Model of Management Lubuk Larangan for Area Development in Mandailing Natal District

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Abstract

This research proposes a comprehensive Model of Management for Lubuk Larangan, a unique cultural and natural resource in the Mandailing Natal District. Lubuk Larangan, traditionally known as a restricted fishing areas, holds significant cultural and ecological value for the local communities. However, the increasing pressures from modern development and anthropogenic activities neces sitate the establishment of an effective management model to ensure sustainable area development. The proposed model integrates traditional vision, community participation, and modern management approaches to strike a balance between cultural preservation and sustainable development goals. It takes into account the socio-economic dynamics, environmental considerations, and aspirations of the local communities, aiming to create a harmonious and adaptive framework. Key components of the model include community engage ment, knowledge transfer, regulatory frameworks, and monitoring systems. The model also emphasizes the importance of collaboration between local authorities, non-governmental organizations, and the communities to foster a sense of shared responsibility and ownership.

This research utilizes quantitative methods approach quantitative data analysis to develop and validate the proposed model. The findings are expected to contribute to the sustainable development of Lubuk Larangan and serve as a valuable reference for similar initiatives in other regions facing the challenges of balancing cultural preservation and modern development. The model's success would not only benefit the Mandailing Natal District but also provide insights into the broader field of cultural and environmental resource management.

Keywords: Management, Environmental, Development, Cultural, Natural Resource.

Introduction

The Mandailing Natal District in Indonesia faces significant challenges in preserving its cultural heritage and ecological diversity, particularly in the context of modern development and increasing anthropogenic pressures. A comprehensive Model of Management is proposed to address these challenges, emphasizing the need for a balanced approach that respects local customs while promoting sustainable development (Permana, 2012). This approach is consistent with the efforts of other Indonesian communities, such as the Manggaraians in Flores, who are reviving their traditional heritage (Erb, 1999), and the Aru Tenggara Marine Reserve, which is addressing the exploitation of marine resources (Persoon, 1996). The potential for community-based and co-management approaches, as seen in the Indonesian coastal zone, is also highlighted as a means of achieving a balance of power between governments, communities, and stakeholders (Siry, 2011).

The Mandailing Natal District in Indonesia is home to the traditional concept of Lubuk Larangan, which plays a significant role in the local economy and cultural heritage (Lubis, 2021; tabrani, 2012). However, this natural resource is facing challenges due to modern development and increasing anthropogenic pressures (Turmuzi, 2022). Efforts to address these challenges include the application of the landscape anthropolinguistic approach to eco-cultural tourism river management (Lubis, 2021), the identification of the primary sectors in the region's economy (tabrani, 2012), and the integration of ecological management in Lubuk Larangan (Turmuzi, 2022). The sustainability of Lubuk Larangan is also being addressed through the revival of traditional practices and the establishment of local concessions (Matondang, 2021).

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The management of Lubuk Larangan in Mandailing Natal District is a complex issue that requires a nuanced and adaptive approach. Lubis (2021) and Turmuzi (2022) both highlight the importance of eco-cultural tourism river management and the integration of ecological principles in the management of Lubuk Larangan. Tantoro (2020) further emphasizes the need to preserve local wisdom in the management of Lubuk Larangan, including the use of ethno-technology and the maintenance of river biodiversity. These studies collectively underscore the need for a comprehensive model of management that takes into account the cultural, ecological, and economic aspects of Lubuk Larangan.

The proposed model, which emphasizes the interplay between cultural preservation and modem development, aligns with several existing frameworks. Alqahtany (2013) and Zárate-Altamirano (2022) both stress the importance of sustainable development and community engagement in urLarangan planning and tourism, respectively. Henche (2020) further supports this by proposing a management model that integrates cultural and historic preservation with tourism development. Mrđa (2019) underscores the need for heritage tourism planning models to balance global standards with local cultural identity. These studies collectively provide a strong foundation for the proposed model's emphasis on traditional wisdom, community engagement, and contemporary management strategies (Abbas et al., 2024).

