

# Agrotourism Development Strategy During and Post Covid-19 Pandemic: Findings from Caping Merapi, Indonesia and Tobwakira Farm, Kiribati

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**Abstract.** This research investigates the COVID-19 pandemic impact of Agrotourism between Caping Merapi in Indonesia and Tobwakira Farm in Kiribati. Location determination was carried out purposively at Caping Merapi Agrotourism in Indonesia and Tobwakira Farm Agrotourism in Kiribati. Respondents used in this study were 3 internal parties for both locations, 6 visitors of Caping Merapi and 2 visitors of Tobwakira Farm. The analytical method used is SWOT analysis and IE matrix. This study indicates that Caping Merapi agrotourism faced challenges due to a decrease in the number of visitors and employees, a negative margin of profit, and the low salaries of employees during COVID-19. While Tobwakira Farm faced challenges such as decreased workers and visitors, low salaries for its employees, but income has been achieved due to insufficient importation. Moreover, Caping Merapi's internal total score is 2.96 and its external total score is 2.45, while Tobwakira Farm's internal total score is 2.83 and its external total score is 2.53, indicating the two agrotourism are in cell V, which means growing and maintaining. The SWOT Matrix strategy development strategy for Caping Merapi and Tobwakira Farm includes the following objectives: maintaining and strengthening the characteristics of agrotourism by enhancing the facilities and services, improving human resources in developing consumable products from consumable plants, maximizing promotion in various social media platforms and improve human resources skills in information technology, and conducting online training. In the IE matrix, the development strategy consists of market penetration, product development, and market development.

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## 1 Introduction

One of the tourism sectors with the potential for growth is Agro-Tourism. Agro-tourism is an agricultural business activity that includes a tourism aspect [1, 2]. For example, local farmers or individuals offer tours of their agricultural farms, allowing visitors to see how they grow and harvest. This benefits not only individuals involved in local tourism but also the entire local communities [3, 4]. During the emergence of COVID-19, the agro-tourism industry faced challenges due to its operations frequently involving contact between wildlife, livestock, and humans, potentially spreading the COVID-19 disease. The COVID-19 outbreak was initially discovered in Wuhan City, Hubei Province, China, in December 2019 [5], and the World Health Organization (WHO) declared it a pandemic on March 11, 2020 [6]. This virus has posed one of the most challenging times in the lives of individuals and businesses, as many countries experienced decreased economic growth, increased unemployment, and financial market instability as a result of lockdown measures [7, 8].

The COVID-19 pandemic hit Indonesia at the end of March 2020 [9, 10], leading the government to impose social constraints that hindered the economy from running at full capacity, forcing some enterprises to close, and resulting in temporary layoffs [11, 12]. This government policy also affected Yogyakarta's Special Region, causing disruptions and uncertainties for several agrotourism businesses in the area, which negatively impacted their economic activities [13, 14]. One such impacted business is Caping Merapi, an agrotourism venture in Yogyakarta's Special Region. Before the COVID-19 outbreak, this place was a popular agrotourism site in Yogyakarta, attracting many visitors, including kindergarten students, university students, and community members, who came to learn about organic farming and urban farming. This agrotourism site was well-known for its photo-worthy facilities, including meeting halls, greenhouses showcasing various types of plant life (ornamental, vegetable, and fruit seeds, as well as herb seeds), and interestingly arranged gardens. The operation of this agrotourism site involved several employees. However, during the COVID-19 pandemic, Caping Merapi experienced a decline in the number of visitors, leading to financial challenges, a scarcity of human resources, increased workload, and reduced facility maintenance. Moreover, the promotion of agro-educational visits became limited and less diverse [15, 16].

Kiribati is one of the lesser-known countries in the South Pacific or Oceania continent, with relatively few tourists visiting the destination [17, 18]. The World Health Organization (WHO) database in 2022 indicated that the COVID-19 pandemic began in Kiribati in January 2022, with 1,387 confirmed cases, which led the country to Alert Level 3. International flights were suspended, and inter-island travel to and from outer islands continued only for those who had completed their COVID-19 vaccination. In January 2022, Kiribati implemented a four-day lockdown and Alert Level 3 restrictions, including a 24-hour curfew, closure of government offices with employees working from home, and limited operational hours for critical service providers [19].

