

The Role of Village Fund in Local Economic Development through Revamping the Bah Biak Waterfall Ecotourism Area

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ABSTRACT

The Village Fund (VF) drives local economic growth by fostering ecotourism development. This study investigates the impact of the VF program on Local Economic Development (LED) in the Bah Biak Waterfall Ecotourism area, located in Sidamanik Sub-district, Simalungun Regency, North Sumatra. The VF program aims to enhance community income, create employment opportunities, and improve the productive capacity of rural communities. We use a purposive sampling method to collect data from 64 households out of 174 in the area. Critical indicators of LED, including local employment, household income, and expenditure, were analyzed using paired sample t-tests to compare conditions before and after using the VF. The results indicate a significant increase in local employment, household income, and expenditure following the utilization of the VF. This research underscores the importance of community participation in all stages of program activities, from planning to evaluation, and highlights the need for enhanced involvement in monitoring processes. The findings contribute to understanding how the VF can effectively support local economic development and provide recommendations for future ecotourism package development that integrates local resources and attractions. Future studies will focus on developing integrated ecotourism packages that combine multiple attractions and activities in the region, such as the panorama of tea plantations, Arabica coffee farming, creative economics based on beekeeping, and educational tourism related to sustainable practices.

Keywords: ecotourism, local economic development, participatory planning, sustainability, village fund

INTRODUCTION

Local Economic Development (LED) is a participatory stage between communities, local governments, and private institutions to create employment opportunities and a sustainable economy (Huda, 2020). Regional development policy aims to create new job opportunities through a favorable business environment (Trinajstić et al., 2022). The LED aims to increase the regional economic capacity and quality of life (Swinburn & Murphy, 2005) and increase local competitiveness by utilizing

available resources (Huda, 2020). The LED model can be optimal if the village government, Village-Owned Enterprises, public sector, private sector, and academia collaborate to build a sustainable local economy (Haridison et al., 2022).

LED is a collaborative mechanism that local governments and community-based organizations use to improve productive activities and employment opportunities. The primary purpose of LEDs is to create local job opportunities (Swinburn & Murphy, 2005; UN-Habitat, 2005) to improve community welfare

(Romanik & McClellan, 2007; Storper et al., 2019; Trinajstić et al., 2022), and using local resources (Storper et al., 2019). LED is process-oriented: developing new institutions and alternative industries, improving workforce capacity, identifying new markets, transferring knowledge, increasing local competitiveness and investment, and improving local infrastructure (Alburquerque, 2004).

Local economic development strategies in agrotourism areas can be implemented well through cooperation between communities, practitioners, and the government (Mahanani et al., 2021). LED is a cooperation process between public, business, and non-government sector partners for economic growth and employment (Swinburn & Murphy, 2005). Research in Purbalingga Regency found that there are six aspects of LED through the tourism sector: use of local potential, ease of access, strategic location, increased innovation, and strengthened collaboration, sustainable agenda, facilitation of tourism-based local business development, and good governance and management (Huda, 2020).

LED strategies can be implemented to improve tourism activities. Tourism is an economic sector that positively impacts the community to achieve sustainable regional development (Allawi, 2022). Tourism contributes directly and indirectly to the improvement of the development of rural areas (López-Sanz et al., 2021). Several experts develop the supporting arguments. Tourism significantly affects economic growth (Firdaus et al., 2021). Tourism empowers communities and enhances economies. Sustainable tourism development policies and the improvement of tourist destinations significantly impact achieving sustainable tourism goals (Khan et al., 2021). Tourism activities are strategic in destination development (Hassan et al., 2022).

According to Wijijayanti (2020), rural tourism is a potential sector for improving the economy of rural areas. Tourist destinations can be a driver of community empowerment and local economic sustainability. Developing tourism destinations in rural regions prioritizes

the potential of available resources. Tourism is an economic activity that has a solid capacity to drive the local economy. Tourism development is directly related to economic development (Parrilla-González, 2021). Nevertheless, the weakness of agrotourism development is the need for more business planning and development (Mahanani et al., 2021). Therefore, one of the functions of local government is the development of village institutions suitable for the tourism sector (Firdaus et al., 2021).

Ecotourism is one type of tourism that has developed significantly at the local and regional levels. Ecotourism is a potential activity in the local economic development (Zingi et al., 2022). Waterfall tourism can help increase economic potential and support development, including business opportunities, income, and employment (Amrita et al., 2022).