The proposed management model for Lubuk Larangan in the Mandailing Natal District integrates community participation, regulatory frameworks, and collaborative efforts among stakeholders, aligning with the principles of sustainable development (Keitumetse, 2011). This model is further enhanced by an analytical approach that emphasizes the preservation of cultural heritage and the promotion of sustainable development in low-density territories (Silva, 2022). The model also draws on the concept of local wisdom, as seen in the tradition of Lubuk Larangan, to guide ecocultural tourism river management (Lubis, 2021). Lastly, the model is underpinned by the sustainable management of common pool resources, which can lead to significant benefits for host communities (Romão, 2021). As we navigate the complexities of managing Lubuk Larangan for area development, the insights derived from this research are expected to contribute not only to the sustainable future of this specific region but also to the broader discourse on cultural and environmental resource management. Through a synthesis of tradition and innovation, this Model of Management aims to provide a roadmap for preserving cultural heritage while embracing the imperatives of sustainable development in Mandailing Natal District and beyond.

Method

This study is located in the Regency Mandailing Natal Province North Sumatra and is found in two rivers, namely the Batang gadis River and the Batang Natal River. Study This focused on the District through which the Batang Gadis River passes, namely Nopan City District, Ulu Pungkut District, District Tamlarangangan, and Lembah Sorik Merapi District, and the districts through which the Batang Natal River passes, namely Subdistrict Batang Natal and District lingga Bayu.

Study This uses a approach quantitative. Quantitative data will obtained from the distributed questionnaire to sample study. Approach quantitative, research This is a study connection causal (causal effect), where the study This done to facts To prove in a way empirical that territorial division, decision in a way collective, enforcement law, and socialization as predictors for management Lubuk larangan. Factor level enhancement well-being society, wisdom local and protection ecology is a predictor for area Development. Factors of Independence community, strengthening potential, and development of the public are predictors for empowerment community in the district Mandailing Natal. Quantitative data in the study is analyzed with the use of Modeling Equality Structural Equation Modeling (SEM) with the use device IBM software, SPSS, Amos 22, designed program special For finishing Structural equations with latent variables.

Result and Discussion

Model Management of Lubuk Larangan on Regional Development

Model management of Lubuk larangan in regional development efforts for the community in Mandailing Natal Regency through community empowerment. The management of Lubuk larangan in question includes territorial division, collective decisions, law enforcement and socialization. Furthermore, the program requires community empowerment, which in this case includes community independence, strengthening potential and community development, which is expected to realize regional development.

This model is feasible because up to now, the model for managing the lubuk larangan still applies its targets directly to regional development. So with this model, the management of lubuk larangan first carries out a community empowerment program. The hope is that with the community empowerment program, regional development will be achieved more effectively or more quickly.

The data description displays a general description of the respondent's answers to the questions or statements contained in the questionnaire. Based on the results of respondents' answers from 389 people regarding the management variables of the Larangan Hole, the researcher will explain in detail what is expressed in table 4.8 as follows: Table 1 shows that in general, for the questionnaire statements in the indicator variable for management of Larangan Larangan there are 43 indicators PLL1-PLL43, based on the data distribution, as many as 4.75% of respondents said they strongly disagree, as many as 17.44% of respondents said they disagreed, as many as 19. 09% of respondents said they agreed and 58.72% of respondents said they strongly agreed. The average result in this statement is 3.32, which means that the interpretation interval falls into the "Agree" category. These results indicate that the management of prohibited Larangan within the scope of the sample is in the good category.

