



Enhancing Social Capital Development Through Environmental Management Model in the Periphery Area of Banjarmasin City

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ABSTRACT

The objective of this research was to determine an environmental management model that integrates social, economic, geographic, and community aspects to promote the growth of social capital among residents in the periphery area of Banjarmasin City. The analysis was conducted with 150 respondents selected through purposive sampling based on specific criteria. A quantitative descriptive method was adopted, and the structural model analysis was conducted using SmartPLS 3.0 software. The structural model analysis consisted of (a) formulation of the structural model theory, (b) analysis of the outer model, (c) analysis of the inner model, and (d) hypothesis testing. The field data analysis and calculations using SmartPLS 3.0 software showed an R² value of 0.855. The value showed that the economic, social, geographic, and community indicators could indeed contribute to the development of social capital, including norms, culture, perceptions, and behaviors among residents in the periphery area. Approximately 85.5% of the variation could be explained, while the remaining 14.5% might be influenced by other factors. In terms of the development of social capital, environmental management model was shown by (1) economic, with a T-statistic value of 2.627 and a P-value of 0.009, (2) geographic, with a T-statistic value of 1.982 and a P-value of 0.048, (3) community, with a T-statistic value of 4.211 and a P-value of 0.000, and (4) social with a T-statistic value of 2.057 and a P-value of 0.040. Since the T-statistic values exceeded the T-table threshold of 1.96, and the P-values were less than the significance level of 0.05, it could be concluded that economic, geographic, community, and social, environmental management in the periphery area served as valuable indicators for fostering the sustainable development of social capital among residents of Banjarmasin City.

INTRODUCTION

A city is an area characterized by a higher density of activities, including a wide range of endeavors, from economic transactions to political processes and daily life. The dynamic often results in social disparities, which can be observed from various perspectives, particularly the physical aspects. The periphery of a city functions as a physical manifestation of gentrification, a process in which economically disadvantaged areas experience an influx of middle to upper-middle-class residents who contribute to the development of the region, thereby enhancing its value (Melo & Jenkins 2023). The development often leads to the displacement of existing residents to another area (Liu et al. 2017).

The development of the region often overlooks and does not adequately take into account the unique characteristics of a rural (rural-urban) environment. The

area is situated on the periphery of the urban area and is influenced by both physical and non-physical attributes while still retaining rural qualities. Area increasingly confronts the complex issues prevalent in an urban environment, and its potential is gradually diminishing. There is an urgent need to manage and develop such potential to enhance community well-being and attain sustainable regional governance (Brontowiyono & Lupiyanto 2011).

A literature review by Haridison (2013) examined the role of social capital and its application in various aspects, including political, human, and economic. In the context of development issues, the concept of social capital has garnered the attention of both academics and practitioners. It is regarded as a valuable theoretical framework within the paradigm of inclusive and sustainable development, which emphasizes a bottom-up method over a top-down one. Social capital forms an important part of social indicators, seeking to integrate three dimensions, including social, economic, and environmental.

The interplay between humans and the environment is profound, with each influencing and benefiting the other. However, the relationship has yet to be fully integrated into a comprehensive system. Environmental damage is an inevitable consequence and has far-reaching impacts on humans (Munandar 2002, Uliyah, 2015). The conventional method to environmental issues primarily addresses physical aspects, such as air quality, water pollution, chemical reactions, soil conditions, climate, ecosystems, temperature, and more. However, some view such issues through a broader lens, incorporating social, economic, and political dimensions. This perspective arises from the realization that the community might not always have wise environmental stewardship. Addressing such issues necessitates a multidisciplinary method, drawing wisdom and expertise from social, political, and economic sciences. Resolving ecological crises transcends scientific and technological advancements. It requires fundamental social, economic, and political transformations. The perspective suggests that the community has the potential to address environmental issues by fostering sustainability (Gyamfi et al. 2023, Ife & Tesoriero, 2008)

Social capital covers several formative elements, including (1) trust, which is the cornerstone used in shaping other components. (2) Value System and Norms, where values and norms form a distinct entity capable of shaping social capital. Values represent traditionally held ideas considered correct and significant by individuals. Additionally, norms play a significant role in guiding the forms of behavior that develop within the community. (3) Acceptance and Diversity: tolerance is integral to social life

and plays a crucial role in shaping social capital. Fostering a tolerant attitude toward community differences, showing respect for those differences, and accepting them with grace and wisdom are essential. (4) Cooperation, which arises from a sense of togetherness and a shared background.

Banjarmasin City faces the challenge of having the highest number of impoverished residents in South Kalimantan province. Over the past three years, the number of the impoverished has witnessed a significant increase, with only a slight decrease in 2022. There were 29.65 thousand impoverished residents in 2019, and the number significantly rose to 31.13 thousand in 2020. By 2021, the count reached 34.84 thousand impoverished residents, and in 2022, it reached 34.01 thousand (Statistics 2023).