Tobwakira Farm, an agrotourism site in Kiribati, was also impacted by the government's COVID-19 restrictions. Prior to COVID-19, Tobwakira Farm conducted short courses on agricultural education within its compound and its employees traveled to Kiribati islands and local communities to educate them about agriculture. The farm welcomed students from kindergartens and different high schools to learn about plants and cultivation. Like Caping Merapi, Tobwakira Farm operated with several employees. However, during the COVID-19 outbreak, the farm had to halt guest visits, implement social distancing regulations, work in shifts, and suspend employees' visits to other islands and local communities for agricultural education. Therefore, this study aims to investigate the COVID-19 impacts on Agrotourism between Caping Merapi, Indonesia, and Tobwakira

Farm, Kiribati, and also identify strategies adopted by Caping Merapi Agrotourism and Tobwakira Farm Agrotourism during and post-COVID-19.

## 2 Research Method

### 2.1 Research Location

This study was conducted in two agrotourism from two countries, which is Caping Merapi in Yogyakarta, Indonesia, and Tobwakira Farm in Kiribati. Both was facing difficult time during and post Covid-19 pandemic. Also both is bringing agriculture in tourism sector, where the visitor can enjoy the nature and study about agriculture.

### 2.2 Data Collection

Data was collected through in-depth interviews with Caping Merapi in Indonesia and Tobwakira Farm in Kiribati for the agrotourism management to describe the situation of COVID-19 pandemic, and google drive questionnaires for visitors to describe the conditions of the agrotourism. These two locations were chosen because they are educational agro-tourism bases with potential to be developed in the midst of the COVID-19 pandemic and post-COVID-19. The sample of respondents is a Case Study. Therefore, purposive sampling approach was used for the managements of Caping Merapi agrotourism and Tobwakira Farm Agrotourism, and simple random sampling approach was used for visitors.

**Table 1** Parameter Indicator

Data	Source
Benefits of the agrotourism to the community and visitors	Agrotourism Managements: Caping Merapi (Commissioner, General Manager, Operational Manager & Financial Manager) Tobwakira Farm (Agriculture Officer, Data Information/Cooking Demonstrator, Front Desk Receptionist/Field worker)
Services and activities that the agrotourism sites offers during COVID-19 and after COVID-19	
Regulations of the agrotourism sites that visitors must follow during COVID-19 and after COVID-19	
Number of visitors to the agrotourism sites that visited before COVID-19, during COVID-19 and after COVID-19	
Profits of the agrotourism sites before COVID-19, during COVID-19 and after COVID-19	
Number of employees before COVID-19, during COVID-19 and after COVID-19	
Salary of employees before COVID-19 and after COVID-19	
Facilities and amenities conditions of the agrotourism sites provided	Visitors: Caping Merapi (6) Tobwakira Farm (2)
Services and activities condition of the agrotourism sites provided	
Location conditions in which the agrotourism sites are located in.	

### 2.3 Analytical Technique

This research method used qualitative approach with a focus on descriptive studies. Method of data analysis used SWOT analysis and Internal-External (IE) Matrix. Formulation of research development strategy using data obtained in the form of internal factor such as Strength (S), and Weaknesses (W) and external factors such as Opportunities (O), and Threats (T), then the factors will be entered into the SWOT analysis to determine

the S/O strategy, W/T strategy, S/T strategy, and W/T strategy of the agrotourism. Furthermore, the internal factors and external factors that have obtained will be used for Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) whose purpose is to formulate IE matrix to find an appropriate alternative strategy in the development Caping Merapi agrotourism and Tobwakira Farm agrotourism.

