

Does Simantri Matter In Economic Sustainability? A Study From Agricultural Sector In Bali, Indonesia

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Abstract

The Integrated Agricultural System (Simantri) is one of the Bali Provincial Government's flagship programs to increase the agricultural sector's role in supporting Bali Mandara. Simantri encourages the sustainability of Bali's economic life, which until now the majority of Balinese people still depend on agricultural sector. The purpose of this study is to provide analysis and determine the level of sustainability of the Simantri program and determine scenarios and formulate recommendations and strategies for the sustainability of Simantri program. The method used is to analyze using MULTIPOL. The result of the research is the level of sustainability of the Integrated Agricultural System (Simantri) in Tabanan Regency is effective because most of the people make a living as farmers. The strategy for Simantri sustainability by giving tool training socialization, group development activities, providing the assistance of capital, build the infrastructure rehabilitation, drafting and structuring related regulations, and optimizing companion roles

Kata Kunci:

Ekonomi;
Keberlanjutan;
Pertanian; Sistem
Pertanian Terintegrasi

Abstract

Sistem Pertanian Terpadu (Simantri) merupakan salah satu program unggulan Pemerintah Provinsi Bali untuk meningkatkan peran sektor pertanian dalam mendukung Bali Mandara. Simantri mendorong keberlangsungan kehidupan perekonomian Bali yang hingga saat ini mayoritas masyarakat Bali masih bergantung pada sektor pertanian. Tujuan penelitian ini adalah untuk memberikan analisis dan menentukan tingkat keberlanjutan program Simantri serta menentukan skenario dan merumuskan rekomendasi dan strategi keberlanjutan program Simantri. Metode yang digunakan adalah dengan menganalisis menggunakan MULTIPOL. Hasil penelitian untuk mengetahui tingkat keberlanjutan Sistem Pertanian Terpadu (Simantri) di Kabupaten Tabanan yang tergolong efektif karena sebagian besar masyarakat bermata pencaharian sebagai petani. Strategi keberlanjutan Simantri dengan memberikan sosialisasi pelatihan alat, kegiatan pengembangan kelompok, pemberian bantuan modal, membangun rehabilitasi infrastruktur, penyusunan dan penataan peraturan terkait, dan optimalisasi peran pendamping

INTRODUCTION

Agriculture is one of the dominant sectors in people's income and has an important role because the majority of Indonesia's population works as farmers (Dewi et al., 2017). Furthermore, the Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2020) stated that from a production perspective, agriculture is one of the main contributing sectors to the economy that is capable of supporting the Indonesian economy. The success of the performance of government and related institutions and agencies in economy is measured by the resulting of economic growth (Afif et al., 2021).

Indonesia is an agricultural country, where the agricultural sector is the main livelihood for most the people (Nawangsih, 2022). Agricultural operations involve human attempts to manage the land, water, plants, and animals that humans can raise to meet their daily food and energy demands, so they can live healthfully in accordance with growing civilization and socio-cultural ideals. The economy of a country is said to be growing and developing if in each region there is an even distribution of economic activity (Andriansyah et al., 2021), one of which could be seen from the role of the agricultural sector is significant in improving the community's welfare.

Bali is one of the provinces in Indonesia which's the regional economy is still dependent on the agricultural sector. As many as 22.4 percent of the population still works in agricultural sector. In Bali, the percentage of agriculture, forestry, and fishery sectors is in second place at 14.92 percent after the accommodation and food and drink provision sector at 22.82 percent. This distribution shows that the economy of Bali Province is still based on the agricultural sector (Bali Province in Figures, 2016).

To bridge the gap between industrial development and agricultural transformation, Bali Provincial Government has started by implementing the Integrated Agricultural System (Simantri) between agriculture, animal livestock, and fisheries. This integration is developed through farmer intermediaries who are members of the Association of Farmers Groups (Gapoktan). The Integrated Agricultural System, or Simantri has become a model for regional agricultural development in Bali Province. Regional leaders fully support Simantri program through the vision and policy of planning the regional strategic development program, named "Bali Mandara" (Safe, Peaceful, and Prosperous Bali). Simantri is basically the integration of vertical and horizontal agricultural activities at local level, starting from planning process, policy formulation to implementation. Agricultural diversification was also built to support the Simantri institution. The Simantri program idea was implemented in 2008-2013 and continued in 2013-2018 (Regional Secretariat of Public Relations Bureau Bali Province, 2013).