The periphery of Banjarmasin City, particularly along the riverbanks, shows high population density and often experiences the development of slums. This density is a consequence of the increasing population and the subsequent demand for land in the area. The social and economic conditions of residents in such areas are relatively low, with 79% having completed only primary to lower-secondary education and 57% being engaged in labor or facing unemployment (Angriani 2021). In line with previous reviews, the geographic distribution of impoverished residents and slum settlements, as outlined in the Decree of the Mayor of Banjarmasin Number 460 Year 2015 regarding the Location of Slum Settlements in Banjarmasin City, includes the slum area spanning 523.19 hectares. The area tends to be distributed across 5 districts and 52 neighborhoods. Generally, the concentration of impoverished residents is observed in the periphery, and their presence in the slum in the city center is a result of unplanned and unregulated development, which has led to a degradation of the living environment, particularly in the periphery area (Ndolu et al. 2017).

The periphery area, defined as an area located on the outskirts of a city, holds a unique regional perspective because it occupies the transitional space between rural and urban domains (Yunus 2008). From a characteristics standpoint, it embodies a harmonious blend of rural and urban elements. Some areas show urban characteristics, while others retain a closer connection to rural attributes. It is frequently referred to as a peri-urban area. In terms of characteristics, the periphery area symbolizes the fusion of rural and urban features, with specific zones showing urban traits while others retain rural traits. Kurts and Eitcher, as cited in Yunus (2008), provided several definitions for the periphery area, including (a) an area where rural and urban land uses converge and border city, (b) the periphery area covers all suburbs, satellite towns, and other territories

located just beyond the city, where non-agricultural labor is predominant, (c) area located outside the official city boundaries but still within commuting distance, (d) open rural area inhabited by individuals working in the city, and (e) zone where the work fields and orientations of both urban and rural life intersect.

The expansion of urban development into the periphery of Banjarmasin City signifies a shift from rural to urban populations. The city center, once synonymous with business activities, industries, government offices, services, and warehouses, has experienced a substantial transformation in land use. Previously, vacant lands in the area have been repurposed to become centers of trade, residential areas, and facilities supporting urban growth. The alteration in land use aims to fulfill physical, economic, and social objectives. The development of the periphery area is anticipated to drive the growth and economy of the city. The transformation of land use due to infrastructure development will bear implications for the neighboring community, particularly in relation to the economic and social dimensions (Latifah, 2014). Based on the theories and research results mentioned above, the examination of the “Environmental Management Model in the Periphery Area Through Development of Social Capital in Banjarmasin City” becomes an intriguing prospect. The objective of this research was to determine an environmental management model that integrates social, economic, geographic, and community aspects to promote the growth of social capital among residents in the periphery area of Banjarmasin City.

Literature Review

Environmental management: Environmental management represents a comprehensive endeavor aimed at preserving the functions of the environment. This included the prudent organization, use, development, maintenance, restoration, monitoring, and control of the environment (Machmud 2012). The environment served as the habitat for living beings, where they found sustenance and possessed distinctive characteristics and functions that interacted with the presence of inhabitants, particularly humans, who played a more complex and substantial role (Setiadi & Kolip 2013). According to Sartain, an American psychologist, the term “environment” included all worldly conditions that, in various ways, influenced behavior, growth, development, or life processes, excluding genetic factors. Genes could be seen as preparing the environment for other genes (to provide environment). Sartain further categorized the environment into three parts, including the natural/external, the internal, and social or community (Ngalim 2014, Zhou & Gu 2024).

Environmental has a broad scope, extending beyond humans, animals, plants, and physical entities to include a

wide array of elements, spanning biotic, organic, inorganic, and social. The social environment comprised all those who exerted influence on individuals or others. Direct influences manifested through daily interactions with family, friends, schoolmates, or co-workers. Indirect influences may have occurred through media such as radio, television, reading books, magazines, newspapers, and other means (Dalyono 2019). The origins of social capital date back to 1916, inspired by the work of Lyda Judson Hanifan, “The Rural School Community Centre,” where social capital was distinguished from other forms of capital and acknowledged as one of the most important forms in the community (Fathy 2019). It consisted of the outcomes of social relationships particularly trust, institutionalized norms, mutually beneficial relationships, and more (Sunyoto 2018).

Social capital represented a web of interpersonal relationships grounded in networks, norms, and social trust, which facilitated the efficiency and effectiveness of cooperation and coordination toward shared objectives and policies. The dimension expanded within the community, containing values, norms, and patterns of social interaction that regulated the daily lives of its members (Laura et al. 2018).

Periphery area: According to Yunus (2008), the periphery area was situated on the outskirts of the city and had environmental significance, positioned at the crossroads between rural and urban regions. It represented a unique blend of rural and urban elements, where specific areas possessed urban characteristics while others maintained closer ties to rural features. The area was frequently labeled as peri-urban zones. It epitomized the harmonious merger of rural and urban attributes, with specific regions showcasing urban traits and others being closer to rural attributes. Kurts and Eitcher, as referenced in Yunus (2016), offered several definitions of the periphery area, including (1) area where rural and urban land uses converged at the border of the city, (2) a periphery area covered all suburbs, satellite towns, and other territories just beyond the city where non-agricultural labor was prevalent, (3) area located beyond the official city boundaries but still within commuting distance, (4) open rural area inhabited by individuals working in the city, and (5) space where the work fields and orientations of both urban and rural life intersect. Based on the literature review, the conceptual framework is summarized in Fig. 1.

