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To cite this article: I K Sumantra and I M W Wijaya 2024 *IOP Conf. Ser.: Earth Environ. Sci.* **1306** 012033

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Coffee Agro-Technopark Development Strategy in Tabanan Regency to Strengthen Agriculture and Tourism Synergism

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Abstract. Tabanan Regency has various superior agricultural commodities, including coffee plantations and potential tourist attractions. Tabanan's agriculture and tourism sectors have not been fully exploited, so the two have not yet run synergistically. Planning for an agro-technopark (ATP) is expected to create a production area based on agricultural technology, livestock and natural beauty. The ATP will leverage the potential of upstream and downstream agribusiness, infrastructure, and supporting services in coffee production, processing, and marketing. The research objective was to identify the sub-system of input, process, output, and development strategy of coffee ATP in Munduk Temu, Tabanan Regency. Data collection was carried out in two stages: secondary data collection with document study methods and primary data collection in the field using observation and interview methods. Data were analyzed using SWOT and strategic priority determination using Quantitative Strategic Planning Matrix (QSPM) analysis. The results showed that coffee cultivation with an integrated system supporting coffee ATP in Muduk Temu Tabanan fulfills input, process, and output requirements. Still, the quantity and quality of each sub-system need to be improved. The strategic position of coffee ATP development is in quadrant I (SO Strategy). Strategic priorities with the highest TAS value: 1) implementing technological innovations for managing pre-harvest and post-harvest Robusta coffee to support product diversification (st5 = TAS 6.94); 2) Policies from the local government in regulation and providing assistance to Subak Abian in supporting the development of ATP Coffee (st1= TAS 6.87); 3) Implementing crop-livestock integration to optimize resource potential (st3=TAS 6.86); 4) Implementing research results and studies based on superior products (st.4 = TAS 6.62). It is necessary to strengthen the institutional synergy between Village Owned Enterprises (Bumdes) managers, Subak Abian, and tourism stakeholders in improving the agricultural sector in synergy with the tourism sector.

Keywords: Develop strategy, technopark, tourism synergys

1. Introduction

The tourism sector is highly contributing to Bali's regional GDP and significantly impacts economic growth. Accommodation services and Food & Beverage (F&B) have a very close linkage to tourism and are the highest contributor in the tourism sector compared with other entities. On the other side, the



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agriculture sector, forestry and fishery have lower regional GDP contributions and tend to decrease over the years. In 2018, according to Bali in Figure 2019, accommodation service and F&B shared 23,34% while agriculture had 13,81% [1]. Other issues come up with the impact of tourism development on the environment, such as changing land use [27], decreased environmental quality [26], over-exploitation, social and cultural issues, and criminals [2,3]. The gap between the agriculture and tourism sector is caused by the unequal profit share from the agriculture sector that used to support the tourism sector.

Consequently, the Balinese lack motivation to improve the agriculture sector [4]. The low farmer regeneration does hamper agriculture development and sustainability. Another issue in the agriculture sector is a massive change in land use [4,27]. Numerous agricultural lands have been transformed into settlements, industrial buildings, tourism accommodations, or any advantageous use [5,6]. The depletion of agricultural land availability affects the provision of food sources [7; 28], high dependency on import products [8], biodiversity loss, a decrease of natural open space, environmental contamination, and interference the local wisdom [9].

The tourism sector is recognized as the highest contributor to the local GDP in Bali Province. The challenge is making this sector align with other sectors so they can grow without sacrificing any sectors [10]. Improving the synergy between agriculture and tourism through a sustainable development model can be one of the long-term solutions. Creating an Agro Techno Park (ATP) is a sustainable development model emphasizing agriculture and tourism's role in supporting each other [11]. ATP is developed to be the centre of entrepreneur incubation, the centre of agricultural science and technology, and also providing an eco-tourism attraction [12].