In terms of agriculture, Simantri is a comprehensive integration activity that encompasses food crops, secondary crops, horticulture, livestock, fisheries, plantations, and forestry plants in a single place. The community's efforts to enhance agriculture in rural regions are through Simantri's activities, according to empirical research and studies conducted in a number of sites about Simantri's operations in Tabanan Regency. There is a lot of hope for the welfare of farmers and rural areas. The purpose of this research is to provide analysis and determine the level of sustainability of the Integrated Agricultural System (Simantri) program, determine scenarios and formulate recommendations and also strategies for the sustainability of Integrated Agricultural System (Simantri) program.

The development of the number of Simantri Gapoktan for 2009-2018 period has reached 652 Gapoktan in 9 regencies/cities in Bali Province. The number of aid funds disbursed during this period reached more than 80 billion rupiahs, originating from Bali Provincial Budget and CSR (Bali Province of Agriculture and Food Security Service, 2020). One of the districts that received assistance from Simantri program was Tabanan, which was dubbed the rice barn in Bali (Dananjaya et al., 2014). Tabanan has the second largest growth of Simantri Gapoktan after Buleleng Regency from 2009-2018, as much as 115 gapoktan. During nine years of growth in number of Simantri Gapoktan in Tabanan Regency, there were 15 inactive Gapoktan. Conditions and problems in the development of Simantri technology in rural areas due to not optimally exploiting the potential of human resources, low incentives due to not implementing technology recommendations and farming systems that are integrated, effective and efficient (Andita et al., 2019). Furthermore, I. G. A. N. Dananjaya (2018) in his research stated that until now there are still many obstacles faced by the Simantri farmer group in Tabanan Regency, such as the continuity of agricultural assistants or extension workers in providing input to farmer groups, how to properly manage the Simantri group, and how to raising cattle to get good results. In the process of carrying out Simantri program, there are also many obstacles to achieving success, such as the lack of human resource capabilities in managing program, some Gapoktan has not been able to process and market fertilizer products so they only cooperate with other Gapoktan in the form of raw waste (Darmayasa, 2014).

Apart from this, there are a number of things that have not been well identified regarding the effectiveness of Simantri on the attitudes and behavior of Gapoktan members. Papadopoulos & Markopoulos (2015) research state that the main factor of the level of implementation of integrated agriculture depends on the subsidies provided by the government. As is known, based on these findings, it is assessed that there has not been a more comprehensive review of aspects of sustainable agriculture, especially those related to farmer productivity in the Simantri program. Therefore, this study aims to design a strategy to accelerate the sustainability of the Simantri program in Tabanan Regency which is able to embrace all stakeholders in their strategic role as related parties with the aim of empowering the competence of farmers and the lives of local communities.

METHOD

This research was carried out in 6 (six) months, starting with identifying the characteristics of farmers in Gapoktan, the characteristics of stakeholder interests which in the prospective analysis are called actors, as well as variables that are important and considered for the sustainability of Simantri program. The research design is in the form of a sequential explanatory method used to explain and interpret quantitative results by collecting and analyzing follow-up qualitative data (Creswell, 2014). Data was collected through Focus Group Discussions (FGD) with relevant stakeholders, to obtain comprehensive information on research variables. The analysis in this research uses prospective structural analysis. The structural analysis method is very useful as a support for decision-making, operational planning, determining the impact of a strategy, and evaluating alternatives going forward and is operated in matrix form (Ariyani et al., 2019). Structural analysis consists of three stages, the first is composing or identify variables, as well as relationships between variable, and the analyzed for

identify key variables (Fauzi, 2019). The first two stages were carried out during the FGD and the third stage was carried out using the MULTIPOL application software. The data collected from the distribution of questionnaires to the sample is useful as a material for consideration and comparison of data from the FGD results which are then analyzed using the MULTIPOL analysis technique. Fauzi (2019) explains that MULTIPOL integrates a participatory approach through stakeholder involvement into a multi-criteria assessment. Furthermore, evaluation of alternative actions or programs is not only based on the criteria used, but also the interaction of three components, namely actions, policies, and scenarios.