The hypotheses in this research included:

The Influence of the economic environmental on social capital

The impact of the geographic environment on social capital

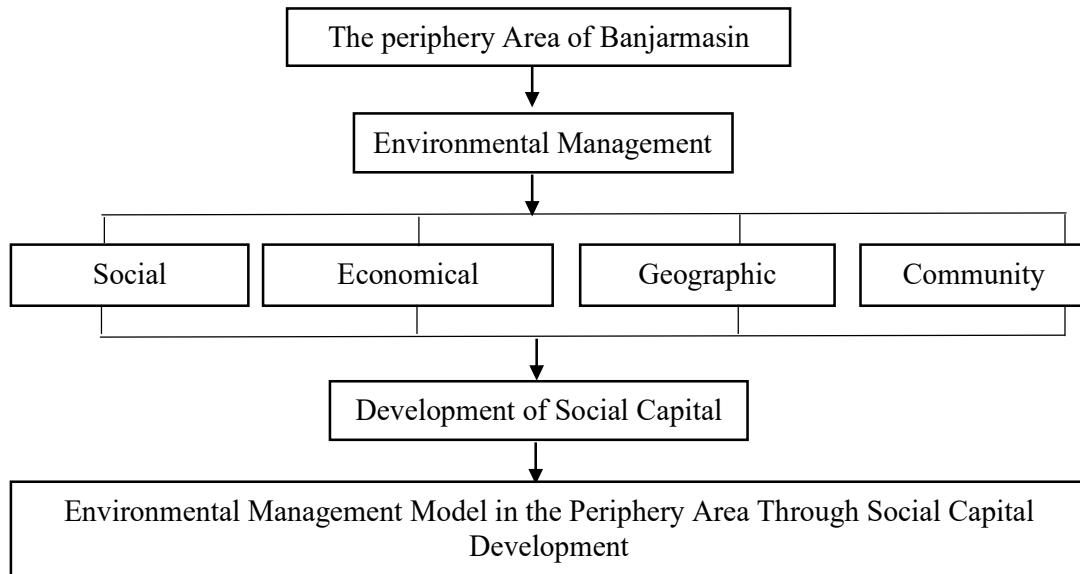


Fig. 1: Research Framework.

The role of the community environment in influencing social capital

The interplay between social environmental and social capital

MATERIALS AND METHODS

The research site was determined using area sampling, specifically focusing on the periphery area of Banjarmasin City. The selection was motivated by significant environmental changes, including a reduction in this area due to extensive infrastructure development, limited environmental management, and a lack of attention from the local government. Table 1 provides the information about the research variables used in the study.

This research adopted a quantitative descriptive method, leveraging numerical data derived from calculations or measurements, including information gathered from questionnaires related to environmental management and the distribution of social capital. Data sources incorporated

Table 1: Operational definition of research variables.

Variable	Indicator	Data Source
Environmental Management	<ul style="list-style-type: none"> • Social environmental • Economic Environmental • Geographic Environmental • Community Environmental 	Ngalim (2014)
Social Capital	<ul style="list-style-type: none"> • Norm • Culture • Perception • Behavior 	Fathy (2019) Usman & Ahmad (2018)

both primary and secondary. Primary data were directly obtained from respondents in the periphery area, while secondary data were derived from sources supporting this research but were not collected (Sugiyono 2010). Data collection methods included (1) observation, carried out to obtain data on environmental management, social capital, and the profile of residents in the selected area, and (2) questionnaires, used to collect data from respondents, with a focus on environmental management within social, economic, geographic, and community contexts, as well as social capital in the Banjarmasin City.

Sample selection was carried out using purposive sampling, a method used to select the sample based on specific considerations. The sample was not randomly selected but was determined by the analyst. The criteria for the selection were residents residing on the outskirts of Banjarmasin City. Sarwono & Narimawati (2015) recommended a sample size of at least 30-100 for the analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM). In this research, the size was determined using the Slovin Formula, resulting in a total of 150 samples selected from the residents living in the periphery area of Banjarmasin City.

Both Descriptive Statistical Analysis and PLS-SEM were adopted in the analysis. Descriptive statistical analysis was used to obtain a comprehensive and precise overview of the research objectives, with a 5-point Likert scale used. PLS-SEM was adopted to develop or validate an existing theory (Sarwono & Narimawati 2015). The model was also used for structural analysis, facilitated by the SmartPLS 3.0 software. According to Ananda Sabil (2015), the analysis

of the structural model consisted of (1) formulating the structural model theory, (2) analyzing the outer model, (3) analyzing the inner model, and (4) testing hypotheses.

RESULTS AND DISCUSSION

Physical development in certain areas could give rise to socio-cultural and environmental challenges. Currently, development is often equated with physical growth, while natural elements, the environment, and the community are regarded as supportive components. The interplay between physical development and environmental management as a strategy for attaining sustainability was crucial. However, development in specific areas tended to overlook the periphery, which had characteristics of both urban and rural environments. Without dedicated attention, this area would continue to be influenced by the complex problems associated with urban development.

Banjarmasin became one of the cities experiencing continuous expansion, necessitating land for infrastructure and associated amenities. This invariably resulted in an ongoing reduction in available land for alternative purposes. The shift of development focus from urban hubs to the periphery stemmed from the growing demand for space. Furthermore, the socio-economic fabric of the periphery primarily revolved around agriculture, fisheries, and other industries, making the area crucial

for catering to the needs of Banjarmasin City residents. An important aspect in achieving this was environmental management and the nurturing of social capital within the periphery. Environmental management covers a wide range of aspects, including not only humans, animals, plants, and physical but also biotic, abiotic, and cultural aspects influenced by economic, geographic, community, and social factors.

