

Sustainability assessment of economic recovery program in post disaster area at Susup Village, Central Bengkulu, Indonesia

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Abstract. This article addresses the sustainability of post disaster assistance program for economic recovery in the context of the 2019’s Flood and landslide in Bengkulu Province by presenting an analysis of its sustainability (e.g., Exit Strategy) of the economic recovery program. The purpose of this sustainability assessment were: first, to ensure that that the program will continue to run even though the program will be ended; and second, to ensure the process of business still running and the member of business group take initiative to have better motivation towards a better situation and increased their income. Data was gathered through Focus Group Discussion (FGD) and analysed using Multi-Dimensional Scaling (MDS) approach. Based on the MDS analyses for all dimensions was resulted an index of 58.88%, meaning that the program was "moderately/sufficiently sustainable" for the business groups in Susup Village, Merigi Sakti District, Central Bengkulu

1 Introduction

Bengkulu Province experienced massive floods and landslides that caused loss of life and properties on 27 April 2019. Data on disaster rehabilitation plan [1] regarding vulnerable villages, the number of village at Bengkulu which are prone to floods and landslides are 1.523 villages. At Central Bengkulu district itself, percentage of area prone to landslides reached 59.23%.

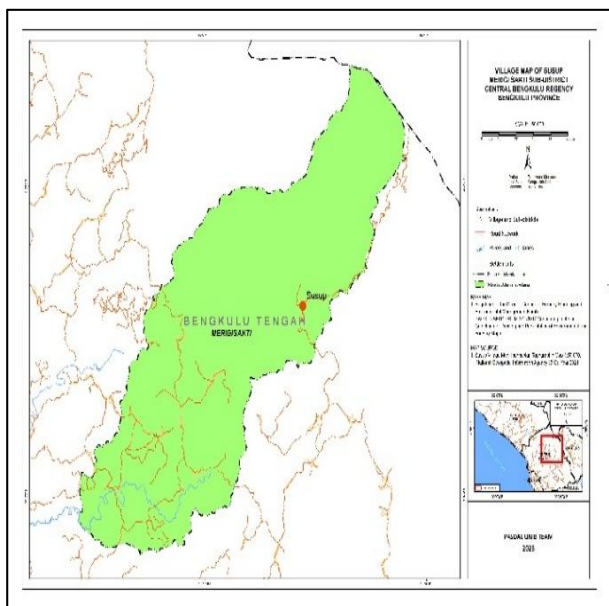


Fig. 1. Location of the study site.

Table. 1. Extent of 2019 Flood and Landslide at Bengkulu (2019).

No	Impacts of the Disaster	Number of Disaster Victims
1	Number of Deaths	24
2	People Missing	10
3	Number of Injuries	4
4	Houses Damaged	44
5	Houses Flooded	125
6	Schools Damaged	5
7	Schools Flooded	4
8	Road Sections Flooded	5
9	Severely Damaged Fishing Facilities	1

The 2019 Flood and Landslide Disaster has had fundamental short and long term social and ecological effect. The most damaged area was at Merigi Sakti sub-District, Central Bengkulu. Some immediate relief efforts has been taken place for the needed community and rebuilding the damaged infra-structure has also been performed. Among many villages, Susup village was then selected as based on the potency of natural resources to be used for economic recovery [2]

Directorate Recovery and Enhancement of Economic, Social and Natural resources (PPESDA), National Disaster Management Agency has run the program of community empowerment for economic recovery of affected area in collaboration with the University of

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Bengkulu. The program has been conducted from 2021 to 2022 including forming two farmer groups, assisting technical skill for productive use of natural resources, making marketable product e.g., Coffee and Ginger, as well as submitting legal production certificates (IPRT and halal). The question of whether the program is effective or not and it will be sustain for years to come were always come up on every assistance program, even though some positive example in the strengthening of local capacities has been accomplished and can be describe as “less vulnerable and better prepared” [3] and for small forest enterprises (SFE) at social forestry program [4, 5]

2 Methods

The purpose of this article is to present findings about current situation and changes in the village that were affected by the 2019 Flood and Landslide Disaster. The study was taken place at Susup Village, Merigi Sakti Sub-district, Central Bengkulu, and situated at the upstream of Air Bengkulu Watershed, one hour and a half drive from Bengkulu City. The term sustainability is often used as a synonym for sustainable development, which describes sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their needs alone [6, 7]. Identify in the concept of sustainability as the interdependence of the three pillars of sustainability, namely economic, social and environmental [8]. Thus, management Sustainability aims to achieve, within the company, both objectives ecological, social and economic [9, 10]. Further, [11] has included the concept of sustainability in the political realm, whose role is to mediate needs and regulate behaviour actors related to economic, social and environmental aspects.