## 3 Results and Discussion

### 3.1 SWOT Analysis

The SWOT Analysis is founded on reasoning that may both reduce weaknesses and threats and enhance strengths and opportunities. Therefore, this analysis is better understood through graphical representation called SWOT Matrix. It is possible to establish an alternative strategy for developing agrotourism in these two locations.

Internal External	<b>Strengths (S)</b>	<b>Weaknesses (W)</b>
	<ol style="list-style-type: none"> <li>1. Have a large land</li> <li>2. Rich in organic plants</li> <li>3. Coordination of staff is efficient</li> <li>4. Following the COVID-19 pandemic health protocol</li> <li>5. Adequate of facilities</li> <li>6. Conducting training and workshops for visitors about the productivity in the production of agricultural products.</li> <li>7. The location is near the main road and easy to find</li> <li>8. Has good partnership with institutions</li> </ol>	<ol style="list-style-type: none"> <li>1. Poorly maintained facilities</li> <li>2. The profit margin is minus due to the decrease in visitors.</li> <li>3. Lack of HR</li> <li>4. Promotion in social media and website is still less than the maximum</li> <li>5. Less variety of educational activities</li> <li>6. Lack of financial support from the Government</li> </ol>
<b>Opportunities (O)</b>	<b>S/O Strategy</b>	<b>W/O Strategy</b>
<ol style="list-style-type: none"> <li>1. Adding jobs Provides organic educational opportunities to the public.</li> <li>2. Community enthusiasms around</li> <li>3. Increasing demand</li> </ol>	<ol style="list-style-type: none"> <li>1. Increasing the variety of types of organic plants (S2-S6-O2-O3-O4)</li> <li>2. Improving facilities and other activities and services so as to attract customers (S5-S6-O3)</li> <li>3. Involving the community and institutions for the development of Caping Merapi agrotourism (S1-S8-O1-O2)</li> </ol>	<ol style="list-style-type: none"> <li>1. Adding working workforce (W1-W3-O1)</li> <li>2. Expanding sales and promotions online by collaborating with various parties (W4-W6-O2-O3)</li> <li>3. Improve collaboration between Sleman communities and Caping Merapi so that people could learn more about agro-education (W5-W6-O3-O4)</li> </ol>
<b>Threats (T)</b>	<b>S/T Strategy</b>	<b>W/T Strategy</b>
<ol style="list-style-type: none"> <li>1. The COVID-19 outbreak has decreased the number of visitors, number of workers and decrease the income of Caping Merapi agrotourism</li> <li>2. COVID-19 Government regulations</li> <li>3. Competition from other agrotourism centre and popular tourist destination</li> </ol>	<ol style="list-style-type: none"> <li>1. Maintain and strengthen the characteristics of agrotourism by providing excellent facilities and paying attention to health protocols so that they can compete with other agrotourism (S1-S2-S4-S5-S6-T1-T2-T3)</li> <li>2. Improving the quality skills of human resources related to how to manage consumable plants into various kinds of products for competitiveness in developing Caping Merapi Agrotourism (S3-T1-T3)</li> </ol>	<ol style="list-style-type: none"> <li>1. Conduct online training activities that can be done at home (W2-W3-W4-W5-W6-T1-T2)</li> <li>2. Maximizing promotions online through various social media since many people are active online during COVID-19 pandemic and improve supporting facilities to be able to compete with other agrotourism (W1-W2-W4-W6-T1-T3)</li> </ol>

**Fig 1.** SWOT Matrix of Caping Merapi

"...during the COVID-19, customer numbers started decreasing from March until May 2020, and the profits of Caping Merapi started to decline... Then me, Mr. Reza, and Mr. Mashudi discussed that we want to close Caping Merapi because there is no income, and we cannot afford to pay our employees... Caping Merapi now has only four employees... But then we talked about it again, and we came up with the idea that Caping Merapi is only interested in helping people sell vegetables and make their own home gardens." (50-year-old male, commissioner)

