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Participatory Sustainable Village Development Within the Bukit Rimbang Bukit Baling Wildlife Reserve Area in Kampar Regency

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ABSTRACT

The purpose of this study is to identify the factors that influence the sustainability of village development and scenarios for village development models in the Bukit Rimbang Bukit Baling Wildlife Reserve area in Kampar Regency. The analytical approach used to answer the research objectives is the Participatory Prospective Analysis method. The results of this study indicate that the dominant variables that are sensitive to increasing village development in the Bukit Rimbang Bukit Baling Wildlife Reserve area in Kampar Regency are village connectivity, basic service facilities and infrastructure, community empowerment, amenity resources, integration and synergy of village development. Interventions on these dominant variables in the minimum, optimal and maximum scenarios can improve the status of village development from less sustainable in the existing conditions to good/quite sustainable in the future. The sustainable village development scenario offers a more balanced development process between environmental, social, economic, legal, and governance dimensions.

1. INTRODUCTION

Village development aims to improve the standard of living and welfare of village communities. Stakeholder participation in decision-making for sustainable village development is very important in a multidimensional and multisectoral village development process. A village is a legal community unit that has territorial boundaries that are authorized to regulate and manage government affairs, and local community interests based on community initiatives, origin rights, and/or traditional rights [1]. Village development seeks to increase the welfare of rural communities, improve the quality of human life, and reduce poverty by increasing the fulfillment of basic needs [2], creating village infrastructure, maximizing local economic potential [3], and preserving the environment and natural resources [4, 5]. To realize this, the village government draws up a village development plan under its authority. Village development planning meetings are a forum for sitting with stakeholders in setting priorities, programs, activities, and village development needs [6]. The sense of togetherness, kinship, and cooperation that is still strong in the village community is a source of local wisdom for village development [7]. The village's internal and external potentials and opportunities must be managed holistically [8].

A simple life and dependence on natural resources are aspects that are inherent in the existence of rural communities. Learning about nature and culture that is passed down from generation to generation produces local wisdom [9]. The environment and natural resources indirectly support sustainable development and rural economic progress. Thus, sustainable village development must maintain a balance between environmental, social, economic, legal, and governance dimensions by involving community participation as much as possible [10-11].

Villagers in Kampar Regency live in the Bukit Rimbang Bukit Baling Wildlife Reserve Area. Its territory includes Muaro Bio Village, Batu Sanggan Village, Gajah Bertalut Village, Aur Kuning Village, Tanjung Beringin Village, Terusan Village, Subayang Jaya Village, and Pangkalan Serai Village. This area has a dual role, namely functioning as a place for flora and fauna conservation, as well as improving the welfare of rural communities that depend on the utilization of natural resources. Increased participation and knowledge of stakeholders in determining the factors that influence the sustainability of village development and wildlife reserve areas will be beneficial for increasing the welfare of village communities while maintaining forest sustainability.

Experience has shown that planning does not involve significant stakeholders, making the implementation phase of the plan difficult to carry out. Stakeholder involvement in planning must be carried out effectively, the Participatory Prospective Analysis approach is a tool that can effectively map the interests of village development stakeholders [12]. Participatory village development encourages every effort to choose actions from various alternatives that are decided jointly which involve as much village community participation as possible [13]. The concept of a development approach that was centralized in the past must be replaced by a decentralized development approach that is directed, integrated, environmentally sound and sustainable, and adapted to the conditions, issues, opportunities, and needs of the local community [14].

2. RESEARCH METHODS

2.1 Location of study

The Bukit Rimbang Bukit Baling area is a research location, especially those whose settlements are in conservation areas. The place is on the Subayang River in Kampar Kiri Hulu District, which consists of 8 villages, namely in the downstream (Muaro Bio Village, Batu Sanggan), in the middle (Tanjung Beringin Village, Gajah Betalut, Aur Kuning), in the upstream (Terusan Village, Subayang Jaya Village, and Pangkalan Serai Village). The research was conducted from March 2021-January 2022. The Bukit Rimbang Bukit Baling area was chosen as the research location because there are villages there that are very underdeveloped and the only transportation route that people can use to get out of the area to the sub-district capital in Gema Village is via the Subayang River, as shown in Figure 1.