Multidimensional scaling method (MDS) with Rapfish approach is a development of the rapfish method for assessing status sustainability [12]. According to Fauzi [13] Rapfish/MDS principles can be used in situations as follows: 1) analyze multidimensional, namely those related to economic, ecological, social, institutional and so on, 2) Assessing the state of sustainability (state of sustainability) of a system or economic activity. 3) Assessing the “position” unit of analysis in a dimension (e.g., economics) relative to other dimensions (e.g. environment) in the context of sustainability determine Variables or attributes can be leveraged for sustainability, and 4) Assessing sustainability with information (data) based "judgments" that exist. This activity will also result in the establishment of a delivery path program among others in the form of 1) Mainstreaming, 2) Further funding, 3) The enterprise route, and 4) Project closure

The Assessment activity was conducted through the FGD method with participant from all stakeholders consisting of 1) Susup Village officials, 2) BPBD Central Bengkulu, 3) Merigi Sakti Sub-District officials, 4) Agriculture Service Central Bengkulu, 5) “Disperindagkop” Central Bengkulu, 6) Village Community official, 7) Central Bengkulu District Health Office, 8) “Bapelitbangda” Central Bengkulu, 9) Regional Research Council (DRD), 10) Central Bengkulu Food

Security Agency, 11) PT PLN: Indonesia Power, PLTA Musi, 12) Facilitator, and 13) LPPM UNIB Assistance Team.

Based on FGD activity, assessment of sustainability attribute (economic, social and environment) then been scored and analysed using MDS which can visualized in two dimensions and then calculated with reference of sustainability index (Table 2).

Table 2. Sustainable index value [14].

No	Index Value	Category
1	0-25	Not Sustainable
2	26-50	Lack of Sustainability
3	51-75	Sufficiently Sustainable
4	76-100	Sustainable

3 Results

Table 3. SWOT of sustainability dimensions.

Dimension	Internal		External	
	S	W	O	T
Ecology a. Raw material availability b. Continuity of resources e.g. Ginger c. Environment degradation	v			v v
Economy a. Farmer group has been established b. Production skill of member group is limited c. Limited experience on trading d. High demand on product coffee and ginger e. Market competition f. Familiarity of Coffee product	v	v v	v v	v
Social a. Motivation of member group b. Assistantship program c. Group empowerment still weak d. Low educational background e. High daily coffee consumption f. Millennial coffee growing	v v	v v	v v	
Technology a. Availability of equipment b. Far away from market place c. Internet connection weak d. Production house sub standard e. Transportation infrastructure	v	v v v v		
Legal a. Support from BNPB b. Various Local government program c. Many event for UMKN			v v v	

Strategic issues that have been identified serve as a basis for identification of internal factors and external factors related to ensure business continuity in this program. The sustainability of economic activity of farmer group is largely determined by internal factors and external factors of the group. Internal factors consist of strengths and weaknesses such as the availability of raw materials, cooperation of group members and others. External factors consist of opportunities and threats such as government policies, natural disasters, and others. Identification of these factors for ensuring the sustainability of a business activity in farmer group is very important. The relation between sustainability dimensions and internal-external factors is depicted at Table 3.

Calculation on MDS analysis for five dimensions of sustainability shown in Table 4.

Table 4. Sustainable value on each dimension.