Many scientists have conducted several studies on the impact of tourism sector development on the welfare of rural communities. Some of them as references are tea plantation tourism objects (Aulia, 2021), the development of the Tebing Breksi tourist area using CBT (Nurwanto, 2021), the development of a tourism village (Wahyuni & Susilowati, 2020), ecotourism development and local community empowerment (Fiscal Policy Agency of the Ministry of Finance, 2018), the potential of waterfalls as natural tourism (Rahman & Citra, 2018), and agro-industry-based LED strategies to increase sustainable agrotourism (Mahanani et al., 2021).

Research on waterfall tourism has in previous studies are improvement of tourism facilities and infrastructure in Putuk Truno Waterfall in East Java (Krisnamurti et al., 2022) and spatial analysis of Andawe Waterfall Tourism area development in Konawe Regency (Taufik et al., 2023). Cebu and Susada (2022) research the attractiveness of Mantayupan Waterfall in the Philippines in the context of tourism development sustainability. Rahman and Citra conducted research on the characteristics and potential levels of waterfalls in Sukadana-Bali (2018). The low potential of waterfall attractions is due to access to

waterfalls, inadequate attractions and accommodations, and management of tourist attractions.

Research on the economic value of Entoba Waterfall tourist destinations in West Kalimantan concluded that the function of the regional government is to assist local communities in designing and managing waterfall tourism objects by improving access to destinations and other supporting facilities (Saputra et al., 2021). Creative activities like the Kecak Blasinga-Gianyar-Bali dance performed at Blasinga waterfall are a breakthrough in promoting tourist attractions. The activity involved cooperation between village officials and local communities (Amir & Semadi, 2021). Walimbo et al. (2017) researched the area's carrying capacity, the potential of flora and fauna, and the perceptions of visitors and local communities in Wiyono Waterfall-Lampung.

Community empowerment programs at Penikit Waterfall and Hot Spring in Badung-Bali Regency help increase economic potential, especially business opportunities, income, and employment (Amrita et al., 2022). Studies on visitor perceptions of waste handling in the ecotourism area of Mount Salak Endah (Cigamea and Kondang Waterfall and Hot Spring) show positive achievements, and tourists wish to handle the waste through a deposit method (Yulia et al., 2022). Bukit et al. (2022) offer digital marketing of Bah Biak Waterfall in Simalungun, expecting a positive result on tourist objects and a significant increase in tourism development.

The allocation of VF is one of the Indonesian government's policy instruments to increase rural community development (Ernawati et al., 2021). Since 2015, many productive village activities have utilized Village Funds (VF). One of the productive sectors carried out is tourism activities. The VF is allocated from the State Budget regulation of Law Number 6 of 2014 about Villages. According to Law Number 6 of 2014, VF's objectives are (1) to increase the quality of public services in villages; (2) to decrease poverty; (3) to enhance the rural economy; (4) to

overcome development program imbalances in rural regions; and (5) to increase the capacity of communities as rural development actors. Generally, the impact of VF on socioeconomic conditions at the local level shows varying results between villages. Several research results become references, including the impact of VF on poverty, expenditure, and unemployment rates (Handra, 2022), the effectiveness of village funds (Maulana & Suryaningrum, 2019), the study of village funds related to village-owned enterprises, employment opportunities, and infrastructure (Fiscal Policy Agency of the Ministry of Finance, 2018). The use of VF has a positive role in the welfare level of the rural community (Firmansyah et al., 2020; Khasanah & Marisan, 2022; Saraswati, 2023). In addition, VF contributes to reducing rural poverty and unemployment (Marsela, 2021; Arham & Hatu, 2020; Manurung et al., 2022; Saraswati, 2023; Sigit & Kosasih, 2020).

However, various problems still need to be solved using VF funds for productive activities in rural areas. The VF was criticized for its design and implementation aspects (Watts et al., 2019). The VF has not been utilized optimally (Ash-Shidiqqi & Wibisono, 2018), so some programs have not been realized (Suharyono, 2020). According to Sigit & Kosasih (2020), formulation, strengthening supervision, and increasing innovation must be improved in the VF policy.

The results of these previous studies generally reveal VF's role in increasing income and community empowerment. The research is essential and contributes to (1) the improvement of certain stages of VF management and (2) besides income, using broader PEL indicators analysis, namely household expenditure and local employment.