NO	Respondent's Answer								Total	%	average
	STS	%	TS	%	S	%	SS	%			
PLL1	14	3,60	74	19,02	112	28,79	189	48,59	389	100	3.22
PLL2	19	4,88	60	15,42	90	23,14	220	56,56	389	100	3.31
PLL3	19	4,88	66	16,97	83	21,34	221	56,81	389	100	3.30
PLL4	25	6,43	58	14,91	81	20,82	22.5	57,84	389	100	3.30
PLLS	18	4,63	75	19,28	63	16,20	233	59,90	389	100	3.31
PLL6	26	6,68	73	18,77	65	16,71	225	57,84	389	100	3.26
PLL7	19	4,88	81	20,82	93	23,91	196	50,39	389	100	3.20
PLLS	23	5,91	54	13,88	79	20,31	233	59,90	389	100	3.34
PLL9	26	6,68	54	13,88	83	21,34	226	58,10	389	100	3.31
PLL10	17	4,37	73	18,77	75	19,28	224	57,58	389	100	3.30
PLL11	17	4,37	61	15,68	69	17,74	242	62,21	389	100	3.38
PLL12	16	4,11	58	14,91	79	20,31	236	60,67	389	100	3.38
PLL13	19	4,88	58	14,91	86	22,11	226	58,10	389	100	3.33
PLL14	17	4,37	67	17,22	68	17,48	237	60,93	389	100	3.35
PLL15	19	4,88	71	18,25	62	15,94	237	60,93	389	100	3.33
PLL16	25	6,43	63	16,20	86	22,11	215	55,27	389	100	3.26
PLL17	22	5,66	83	21,34	65	16,71	219	56,30	389	100	3.24
PLL18	13	3,34	62	15,94	81	20,82	233	59,90	389	100	3.37
PLL19	18	4,63	70	17,99	78	20.05	223	57.33	389	100	3.30
PLL20	19	4,88	59	15.17	60	15.42	251	64.52	389	100	3.40
PLL21	19	4,88	76	19,54	50	12.85	244	62,72	389	100	3.33
PLL22	16	4,11	60	15,42	91	23,39	222	57,07	389	100	3.33
PLL23	15	3,86	52	13,37	91	23,39	231	59,38	389	100	3.38
PLL23 PLL24			64						389		
PLL24 PLL25	22	5,66	69	16,45 17,74	75	19,28	228 243	58,61	389	100	3.31
		3,60			63			62,47		100	
PLL26	11	2,83	79	20,31	69	17,74	230	59,13	389	100	3.33
PLL27	22	5,66	70	17,99	69	17,74	228	58,61	389	100	3.29
PLL28	16	4,11	73	18,77	57	14,65	243	62,47	389	100	3.35
PLL29	19	4,88	64	16,45	80	20,57	226	58,10	389	100	3.32
PLL30	16	4,11	78	20,05	59	15,17	236	60,67	389	100	3.32
PLL31	19	4,88	68	17,48	71	18,25	231	59,38	389	100	3.32
PLL32	17	4,37	62	15,94	71	18,25	239	61,44	389	100	3.37
PLL33	17	4,37	69	17,74	65	16,71	238	61,18	389	100	3.35
PLL34	11	2,83	80	20,57	66	16,97	232	59,64	389	100	3.33
PLL35	24	6,17	71	18,25	65	16,71	229	58,87	389	100	3.28
PLL36	20	5,14	77	19,79	76	19,54	216	55,53	389	100	3.25
PLL37	18	4,63	71	18,25	71	18,25	229	58,87	389	100	3.31
PLL38	22	5,66	62	15,94	93	23,91	212	54,50	389	100	3.27
PLL39	18	4,63	72	18,51	62	15,94	237	60,93	389	100	3.33
PLL40	19	4,88	74	19,02	59	15,17	237	60,93	389	100	3.32
PLL41	15	3,86	82	21,08	74	19,02	218	56,04	389	100	3.27
PLL42	17	4,37	63	16,20	83	21,34	226	58,10	389	100	3.33
PLL43	16	4,11	62	15,94	75	19,28	236	60,67	389	100	3.37
Total	794	4.75	2918	17.44	3193	19.09	9822	58.72	16727	100.00	3.32

 Table 1 Description of Questionnaire Answer Data Results

The data in table 1 provides an overview of the respondents' answers to all the indicators that make up lubuk larangan management variable, so it can be explained as follows:

Efforts to protect fishery resources (X.PLL1) The management of the lubuk larangan was given a strongly agree response with an average score of 3.22, meaning that the respondents stated that the management of the lubuk larangan was an effort to protect fishery resources. This was conveyed by the majority of respondents amounting to 48.59%. Fishing resource conservation area (X.PLL2) The management of the lubuk larangan was given a strongly agree response with an average score of 3.31, meaning that the respondents stated that the management of the fishing hole is a fishery resource conservation area. This was conveyed by the majority of respondents, amounting to 56.56%. Increasing the quality of value and diversity of fishery resources (X.PLL5) The management of the lubuk larangan was given a strongly agree response with an average score of 3.31, meaning that the respondents stated that the management of the lubuk larangan was given a strongly agree response with an average score of 3.31, meaning that the respondents stated that the management of the lubuk larangan was given a strongly agree response with an average score of 3.31, meaning that the respondents stated that the management of the lubuk larangan was given a strongly agree response with an average score of 3.31, meaning that the respondents stated that the management of the fishing hole can increase the quality of the value and diversity of fishery resources. This was conveyed by the majority of respondents amounting to 59.90%.

The results of the analysis show that the management of the lubuk larangan has a significant effect on regional development in Mandailing Natal Regency. This indicates that the management of Lubuk Iarangan can have a real and strong impact to support regional development in Mandailing Natal Regency.