Tabanan Regency is an agriculturally based area with many agricultural commodities, such as Robusta Coffee. Its plantation is located in Pupuan District, producing about 4.813,06 tons in 2019 [13]. The Robusta development centre is in Munduk Temu Village and is recognized as an integrated agricultural development area with tourism and local wisdom bases. They have three main products: nira, salacca coffee, and coconut [25]. This sector is highly recommended to develop as Agro Techno Park (ATP) in improving the revenue in Munduk Temu village. The development of ATP in Munduk Temu village depends on the involvement of local institutions, stakeholders, and community organizations [14,15]. Referring to the previous research conducted by Sumantra [16], a holistic analysis is needed to support the ATP regarding the planning, policy, and selection of potential products. The reconstruction of biophysics conditions and social and cultural terms must be sustained [26]. Another research by Boy [17] stated that the centralized ATP Kolebere had connected agriculture, livestock, and fishery in an integrated agricultural cycle. It shows that the revenue is significantly increased. The development model of ATP in Munduk Temu Village still needs to be discovered to define the appropriate strategies. This research aims to identify the sub-system input, process, output, and strategy for developing Coffee ATP in Munduk Temu Village, Tabanan Regency.

2. Methods

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This research was conducted in Munduk Temu Village, Pupuan District, Tabanan Regency, on April 2019 to October 2019. The village area is about 1.542 hectares covered with hills topography stretched from the north to the south with 600-700 m height above the mean sea level. The location study is shown in Figure 1. A field observation, in-depth interview, and literature study were conducted to collect the data. Rapid rural appraisal (RRA), participatory rural appraisal (PRA), and qualitative descriptive with a rural approach were used to analyze the collected data. The number of respondents was 34 people, consisting of farmers, community leaders, Bumdes managers, the sub-district head of Pupuan and the Tabanan Regency Research Agency. SWOT analysis and Quantitative Strategic Planning Matrix (QSPM) were also run to define the best strategies in ATP development.

The recommendation of ATP development model is arranged according to the natural resources and environmental potential, agriculture potential, social economic, institution and partners. This research emphasized the development model of ATP, including the community empowerment program in ATP development, the role of the society in the planning and development of ATP, planning the supporting facilities, and encouraging partnership with third parties.

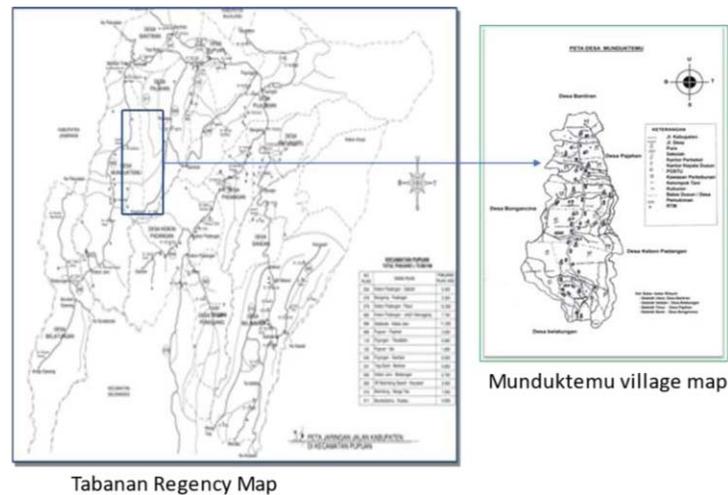


Figure 1. Location study in Munduk Temu Village.

3. Results and Discussion

Munduk Temu Village is located in the Pupuan District, in the Tabanan Regency. It is about 90 km from Denpasar City. The north of Munduk Temu Village is Bantiran village, at the south is Blatungan village, at the east is Pajahan village, and at the west is Bongancina village. The area is approximately 1542 hectares wide, with 85 hectares (50%) of settlement use, 42.59 hectares (3%) of public facilities, 1,384.21 hectares (90.00) of agricultural land, and the forest area is about 30 hectares (2.00%). Munduk Temu Village has six official local communities. They are Munduk Temu Kaja, Munduk Temu Kelod, Anggasari Kaja, Anggasari Kelod, Kebon Jero Kangin and Kebon Jero Kauh.