The main purpose of the study is to evaluate the role of the VF in facilitating local economic development through the enhancement of the Bah Biak Waterfall Ecotourism area. The research aims to assess the impact of VF on key economic indicators such as local employment, household income, and community expenditure while also examining

the effectiveness of community participation in the planning and implementation processes of VF initiatives. The research contributes to the importance of community participation in managing VF and practical recommendations for policymakers and local governments on improving the management and allocation of VF.

METHODOLOGY

The research object is the ecotourism area of Bah Biak Waterfall in Bah Biak Village, Sidamanik Subdistrict, Simalungun Regency, North Sumatra, from March to May 2022. The research location was chosen based on considerations of a waterfall ecotourism area in this village that has been managed since 2005. In 2017, based on the village deliberation deal, it was agreed that the VF supported improving management and facilities in the Bah Biak Waterfall Ecotourism (BBWE) area.

Nagori Bah Biak consists of five hamlets. Hamlets 1, 2, and 5 are hamlets that have been directly affected by the development of the BBWE area. The number of residents in Hamlets 1, 2, and 5 of Bah Biak Village is 174 households. We have used purposive sampling to select 64 diverse samples to ensure a comprehensive understanding. The distribution of the samples is 21 households in Hamlet 1, 22 households in Hamlet 2, and 21 households in Hamlet 5. These samples represent the various roles of the residents who are directly involved in the BBWE area's development, including culinary and non-culinary businesses, toilet and changeroom rentals, janitors, ticketing, and parking attendants. The data collection method combines Focus Group Discussions (FGD) and interviews. The FGD collects data and information on the planning and management of village funds. Meanwhile, in-depth interviews compile data and information about LED indicators using questionnaires.

The management mechanism in developing BBWE areas in planning, implementation, and monitoring are analyzed

descriptively. The indicators of LED analyzed are local employment, income, and household expenditure. The role of the VF in LED was analyzed by comparing three LED indicators before and after using VF in the development of the BBWE area using a paired sample t-test. The t-statistics on paired sample t-tests are calculated by the following formula (Huntsberger & Billingsley, 1973; Saragih, 2018):

$$t = \frac{\bar{d}}{s_x}$$

$$s_x = \sqrt{S_x^2}$$

$$S_x^2 = \frac{1}{(n-1)} \sum (d_i - \bar{d})^2$$

Where \bar{d} is the average difference in income, expenditure, or absorption of labor before and after the use of village funds, s_x is the standard deviation of d , S_x^2 is a deviation from d , n is the number of samples, d_i is the difference in income, expenditure, or local employment before and after the use of VF for all sample.

The use of VF through tourism activities is declared to play a role in LED if at least one indicator shows a significant difference before and after using village funds. A significant difference is characterized by a t-statistic value greater than the t-table value or a Sig<0.05. Operationally, data processing for paired sample t-tests uses Statistical Package for Social Science (SPSS 24).

RESULTS AND DISCUSSION

Bah Biak Village and Surrounding Areas

Bah Biak Village is one of 14 villages in the Sidamanik Sub-district, Simalungun Regency, that receive VF transfers. This VF is allocated to empower and develop BBWE. This program aims to improve the capacity of Bah Biak Village residents to enhance the rural community's economic level. Economic inequality in rural communities is influenced by inaccuracies or utilization of VF that impact

rural communities. The village government acts as a facilitator in using VF, which aims to improve community welfare.

Bah Biak Village has allocated part of the VF to develop the BBWE area since 2017. BBWE area has been managed since 2005, with management funds from community participation. In 2017, with a suggestion from the village facilitator and discussed in village deliberations, part of VF was allocated to improve the management of the BBWE area.

Geographically and administratively, Bah Biak Village is located in the Sidamanik Subdistrict, Simalungun Regency [Figure 1]. Bah Biak Village has a population of 870 people (389 men, 491 women) or 397 households. Bah Biak Village was a division of Bah Butong Village in 2002, located on the border of the Sidamanik subdistrict with the Pamatang Sidamanik subdistrict. The height of Bah Biak waterfall is about 20 meters, where the water falls directly into the pool built by the manager. The BBWE area is about two hectares. The BBWE area is surrounded by Bah Butong tea plantations owned by PT. Perkebunan Nusantara

4 and Arabica coffee people's plantation. The location is 35 km (60 minutes) from Pematang Raya, the capital of Simalungun Regency; 29 km (45 minutes) from Pematangsiantar City; and 150 km (200 minutes) from Medan City.