The results of data analysis discussed again by comparing theories and concepts, as well as field conditions according to the results of the analysis. Furthermore, the findings will be obtained as a result of research and the research objectives. This research was conducted in Tabanan Regency, which was taken purposively with the consideration that Tabanan Regency was number 2 (two) with the most Simantri programs. The data in this study are divided into primary data and secondary data. Primary data were obtained directly from respondents using questionnaire, interview, and FGD techniques. While secondary data is obtained from related agencies, such as the Department of Agriculture and/or related government agencies. Data collection can be done on a sample or part of the population, through distributing questionnaires, FGDs, and interviews. The study sample was 115 Gapoktan as saturated sample and related elements were added in 19 respondents. To answer the research objectives, MULTIPOL analysis will be used in management and development of the agricultural industry as a Simantri program, it is necessary to study the right strategy to ensure the sustainability of the Simantri program in Tabanan Regency.

MUTLIPOL requires criteria input to be used when assessing scenarios, policies, and actions. Completion of components will be carried out through the matrix of the three inputs with predetermined criteria. The criteria describe measurable aspects based on the assessment (judgment) of stakeholders. MULTIPOL integrates participatory approach into multi-criteria principles so that the MULTIPOL framework is based on gathering information from stakeholders through reciprocal Focus Group Discussions (FGD), as shown in Figure 1.

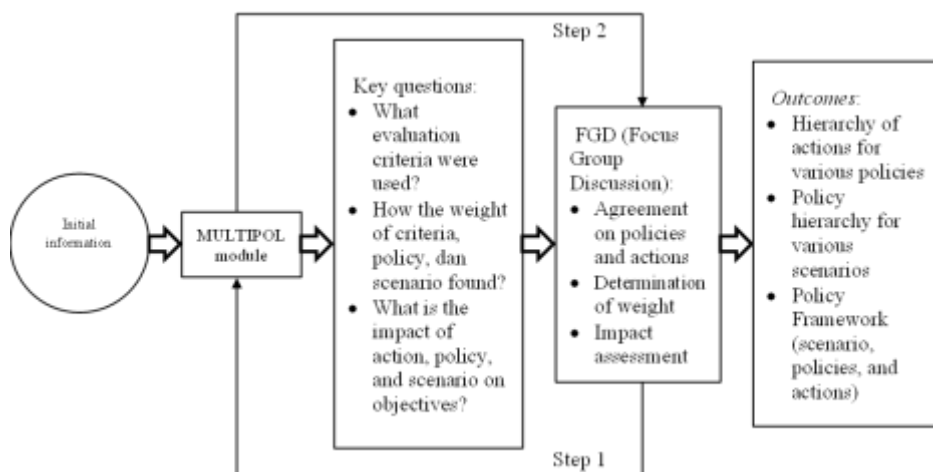


Figure 1 MULTIPOL Framework (modified from Stratigea, 2013)

Source: Fauzi, 2019

RESULTS AND DISCUSSION

Based on the results of FGD, scenarios, criteria, policies, and actions can be drawn up in relation to the sustainability of SIMANTRI in Tabanan Regency, as detailed in Table 1.

Table 1. Scenarios, Criteria, Policy, and Action for Simantri Program Sustainability Analysis

A	Scenario	Code
1	Holistic (Simantri livestock and agriculture)	holistic
2	Specific (Simantri livestock)	specific
B	Criteria	Code
1	Improved economy and farmer's income	economy
2	Growing group activities (micro-enterprises: organic pesticides, biogas)	groupwork
3	Labor absorption	labor
4	The growth of new business creativity (dried chili, chili powder)	creative
5	Nature/environment conservation	conserve
6	Fulfill the needs of food, feed, fertilizer	needs
7	Preservation of customs and culture (subak)	culture
C	Policy	Code
1	Land and water policy	waterland
2	Strengthening institutions and regulations for protecting nature, customs, and culture	institute
3	Policy on fertilizers, seeds, and tools	input
4	Yield purchase policy	brand
D	Action (program)	Code
1	Tool training socialization	socialize
2	Group development activities	coaching
3	Providing capital assistance	capital
4	Infrastructure rehabilitation	infra
5	Drafting and structuring of related regulations	regulation
6	Optimization companion roles	companion

Source: Data Processed, 2023

The outcomes of MULTIPOL study based on the mean scores, standard deviations, and scores for each policy are shown in Table 2 below. The standard deviation value illustrates the sensitivity of each action to the policy, whereas the average score represents how well each action performs overall against the policy (or program versus the policy) (Fauzi, 2019).