In 2018, the population of the village of Munduk Temu was 3,897, with 49.45% men and 50.55% women and 1.156 households. The productive population was 2,461 people, and 1,436 non-productive people. The main occupation in the village was dominated as a farmer. Munduk Temu is classified as C2 agro-climatic zones. The average annual precipitation is 2564.96 mm, with the highest precipitation in December at 380.87 mm and the lowest (38.51 mm) in August. The dry season is from June to September, and the rainy season is from October to May. The evapotranspiration (ETP) value is higher than the actual evaporation (ETA) in the months of June, July and August. It is causing a deficit of 20 mm of water in these months. The surplus occurs from September to May for nine months [18]. The average temperature is 22.42°C, the highest in February (23.70 °C) and the lowest in August (21.26°C). The humidity is about 87%. The soil structure with dusty clay, with high organic C content, low soil content, very low K content, and slightly acidic pH [24].

The main plantation in the Munduk Temu Village is coffee beans and salacca. The livestock is goats, local chickens and bees. Currently, there are cattle breeding groups have also been created, which have joined the "Gapoktan" in Anggasari. In addition, domestic industries such as coffee beans, salacca products, and snack or crackers. Those home industries can potentially employ the local community, especially housewives in order to support their children in getting proper education.

Munduk Temu Village has a local farming organization called *Subak Abian*. It is a traditional organization that aims to connect the farmers to share any updated information regarding agriculture technology to accelerate agriculture development. The members of *Subak Abian* are farmers (land owners or keepers). There are three *Subak Abian* in this village, such as: *Abian Subak* Batur Kelamba, *Abian Subak* Batur Ibu and *Abian Subak* Batur Dayang. Those *Subak Abian* play an important role in the development of coffee plantations in this village.

Looking at the art and culture, Munduk temu Village has its own uniqueness in terms of traditional dance called *Rejang Renteng* dance. It is performed by married women by bringing small ceremonial stuff. It also has other art performances, such as *Joged Bungbung* and *Rindik*. *Joged Bungbung* is a traditional dance performed by a woman and is used to invite the viewers to tag along with dance. Munduk Temu Village has some tourist places, such as Monkey Forest at Batur Sakti Temple, a hot spring, and a spiritual attraction at Pucak Batu Gaing Temple. Those attractions are not maintained well due to the lack of facilities and budget. Other tourism experiences that Munduk Temu Village includes coffee bean harvesting and roasting offers. It has quite a large coffee bean salacca plantation that is maintained well by the local community. It becomes one of the reasons why Munduk Temu Village is quite potential to develop as ATP.

Therefore, at the initial stage, it needs a master plan of the ATP according to its potential. The coffee beans experiences that are offered by Munduk Temu Village are shown in Figure 2 below. The master plan of the area of ATP is presented in Figure 3. After the planning, the community insight analysis was conducted to support the ATP planning. The results can be seen in the Table 1.



Figure 2. The coffee beans harvesting and roasting experiences offered by Munduk Temu Village. Foto source: Village Head of Munduk Temu



Figure 3. Site plan of ATP Munduk Temu Village (left) and bird view site (right). Master Plan Design by IB. Wisnu.

Table 1. Community insight regarding ATP Coffee development in Munduk Temu Village (N 34).

Components	Disagree (%)	Fair (%)	Agree (%)
Input			

1	Having the potential in agriculture and livestock to be developed as ATP	-	-	100
2	Sufficient ATP supporting facilities, including shop and outlet	-	65	35
3	Involvement of Higher Education Institution or technical services unit in workshop of coffee beans management	-	20	80
Process				
4	Having the coffee beans processing unit.	-	65	35
5	Low diversification of coffee-based product	-	34	66
6	Having the organization and finance unit	-	20	80
Output				
7	The coffee farmers have got good services from the <i>bumdes</i> or technical services unit.	-	14	86
8	Production of coffee-based products	-	83	17