According to a previous study (Bukit et al., 2022), marketing and information on the area, signage, and information boards for tourist areas must be improved. The cleanliness of the area could be improved. Garbage is scattered in the area, and each business owner needs to provide adequate trash cans (Riza et al., 2021).

The BBWE area has economic, ecological, and comparative advantages. Nainggolan et al. (2019) concluded that based on calculations using the travel cost method, the economic value of the BBWE area was obtained at Rp225,486,072/year. The ecological advantage of this area is that it is located in and around state-owned plantation areas, namely the Bah Butong and Tobasari tea plantations, PT. Perkebunan Nusantara 4. Inside the tea plantations, natural tourist attractions have been developed that are crowded with visitors, especially on holidays.

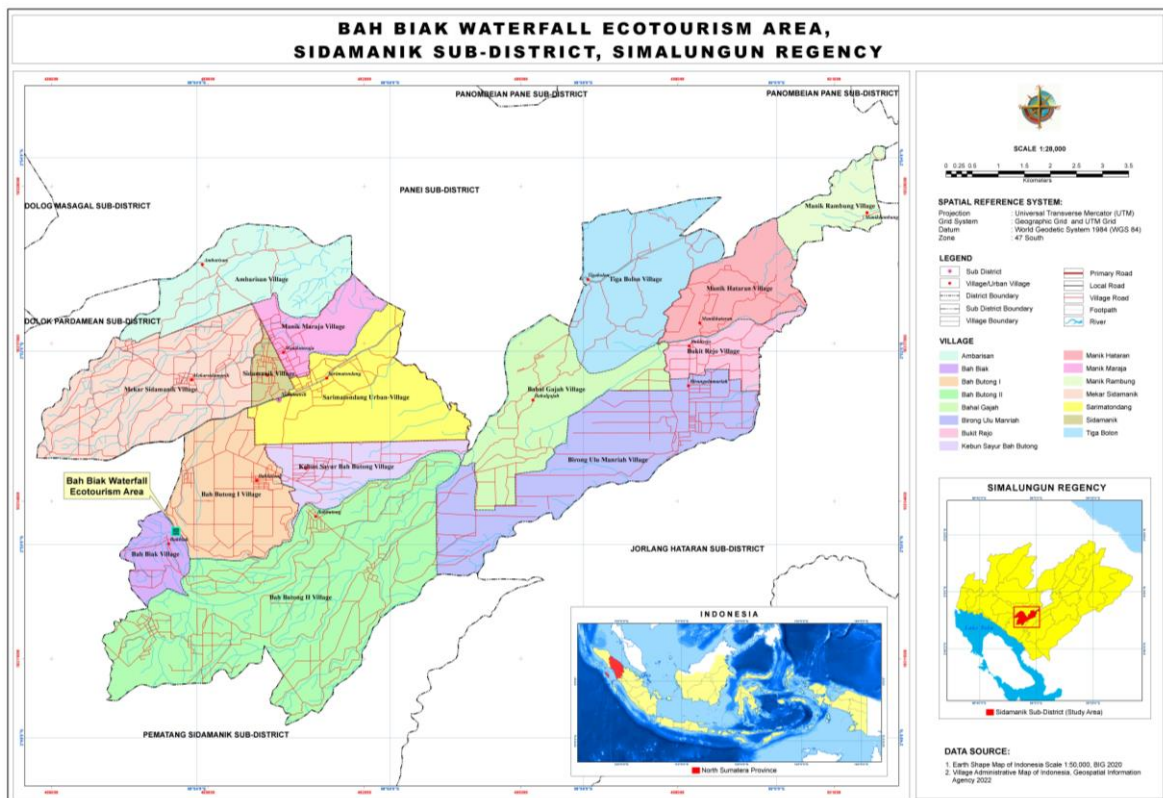


Figure 1. Bah Biak Waterfall Ecotourism area, Sidamanik Sub-district, Simalungun Regency

Around the BBWE area, there are also hundreds of hectares of arabica coffee plantations, which are some of the best specialty arabica coffee in the world. Several cafes with Arabic coffee variants taste great, including Baren Coffee & Roastery, Buttu Coffee, DJ Café, Hangat Coffee Shop, Tataring Art Space, Saabas Roastery Home, Kedai Ngopi SOC, Halus Kasar Coffee and Brewing, Black Luwak Coffee Shop, Ara Coffee, Kopi Klasik, and many others. Based on this potential, it is interesting to consider a study on developing ecotourism packages that combine the BBWE area with panoramic views of tea plantations, education tourism in Arabic coffee plantations, and creative economies in beekeeping.

