training, coaching, and developing marketing networks and business diversification on catch products; (2) Transfer of appropriate technology in mining activities and processing of catches (3) Assistance for business capital, decent housing and education for the children of the Duanu tribe.

- ST strategy for managing bio culture potential with empowerment based on local wisdom of the Duanu tribal community in Indragiri Hilir Regency, namely (1) Optimizing the bio culture strategy model through community empowerment; (2) Improving marine security with community integrity based on the value of local wisdom; (3) Integrated business development on access to business capital such as corporate CSR, BANK, Cooperative, and BUMDes.

- WT strategies for managing bio culture potential with empowerment based on local wisdom of the duanu tribal community in Indragiri Hilir Regency, namely (1) Integrating the roles of government institutions, private sector, educational institutions, and community communities in fostering and developing the economy of the duanu tribal community; (2) Social security, capital and infrastructure from local governments; (3) Involving the character of the duanu tribal community in water conservation activities.

The results of the QSPM Matrix analysis show the Total Attractiveness Score (TAS) of alternative strategies for managing bio culture potential with empowerment based on the wisdom of the duanu community of Indragiri Hilir Regency to the maximum, namely optimizing the bio culture strategy model through community empowerment, strategies for developing new economic opportunities by utilizing resource wealth water resources based on local wisdom and conservation of water areas, training strategies, coaching and development of marketing networks as well as business diversification on catch products.

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### Credit Authorship Contribution Statement

**Trio Beni Putra:** Design of the research methodology, research background research at national and international level with scientific articles published in Scopus and web of science indexed journals.

**Thamrin Thamrin:** Construction of the theoretical framework, with scientific articles published in journals indexed in Scopus and web of science on the title Interactive Planning as Part of a Territorial Strategy to Develop Tourism Sites.

**Zulfan Saam:** Conceptualization of the research idea, supervision of the execution of the research, review and editing of the final article Interactive Planning as Part of a Territorial Strategy to Develop Tourism Sites.

**Sofyan Husein:** Administration of the database with the collected information, SPSS v26 software, statistical analysis using tables and hypothesis testing, uploading the paper to the journal and raising comments as corresponding author.

### Declaration of Competing Interest

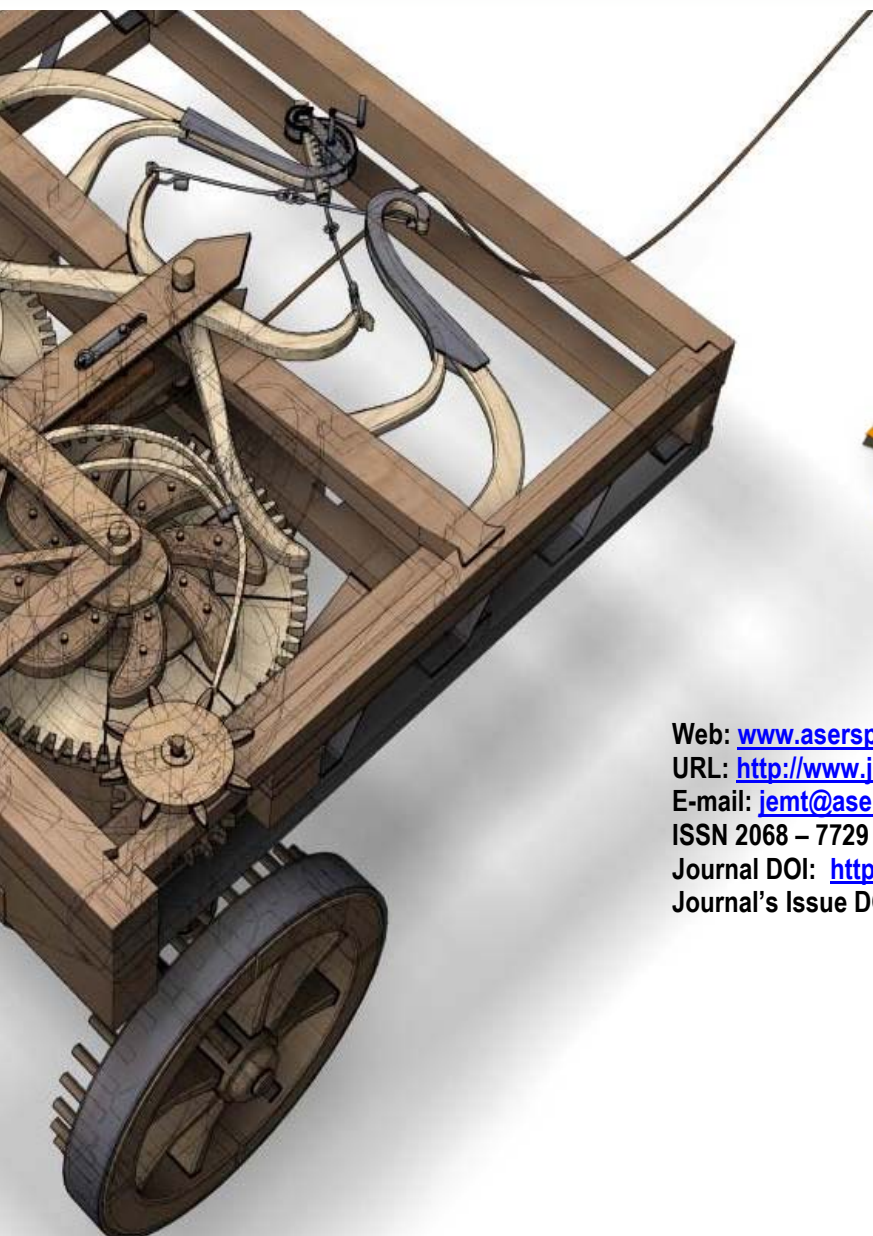
The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### References