Table 1 shows that the community is still hesitant about the ATP development project due to a lack of ATP-supporting facilities, infrastructure, such as shops or outlets, and ATP-supporting buildings as proposed. In terms of process, there are problems with the coffee processing unit, although this equipment already belongs to *Subak Abian* Batur Dayang, Banjar Kebon Jero, so it is necessary to arrange a cooperation agreement on its use. In 2018, only the LEAK coffee brand logo was registered as intellectual property in terms of brand copyright, while innovation in the production of coffee-based products was limited to laboratory analyzes such as coffee from coffee leaves, coffee *lanang* products and preparation to register organic coffee production.

3.1. SWOT Analysis

The Internal Factors (IFE) matrix was arranged based on the results of interviews conducted with 34 respondents, including village officials, community leaders, *Pekaseh* (head of *Subak*), *Bumdes* managers, farmer groups, and stakeholders at the district level. The scoring was done by comparing each of the internal factors of the ATP plan to achieve priority stratification. The rating was done by comparing with the actual conditions of the ATP development plan to achieve the main strengths and weaknesses in the ATP development. The results of the internal factor analysis are presented in Table 2.

Table 2. Internal factors analysis results

Internal Factors	Value	Rating	Score
Government Policy in ATP: available	0,09	3,59	0,32
Availability of area and prominent raw materials	0,08	3,21	0,26
Robusta coffee has been certified Geographical Indication	0,09	3,53	0,31
Supporting infrastructure (roads, water, IT): available	0,09	3,50	0,30
Agro- Technopark Site: Strategic	0,08	3,35	0,28
Robusta Coffee Agribusiness: available	0,09	3,50	0,30
Community and business world's motivation in agribusiness	0,08	3,41	0,29
Total Strength Factors			2,06

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Internal Factors	Value	Rating	Score
Community skills in utilizing coffee-based technology: low	0,06	2,32	0,13
Funding for ATP development: less	0,06	2,24	0,12
Market information is not maximized	0,05	2,09	0,11
Applied appropriate technology: Less	0,06	2,26	0,13
Product Quality: low	0,06	2,32	0,13
Institutional management: low	0,06	2,24	0,12
Variant types of coffee products: less	0,07	2,71	0,18
Total Weakness Factors			0,93
TOTAL INTERNAL FACTOR	1,00		3,00

According to the IFE matrix (Table 2), it concluded that the main strength possessed in the development of ATP is a strong government policy both from regulations and assistance in the coffee beans business, with a total score of 0.32. Meanwhile, the main weakness is the lack of product diversification, with a total score of 0.18. Therefore, the total score for the combined internal factor is 3.00, which means that the ATP development plan has strengths and weaknesses that are above the average standard of 2.50. The EFA matrix was prepared based on the results of interviews conducted with 34 respondents, including village officials, community leaders, the head of the *subak*, the *Bumdes* manager, the farmer community, and stakeholders at the district level. The scoring was done by comparing each of the external factors of coffee agribusiness development to achieve priority stratification. The rating is given by looking at the response of ATP development to the opportunities and threats that have been or will be faced. The results of the analysis of external factors are presented in Table 3.

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Table 3. External factors analysis results.

EXTERNAL FACTORS	Value	Rating	Score
Small and Medium Business Credit Provider Institutions: available	0,10	3,74	0,36
Partnerships with Private and Other Parties: available	0,09	3,38	0,29
Subak Abian that supports ATP: available	0,09	3,44	0,30
Universities and R&D in the Study and Development of Coffee: available	0,08	3,29	0,28
Livestock-Coffee-Fruit Crop Integration: very good	0,09	3,38	0,29
Government Assistance: available	0,08	3,29	0,28
Educational and training institutions to increase farmers' skills: Available	0,09	3,41	0,30
Total Opportunity Factors			2,09
Competition with other similar ATP	0,06	2,18	0,12
Constrained in financing	0,05	1,94	0,10
Middlemen who buy coffee from farmers	0,06	2,53	0,16
Pest attacks and old coffee plants	0,05	2,09	0,11
Climate change	0,05	2,12	0,11
Market growth and global competition: High	0,06	2,29	0,13