Table 2. Evaluation Based on Actions and Policy

Actions	Policy				Mean Value	Standard Deviation	Position
	Waterland	Institute	Input	Brand			
Socialize	8.2	4.5	10.7	8.7	8	2.2	1
Coaching	11.4	14.6	11.1	9.9	11.8	1.7	4
Capital	11.9	11.2	12.1	12.3	11.9	0.4	5
Infra	9.1	7.8	7.9	10.9	8.9	1.3	2
Regulation	9.9	11.7	9.3	8.6	9.9	1.1	3
Companion	12.9	9.6	15	13.1	12.7	1.9	6

Source: Data Processed, 2023

As shown in Table 2, the highest scores were obtained in optimizing the role of companion, providing capital assistance, and group development activities. Furthermore, Figure 2 presents the results of MULTIPOL in the form of a closeness map or the closeness between programs (actions) and policies (policy). Figure 2 shows that the yield purchase policy (brand) is closer to the infrastructure rehabilitation action (infra). Furthermore, the land and water policy (waterland) or fertilizer, seed, and tools policy (input) is closer to the action of providing capital assistance (capital), optimizing the role of companions (companion), and socializing equipment training (socialize). For policies to strengthen institutions and regulations for the protection of nature, customs, and culture (institute) tend to be closer to the preparation and arrangement of related regulations (regulation) and group development activities (coaching).

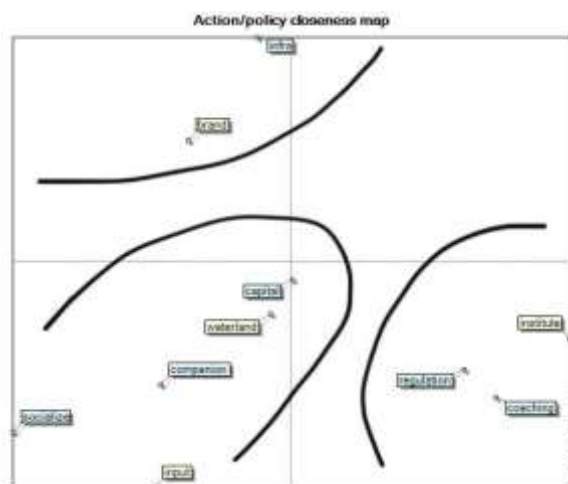


Figure 2 Linkage of Policy and Action (Closeness Map)

Source: Data Processed, 2023

MULTIPOL also produces a profile map that links scores for each program (actions) with policies (policy).

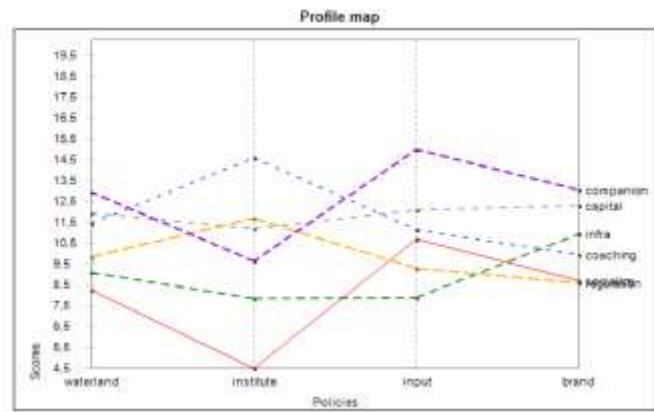


Figure 3 Profile Map of Simantri Program Sustainability Analysis

Source: Data Processed, 2023

As shown in Figure 3, the companion role optimization program (companion) excels in three of four types of policies. This is so that rural communities can increase productivity, particularly when using technology to support Simantri activities. Meanwhile, for institutional strengthening policies and regulations for nature, customs, and culture protection (institute), group development activities (coaching) a program with a higher score than other programs. This should be understood because providing group development activities supported by professional companion is needed periodically for the sustainability of the Simantri Gapoktan activities with various zero-waste-based activities holistically (Simantri livestock and agriculture) and specifically (Simantri livestock). Furthermore, Table 3 and Figure 4 present the scores for each policy against the scenario.