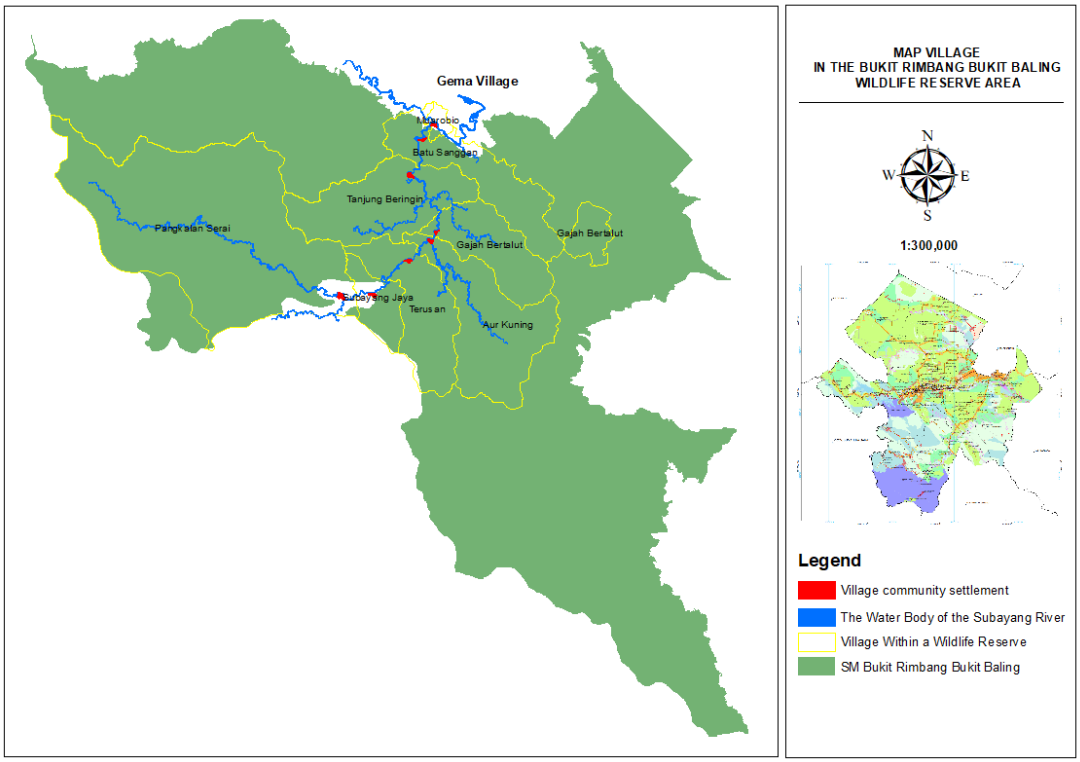

Figure 1. Map of research village locations

2.2 Data collection

There are two types of data needed for analysis, namely secondary and primary. Data collected directly from the respondent/key informant is called primary data. Secondary data is information obtained from other parties, where the data is from a study or database for an organization. The institutions/agencies that are sources of secondary data include the Central Bureau of Statistics, the Center for Conservation of Natural Resources, the Office for Community and Village Empowerment, the District Office, and others.

Data and information are collected offline through face-to-face meetings with data source subjects, and online by accessing data via the internet. The data that has been collected is then tabulated and compiled by time series, panel, or cross-section. Primary data was collected using survey, interview, observation, and Focus Group Discussion (FGD) techniques.

This survey technique is a way of collecting data that is commonly used. The questionnaire instrument was used to obtain quantitative data. The distribution of this questionnaire was carried out to answer the first research question. The questions in the questionnaire are prepared based on a theoretical framework so that the variables and indicators asked in the questionnaire are arranged scientifically and are based on previous studies [15].

In-depth interviews were used to obtain information from key informants [16]. The parties used as key informants include Elites at the Village level that are in a conservation area, Conservation managers, Community and village empowerment agencies/institutions, and Non-Government Organizations (NGOs).

Observation techniques are steps to observe directly (visually) activities, events, activities, or incidents that occur during the research process. Observations in this study are more emphasized to gather data that strengthens the findings, for example by taking photos of village land use with the help of GPS, and drones, so that the visualization of research objects becomes more real, objective, and factual [17].