In addition, in this region, several other interesting natural objects can be included in a tour package for a one-day trip. These natural attractions include Bah Damanik Bath, Simatahuting Natural Bath, Takoma beekeeping, Juma Tidahan Resort, Panorama Indah Sipintuanguin, Bukit Indah Simarjarunjung, Pinus Hill, Salsabila Hills, Simarjarunjung Rest House, Panatapan Simarjarunjung, and several Lake Toba beach tourist sites in Tigaras and Sipolha, Simalungun Regency.

Sample Characteristics

The sample variation is characterized by two main profiles: age and business type. Most of the sample was relatively young, 56% between 20-40 years old. The rest are 44% of the population aged 41-60 [Figure 2]. Meanwhile, in terms of the type of activity, 44 sample people carried out culinary and non-culinary businesses. The rest are toilet rental businesses, changeroom rentals, cleaners, ticketing officers, and parking attendants [Figure 3].

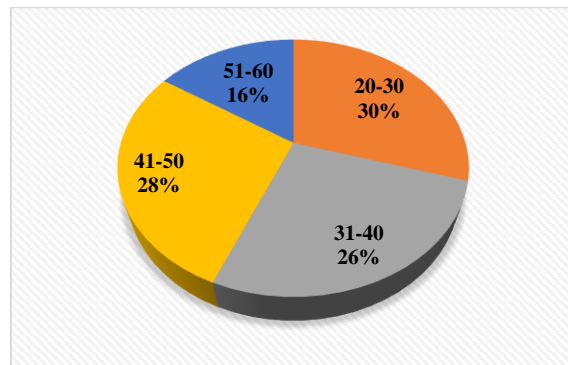


Figure 2. Distribution of samples by age

Management of VF

Village development planning documents are detailed in the Village Medium-Term Development Plan (RPJMDes) and Village Development Work Plan (RKPDes). RPJMDes are legalized by village regulations, and the RKPDes in the village head (Pangulu) decree are based on the regional regulation (*Perda*).

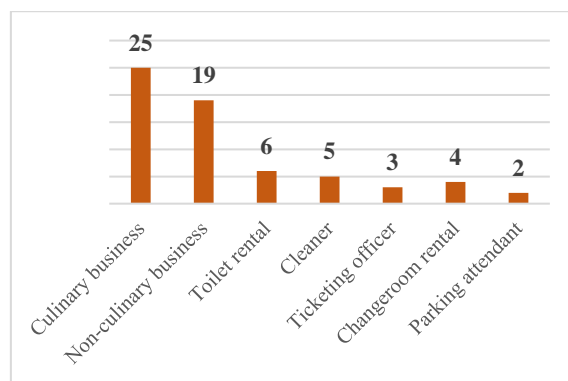


Figure 3. Sample frequency distribution by business type

Preparing village development plans by involving the community in deliberation was also carried out in Bah Biak Village. The VF planning process in Bah Biak Village has used community aspirations, as shown by community involvement in the hamlet and village deliberations. Village communities participate in identifying existing problems, including alternative solutions and the rural potential. The VF program planning gradually applies the concept of participatory development through participation, responsiveness, and transparency. The aim is to increase the capacity of rural communities through village development

planning deliberative forums (called village musrenbang).

Village musrenbang is a program planning forum implemented by public institutions, namely village governments, in collaboration with the village community and other stakeholders. Village Musrenbang aims to increase the villagers' understanding of the village's potential and sources of financing.

Village musrenbang was held to prepare a Village Development Program Plan (*RKP Desa*). After the determination of the Village RKP document, the preparation and determination of the Village Revenue and Expenditure Budget (*APB Desa*) is continued. These two documents are united and are prepared based on deliberation and consensus. RKP Desa and APB Desa become documents and public information conveyed to the community. The RKP Desa document then becomes input for preparing APB Desa with budget sources from VF, Village Original Income (*PA Desa*), community self-help and participation, and other non-binding financial sources.

The VF planning refers to the policy in Regulation of the Minister of Home Affairs of the Republic of Indonesia Number 113 of 2014 about the Management of Village Financial. Village governments, supervisory bodies, religious leaders, traditional leaders, community leaders, education experts, and other stakeholders participated in discussing the draft use of village funds. The deliberation aims to discuss the draft of the activities of the village government (*RKP Desa*), whose funding is from

VF. RKP Desa deliberations set priority programs supported by the VF.