Table 3 Policy Score Against Scenario

Policy	Holistic scenario	Specific scenario	Average value	Standard deviation	Position
Waterland	14.4	13.3	13.9	0.6	2
Institute	13.1	18.8	15.9	2.8	4
Input	13.5	14.4	14	0.5	3
Brand	16.5	9.9	13.2	3.3	1

Source: Data Processed, 2023

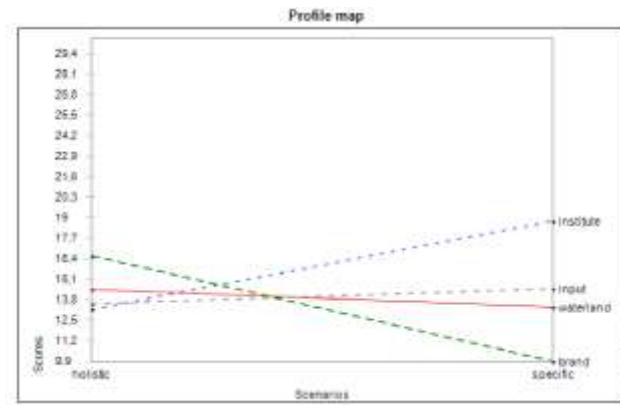


Figure 4 Profile Map for Policy Against Scenarios

Source: Data Processed, 2023

Table 3 and Figure 4 show that yield purchase policy (brand) is superior in holistic Simantri scenario (animal livestock and agriculture). Meanwhile, policies for strengthening institutions and regulations for protecting nature, customs and culture (institute) and policies for fertilizers, seeds, and tools (input) have the highest scores in the specific Simantri scenario (animal livestock). The strategy of bolstering institutions and laws for the protection of nature, customs, and culture (institute) comes out on top when the average value of the two scenarios is considered, followed by the policy of fertilizers, seeds, and tools (input).

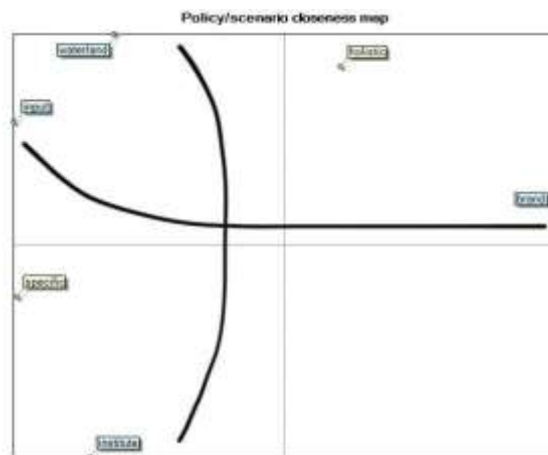


Figure 5 Closeness Map between Scenario and Policy

Source: Data Processed, 2023

As shown in Figure 5, land and water policy (waterland) and fertilizer, seed, and tool (input) policies can be implemented in both holistic scenario 1 (Simantri livestock and agriculture) and scenario 2 specific (Simantri livestock). Meanwhile, institutional strengthening policies and regulations for protecting nature, customs, and culture (institute) only excel in implementing specific scenarios and yield purchasing policies (brand) only excel in holistic scenarios. The overall results of the MULTIPOL analysis can be presented in the form of potential policy paths that can be achieved with appropriate programs for certain policies and scenarios.

