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Towards Developing a Marketing Model for Strategic Positioning of Stingless Bee Honey Farming as a Sustainable Income for the Rural Community

Salina Kassim ^{a*}, Siti Rahayu Hussin^b

^aInstitute of Islamic Banking and Finance, International Islamic University Malaysia, Malaysia;

^bSchool of Business and Economics, Universiti Putra Malaysia, Malaysia

*Correspondence: ksalina@iium.edu.my

ABSTRACT:

Due to its wide economic applications and low initial costs, stingless bee farming has a high potential to be developed as an economic empowerment program for the low income community in the rural area. Despite this, in-depth research focusing on the marketing aspects of stingless bee farming is still lacking resulting in a sub-optimal production level as well as low profitability of the stingless bee farms generally. This study aims to focus on the issues pertaining to marketing aspects of the stingless honey bee farming in order to develop a marketing model to position it as a sustainable economic empowerment program for the low income community in the rural areas.

KEYWORDS: Marketing Model, Strategic Positioning, Stingless Bee, Sustainable Income, Rural Community

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INTRODUCTION

Stingless honey bee farming has a huge potential to be developed as an economic empowerment program in view of its versatile nature and diversified demand for the downstream products. From farming to production of the various downstream products, the stingless honey bee industry is seen as an ideal platform for income generation activities that can be categorized under various sectors, including food and food products, health and healing products, as well as cosmetics products. In various parts of the world, such as in India, Nepal, and several countries in the African and South American continents, bee farming typically takes the form of a backyard or cottage industry undertaken in the rural areas due to its low start-up costs and small land requirement. In view of this, positioning the honey bee farming as an agro-tourism product is highly viable if being offered together with other related projects in a farm. The World Tourism Organisation (2004) has documented that agro-tourism is part of rural tourism and is related to tourism activities on farms. It provides farmers with the opportunity to expand their income by diversifying into several related projects such that their income sources are diversified, thus becoming more sustainable.

In the aftermath impact of the COVID-19 pandemic, many people has been affected by the economic downturn due to widespread unemployment and business failures. The low-income group and especially those in the rural areas have been largely affected, and this have placed the stingless bee farming as a focus area to be explored as a sustainable economic empowerment program. Due to its various downstream products and especially low initial costs, stingless bee farming is highly suitable to be developed as economic empowerment program for low-income people in the rural area. Alternative approaches in implementing the stingless bee farming for economic empowerment project can either be through an individual entrepreneurship project or group-based through cooperative efforts by the community. A successful implementation of stingless bee farming would provide income-generating activity for the low-income group to enable them to sustain their living during the prolonged period of economic downturn due to the COVID-19 pandemic.

Despite its high potential, a systematic and in-depth study focusing on the marketing aspects of the stingless honey bee industry is still lacking. Existing studies have been mainly focusing on the processing aspects of stingless bee farming, especially on the production techniques and honey processing methods, while issues pertaining to the financial and marketing aspects such as costing, selling and distribution channels, packaging, and promotion have been lacking research and not being given due attention. In order to position stingless bee farming as an economic empowerment program for the low-income group, the sustainability of the program is of utmost importance. In ensuring financial sustainability, especially as a commercial or business entity, management of financial resources in terms of costs and revenue streams of the activity is very important. One of the major challenges facing the honey farming or cottage industry generally is related to marketing issues, including product pricing, branding strategies, sales, promotion, and distribution strategies. A clear understanding of the financial and marketing aspects would contribute to the success of the economic empowerment activities of the poor by ensuring that demand and marketability of the stingless honey bee products are sustained.

This study attempts to propose a marketing model based on the potential of stingless bee farming as a catalyst to elevate agro-tourism in Malaysia. By conceptualizing the establishment of a group-based stingless bee farming as an agro-tourism product and focusing on the marketing aspects, factors important towards developing a marketing model to position it as a sustainable economic empowerment program for the low-income community in the rural area are highlighted. The study intends to fill the gap in the literature in at least two aspects. First, by focusing on the marketing aspects of the honey industry generally and stingless bee industry particularly, and secondly by establishing the link between the importance of marketing with the economic empowerment activities of the low-income people. Combining these two, the aim of this study is to strategically position the stingless beekeeping industry as a sustainable agro-tourism product to economically empower the low-income community in rural areas.

LITERATURE REVIEW ON MARKETING ISSUES OF HONEY PRODUCTION

Theoretically, a seller must carefully position its products or services in the marketplace in order to maximize sales. This can be done by way of identifying and subsequently convincing the consumers of the unique selling points of a product, which include the importance of the product or that a product or service they need has a particular benefit. Being able to identify the unique selling points of the products would enable sellers to develop an effective marketing model to attract consumers to their products. This involves collecting marketing information that is suitable with regards to market positioning, product pricing, and channel of marketing, which are all critical information to be incorporated in the proposed marketing model. More

importantly, with the current advancement of technology, digital marketing is an important channel of marketing needed to be considered.