Management of the lubuk Iarangan has a positive influence on regional development in Mandailing Natal Regency. This can be seen from the percentage of respondents' answers regarding the management variable of lubuk larangan that the majority of respondents stated that they strongly agreed or 58.72% of respondents and with the results the average statement value is 3.32. The results of SEM analysis show that the P-Values = $0.001 < \alpha = 0.05$. The estimated value is positive, namely 0.667, meaning that the variable for managing the lubuk larangan has a positive or increasing effect on the Regional Development variable by 66.7%.

Annisa et al. (2016), said Lubuk Larangan is a part of a river or lake that is rather deep, protected and favored by various fish as a breeding ground, allowing them to grow and reproduce naturally, and hunting is prohibited for a certain period of time. Lubuk Larangan, where The area has been agreed to be prohibited based on customary rules and customary laws that apply in indigenous communities, the point is that they are not allowed to fish in it (potential river) in this type of system, Lubuk Larangan in question is a prohibited river area, and Lubuk means part of a certain location. , a river that has a maximum depth, for example, has a depth of + 3 - 4 meters, a place that is deliberately chosen will certainly be liked by big fish (Tantoro & Yesi, (2018).

The positive influence of the management of Lubuk Larangan on regional development. Hasibuan, et al., (2015) shows that the management of Lubuk Larangan has stages, starting from Planning, Utilization, Control, Maintenance, Supervision, and Law Enforcement. The management of Lubuk Larangan in West Sumatra is familiar with the zoning system, namely the division of prohibited bases into several zones according to their function, including buffer zones and utilization zones (Yunus, 2020). Kurniasari et al (2013) can be seen from: (a) The ability to divide management areas based on ecological, economic and social interests; (b) Ability to make decisions collectively so that it has implications for aspects the community's psychology to own together and obey every joint decision; (c) Ability to build effective law enforcement mechanisms to minimize violations and reduce conflict peacefully; and (d) Ability to carry out good socialization so that not only the local community knows the regulations of the lubuk larangan , but people outside also know, respect and comply with the local agreement.

Previous research by Yuliaty and Priyatna (2014) with the title "Lubuk Larangan : the dynamics of local community knowledge in the management of river fishery resources in Limapuluh Kota Regency" argued that the management of Lubuk Larangan is not only a practice of exploiting and utilizing fish resources but also contains rules. , rights distribution mechanisms and customary organizations. In accordance with its dynamic nature, knowledge about the management of prohibited Larangan has also changed. Islamic values and government politics are the driving force for changes in the management of Lubuk Larangan.

Then Handayani, at.al (2019) with the title of his research explained that the system for managing the Larangan Larangan of Tuo Lubuk Mengkuang Hamlet and Muara Tebo Pandak Hamlet, Limbur Lubuk Mengkuang District has not been managed well, this is proven by the absence of a monitoring system for

the Larangan Larangan. Furthermore, Sairun at.al (2019) with the title of his research "management of Larangan holes as a form of local wisdom on the Batang Jujuhan River, Bungo Regency, Jambi Province" states that the management of Larangan holes is: 1) Planning the formation of Larangan holes through deliberation in an effort to save the river water environment, 2) Establishment of rules and regulations

Sanctions for the Lubuk larangan and the rules alone, there are no sanctions for the Lubuk larangan Batu Island and Beringin Jaya, 3) The people of Rantau Panjang Hamlet, Pulau Batu Hamlet and Aur Gading Hamlet have the belief that those who take fish in the Lubuk larangan will die, 4) Can Changing people's behavior in a more positive direction from ecological and social aspects, such as: Using environmentally friendly harvesting tools such as fishing nets, nets, etc., Prohibiting fishing along the fishing holes, Maintaining and utilizing the holes as a breeding ground for fish.

From the results of the percentage of respondents' answers, SEM analysis and previous research on the influence of Lubuk Larangan management on regional development, namely in the areas of territorial division (ecological interests, economic interests and social interests), collective decisions (amount of time, ability of group leaders), law enforcement (the function of legal norms, the basis of legal behavior and the legal system), socialization (skills and knowledge, communication skills, and trust values), are found in the management model of Lubuk Larangan in Mandailing Natal Regency.

Conclusion

Management of Lubuk larangan has an effect on community empowerment, where the P-Values = $0.001 < \alpha = 0.05$. The estimated value is positive, namely 0.987, meaning that the variable for managing the lubuk larangan area has a positive or increasing effect on the community empowerment variable by 98.7%. Where community empowerment, namely in the areas of community independence (management and commitment), strengthening potential (natural resources and human resources) and community development (capacity building, education and training) is a model of community empowerment in Mandailing Natal Regency.

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