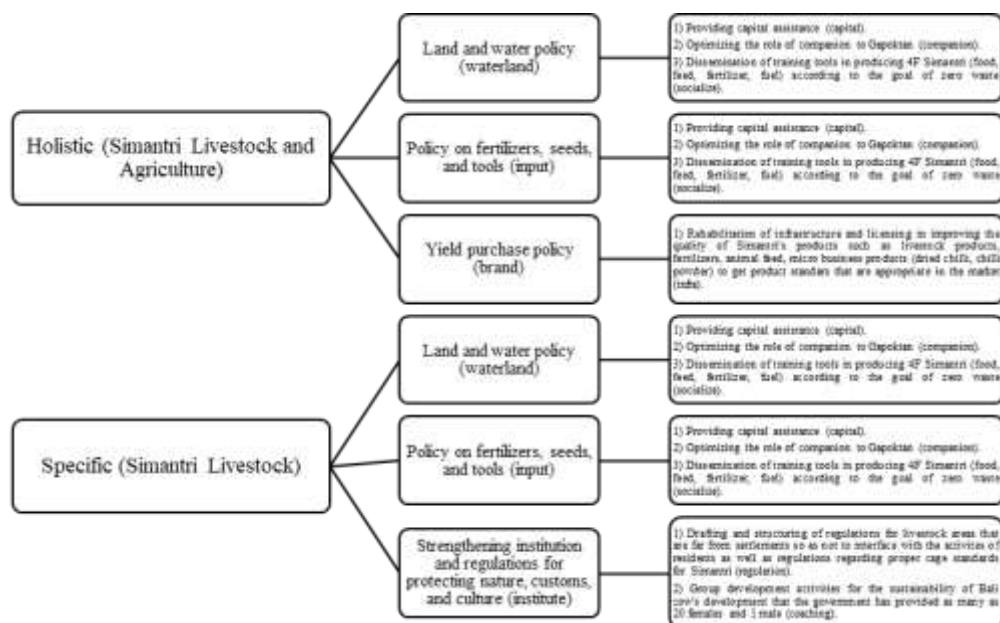


Figure 6 Potential Policy Paths and Recommendations for the Simantri Sustainability Program

Source: Data Processed, 2023

Figure 6 presents the potential policy paths that can be taken through various programs (actions) that are in accordance with the policy. For land and water policies (waterland) and fertilizer, seeds, and tools (input) policies in both holistic scenarios (Simantri livestock and agriculture) and specific scenarios (Simantri livestock) with the programs pursued are to provide capital assistance (capital), optimize the role of companions (companion), and socialization of tool training (socialize). A distinct policy is yielding purchase policy (brand) that is only suitable for a holistic scenario (Simantri livestock and agriculture) with an infrastructure rehabilitation program (infra). Then for the strengthening of institutions and regulations for the protection of nature, customs, and culture (institute) that are only suitable for specific scenarios (Simantri livestock) with a program for the preparation and arrangement of related regulations (regulation) and group development activities (coaching).

The commitment of regional leaders for the sustainability of Simantri program development, among others by funding support, building supporting facilities, subsidizing organic fertilizers to Bali Organic and Bali Clean and Green, supporting the financing process through livestock loans and synergizing Simantri's production activities with other sectors in meeting the needs of the agriculture products from Simantri. The Simantri concept in addition to empowering the interrelationships between the functions of each activity, also encourages the use of agricultural and livestock waste to become a supporting component of integration at Simantri group level. This activity is oriented towards zero waste farming and produces 4F (food, feed, fertilizer, and fuel). Several research results related to Simantri in Bali Province, especially in Tabanan Regency, show that the application pattern of crops-livestock integration in the Simantri location has a support of local government programs can have an effect on the development of group business activities, employment, and the provision of food, feed, organic fertilizers and pesticides, biogas, and other necessities at the Gapoktan level as well as for

commercial interests. The potential, opportunities, and policy support in the implementation of Simantri activities are expected to be forerunners of the regional agricultural sustainability sector development program towards an integrated energy agriculture system for food self-reliance and farmer welfare.

CONCLUSION

Based on the results of research that has been done. The conclusion is that the Simantri program can become a policy commitment to regional strategic agricultural development programs in the Province of Bali to support Bali Mandara. This program was implemented as a government effort to reduce poverty, reduce unemployment, and improve the welfare of farmers and rural communities. The integration pattern of food crops and livestock based on food crop agriculture, animal husbandry, plantations, fisheries and forestry in one location for agricultural activities is the basic concept of Simantri's activities. So that agricultural activities based on food crops and livestock businesses can foster dynamics of increased Gapoktan activities. The potential for developing business diversification at the farmer and community levels through Simantri's activities is already available to serve as a leverage point in increasing farmers' income sources. The provincial and district/city governments also took initiatives to create business growth opportunities, increase farmer capacity, and produce marketing to open doors for the creation of profitable companies conducted by Simantri.

The implementation of holistic Simantri (animal livestock and agriculture) and specific Simantri (animal livestock) are both recommended for the implementation of land and water policy and fertilizer, seeds, and tools policy with programs for providing capital assistance, optimizing the role of companions, and socializing equipment training. Especially for holistic Simantri, it is recommended to implement a yield purchase policy by infrastructure rehabilitation program. Meanwhile, specific Simantri recommended the implementation of institutional strengthening policies and regulations for the protection of nature, customs, and culture by running the programs for drafting and structuring related regulations and group development activities). Of course, all relevant parties, especially the government and the community, have a major influence in achieving the potential of policy and program pathways for the sustainability of Simantri in Tabanan Regency.

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