- [1] Avianti, R., Suyatno, and Sugiarto, B. 2018. *The development of learning materials based on core model to improve students' learning outcomes in topic of Chemical Bonding*, *Journal of Physics*: DOI:<https://doi.org/10.1088/1742-6596/1006/1/012012>
- [2] Boyd, B. 2006. Getting it all wrong - Bioculture critiques cultural critique. *American Scholar*, Fall, 75(4): 18-30.
- [3] Dachlan, M. A. B. 2013. *Aspects of indigenous community development in the context of regional autonomy*. Open Science Repository Public Administration. DOI: <https://doi.org/10.7392/openaccess.23050462>
- [4] Darmadi A., et al. 2023. Conservation management model of Subayang River in the Kampar Regency, Province of Riau based on Local Wisdom using Belida Fish (*Chitala* sp.) as Bioindicator, *Ecological Question*, 34 (3). DOI: <https://doi.org/10.12775/EQ.2023.025>
- [5] Darmadi, A. Sukendi S., Saam, Z., and Suwondo. 2023. Conservation management model of Subayang River in the Kampar Regency, Province of Riau based on Local Wisdom using Belida Fish (*Chitala* sp.) as Bioindicator, *Ecological Questions*, 34(3): 1-23. DOI: <https://doi.org/10.12775/EQ.2023.025>
- [6] Davus, L., and Morris, D. 2007. Biocultures manifesto, *New Literary History*, Summer, 38(3):411-418. DOI:[10.1353/nlh.2007.0046](https://doi.org/10.1353/nlh.2007.0046)
- [7] Fifi N., et al. 2021. *Local wisdom for sustainable rural tourism: The case study of North Tugu Village, West Java Indonesia*, E3S Web of Conferences, 232, International Conference on Agribusiness and Rural Development. [https://www.e3s-conferences.org/articles/e3sconf/pdf/2021/08/e3sconf\\_iconard\\_2020\\_02031.pdf](https://www.e3s-conferences.org/articles/e3sconf/pdf/2021/08/e3sconf_iconard_2020_02031.pdf)
- [8] Haryanto, J.T. 2014. Kearifan Lokal Pendukung Kerukunan Beragaman pada Komunitas Tengger Malang di Jawa Timur. *Jurnal Analisa*, 21(2): 201-213. <https://media.neliti.com/media/publications/41950-ID-kearifan-lokal-pendukung-kerukunan-beragama-pada-komunitas-tengger-malang-jatim.pdf>
- [9] Hasanah, S., Yani, A., and Setiawan, I. 2021. *Water conservation based on local wisdom in Cikondang traditional village community* IOP Conference Series: Earth and Environmental Science, 683(1):012143. DOI:[10.1088/1755-1315/683/1/012143](https://doi.org/10.1088/1755-1315/683/1/012143)
- [10] Hasanah, S., Yani, A., and Setiawan, I. 2021. *Water conservation based on local wisdom in Cikondang traditional village community*, IOP Conference Series: Earth and Environmental Science, 683. DOI:<https://doi.org/10.1088/1755-1315/683/1/012143>
- [11] Maffi, L. 2008. Biocultural diversity and sustainability. *The Sage Handbook of Environment and Society*. Sage Publication. [https://www.researchgate.net/publication/292716021\\_Biocultural\\_diversity\\_and\\_sustainability](https://www.researchgate.net/publication/292716021_Biocultural_diversity_and_sustainability)
- [12] Mayasari, A., Sri Marmuah, and Tri Murwaningsih. 2021. Internalization of Pancasila values based on local wisdom "Jaranan Turangga Yaksa" in elementary school, *Jurnal Pendidikan Dasar* 9(1). DOI:<https://doi.org/10.46368/jpd.v9i1.350>
- [13] McElroy, A. 1990. *Biocultural models in studies of human health and adaptation*. *Medical Anthropology Quarterly* 4(3): 243–265. DOI: <https://doi.org/10.1525/maq.1990.4.3.02a00010>
- [14] Miles, M. B., and Huberman, A. M. 1992. *Analisis data kualitatif: buku sumber tentang metode - metode baru*, Jakarta: Penerbit Universitas Indonesia (UI -Press). ISBN: 979-456-103-7
- [15] Mitchell, D. 2003. *Children's Literature: An invitation to the World*, Allyn & Bacon, Boston: Ablongman ISBN-10: 0205368123