Dimension	Value	Stress	RSQ	Note
Economy	58.01	0.147	0.95	sufficient
Ecology	56.86	0.197	0.91	sufficient
Social	57.06	0.177	0.92	sufficient
Technology	61.01	0.157	0.94	sufficient
Legal	61.48	0.168	0.93	sufficient

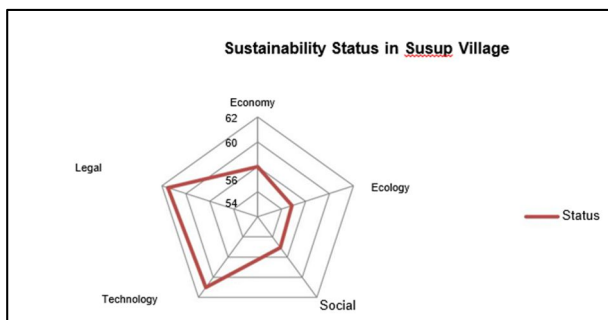


Fig. 2. Net diagram of sustainability status in Susup Village, Central Bengkulu.

The result of this sustainability assessment was based on the Internal Factor and External factors itself. Dimension of Ecology and social showed lower value than legal, technology and economy, meaning that dealing with environment and social possess more challenges to handle within community empowerment.

Data shows that the environment in Susup Village is facing significant damage or degradation due to the disaster. Therefore, ecologically focused recovery measures, such as environmental restoration and natural resource management, must be a top priority to maintain sustainability. The low level of the social dimension indicates that social support, community resilience and social recovery may require special attention. This may include psychosocial programs for disaster victims or efforts to strengthen social networks in the community.

The analysis results show that the legal dimension has a higher value. This shows the importance of the legal framework in post-disaster economic recovery. In this context, it is essential to ensure that existing regulations support sustainable economic recovery. Technology can play an important role in economic recovery, especially in

increasing efficiency and innovation. Thus, developing technological infrastructure, training, and access to technology is a priority. The economic dimension has a high value, indicating that economic recovery is essential. Business planning, entrepreneurship training, and economic diversification are solutions to increase economic sustainability after the program in Susup Village.

Sustainability is also important for small business profitability and long-term growth. Effective strategy increase sales, investment and financial assistance, diversity and workforce productivity, employee motivation, and company visibility [15, 16].

The Susup coffee and ginger business group must also innovate products and services to suit customer needs better and always look for new ways to improve product or service quality and create added value. Improve the Quality and Competitive Advantage of their products to maintain customer trust. Branding must also be done by creating a strong brand image to attract customers using digital marketing strategies and social media to increase business visibility.

The following strategy is income diversification because it can help reduce business risks and increase long-term profitability. The Susup coffee and ginger business group must start implementing wise financial management by learning good financial management and always considering having sufficient financial reserves to overcome uncertainty, whereas in small forest enterprise (SFE) interconnected market systems, appropriate price regulation and support from stakeholders can facilitated sustainable NTFP-based activities [17]. Motivation is the main force in assisting this business group [18]. This strength able to overcome weaknesses both socially and economically to access business development programs. Human Resource Development must follow motivation by investing in employee training and development to have the skills necessary to operate the business efficiently, and management needs to create a work environment that supports growth and innovation.

In developing business sustainability, Collaboration and Partnerships are also important things to do by building cooperation with suppliers, partners or other organizations that can expand the reach and capabilities of their business. Strategic partnerships can help accelerate growth and increase profitability. Multi-party involvement in sustainable business assistance, facilitating business licensing, connectivity with various regional government programs in the Central Bengkulu district and helping to increase access to capital and markets are essential parts that must be done for sustainability.

By integrating these sustainability strategies, Susup coffee and ginger business groups can increase the profitability of their small businesses while ensuring sustainable long-term growth.

4 Conclusions

Based on the study, two farmer groups which produce coffee and ginger have proven able to enhance economic

recovery in disaster affected areas. Based on sustainable analysis, the highest sustainable aspect are the legal and technology, whereas the least sustainable aspects are the environment and social aspects. For the development of Coffee and Ginger enterprises, several factors need to be considered. These include activities that provide continuous raw material for production, market reach, commitment and motivation of chairperson and members, village regulation that govern operation and the presence of assistance scheme, quality and competitive advantage, branding, good financial management, commitment and motivation of chairman and members, human resource development, village regulations governing operations and the existence of assistance schemes, as well as collaboration and business partnerships.

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