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EXTERNAL FACTORS	Value	Rating	Score
Agricultural human resources are reduced due to lack of interest in the younger generation for farming	0,05	2,09	0,11
Total Threat Factors			0,85
Total EXTERNAL FACTORS	1,00		2,95

Table 3 shows that the main opportunity factor used in the development of ATP is the availability of credit facilities offered in the village, with a total score of 0.36. Meanwhile, the main threat is the role of middlemen that potentially damage the market, with a total score of 0.16. So, the total score for the external factors is 2.95.

Based on the results of the IFA and EFA analysis, the difference between the total strengths and the total weaknesses was calculated as the equation of $x = 2.06 - 0.93 = 1.13$. The difference in total opportunities against the total threats as: $y = 2.09 - 0.85 = 1.24$.

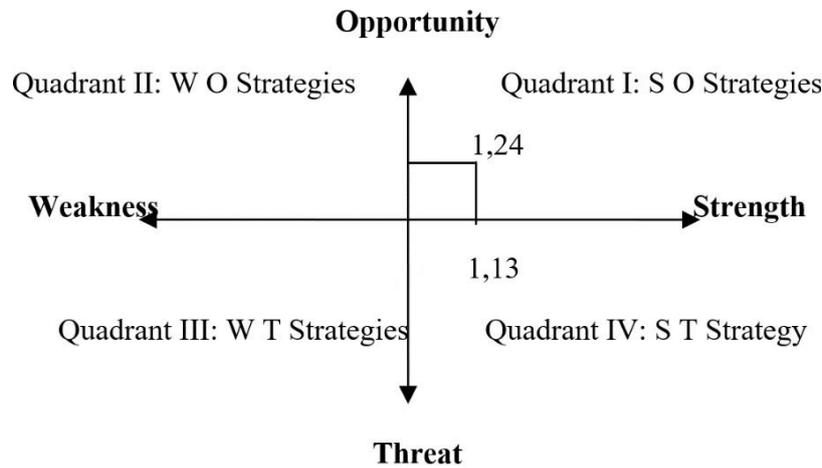


Figure 4. The SWOT Matrix Strategic Position Mapping of Agro-Technopark Coffee.

The coordinate points (1,13, 1,24) in Figure 4 show that the strategic position of Agro-Technopark site management is in Quadrant I with SO strategy. The strategies to optimize the strengths to utilize opportunities include:

1. Strategy 1 (st1) : Local government policies in implementing programs related to providing assistance to *Subak Abian* in supporting the development of Coffee ATP
2. Strategy 2 (st2) : Increase market penetration through mutually beneficial partnerships by diversifying the major commodity-based products with high competitiveness.
3. Strategy 3 (st3) : Agricultural intensification by integrating crop-livestock and fruit crops to optimize the potential of current resources.
4. Strategy 4 (st4) : Involving research institutions and implementing research results and studies based on major products.
5. Strategy 5 (st5) : Enhancing the technology innovations for pre-harvest and post-harvest Robusta coffee management to support product diversification.
6. Strategy 6 (st6) : Utilizing the quality and availability of facilities and infrastructure to integrate agriculture and tourism through coffee ATP

7. Strategy 7 (st7) : Utilizing the support of academic and training institutions as well as research institutions from universities to increase community interest in entrepreneurship through community empowerment programs to improve farmer skills to handle the upstream to the downstream process.
8. Strategy 8 (st8) : Agricultural market development by improving the use of Information Technology in accelerating the integration of agriculture and tourism.

An alternative strategy was selected by using the Quantitative Strategic Planning Matrix (QSPM) method. The QSPM matrix used the scoring value and the attractive Score (AS) value that is assessed by the respondents. Based on these two values, the largest Total Attractive Score (TAS) is the main option for the priority strategy, while the strategy with the smallest TAS value is the last option. The results of the QSPM analysis are shown in Figure 5.