- [16] Njatrijani, R. 2018. Kearifan Lokal Dalam Perspektif Budaya Kota Semarang, *Gema Keadilan* 5(1): 16-31. DOI: <https://doi.org/10.14710/gk.2018.3580>
- [17] Prasajo, Z. H. 2011. Indigenous community identity within muslim societies in Indonesia: A study of Katab Kebahan Dayak in West Borneo. *Journal of Islamic Studies*. 22(1): 50–65. DOI:<https://doi.org/10.1093/jis/etq068>
- [18] Pujiwiyana. 2010. Perubahan Perilaku Masyarakat Ditinjau dari Sudut Budaya. *Tradisi*, 1(1). Available at: <http://staff.uny.ac.id/sites/default/files/Jurnal%20Tradisi.pdf>
- [19] Sugiyono, A. N. 2009. *Metode Penelitian Administrasi*. Bandung: Alfabeta. ISBN: 979-8433-02-5
- [20] Suratno, S., Dafik, D., and Hobri, H. 2021. *The effectiveness of madurese culture wisdom on science learning sound material in primary school students' critical thinking skills*, IOP Conference Series: Earth and Environmental Science, 747. DOI: <https://doi.org/10.1088/1755-1315/747/1/012116>
- [21] Tandjung, S. D. 2001. *Ekologi, ekosistem, lingkungan, dan sumber daya*. Yogyakarta: UGM Press.
- [22] Wibowo, A. 2015. *Pendidikan karakter berbasis kearifan lokal di sekolah*, Yogyakarta, Pelajar. ISBN: 978-6022295679
- [23] Wijayanto, D. 2016. Fisheries development strategies of Biak Numfor Regency, Indonesia, *Aquatic Procedia* 7: 28-38. DOI: <https://doi.org/10.1016/j.aqpro.2016.07.004>
- [24] Wirawan, H. F. et al. 2021. *The effectiveness of madurese culture wisdom on science learning sound material in primary school students' critical thinking skills*, IOP Conference Series: Earth and Environmental Science, 747 012116. DOI: <https://doi.org/10.1088/1755-1315/747/1/012116>

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