"...during COVID-19, there are no consumers; we conduct online training services via Zoom...Consumers may pick vegetables in the field but must follow health protocols, there is a quota of visitors to avoid crowd, and sometimes the revenue is negative, so the owners are subsidizing because we have our own businesses apart from Caping Merapi..." (46-year-old male, general manager)

According to Fig 1, the agrotourism business of Caping Merapi faces challenges when the COVID-19 pandemic strikes, such as a decrease in visitors and employees. The profit of the business is negative. Therefore, the development strategies of the Caping Merapi agrotourism during COVID-19 and Post-COVID-19 such as; maintain and strengthen the characteristics of agrotourism by providing excellent facilities and paying attention to health protocols so that they can compete with other agrotourism; Improving the quality skills of human resources related to how manage consumable plants into various kinds of products for competitiveness in developing Caping Merapi agrotourism; Conduct online training activities that can be done at home; Maximizing promotions online through various social media since many people are active online during COVID-19 pandemic and improve supporting facilities to be able to compete with other agrotourism. Moreover, during COVID-19 Caping Merapi used different types of social media platforms during COVID-19, including Instagram (stories, feed posts, reels), Facebook, WhatsApp, a website, and email, to do promotion and advertisement (Fig 2).



**Fig 2.** Caping Merapi Social Media

According to Fig 3, the agrotourism business of Tobwakira Farm faces challenge when the COVID-19 pandemic strikes, such as a decrease in visitors and employees; the employees receiving a lower salary, however the business revenue is stable because insufficient importation. Therefore, the agrotourism development strategies for the Tobwakira Farm such as Maintain and strengthen the characteristics of agrotourism by providing excellent facilities and services and paying attention to health protocols; Increasing human resource skills and improving human resource quality in order to improve the innovation of consumable plants into various types of products in order to increase agricultural demand over imported goods; Conduct online training activities that can be done at home; Human resources that must be developed in terms of information technology to improve Tobwakira Farm performance and improve supporting facilities to attract foreign and local visitors. Moreover, during COVID-19 Tobwakira Farm used only Facebook such as MELAD Facebook Page, Tobwakira Farm Facebook page, and radio to do promotion and advertisement (Fig 4).



“before COVID-19 we welcomed all people to enter...but now if they don’t have face mask, vaccine card then they will not enter or helped by the workers...” (26-year-old female, front desk receptionist and field worker)

### 3.2 Internal Factor Evaluation (IFE) Matrix Analysis

The IFE results are used from the SWOT matrix, the result of the identification of internal factors, namely the strengths which are positive factors and weaknesses which are negative factors. This analysis is used to evaluate Caping Merapi Agrotourism and Tobwakira Farm Agrotourism internal factors which will be used as a reference for future development. The analyses of the IFE matrix are shown in the tables below:

**Table 2** Internal Factor Evaluation Matrix of Caping Merapi Agrotourism

No	Internal Factor	Weight	Rating	Score
<b>Strength</b>				
1	Have a large land	0.07	4	0.28
2	Rich in organic plants	0.09	4	0.36
3	Coordination of staff is efficient	0.06	3	0.18
4	Following the COVID-19 pandemic health protocol	0.09	4	0.36
5	Adequate facilities	0.06	4	0.24
6	Conducting training and workshops for visitors about the productivity in the production of agricultural products	0.09	4	0.36
7	The location is near the main road and easy to find	0.06	3	0.18
8	Has good partnership with institutions	0.08	4	0.32
Strength total score				2.28
<b>Weakness</b>				
1	Poorly maintained facilities	0.08	2	0.16
2	The profit margin is not stable due to the decrease in visitors	0.07	1	0.07
3	Lack of HR	0.06	2	0.12
4	Promotion in social media and website is still less than the maximum	0.09	2	0.18
5	Less variety of educational activities	0.05	2	0.10
6	Lack of financial support from the Government	0.05	1	0.05
Weakness total score				0.68
Internal Factor total score		1.00		2.96

According to Table 2, it can be seen that the strength factor is contained in following the COVID-19 pandemic health protocol with a score of 0.36 and conducting training workshops for visitors about the productivity in the production of agricultural products with a score of 0,36. The internal factor of weakness has the lowest value, is the profit margin, which is not stable due to the decrease in visitors, with a score of 0.07 and lack of financial support from Government with a score of 0.05.