Figure 5. Total Attractive Score based on the Strategy (st1 – st8).

Figure 5 indicated that the first strategic priority was to apply technology innovations for managing pre-harvest and post-harvest Robusta coffee to support product diversification (st5). This strategy is important because, with the major products with various quantities and quality, it will provide opportunities for creating new businesses and other innovations that are marketable. This activity has been facilitated by the Regional Partnership Program Team from the University of Mahasaraswati Denpasar, IKIP Saraswati Tabanan and the Planning and Development Agency of Tabanan Regency with several activities, including: 1. Management training for Bumdes Sari Sedana Munduk Temu; 2. Register the brand of LEAK coffee products; 3. Workshop on coffee grafting techniques; 4. Organic coffee training; 5. Preparation of the Good Agriculture Practices Book [23].

The second strategic priority is local government policy in implementing programs related to providing assistance to *subak abian* in supporting the development of Coffee Agro-Technopark (st1). The results of direct observations in the field showed that several farmer groups had received grants from the Tabanan Regency Government, which were used for the plantation of Robusta coffee. The coffee beans have been distributed to all members of the farmer group for Robusta coffee. To carry out processing activities, the wet method coffee processing unit located in Banjar Kebon Jero is ready to operate and has been equipped with a pulper machine, huller, fermentation/washing tub, drying floor and dryer building. This coffee peeling machine is managed by a cooperative which is a business unit of Subak Abian Batur Dayang, Banjar Kebon Jero. It is hoped that with the assistance of this wet peeler machine, farmers will pick red and the quality of their coffee will be better in accordance with the requirements determined by business partners. In line with the research results of Mubarak [18] that in the development of Petungkriyono Pekalongan as ATP, the Pekalongan Regency government has a clear

direction and has been contained in the applicable laws and regulations. This policy ensures the sustainability of ATP in the area [18].

The third priority strategy is agricultural intensification by integrating crop-livestock and fruit crops to optimize the potential of existing resources (st 3). Coffee plants need organic fertilizer produced by livestock, while livestock needs feed that can be made from coffee grounds. Coffee beans production will generate coffee husk waste, the amount of which depends on how it is harvested. Wulandari [19] found that when picked, red will produce 45% of the total weight consisting of 10% inner skin and 35% outer skin. When picked green, it will produce 21.5% of waste, which is a mixture of the inner and outer skins. The Integrated Farming System model is an approach that is built explicitly between biomass-producing agriculture, biomass processing industry, waste management, water use, energy generation, and soil nutrient conservation so that the integrated farming system is sustainable. IFS provides opportunities to maintain and expand biodiversity. [20]

The fourth priority of the strategy is to involve research institutes and implement research results and studies based on superior products (st.4). The involvement of research institutes and service institutions from universities in technology transfer that has the potential to increase competitiveness is very important [21,24]. From the results of interviews with the village head of Munduk Temu, several universities that helped build Munduk Temu village are Ganesha Singaraja University of Education, Udayana University, University of Mahasaraswati Denpasar, IKIP Saraswati, Bali BPTP and Tabanan Bapelitbang.

The fifth priority strategy is to increase market penetration through mutually beneficial partnerships by diversifying superior commodity-based products with high competitiveness (st2). The sixth priority is to utilize the support of educational and training institutions to increase community interest in entrepreneurship through community empowerment programs to improve the skills of farmers in managing the upstream and downstream. The seventh priority strategy is to utilize the quality and availability of facilities and infrastructure to integrate agriculture and tourism through agrotourism (st6). The eighth is the development of agricultural markets by utilizing Information Technology to accelerate the integration of agriculture and tourism (st8). Building Argo-Teknopark needs a lot of support from the partnerships from several parties, including universities, companies, communities and the government. This partnership was able to increase the production of king fruits, longan, guava, melon and passion fruit by more than 100% and was able to increase the income of the people of Purwosari Semarang [22].