Norms, culture, beliefs, perceptions, and behavior collectively formed the social capital of the periphery area. The elements required careful observation and development through well-planned environmental management across economic, geographic, community, and social indicators. Consequently, the environmental management model became a requisite for enhancing the community’s social capital, enabling the area to contribute to sustainable development and the local economy. It played a crucial role in meeting the needs of Banjarmasin City residents.

The environmental management model, through the development of social capital in Banjarmasin, commenced with the validation of the outer model to assess its validity and reliability. The analysis scrutinized various facets, including Factor Loading, AVE, Discriminant Validity, and Composite Reliability. The results showed that social, economic, geographic, community and social dimensions

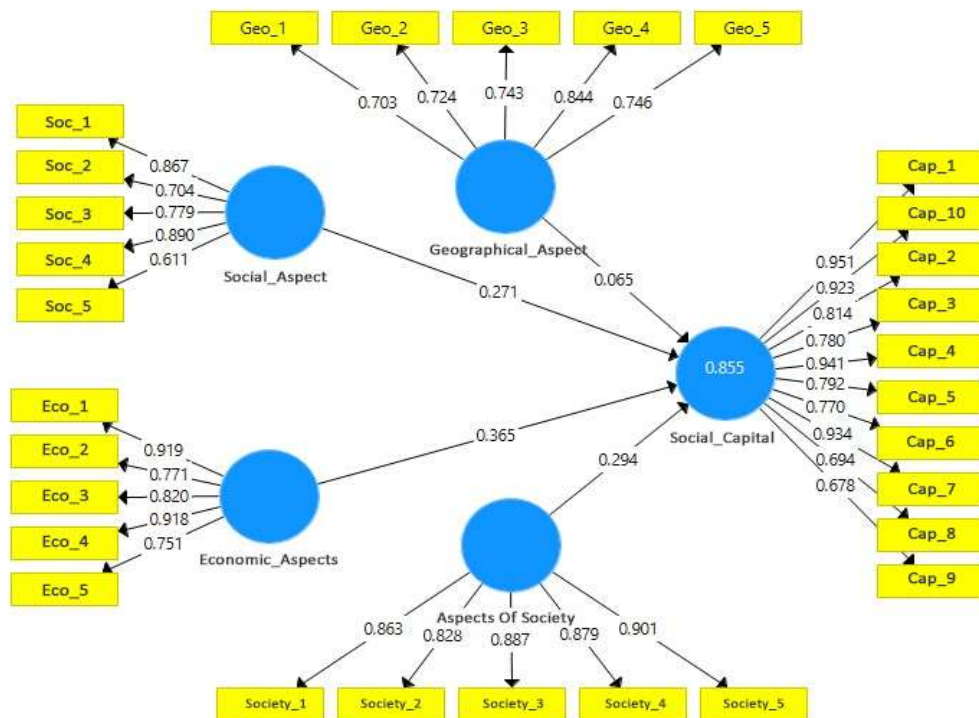


Fig. 2: SmartPLS Algorithm for outer model.

met the validity and reliability criteria for the development of social capital, comprising norms, culture, perceptions, and behavior in the periphery of Banjarmasin City. The first phase of model validation testing was Factor Loading, with the requirement that it should exceed 0.6 for an indicator to be considered valid. Any indicators failing to meet such criterion were excluded from the model (Hussain et al. 2015). The results of the outer model analysis are presented in Fig. 2.

Fig. 2 shows that the variables related to environmental management and social capital had factor loading values exceeding the threshold of 0.6 (Hussain et al. 2016). Based on the results, it was evident that environmental management concerning economic, geographic, community, and social aspects was valid in fostering the development of social capital, including norms, culture, perceptions, and behavior among residents in the periphery area of Banjarmasin City.

The correlation values between the supportive variables of the environmental management model in the periphery were assessed through the AVE value. The value played a crucial role in testing convergent validity since it originated from convergent validity outputs. In this research, the expected AVE value exceeded 0.5, and when examining the latent variable, all constructs surpassed the threshold of 0.5. When the square root of the AVE value was greater than the correlation value between one construct and the other in the model, it signified strong discriminant validity (Ghozali & Latan 2015). The AVE value is shown in the Table 2.

The AVE value for environmental management variables with their indicators included (1) economic with an AVE value greater than 0.5, (2) social with an AVE value greater than 0.5, (3) geographic with an AVE value greater than 0.5, and (4) environmental management in terms of community with an AVE value greater than 0.5. Furthermore, the social capital variable has an AVE value exceeding 0.5, showing that the environmental management model in terms of economic, geographic, community, and social aspects was proficient in cultivating social capital such as norms, culture, perceptions, and behavior within the periphery of Banjarmasin City. The results complied with the requirements for convergent validity, with the

AVE value surpassing 0.5 (Ghozali & Latan 2015). The next step was testing discriminant validity.

The assessment of discriminant validity in the environmental management model in the periphery was conducted by examining the cross-loading table. Cross-loading values were indicative of the correlations of constructs with measurement items that exceeded the magnitude of other constructs. This signified that the latent constructs better predicted the variance within their designated category than the variance in other categories (Ghozali & Latan 2012).