FGD is a focused group discussion involving competent stakeholders [18]. used for key variables which are the main issues of village development specifically discussed. The participant groups involved consisted of village elites, NGOs, conservation managers, and others.

2.3 Data analysis

Data analysis using the Participatory Prospective Analysis (PPA) method was carried out with the stages and approaches [19] shown in Table 1 below:

Table 1. Stages and participatory prospective analysis approaches

Target Stage	Approach used
1. Defining the system	Group discussion
2. Identify variables	Brainstorming
3. Definition of key variables	Group discussion
4. Mutual influence analysis	Structure analysis and group work
5. Interpretation of the relationship between influence/dependence variables	Group discussion
6. Definition of a fixed variable	Group discussion
7. Building scenario	Brainstorming
8. Scenario implication and action anticipation	Structured discussion

By improving the leverage attribute, especially on the dimension of village development which still has an index value below 50, the situation of village development in conservation areas can be improved. This leverage feature will be used to plan village development operations for the next five years. Availability of budget, human resources, and time are the three main factors that determine how many attributes need to be improved. As a result, only the worst leverage attribute or certain other traits, based on the three factors mentioned above, might be increased. After that, an activity plan is made using the lever characteristics as the basis [20].

Prospective analysis was carried out to produce a model scenario for village development in a sustainable conservation area. Therefore, it is necessary to determine the key factors that influence the performance of the village development system. This analysis requires the opinion of experts/experts to give a score in determining the influence between factors using prospective analysis assessment guidelines [21]. Table 2 below provides guidelines for the prospective evaluation of the village development model [22]:

Table 2. Stages and participatory prospective analysis approaches

Score	Description
0	No Influence
1	Little Influence
2	Moderate Influence
3	Great Influence

The steps to determine the direct influence between factors that are determined based on prospective analysis are as if there is no influence on other factors, then give a value of 0. If the effect is very strong, then give a value of 3. If the effect is small, give a value of 1, or moderate influence = 2. Table 3 is used in the section below to show the relationship between the factors.

Table 3. Relationship matrix between factors

	A	B	C	D
A				
B				
C				
D				

The best alternative in the future is decided based on an assessment of defining the main aspects of the future on various variables or elements that have a significant impact on the village development model, which requires fast action. The influence of each variable on village development is shown in four quadrants that reflect INPUT, STAKE, UNUSED, and OUTPUT. Different impacts and dependencies are present in each quadrant [23]. Quadrant I (INPUT) is a factor that has a large influence but the level of dependence is low. The most powerful system-driving factors are found in this quadrant. Quadrant II (STAKES) is a factor that has as strong an influence as its dependency (leverage variable). Quadrant III (OUTPUT) is a factor with a small influence, but high dependency. Quadrant IV (UNUSED) is a factor that has low influence and dependence.

As an option to build a village development scenario model in a conservation area, the future states of these components are generated based on the dominant factors influencing the system. The village development scenario model was developed based on conservative-pessimistic, moderately optimistic, and progressively optimistic scenarios.

Through engagement amongst stakeholders, Participatory Prospective Analysis (PPA) is possible to generate a consensus that may be applied to planning. This approach is founded on several concepts, including involvement, transparency, consistency, effectiveness, relevance, repeatability, rationale, and stakeholder capacity building.

3. RESULT AND DISCUSSION

3.1 Village development participation

The entire cycle of participation in rural development activities must become an integrated and consistent unit. Redistribution of power between activity providers and activity recipient groups in village community participation based on the principle of equality. Stakeholder participation in the decision-making process is adjusted to roles, authorities, and responsibilities [24].

The ecological-centric approach to village development in the Bukit Rimbang Bukit Baling Wildlife Reserve Area has neglected the sustainability of the social and economic development of the village community. The lack of access and powerlessness of village communities has made them resigned to accepting the policies set by the state. Even as Indonesian citizens, they have the right to live decently by managing the potential of forests in a sustainable manner [25-28].