According to Table 3, it can be seen that the strength factor contained in following the COVID-19 pandemic health protocol with a score of 0.40, financial support from the Government with a score of 0.40 and conducting training about piggery and small-scale vegetable farming with a score of 0.40. The internal factor of weakness which has the lowest value, is the lack of Human Resource with a score of 0.07.

**Table 3** Internal Factor Evaluation Matrix of Tobwakira Farm Agrotourism

No	Internal Factor	Weight	Rating	Score
<b>Strength</b>				
1	Have a large land	0.08	4	0.32
2	Coordination of the workers is efficient	0.06	3	0.18
3	Adequate facilities	0.06	4	0.24
4	Following the COVID-19 pandemic health protocols	0.10	4	0.40
5	Financial support from the Government	0.10	4	0.40
6	Conducting training about piggery and small-scale vegetable farming	0.10	4	0.40
7	The location is beside the main road and easy to find	0.06	3	0.18
Strength total score				2.12
<b>Weakness</b>				
1	Lack of information on various social media and website	0.10	1	0.10
2	Lack of promotions	0.10	2	0.20
3	Lack of HR	0.07	1	0.07
4	Lack of educational activities	0.08	2	0.16
5	Poorly maintained facilities	0.09	2	0.18
Weakness total score				0.71
Internal factor total score		1.00		2.83

### 3.3 External Factor Evaluation (EFE) Matrix Analysis

The EFE results are used from the SWOT matrix, the result of the identification of internal factors, namely the opportunities which are positive factors and threats which are negative factors. This analysis is used to evaluate Caping Merapi Agrotourism and Tobwakira Farm Agrotourism external factors which will be used as a reference for future development. The analyses of the EFE matrix are shown in the tables below:

**Table 4** External Factor Evaluation Matrix of Caping Merapi Agrotourism

No	External Factor	Weight	Rating	Score
<b>Opportunity</b>				
1	Adding jobs	0.14	3	0.42
2	Provides organic educational opportunities to the public	0.16	3	0.48
3	Community enthusiasms around	0.14	3	0.42
4	Increasing demand	0.16	4	0.64
Opportunity total score				1.96
<b>Threat</b>				
1	The COVID-19 outbreak has decreased the number of visitors, number of workers and negative the income of Caping Merapi Agrotourism	0.15	1	0.15
2	COVID-19 Government regulations	0.16	1	0.16
3	Competition from other agrotourism centre and popular tourist destination	0.09	2	0.18
Threat total score				0.49
External Factor total score		1.00		2.45

Based on Table 4 regarding the External Factors Evaluation, the opportunity that has the highest score is the demand for organic plants to meet consumer needs with a score of



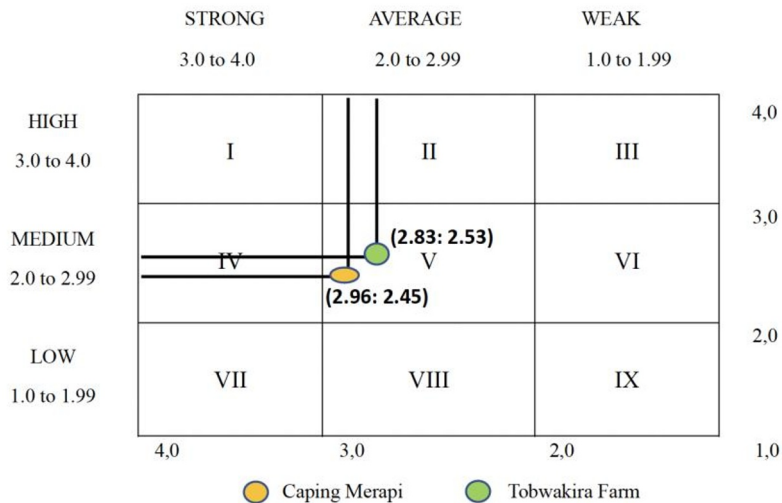
0.64. The external threats are the outbreak of COVID-19 pandemic has decreased the number of visitors, number of workers, and income, with a score of 0.15.