Table 3 shows two results, including (1) environmental management in the economic, geographic, community, and social aspects within the periphery has cross-loading values greater than other constructs, and (2) social capital has cross-loading values greater than others in its block. The results affirmed the strong discriminant validity of environmental management in terms of economic, geographic, community, and social aspects with social capital (such as norms, culture, perceptions, and behavior) among residents in the periphery area of Banjarmasin City.

The final step in evaluating the outer model revolved around testing the unidimensionality of the environmental management model within the periphery for the development of social capital in Banjarmasin City. This evaluation adopted composite reliability and Cronbach's alpha values, and it was considered satisfactory when the values exceeded 0.7 (Ghozali & Latan 2015).

Table 4 shows Cronbach's alpha and composite reliability values for social capital, economic, geographic, community, and social aspects, all of which met the reliability criteria by exceeding the threshold of 0.7 (Ghozali & Latan 2015). It substantiated the accuracy, consistency, and precision of the instruments adopted in the environmental management model with all four aspects as part of the initiative to foster social capital development in the outskirts of Banjarmasin City. This compliance with the standard criteria assured the reliability of the research model.

In evaluating the inner model, the focus shifted to the coefficient of determination (R^2 value) to explain the impact of the environmental management model in the outskirts concerning social capital development in Banjarmasin City. The R^2 value served to elucidate the influence of specific exogenous latent variables on endogenous ones. An R^2 value of 0.75, 0.50, and 0.25 was indicative of a strong, moderate, and weak model, respectively (Sarstedt et al. 2019).

The R^2 value of 0.855, which corresponded to 85.5%, placed the model of environmental management through social capital development in the periphery of Banjarmasin

Table 2: Average Variance Extracted (AVE) Values for Environmental Management Through Social Capital Development

Construct	AVE
Economic Environmental	0.704
Social environmental	0.604
Geographic Environmental	0.568
Community Environmental	0.760
Social Capital	0.695

Table 3: Discriminant validity values for environmental management through social capital development.

Construct	Social Capital	Economic Environmental	Geographic Environmental	Community Environmental	Social Environmental
Eco_1	0.914	0.919	0.268	0.874	0.911
Eco_2	0.544	0.771	0.108	0.533	0.697
Eco_3	0.741	0.820	0.232	0.804	0.771
Eco_4	0.914	0.918	0.226	0.881	0.914
Eco_5	0.515	0.751	0.119	0.514	0.678
Geo_1	0.135	0.153	0.703	0.141	0.153
Geo_2	0.145	0.133	0.724	0.138	0.150
Geo_3	0.299	0.224	0.743	0.234	0.211
Geo_4	0.262	0.244	0.844	0.228	0.260
Geo_5	0.117	0.041	0.746	0.036	0.058
Society_1	0.862	0.815	0.216	0.863	0.822
Society_2	0.622	0.649	0.192	0.828	0.620
Society_3	0.832	0.816	0.230	0.887	0.823
Society_4	0.632	0.730	0.159	0.879	0.716
Society_5	0.706	0.794	0.219	0.901	0.745
Soc_1	0.860	0.809	0.185	0.799	0.867
Soc_2	0.525	0.627	0.150	0.540	0.704
Soc_3	0.672	0.754	0.219	0.744	0.779
Soc_4	0.871	0.825	0.241	0.781	0.890
Soc_5	0.438	0.607	0.154	0.417	0.611
Cap_1	0.951	0.922	0.276	0.879	0.913
Cap_2	0.814	0.825	0.284	0.775	0.809
Cap_3	0.780	0.525	0.228	0.559	0.535
Cap_4	0.941	0.910	0.240	0.862	0.897
Cap_5	0.792	0.790	0.259	0.770	0.791
Cap_6	0.770	0.515	0.224	0.549	0.524
Cap_7	0.934	0.914	0.244	0.876	0.907
Cap_8	0.694	0.509	0.183	0.537	0.505
Cap_9	0.678	0.462	0.171	0.479	0.443
Cap_10	0.923	0.895	0.272	0.850	0.889

City within the strong category (Sarstedt et al. 2019) (Table 5). This showed that the environmental management model (economic, social, geographic, and community) could

foster the development of social capital, including norms, culture, perceptions, and community behavior, to an extent of 85.5%. The remaining 14.5% was influenced by other unaccounted factors.

Table 4: Composite reliability values for environmental management through social capital development.

Construct	Cronbach's Alpha	Composite Reliability
Social Capital	0.951	0.957
Economic Environmental	0.898	0.922
Geographic Environmental	0.820	0.867
Community Environmental	0.923	0.941
Social Environmental	0.838	0.882

The results were in line with the work of Yulastuti et al. (2018), emphasizing the role of social capital in environmental quality, particularly in the form of residents' trust, with a substantial influence level of 0.222. A literature

Table 5: Determination coefficients for environmental management through social capital development.