The Bukit Rimbang Bukit Baling region is both a conservation area and home to rural populations whose survival depends on the variety of flora and animals [29]. Bukit Rimbang Bukit Baling is dominated by hills with very steep slopes and is designated as a water catchment area [30]. Wild fruits are used as a food source by the locals. The biggest risks to the preservation of biodiversity are the growth of agricultural land and the deterioration of traditional knowledge. The area provides many ecosystem services that are essential for life, especially for humans [31]. The village community within the Wildlife Reserve Area has understood that legally their village area is designated as a conservation area [32]. However, the village community can only surrender, the house and land assets they own have no legal force. The isolated village area and limited access to basic service facilities and infrastructure meant weaker public participation. it is marked

by an imbalance of power/authority over wildlife reserve areas between the government and the local community which creates a conflict of interest [33].

Based on the results of the identification of variables that have leverage on village development in the Bukit Rimbang Bukit Baling Wildlife Reserve Area, 15 attributes/variables have been found that have leverage in enhancing the development of villages whose settlements are in conservation areas. Attributes/variables that have leverage on village development include amenity resources, village community awareness of the environment, population emigration, culture and education, community empowerment, village community financial literacy levels, village electrification, the role of BUMDesa and BUMDesa Bersama, facilities and basic service infrastructure, village connectivity, and the use of communication tools and the internet, land cases, the government's commitment to financing village development, policies to minimize land conversion, and Integration and Synergy of Village Development.

Effective and sustainable planning can rarely be achieved by professional knowledge alone. Community engagement provides a way to complement professional opinion. Collaborative learning and discussion among interested people are made possible through participation. Community participation has an irreplaceable role in the development planning process of a region. Involving and educating the community consistently, both formal and informal communication are participatory steps that can be developed [34]. Based on the results of the identification of 15 attributes/variables that have leverage on village development, representatives of village development stakeholders then held a meeting to get an agreement on determining the attributes/variables that have a major influence on village development. Consensus quantification, to assess the cross effect between variables studied in the matrix using Excel software. Through structural analysis and group collaboration, this method examines the direct relationship between each variable and other factors.

Based on a participatory prospective analysis involving stakeholder representation it was agreed that of the 15 attributes/variables that have leverage on village development in the Bukit Rimbang Bukit Baling wildlife reserve area, there are five important attributes or factors that have a major influence on the sustainability of village development. The attributes/variables that are important factors for village development from the results of the participatory prospective analysis are shown in Figure 2, namely in quadrants I and II. In quadrant I, the attributes/variables include village connectivity, basic service facilities and infrastructure, village community empowerment, and utilization of amenity resources. Meanwhile, in quadrant II there is one attribute/variable, namely the integration and synergy of village development. These attributes/variables have a great influence on the system and serve as an effective means for village development planning and management.

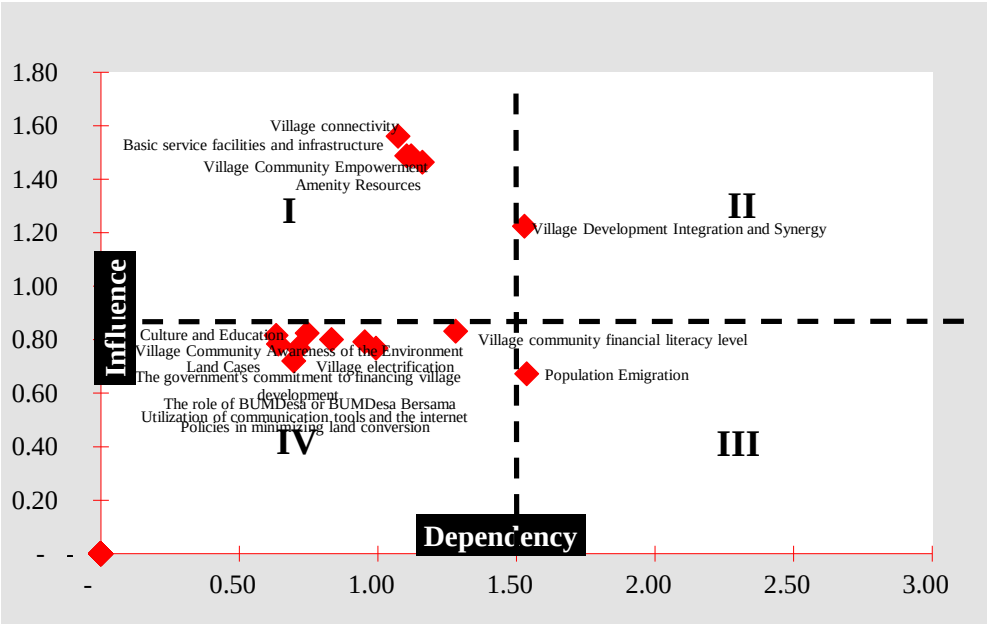

Figure 2. Participatory prospective analysis results of village development variables/attributes