The village government annually compiles a List of Proposed Activity Plans (*DURK*) based on direct observations at the research site. Preparing the DURK has involved the community by proposing activities to the head of the hamlet (*gamot*) conveyed in the village workshop. A chart of the management mechanism and use of VF for the improvement of the BBWE area and recommendations for future improvements is presented in Figure 4.

Improved Monitoring and Evaluation

Based on village deliberation, the VF is focused on developing village infrastructure. The next focus is the improvement of the BBWE area. The planning, management, and implementation of activities to enhance the BBWE area have been going well. Nevertheless, there are two areas for improvement in planning and using village funds: the quality of village government human resources and the need for coordination between government stakeholders (village-subdistrict-district). Technical guidance and relevant training can improve the quality of village officials' resources. Based on interviews with village officials, the problem faced is the difficulty in arranging accountability for the next stage of village fund disbursement. Meanwhile, better coordination between internal stakeholders can help implement village fund utilization programs. Poor coordination, among others, often causes approval of village fund transfers to village accounts to be late.

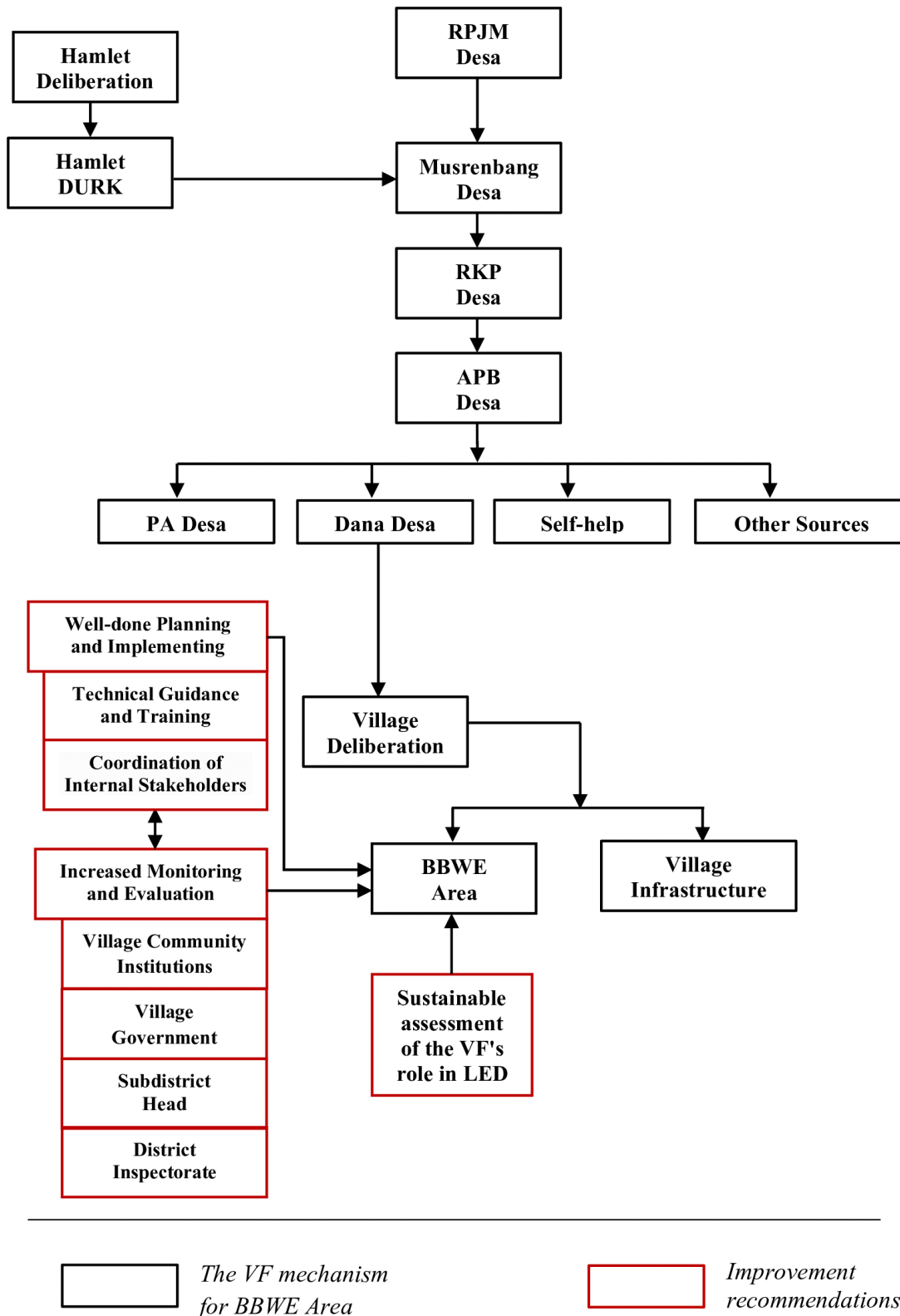


Figure 4. The process of using VF in the improvement of the BBWE area (Source: Interview Result, 2022)

Community involvement in monitoring and evaluation stages needs to be improved in the following program. Some aspects that need to be improved in the supervision and evaluation stage are (1) village community institutions are involved in supervision and evaluation; (2) the village government conducts checks on village financial management (3) the sub-district conducts guidance and supervision of village government implementation, including village fund management; and (4) the functional supervisory apparatus of the Simalungun Inspectorate conducts supervision based on current regulations.

Lack of accountability and supervision causes the use of village funds to be less optimal (Ash-Shidiqqi & Wibisono, 2018). The

supervisory function plays an essential role in village management in preventing misuse. Therefore, supervision must be strengthened to minimize village officials' and government institutions' political interests (Sugiharti et al., 2021). Misuse of village funds can be prevented through the internal supervision system of the village apparatus, appropriate compensation, and the competence of the managers (Wahyudi et al., 2022). Competence, leadership, internal supervision, and external monitoring from village officials affect the credibility of village fund management (Diansari et al., 2023). Therefore, Hartojo et al. (2022) recommended a review of the VF formula to reduce rural region development gaps in Indonesia.

Table 1. The difference in household income, expenditure, and employment

LED indicator	Income (IDR/month)	Expenditure (IDR/month)	Employment (person/business)
Before 2017	800,000 (105,785.05)	1,727,344 (314,961.54)	1.25 (0.44)