**Table 5** External Factor Evaluation Matrix of Tobwakira Farm Agrotourism

No	External Factor	Weight	Rating	Score
Opportunity				
1	Adding jobs	0.12	3	0.36
2	Community enthusiasms around	0.12	3	0.36
3	High potential to development in rural areas since there are no other develop agrotourism as competitors	0.13	3	0.39
4	Provides educational opportunities to the public	0.14	3	0.42
5	Increasing demand	0.14	4	0.56
Opportunity total score				2.09
Threat				
1	The outbreak of COVID-19 pandemic has decreased the number of visitors and number of workers, and lower salary	0.12	1	0.12
2	COVID-19 Government regulations	0.14	1	0.14
3	Low agricultural product as a result of imported goods	0.09	2	0.18
Threat total score				0.44
External Factor total score		1.00		2.53

Based on Table 5, the opportunity that has the highest score is the demand for vegetables to meet consumer needs with a score of 0.56. The threats the outbreak of COVID-19 pandemic has decreased the number of visitors and number of workers, lower salary with a score of 0.12.

### 3.4 Internal-External (IE) Matrix Analysis



**Fig 3** Internal and External Matrix Results

After the IFE and EFE analysis stages, the next step is to analyse the internal-external matrix. This analysis shows the mapping of the total score of internal factors as well as the total score of external factors will describe the current state of Caping Merapi Agrotourism and Tobwakira Farm Agrotourism. According to Figure 3 indicated that

Caping Merapi Agrotourism had a total internal score of 2.96 and a total external score of 2.45, while Tobwakira Farm Agrotourism had a total internal score of 2.83 and a total external score of 2.53. Caping Merapi Agrotourism and Tobwakira Farm Agrotourism are located in cell V. In the cell V position, it can be interpreted that Caping Merapi Agrotourism and Tobwakira Farm Agrotourism are growing and maintaining, therefore a suitable strategy for the cell position would be the development of new products, market development, and market penetration for Caping Merapi Agrotourism and Tobwakira Farm Agrotourism. Both agrotourism can develop their potency and adapting the impact of pandemic through improving the facilities, services and products [20].

### 3 Conclusion

During the COVID-19 pandemic, Caping Merapi Agrotourism experienced a decrease in visitor numbers, resulting in a negative profit margin and a reduction in the number of employees with low salaries. Meanwhile, Tobwakira Farm Agrotourism demonstrated that, despite facing challenges with imports, it managed to generate revenue during the pandemic. However, both workers and visitors decreased, and the farm also faced the issue of low salaries for its workers. Regarding promotion and marketing, Caping Merapi utilized various types of social media, websites, and email, whereas Tobwakira Farm solely relied on Facebook and radio. After conducting a SWOT matrix analysis, the development strategy recommended for both agrotourism businesses is to maintain and strengthen their characteristics by providing excellent facilities and adhering to health protocols. Additionally, they should focus on improving the skills of their human resources to manage consumable plants and develop various products. Online training activities that can be done from home should also be implemented, along with maximizing online promotions through various social media platforms. Furthermore, improving the staff's information technology skills and enhancing supporting facilities are vital to remaining competitive within the agrotourism industry. According to the Internal External Matrix, Caping Merapi Agrotourism had an IFE total score of 2.96 and an EFE total score of 2.45, while Tobwakira Farm Agrotourism scored 2.83 on IFE and 2.53 on EFE. Consequently, the recommended alternative strategies for both are market penetration, product development, and market development. To ensure their survival and business continuity, both agrotourism ventures can diversify their product offerings and services while making necessary improvements to their existing facilities to attract more visitors.

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