4. Conclusion

Coffee cultivation with an integrated system to support coffee ATP in Muduk Temu Tabanan meets the input, process, and output requirements. Still, the quantity and quality of activities in each component of the system need to be improved. It is necessary to add additional business space, outlets, and ATP supporting buildings from the input side. In the process aspect, it is necessary to add coffee processing units, and in the output aspect, it is necessary to increase the number of innovative products. The strategic position of coffee ATP development in Munduk Temu, Pupuan is in quadrant I (SO Strategy). Two strategic priorities that urgently need to be implemented are applying technological innovations for pre-harvest and post-harvest Robusta coffee management. The second priority needs local government policies in implementing the *Subak Abian* mentoring program in supporting the development of Coffee-ATP. The implications of this research for the development of ATP Coffee are: (1) Local governments provide infrastructure, regulations, and programs in the management of ATP coffee; (2) Improving research activities and technology transfer in increasing coffee competitiveness.

References

- [1] Badan Pusat Statistika (BPS) 2020 Provinsi Bali Dalam Angka 2019 (Bali:BPS)
Link:<https://bali.bps.go.id/publication/2019/08/16/99cd2c6d79aad1a0062dddfc/provinsi-bali-dalam-angka-2019.html>
- [2] Sumantra K, Mahardika M D and Arnawa K 2020 Changes in the function of agricultural land in tourist areas, causes and strategy for mitigation *Enviro Scientiae* vol **16** no 1 pp 62-71.
- [3] Sasmita A, Sudiana A A, Sumantra K, and Wena M 2019 Empowering indigenous peoples in the development of culture based travel destinations. *International Journal of Contemporary Research and Review* vol **10** (2) pp 21267-21272
- [4] Sumantra K 2017 *Pengembangan Agro-Technopark untuk Mendukung Agrowisata Salak Sibetan Berkelanjutan*. Prosiding Seminar Nasional Perencanaan Pembangunan Inklusif Desa – Kota pp 135-141
- [5] Liu Y 2018. Introduction to land use and rural sustainability in china. *Land Use Policy* vol **74** pp 1-4
- [6] Lanya, I, Subadiyasa N, Sardiana K, and Adi G R 2018 Planning of agro-tourism development, specific location in green open space sarbagita area, Bali Province *IOP Conf. Ser: Earth and Environmental Science* vol **123** no 1 p 012038
- [7] Rogerson C M 2012 Tourism–agriculture linkages in rural South Africa: evidence from the accommodation sector *J of Sustainable Tourism* vol **20** no 3 pp 477-495
- [8] Adnyana M, Puja N, and Athagama D M 2017 Evaluation and determination of sustainable land agriculture for prevention of land conversion in Bangli Regency. *Ecotrophic :Journal of Environmental Science* vol **11** no 1 pp 76-80
- [9] Iqbal M and Sumaryanto 2007 Strategi pengendalian alih fungsi lahan pertanian bertumpu pada partisipasi masyarakat *Analisis Kebijakan Pertanian*. vol **5** no 2 pp 167-182
- [10] Primdahl J, Kristensen L S, and Busck A G 2013 The farmer and landscape management: different roles, different policy approaches *Geogr. Compass* vol **7** pp 300–314
- [11] Widowati E H 2013 Potensi agroindustri kopi di kawasan Agro Tecno Park (ATP) Kabupaten Temanggung. *J. Litbang Prov. Jawa Tengah* vol **11** no 1 pp 103-112
- [12] Kementerian Riset Teknologi dan Pendidikan Tinggi 2015 *Pedoman Pembangunan dan Pengembangan Taman Sains dan Teknologi (Science Technology Park)* (Jakarta: Kementerian Riset Teknologi dan Pendidikan Tinggi)
- [13] Badan Pusat Statistika (BPS) Kabupaten Tabanan Dalam Angka 2019 (Tabanan: BPS) Link: <https://tabanankab.bps.go.id/publication/2019/08/16/3af07c32d7b82f664d30a7aa/kabupate-n-tabanan-dalam-angka-2019.html>
- [14] Tolingi W K 2019 Strategic role identification of agro-science technopark management in gorontalo province *Jurnal Manajemen* vol **23** no 1 pp 117-134
- [15] Prawiranegara B M P 2018 *Kajian Model Potensi Ekonomi Industri Masyarakat Berbasis Agro Techno Park (ATP) (Studi Kasus Daerah Trasmigrasi Lokal Koleberes Kecamatan Cikadu Kabupaten Cianjur)* (Bandung: Universitas Padjajaran)
- [16] Sumantra I K, Yuesti A, and Sudiana A A 2017 *Laporan Program Kemitraan Wilayah Desa Munduk Temu dan Desa Pajahan* (Denpasar: Universitas Mahasaraswati)
- [17] Mubarak, Adnjani M D, and Trimamah 2019 *Communication Strategy for Petungkriyono Development Agrotechno Forestry-Park As a Leading Tourism and Nature Conservation Education*. Proc. of The 5th Conference on Communication, Culture and Media Studies (Yogyakarta: Universitas Islam Indonesia) pp 17-22
- [18] Soni R P, Katoch M, and Ladohia R 2014 Integrated farming systems-a review *J. of Agriculture and Veterinary Science*, vol **7** no 10 pp 36-42
- [19] Andayani W, Nugroho P, Hapsari D O 2018 Kajian potensi pengembangan pertanian perkotaan di Kota Semarang. *Riptek* vol **12** no 2 pp 55-68
- [20] Mahardika M D, Sumantra K, and Wiswasta I G N A 2019 Impact of land use change on economic activities and environmental sustainability *International Journal of Current*