After 2017	1,302,343* (104,816.43)	2,066,406* (331,669.02)	1.83* (0.75)
Sig. (2-tailed)	0.000	0.000	0.000

Notes: *significantly different at level $\alpha = 1\%$; the number in parentheses is the standard deviation
 Source: Data Analysis (2022).

The Role of VF on LED

The role of VF is assessed using a paired sample t-test to determine the difference between average income and expenditure and local employment before and after using VF (before and after 2017). If the sig value (2-tailed) < 0.05 , then income, expenditure, and local employment significantly differ after using VF, and vice versa. If the three indicators differ significantly, VF significantly increases household income, expenditure, and local employment. The paired sample t-test results for three LED indicators before and after using VF are described in Table 1.

Table 1 presents that the average income before 2017 was IDR800,000/month. The sig value of the income indicator (0.000), which is smaller than 0.05, shows that the income of people who participate directly in the development of the BBWE area increases significantly after using VF

(IDR1,302,343/month). In other words, using VF plays a significant role in increasing community income. This study confirms Aulia (2021), which states that the Bah Butong tea plantation tourist object significantly impacts income, household consumption, and the type of work of micro business actors. Previous studies found that tourism development positively impacts increasing household income (Nurwanto, 2021; Wahyuni & Susilowati, 2020). The VF allocation significantly impacts reducing poverty rates in rural regions (Marsela, 2021). In contrast, research in the Hulu Sungai Tengah Regency found that VF does not significantly reduce the open unemployment rate, poverty rate, and Gini ratio (Maulana & Suryaningrum, 2019).

Household expenditure before using VF is IDR1,727,344/month. If the sig value is smaller than 0.05, household expenditure increased significantly after using VF

(IDR2,066,406). Thus, using VF plays a significant role in increasing household expenditure. Based on consumption theory, consumer spending will increase with household income. Similar to income and expenditure, local employment increased significantly after using VF. The sig value for this indicator (0.000) is less than 0.05. Although the increase was slight, from 1.25 people to 1.83 people per business, VF significantly increased local employment.

In addition to increasing employment in the business sector, the development of infrastructure in the BBWE area also absorbs a relatively large workforce. The number of workers who participate directly in the development of the BBWE area has increased from 597 person-days in 2017 to 946 person-days in 2018 [Table 2]. Increased employment is a community member working to construct facilities and infrastructure in the BBWE area. The facilities that have been built are art buildings, safety fences, parks, toilets, ponds, and bridge repairs. Employment decreased in 2020 due to the Covid-19 pandemic. The use of VF for the BBWE area has also decreased drastically due to VF's reallocation and refocusing policy to direct cash assistance to the village community.