Construct	R ²	R ² Adjusted
Social Capital	0.855	0.851

was conducted by Prittaningtyas et al. (2014) at the Faculty of Geography, Gadjah Mada University (2014) on the Analysis of Settlement Environmental Quality in the Outskirts of the city, with the Village of Ngestiharjo, Yogyakarta as case research. The results showed the interplay of socio-economic, biotic, and abiotic factors on the quality of the settlement environment in the village. Furthermore, literature conducted by Balady and Shah (2018), concluded that specific citizens possessed various forms of social capital contributing to their well-being improvement and environmental sustainability when integrated into PLBHK programs.

To validate the credibility of the environmental management model for social capital development among residents in the periphery area of Banjarmasin City, a hypothesis test leveraged the T-statistic coefficient with a 95% confidence level. Abdillah and Hartono (2015) emphasized that the determination of hypothesis acceptance depended on the significance level of its confirmation, determined through the comparison of the T-table value and T-statistic. When the T-statistic value surpassed the T-table

value, it signified support for the hypothesis. In the context of a 95% confidence level (with an alpha of 5%), the T-table value for a two-tailed hypothesis was ≥ 1.96 .

In the Bootstrapping Model Smart PLS results and the Research Testing (Fig. 3 and Table 6), it became evident that the environmental management model significantly influenced the development of social capital among residents in the periphery area of Banjarmasin City. The influence was manifested through four key indicators, including (1) community, (2) economic, (3) social, and (4) the geographic aspect. Further explanations of the results related to the environmental management model in the periphery of Banjarmasin City were as follows:

1. Hanifan (1916), as articulated in his book “The Rural School Community Centre,” distinguished social capital to be a unique form of capital that held immense significance in the lives of the community. This research supported the assertion of Hanifan by establishing that the environmental management model, with the community indicator, substantially contributed to the

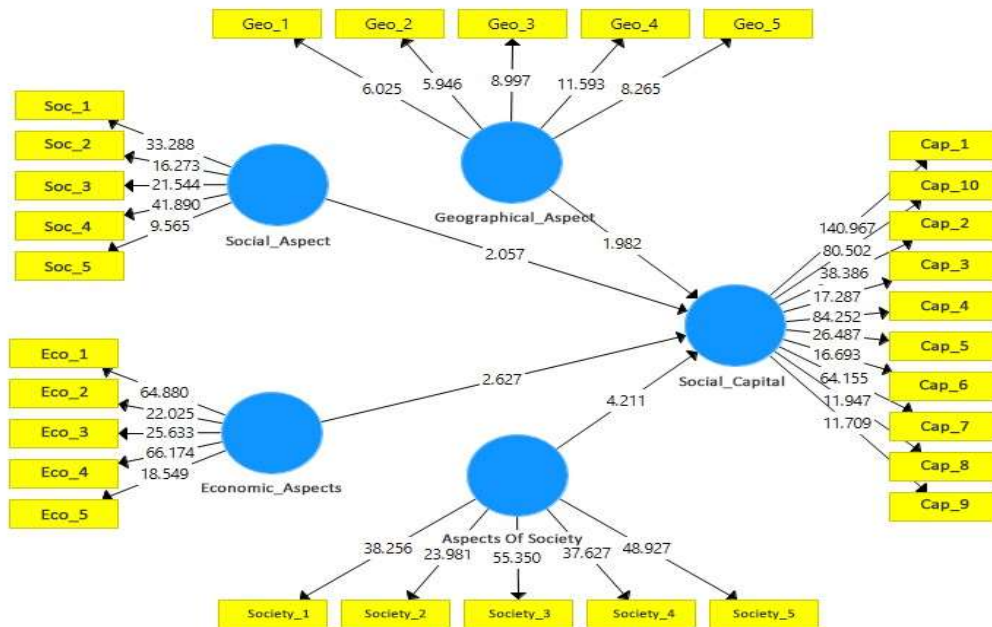


Fig. 3: Bootstrapping of SmartPls Model.

Table 6: Research test on environmental management through social capital development.

Construct	Original Sample (O)	T Statistics (O/STDEV)	P Values	Des
Economic Environmental -> Social Capital	0.365	2.627	0.009	Accepted
Geographic Environmental -> Social Capital	0.065	1.982	0.048	Accepted
Community Environmental -> Social Capital	0.294	4.211	0.000	Accepted
Social Environmental -> Social Capital	0.271	2.057	0.040	Accepted

development of social capital. The T-statistic value for the aspect was 4.211 (> 1.96), with a corresponding P-value of 0.000, showing high statistical significance ($P < 0.05$).

2. Burt (2004) defined social capital as the ability of the community to foster interpersonal connections. This research was in line with the notion of Burt by establishing that the environmental management model, particularly the economic indicator, played a crucial role in developing social capital. It was substantiated by a T-statistic value of 2.627, surpassing the threshold of 1.96, along with a P-value of 0.009, affirming its statistical significance ($P < 0.05$).
3. Laura et al. (2018) explained that social capital was a system of interpersonal relationships facilitated by networks, norms, and social trust, enhancing cooperative and coordinated endeavors for common objectives and policies. In line with the analysis results, the environmental management model with social indicators significantly contributed to social capital development. The T-statistic value for the aspect was 2.057, exceeding the threshold of 1.96, with a corresponding P-value of 0.040, thereby reinforcing its statistical significance ($P < 0.05$).
4. The method used to mobilize the physical/geographic environment was closely tied to community social capital. Robust social capital was essential in raising awareness and promoting collective action to meet common needs. Each community has social capital that serves several functions, including fostering social solidarity, encouraging participation, acting as a relationship balancer, promoting self-reliance and self-sufficiency, becoming part of a social issue management mechanism (addressing conflicts and poverty), and nurturing and strengthening social integration in socially vulnerable regions. In line with the research results, the environmental management model with the geographic indicator meaningfully contributed to the development of social capital. The T-statistic value for the aspect was 1.982, surpassing the threshold of 1.96, with a P-value of 0.048, showing its statistical significance ($P < 0.05$).