- Advanced Research* vol **8** no 1 pp 16902-16906
- [21] Wulandari S, Ardana I K, Massinai R, and Hartati R S 2020 Accelerating the adoption of sustainable coffee-cattle integrated farming system. *IOP Conf. Ser.: Earth and Environmental Science*, vol **418** no 1 p 012011
- [22] Soni R P, Katoch M, and Ladohia R 2014 Integrated farming systems- a review. *J. of Agriculture and Veterinary Science* vol **7** no 10 pp 36-42
- [23] Soesilowati, Kariada E N, Sumastuti E, Setyawan A B 2019 Community empowerment model through regional partnership program and agro techno park initiative. *J. of Arts and Humanities* vol **8** no 7 pp 69-75
- [24] Sumantra, I K, and Suryasdipura I N L 2012 Analisis neraca air lahan pada pertanaman salak gulapasis sebagai dasar untuk pembuahan di luar musim di daerah pengembangan baru *Jurnal Agrimeta*, vol. **2** no 3 pp 1-8
- [25] Sumantra, I.K, K.Widnyana, Eka Martingsih, M.Tamba, PG.Adinurani, Ekawati, and P. Soni. 2023. Agronomic Characters and Quality of Fruit of Salak cv. Gulapasis Planted in Various Agro-Ecosystems. *J..Bio Sci.* Vol **6** no 2 pp 207 – 221. <https://doi.org/10.54319/jjbs/160205>
- [26] Sumantra, IK, Wijaya IMW. 2021. Environment carrying capacity of Pandawa Beach ecosystem and how to optimize it to support sustainable development. *IOP Conf Ser: Earth Environ Sci.* vol **896**:012065. doi:10.1088/1755-1315/896/1/012065
- [27] Sumantra, IK, Martiningsih. 2022. Land conservation and the potential goal for food security in urban cities. *IOP Conf Ser: Earth Environ Sci.* vol **1111**:012046. doi:10.1088/1755-1315/1111/1/012046
- [28] Pastiniasih, L Sumantra, IK, Pandawani, and E.Yastika. 2023. Analysis of the potential of rice and corn in supporting food availability. *J. Philipp Agric Scientist* Vol. **106** no. 4, pp 380-388