In this case, income and expenditure increased among people who work in the BBWE area, namely food and beverage sellers, swimming equipment sellers, toilet and changing room services, cleaners, entrance counter attendants, and car and motorcycle parking attendants. In addition to working as business owners in the waterfall area, some also work as employees in the Bah Butong tea plantation, Sidamanik Subdistrict.

The development of facilities and infrastructure of the BBWE area also impacts increasing labor absorption from 2017 to 2020. The construction of facilities and infrastructure in this area includes the construction of small ponds around the waterfall, a park, a safety fence, and art buildings. In this regard, Arisandi

et al. (2000) recommend priority programs in the development of waterfall natural tourism, namely the development of tourist attractions, road infrastructure development, business capital assistance, the construction of supporting facilities and infrastructure, and the development of environmentally friendly businesses.

Contributions and Future Study

This research contributes as a suggestion to the utilization of VF for various productive activities in rural areas. Community participation in planning, implementation, monitoring, and evaluation is the key to the success of activities that use VF. An essential aspect of tourism-based local economic development is that local communities are actors and target groups (Huda, 2020). The success of tourism development must be connected to the community's active role and government support (Nurwanto, 2021).

This study emphasizes the importance of increasing community participation in the monitoring and evaluation stages. The district government is responsible for improving road access to BBWE area. The crucial aspects of tourism-based local economic development are accessibility and strategic location (Huda, 2020). The dominant factors affecting the low level of waterfall tourism potential include more access to the location (Rahman & Citra, 2018). The supporting variables for improving water tourism are the quality of tourist attraction, accessibility level, tourism facilities, community welfare, tourism infrastructure, tourist satisfaction, and integration with the environment (Gustin & Koswara, 2018). In the context of waterfall ecotourism development, previous research found three aspects that need attention: tourist satisfaction (physical carrying capacity), ecosystem balance (ecological carrying capacity), and tourist comfort and safety (fundamental carrying capacity) (Walimbo et al., 2017).

Table 2. Local employment in business and development of the BBWE area

Year	Use of VF (IDR)	Local employment	
		Business (person)	Infrastructure development (person-days)
2014	-	64	-
2015	-	90	-
2016	-	85	-
Average before 2017	-	80	-
2017	223,732,520	145	597
2018	354,779,580	182	946
2020	24,000,000	25	64
Average after 2017	200,837,367	117	536

Source: Data Analysis (2022).

CONCLUSIONS AND RECOMMENDATIONS

The research demonstrates that the VF significantly impacts local economic development in the Bah Biak Waterfall Ecotourism area. The analysis reveals that implementing VF initiatives has substantially increased local employment opportunities, household income, and community expenditure. These findings underscore the effectiveness of VF as a tool for enhancing the economic well-being of rural communities, mainly through the promotion of ecotourism.

Moreover, the study highlights the critical role of community participation in managing and utilizing VF. Active involvement of the local community in the planning, implementation, and evaluation stages of VF projects not only foster a sense of ownership but also ensures that the initiatives align with the actual needs and aspirations of the community. This participatory approach is essential and makes the community feel valued and integral to the process, thereby maximizing the benefits of VF and achieving sustainable development outcomes.

The research also identifies several areas for improvement in managing Village Funds. It emphasizes the need for more substantial supervision, enhanced innovation, and better formulation of programs to address existing challenges and optimize the use of funds for productive activities. The study advocates for ongoing community engagement in monitoring

and evaluation processes to ensure transparency and accountability.

The study contributes valuable insights to the body of knowledge on rural development and ecotourism, providing empirical evidence of the positive impacts of VF on local economies. This contribution offer practical recommendations for policymakers to enhance the effectiveness of VF initiatives, thereby supporting sustainable economic growth and improving the quality of life for rural communities.

Future research is encouraged to explore VF investments' long-term effects and develop integrated strategies that combine ecotourism with other local economic activities, ensuring a holistic approach to rural development. For practical purposes, the further study focuses on the development strategy of an ecotourism package that combines the Bah Biak Waterfall ecotourism area, the panorama of Sidamanik tea plantations, and educational tourism related to the creative economy in beekeeping in Arabica coffee plantations.

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