Based on the explanations above, it was evident that the environmental management model with indicators, including (1) economic, (2) geographic, (3) community, and (4) social aspects, surpassed the established threshold. The T-statistic values for all the indicators were consistently greater than ($>$) 1.96, with P-values less than ($<$) 0.05 (Abdillah & Hartono 2015). The results of these statistics illustrate that environmental management has a significant influence on social capital. Social capital, which includes norms, culture,

perception, and behavior, is determined by the characteristics of the environment in the region. Community knowledge and understanding of the environment turn out to determine perceptions and behaviors in society (Arisanty et al. 2023). Community participation and adaptation to environmental changes are influenced by social capital in society, such as the level of trust in each other towards others, inter-community involvement, and relationships between community groups (Saptutyningsih et al. 2020). Strong social capital can encourage the ability of communities to manage the environment together (Musavengane & Kloppers 2020). Strengthening social capital can also encourage community resilience to various environmental problems, including disaster problems (Aldrich & Meyer 2022).

This compelling evidence reaffirmed that the environmental management model, when scrutinized from economic, geographic, community, and social perspectives, exerted a substantial influence on the norms, culture, perceptions, and behaviors of the periphery area. It underscored the important role of environmental management in contributing to the development of social capital. Therefore, this research used economic, geographic, community, and social environmental management indicators in the pursuit of sustainable social capital development in Banjarmasin City.

CONCLUSIONS

In conclusion, based on field data analysis and comprehensive calculations using Smart PLS 3.0 Software, the results showed:

1. The environmental management model, particularly with an economic aspect in the outskirts, was effective in fostering the development of social capital among residents in the periphery area of Banjarmasin City. The statistical analysis showed a T-statistic value of 2.627, surpassing the T-table threshold of 1.96, and a P-value of 0.009, thereby underscoring its significance at the 0.05 level.
2. The environmental management model, with a geographic focus, served as a valuable tool in cultivating social capital in the periphery area. The Smart PLS analysis showed a T-statistic value of 1.982, which exceeded the T-table standard of 1.96, with a P-value of 0.048, thereby emphasizing its statistical significance at the 0.05 level.
3. The environmental management model with a community aspect played a crucial role in the development of social capital in Banjarmasin City. The Smart PLS analysis results showed a T-statistic value of

4.211, which exceeded the T-table value of 1.96, with a P-value of 0.000, thereby emphasizing its significance at the 0.05 level.

- The environmental management model with a social aspect contributed significantly to the development of social capital in the periphery area. The Smart PLS analysis results showed a T-statistic value of 2.057, surpassing the T-table value of 1.96, alongside a P-value of 0.040, which solidified its statistical significance at the 0.05 level.

Based on the results above, the following recommendations were proposed.

- Residents residing in the periphery area, particularly within Banjarmasin City, should prioritize the considerations of environmental management concerning social, economic, geographic, and community aspects, as these exert a substantial influence on the development of social capital.
- For the local government, it was recommended to dedicate greater attention to environmental management when formulating policies and regulations. The environmental management model, incorporating social, economic, geographic, and community aspects, evidently held the potential to foster social capital within the periphery of Banjarmasin City.