Stakeholder representatives also carry out a consensus investigation based on the five attributes/variables they have selected to identify the most likely state of affairs for these variables in the future. development scenario of a village whose settlement is in a conservation area, it is very important to investigate potential changes in the situation in the future so that it meets the requirements of sustainable village development.

Table 4 shows the weighted global score value for various variables related to village development. The table lists 15 different variables along with their respective weighted global power scores, which are a measure of their relative importance in contributing to overall village development [35, 36]. Each variable has been assigned a weighted global power score based on its perceived importance in contributing to village development, with scores ranging from 0.40 to 1.80. The higher the score, the greater the perceived importance of the variable in contributing to overall village development. The five attributes/variables with the highest global strength score are village connectivity 1.80, basic facilities and infrastructure 1.66, village community empowerment 1.65, utilization of amenity resources 1.59, and village development integration and synergy 1.06.

Table 4. Weighted global score value

No	Variable	Weighted Global Power
1	Amenity Resources	1,59
2	Village Community Awareness of the Environment	0,65
3	Population Emigration	0,40
4	Culture and Education	0,76
5	Village Community Empowerment	1,65
6	Village community financial literacy level	0,64
7	Village electrification	0,78
8	The role of BUMDesa or BUMDesa Bersama	0,71
9	Basic service facilities and infrastructure	1,66
10	Village connectivity	1,80
11	Utilization of communication tools and the internet	0,90
12	Land Cases	0,84
13	The government's commitment to financing village development	0,84
14	Policies for minimizing land conversion	0,70
15	Village Development Integration and Synergy	1,06

3.2 Sustainable village development scenario

In conservation areas, apart from protected flora and fauna, there are also potential environmental services that can be enjoyed and increased knowledge and awareness to conserve conservation areas. The existing conditions show that the existing amenity resources have not yet been developed for the social and economic activities of the village community. Based on the consensus of stakeholder representatives in the minimum scenario for the utilization of amenity resources, at least something has been developed for social and economic activities. The optimal scenario is carried out by optimizing the utilization of amenity resources for social and economic activities. The maximum scenario is carried out by increasing the maximum utilization of amenity resources for social and economic activities [37].

The existing condition of village connectivity indicates that it can only be traversed via the Subayang River route. Based on the consensus of stakeholder representatives in the minimum scenario, village connectivity can at least be improved through the Subayang River and interpretation routes in this conservation area. The optimal scenario is carried out by increasing Village Connectivity through the Subayang River route and the interpretation route outside the conservation area. To have a strong correlation between enjoying the area and the environment, it is necessary to provide an interpretation line [38]. An explanation of a place can be provided through natural interpretations, which can also educate people about conservation and motivate them to learn more. The existence of an interpretation route, apart from being used to enjoy potential environmental services, can also be used by village communities as a connectivity route between villages whose settlements are in a conservation area on a limited scale [39-41].

The maximum scenario is designed by increasing Village Connectivity through the Subayang River route and interpretation routes, as well as public roads outside the conservation area. Referring to Government Regulation of the Republic of Indonesia Number 104 of 2015, and Government Regulation Number 23 of 2021, it is possible to build public roads that play a strategic role in forest areas, provided that the status of a wildlife reserve area must be changed to a National Park [42-43]. For example, the protection of sustainable forests for the Baduy people is maintained, as long as the community adheres to rigid traditions and culture. Strict spatial planning is regulated by customary law for agricultural areas and protected areas [44].