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REFERENCES

- Abdillah, W. and Hartono, J., 2015. Partial least square (PLS): Alternative structural equation modeling (SEM) in business research. Yogyakarta: Penerbit Andi, 22, pp.103–150.
- Aldrich, D.P. and Meyer, M.A., 2022. *Handbook of Environmental Hazards and Society*, Routledge, pp.201–213.
- Angriani, D., 2021. The Effect of Organizational Culture and Altruism on Social Competency of Science Teachers. *Journal of Educational Sciences*, 5(4), pp.678–686.
- Arisanty, D., Rajiani, I., Mutiani, M., Hastuti, K.P., Abbas, E.W., Rosadi, D. and Muhaimin, M., 2023. Social capital of Banjarese for peatland fire mitigation: Combining of local wisdom and environment. *World*, 4(4), pp.745–757.
- Baladi, R.A. and Shah, M.A., 2018. Solar-powered irrigation system for agriculture based on moisture content in the field and saving energy and water with optimum designing. *Asian Journal of Engineering, Sciences & Technology*, 8(1), p.651.
- Brontowiyono, W. and Lupiyanto, R., 2011. Development of suburban areas and environmental problems in Nitiprayan art village, Bantul. *Journal of Environmental Science & Technology*, 3(1), pp.31–51.
- Burt, R.S., 2004. Structural holes and good ideas. *American Journal of Sociology*, 110(2), pp.349–399.
- Fathy, R., 2019. Social capital: Concept, inclusivity, and community empowerment. *Journal of Sociological Thought*, 6(1), pp.1–17.
- Ghozali, I. and Latan, H., 2012. *Partial least square: Concept, techniques, and application of SmartPLS 2.0 M3*. Diponegoro University Publishing Agency.
- Ghozali, I. and Latan, H., 2015. *Partial Least Squares: Concept, Techniques, and Application Using Smartpls 3.0 for Empirical Research*. Diponegoro University Publishing Agency.
- Gyamfi, B.A., Onifade, S.T. and Ofori, E.K., 2023. Synthesizing the impacts of information and communication technology advancement and educational developments on environmental sustainability: A comparative analysis of three economic blocs—BRICS, MINT, and G7 economies. *Sustainable Development*, 31(2), pp.744–759.
- Hanifan, L.J., 1916. The rural school community center. *The Annals of the American Academy of Political and Social Science*, 67(1), pp.130–138.
- Haridison, A., 2013. Social capital in development. *JISPAR: Journal of Social Sciences, Politics, and Governance*, 4, pp.31–40.
- Hussain, M., Khan, M. and Al-Aomar, R., 2016. A framework for supply chain sustainability in the service industry with confirmatory factor analysis. *Renewable and Sustainable Energy Reviews*, 55, pp.1301–1312.
- Hussain, M., Khan, M. and Saber, H., 2015. Impact of capacity constraints on the dynamic response of a two-level supply chain. *Logistics, Informatics and Service Science*, 16, pp.201–206.
- Ife, J. and Tesoriero, F., 2008. *Community Development: Alternative Approaches to Community Development in the Era of Globalization*. Pustaka Pelajar, pp.265.
- Latifah, S., 2014. Development of suburban cities (Impact of agricultural land conversion into elite housing). *Paradigm*, 2(3).
- Laura, N., Sari, R.D., Setiawan, I. and Herdiyanti, H., 2018. The role of community social capital in managing natural resources as a survival strategy in Dusung Limang, Kelapa District, West Bangka Regency. *Plos One*, p.74.
- Liu, Y., Tang, S., Geertman, S., Lin, Y. and van Oort, F., 2017. The chain effects of property-led redevelopment in Shenzhen: Price-shadowing and indirect displacement. *Cities*, 67, pp.31–42.
- Machmud, S., 2012. *Environmental Law*. Citra Bhakti.
- Melo, V. and Jenkins, P., 2023. The growth of different spaces of middle-classness in Greater Maputo: A methodological approach for assessing processes of this urban transformation. *Cities*, 142, p.104536.
- Munandar, S., 2002. *Empowering Social Capital as an Alternative to Anticipate Social Conflict*. National Seminar Paper, ISI, Bogor, West Java.
- Musavengane, R. and Kloppers, R., 2020. Social capital: An investment towards community resilience in the collaborative natural resource management of community-based tourism schemes. *Tourism Management Perspectives*, 34, p.100654. <https://doi.org/10.1016/j.tmp.2020.100654>
- Ndolu, C., Effendi, J. and Ramang, R., 2017. Physical environmental conditions of settlements that grow contrary to land use designations and concepts formed from abstracted settlement conditions in the hills of Kelapa Lima Village, Kupang City. *Science*, 17, pp.82–89.
- Ngalim, P., 2014. *Educational Psychology*. Bandung: PT Remaja Rosdakarya.
- Prittaningtyas, E., Ekartaji, H., Yunus, H.S. and Rahardjo, N., 2014. Study on the quality of residential environments in urban peripheries: A case in Ngestiharjo Village, Yogyakarta. *Indonesian Geography Magazine*, 28(1), pp.96–102.
- Saputyningsih, E., Diswandi, D. and Jaung, W., 2020. Does social capital matter in climate change adaptation? A lesson from the agricultural sector in Yogyakarta, Indonesia. *Land Use Policy*, 95, p.104189.
- Sarstedt, M., Hair Jr, J.F., Cheah, J.-H., Becker, J.-M. and Ringle, C.M., 2019. How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal*, 27(3), pp.197–211.

- Sarwono, J. and Narimawati, U., 2015. *Writing Theses, Dissertations, and Research Papers Using Partial Least Square SEM (PLS-SEM)*.: Andi.
- Setiadi, E.M. and Kolip, U., 2013. *Introduction to Political Sociology*. Kencana.
- Statistics, C.B. of 2023. *Banjarmasin in Figures 2023*. Kota Banjarmasin.
- Sugiyono, D., 2010. *Understanding Qualitative Research*. Alfabeta.
- Sunyoto, U., 2018. *Social Capital*. Pustaka Belajar.
- Uliyah, A.M., 2015. *Introduction to Human Basic Needs*. Salemba Medika.
- Usman, M. and Ahmad, M.I., 2018. Parallel mediation model of social capital, learning and the adoption of best crop management practices: evidence from Pakistani small farmers. *China Agricultural Economic Review*, 10(4), pp.589-607.
- Yuliasuti, N., Sukmawati, A.M. and Purwoningsih, P., 2018. Utilization of social facilities to reinforce social interaction in formal housing. *International Journal of Architectural Research*, 12(1), pp.134–151.
- Yunus, H.S., 2008. *Dynamics of Peri-Urban Areas: Determinants of the City's Future*. Pustaka Pelajar.
- Zhou, Y. and Gu, B., 2024. *Earth Critical Zone*, Pustaka Pelajar.