The existing condition of basic service facilities shows that the availability of basic service facilities and infrastructure in fulfilling the minimum service standards for rural communities is still <25%. Based on the consensus of stakeholder representation in the minimum scenario, the minimum availability of basic service facilities and infrastructure for the village community is around 25 - 50%. The optimal scenario is carried out by increasing the availability of basic service infrastructure with a minimum service standard for village communities of 51 - 75%. The maximum scenario is carried out by improving the facilities and infrastructure of basic service facilities with a minimum service standard for village communities > 75% [45].

Empowerment of village communities in existing conditions shows that village community empowerment has not been able to increase village development. Based on the consensus of stakeholder representatives in the minimum scenario, at least village community empowerment will be able to increase village development. The optimal scenario, Empowerment of rural communities is aimed at realizing village progress. Empowerment of village communities in the maximum scenario is aimed at realizing village independence. Based on the consensus of stakeholder representatives, integration and synergy in the minimum scenario have been realized explicitly in the village development planning process, the optimal scenario has been realized explicitly in the village planning and budgeting process, and the maximum scenario has been realized explicitly in the planning, budgeting, and implementation processes [46]. Participation and independence are the principles of empowerment to facilitate, plan, solve problems, build institutions, and carry out sustainable development in developing local potential and social capital of village communities [47-48].

Policymakers will have a greater understanding of the requirements of forest stakeholders thanks to the bottom-up approach. Adaptable strategy for several stakeholders in future-focused forest management. The Participatory Prospective Analysis (PPA) approach provides space for stakeholders related to village development in the Bukit Rimbang Bukit Baling Wildlife Reserve Area in Kampar Regency to respond to current development demands without compromising the ability of village resources to support the needs of future generations. Five dominant variables can improve the status of sustainable village development in the Bukit Rimbang Bukit Baling Wildlife Reserve Area, Kampar Regency, namely village connectivity, basic service infrastructure, village community empowerment, amenity resources, integration and synergy of village development. Intervention in the dominant variable in the minimal scenario can increase the status of village development from less sustainable to quite sustainable. The dominant variable intervention in the optimal and maximum scenarios can improve the status of village development to a better/more sustainable level. Alternative scenarios for improving village development conditions in the future are shown in Table 5.

Table 5. Village development scenario with settlements in the Bukit Rimbang Bukit Baling conservation area

No	Dominant Variable	A	Village Development Scenario in the future		
			B	C	D
1	Village connectivity	Village connectivity is only through the Subayang River route	Village connectivity through the Subayang River route and the interpretation route within the Bukit Rimbang Bukit Baling conservation area	Village connectivity through the Subayang River route and the interpretation route outside the Bukit Rimbang Bukit Baling conservation area	Village connectivity through the Subayang River and interpretation routes, as well as public roads outside the Bukit Rimbang Bukit Baling conservation area
2	Basic service facilities and infrastructure	Availability of basic service facilities and infrastructure in meeting the minimum service standards for rural communities <25%	Availability of basic service facilities and infrastructure in fulfilling the minimum service standards for village communities 25 - 50%	Availability of basic service facilities and infrastructure in fulfilling the minimum service standards for village communities 51 - 75%	Availability of basic service facilities and infrastructure in fulfilling the minimum service standards for rural communities >75%
3	Village Community Empowerment	Village community empowerment has not been able to increase village development	Village community empowerment has been able to improve village development	Village community empowerment has been able to increase village progress	Village community empowerment has been able to increase village independence
4	Amenity Resources	Amenity resources do not yet exist for social and economic activities	At a minimum, there are amenity resources for social and economic activities	Amenity resources for social and economic activities have been carried out optimally	Amenity resources for social and economic activities have been carried out to the maximum
5	Village Development Integration and Synergy	Explicit village development has not been integrated and synergistic among relevant stakeholders in village planning	Village development is explicitly integrated and synergistic among relevant stakeholders in village planning	Village development is explicitly integrated and synergistic among relevant stakeholders in village planning and budgeting	Village development is explicitly integrated and synergistic among relevant stakeholders in village planning, budgeting, and implementation

Description: A = Existing Conditions B = Scenario I C = Scenario II D = Scenario III, Scoring: A = 0, B = 1, C= 2, D = 3

The village development scenarios in the Bukit Rimbang Bukit Baling Wildlife Reserve Area in Kampar Regency that can be carried out on the dominant variable are as follows:

3.2.1 Village connectivity

To support local initiatives that promote economic development, road infrastructure is a critical need. Economic growth is very difficult to achieve without the availability of transportation infrastructure. As a result, the community will struggle to carry out various transaction procedures between villages and towns even at high costs. This will result in the process of economic development not running smoothly. Considering that these villages are located in the Bukit Rimbang Bukit Baling Wildlife Reserve Area, the principle of road infrastructure development is still guided by efforts to preserve the function of protecting the wildlife reserve area. Road infrastructure based on local wisdom and in accordance with the needs of the development of wildlife reserve areas is an interpretation path. The existence of an interpretation route, apart from being used to enjoy potential environmental services, can also be used by village communities as a connectivity route between villages whose settlements are in conservation areas on a limited scale.

3.2.2 Basic service infrastructure facilities

The absence of basic service facilities and infrastructure in rural areas is a sign of underdevelopment of village development. Local wisdom, local social capital, and local skills in the village must be respected within the policy framework for developing village facilities and infrastructure. Therefore, the implementation of development in the village as far as possible makes optimal use of local resources and reduces dependence on outsiders. In an effort to fulfill minimum service standards, the coverage of the availability of basic village service facilities and infrastructure in the Bukit Rimbang Bukit Baling Wildlife Reserve Area is currently still less than 25%. Based on the agreement of participatory prospective analysis, the coverage of the availability of village facilities and infrastructure in the maximum scenario is gradually increased by more than 75% in accordance with funding capabilities.

3.2.3 Empowerment of village communities

To increase human potential, empowerment is a process of growth, independence, and strengthening of collective bargaining position. The village empowerment process involves utilizing available resources based on local wisdom. Local wisdom is a legacy from previous cultures and is regularly used as a way of life to overcome all kinds of difficulties. Aside from being a glue for the unity and cooperation of village communities, customary forests, and the forbidden river basin area is a form of local wisdom that is directly related to forest protection. They also have an economic value which can be a source of increasing the welfare of rural communities. Efforts to empower village communities in the Bukit Rimbang Bukit Baling Wildlife Reserve Area are directed at increasing the ability of village communities from not being able to improve village development towards village communities that can increase village independence.

3.2.4 Amenity resources

The villages within the Bukit Rimbang Bukit Baling Wildlife Reserve area offer the potential for developing natural resources. Among the attractions of the village's extraordinary natural beauty are its cool and beautiful environment, unique flora and fauna, as well as the water of the Subayang River and clear waterfalls. However, due to a

lack of amenity resources, all of this cannot be managed properly. Increasing amenity resources to maximize natural potential can have a positive correlation with forest conservation and increase the welfare of rural communities.

3.2.5 Integration and synergy of village development

Village development is a multidimensional and cross-sectoral process that involves many stakeholders. Integration and synergy are keywords for bringing together various interested stakeholders to find a middle ground. At the deliberation site level, village development plans are a participatory means of conveying issues and initiatives. Furthermore, the budgeting and implementation mechanisms for the plans are implemented in APBDesa. The integration and synergy of village development are manifested explicitly in the planning, budgeting, and implementation processes in a sustainable manner.

Based on the choice of each determining variable for village development in villages whose settlements are in conservation areas, scenarios for village development models can be prepared, as shown in Table 6. The scenarios to be built are grouped into three scenarios which include scenario I which is a minimum scenario, scenario II which is the optimal scenario, and scenario III which is the optimal scenario. The alternatives for the minimal scenario are structures 1B, 2B, 3B, 4B, and 5B. The alternatives in the optimal scenario are the 1C, 2C, 3C, 4C, and 5C structures. Alternatives for maximum scenarios are 1D, 2D, 3D, 4D, and 5D structures.

Table 6. A scenario of the village development model with settlements in the Bukit Rimbang Bukit Baling conservation area

Existing Conditions	Structure of Dominant Attributes/Variables		
	Scenario I (Minimum)	Scenario II (Optimal)	Scenario III (Maximum)
1A, 2A, 3A, 4A, 5A	1B, 2B, 3B, 4B, 5B	1C, 2C, 3C, 4C, 5C	1D, 2D, 3D, 4D, 5D

Improving the development status of villages located in conservation areas in each scenario will depend on the availability of budget, human resources, and time. Improvements in village development status can be achieved by increasing the leverage attribute on the dominant variable. The leverage attribute is also used as a reference in preparing village development activity plans for the next few years. Table 7 illustrates the status of village development sustainability from the existing condition to the maximum scenario. The current status of village development is 44.20, falling into the less sustainable category. Based on a scenario I (minimum), village development can be increased to 50.16, which falls into the fairly sustainable category. In scenario II (optimal), the status of village development can be increased to 54.50, and in Scenario III (maximum), the status of village development can be increased to 59.98.

Table 7. Sustainability index for village development located in the Bukit Rimbang Bukit Baling conservation area according to the minimum, optimal, and maximum scenarios

No.	Dimensions	Sustainability Index Value			
		Existing	Scenario I (Minimum)	Scenario II Optimal)	Scenario III (Maximum)
1	Environment	51,29	55,42	59,49	65,93
2	Social	44,83	50,42	54,61	59,45
3	Economy	30,63	41,70	48,39	55,72
4	Law and Governance	41,24	46,02	48,09	48,92
Composite Index		44,20	50,16	54,50	59,98

The status of village development based on the village development scenario along the Subayang River in a conservation area can be upgraded from the currently existing conditions. Changes in index values for each dimension of village development for each scenario are shown in the following Figure 3:

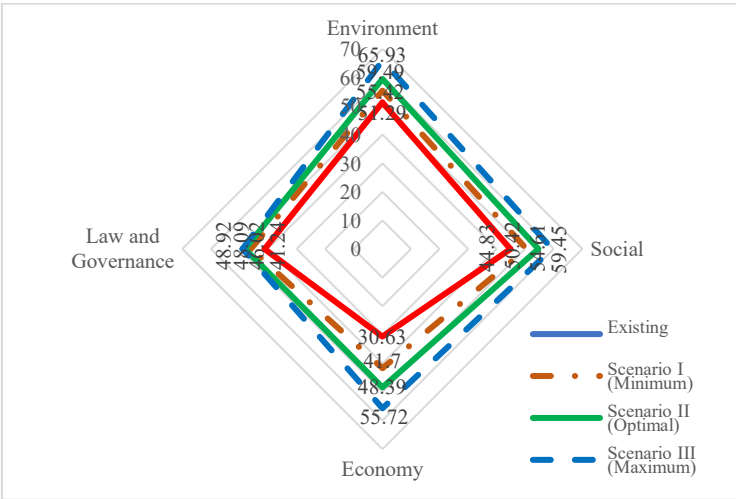

Figure 3. Results of participatory prospective analysis variables/attributes of village development scenario kite diagram of village development model

4. CONCLUSIONS

Based on the identification of the variables/attributes that determine the sustainability of village development in the Bukit Rimbang Bukit Baling Wildlife Reserve area in Kampar Regency, 15 variables/attributes have been found that have leverage. These variables/attributes include (1) amenity resources, (2) village community awareness of the environment, (3) population emigration, (4) culture and education, (5) community empowerment, (6) level of village community financial literacy, (7) village electrification, (8) the role of BUMDesa and BUMDesa Bersama, (9) basic service facilities and infrastructure, (10) village connectivity, (11) utilization of communication tools and the internet, (12) land cases, (13) government commitment to financing village development, (14) policies to minimize land conversion, and (15) integration and synergy of village development. Furthermore, based on these variables, a participatory prospective analysis was carried out involving village development stakeholders in the Bukit Rimbang Bukit Baling Wildlife Reserve area in Kampar Regency which resulted in an agreement that the dominant variables that have influence and dependency in increasing village development include (1) Village connectivity, (2) Basic service facilities and infrastructure, (3) community empowerment, (4) Amenity resources, (5) integration and synergy of village development. Intervention in these dominant variables in the minimum, optimal and maximum scenarios can improve the status of village development in the Bukit Rimbang Bukit Baling Wildlife Reserve area from less sustainable to good/quite sustainable.

The limitation of this research is that the group of participants involved consists of village elites, NGOs, and conservation managers at the site level. Further research needs to be carried out with participatory prospective analysis involving broader stakeholders at regional and national levels.

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