According to Ismaiel et al. (2014), honey industry enterprises must understand the latest trends in consumer behavior to successfully market their products. Producing a honey product that meets the quality as expected by consumers and designing appropriate production and marketing policies requires an understanding of the major factors that influence the honey market. The trend of consuming honey as a healthy food has steadily increased, and it is one of the driving factors of the expected increase in the demand for honey. From a consumer perspective, a lack of sufficient information exists regarding the quality aspects of honey in general and the quality variation between locally produced and imported honey in particular.

In Ethiopia, where there is a strong domestic market for honey, with 99% of its 47,706 tons of honey production in 2016 were for the domestic market, the structure and conduct of honey market have a direct implication on the nature of production, price relationships between different marketing levels, and direction of causality (Yeserah et al., 2019). The honey market structure, conduct, and performance analytical model were used by different researchers to understand how the behavior of honey sellers and buyers affects the honey market and affects the relationship between them. These aspects are important to designing a marketing model for the domestic honey market. However, despite the strong domestic market for honey in the country, Yeserah et al. (2019) raised the concern that there is a lack of documented information on what exactly the marketing system looks like, especially on the structure of the market, market actors, and market conduct and its impact on both local and export markets. Therefore, studying and understanding the status of honey marketing structure and conduct in a holistic manner along the market value chain is of immense importance for the future growth of the honey industry.

According to Kiran and Jose (2013), lack of transport and communication facilities has been identified as the main factor resulting in supply bottlenecks among honey farmers in villages in India. The farmers are not able to market their products on time as they are facing difficulties in finding suitable markets for their products. Meanwhile, Sirjana et al. (2020) found that honey bee farmers faced the problem of lacking wholesale marketing points resulting in sub-optimal honey bee production in the rural area of Nepal. The study further highlighted that other marketing issues faced by the farmers identified by the study including declining prices (thus a squeeze on profit margin) due to stiff competition from other honey producers, lack of market information, and poor market access.

In Brazil, despite being an essential informal activity across the country, Jaffe et al. (2015) found that low technical knowledge and lack of standardization in the management practices are two major issues facing the stingless beekeeping industry. By assessing the impact of particular management practices on productivity and economic revenues from the commercialization of stingless bee products, the study provides clear guidelines to optimize stingless beekeeping and help transform the activity into a powerful tool for sustainable development. The results found that the influence of specific management practices and other confounding factors over productivity and income indicators. This includes the importance of teaching beekeepers how to inspect and feed their colonies, how to multiply them and keep track of genetic lineages, how to harvest and preserve the honey, how to use vinegar traps to control infestation by parasitic flies, and how to add value by labeling honey containers. Furthermore, beekeeping experience and the network of known beekeepers were found to be key factors influencing productivity and income.

METHODOLOGY

This study adopts a conceptual approach based on literature review and general observation. Conceptual research involves the synthetization of interrelated components and variables relevant to explaining a relationship, thus helping to solve a real-world problem. It is the final lens for viewing an identified issue's deductive resolution (Imenda, 2014). Being defined as a methodology wherein research is conducted by observing and analyzing already present information on a given topic, conceptual research does not involve conducting any practical experiments that require the researcher to go to the field to collect primary data. It is related to abstract concepts or ideas where researchers conceptualised main ideas to develop new theories or interpret existing theories in a different light. In the context of social science research, especially in the business-related disciplines, the conceptual research approach is extended by building conceptual frameworks to understand the relationship among the main factors and how these factors contribute to the realization of the idea in a meaningful way. Conceptualization and organization of ideas, thus, provide the basic foundation for further research in a specified area.

A MARKETING PERSPECTIVE OF POSITIONING STINGLESS BEE HONEY FARMING AS A SUSTAINABLE INCOME FOR THE RURAL COMMUNITY

Proposed Stingless Honey Bee Farming: Product Descriptions

To date, there is no well-established group-based stingless bee farming project meant for economic empowerment of the local community in Malaysia. Individual farmers are undertaking several existing stingless bee farming projects as commercial, entrepreneurial projects, often with technical assistance or in collaboration with related government agencies such as the Malaysian Agricultural Research and Development Institute (MARDI) under the Ministry of Agriculture and Food Industry. Individual stingless honey bee farmers commonly pursue their own marketing efforts, which are generic in nature with no clear target market resulting in sub-optimal production due partly to ineffective implementation and monitoring, as well as the absence of an end-to-end supply chain marketing plan.

In order to position stingless bee farming as a sustainable economic empowerment project for the rural community, the proposed project needs to consider incorporating the following specific characteristics:

- (i) It has a commercial agro-farming production set up;
- (ii) It should be run by a targeted group of B40 communities in a particular village to achieve the objective of empowering the low-income community in the area by giving them job opportunities and sustainable source of income;
- (iii) It is a clustered agriculture activity requiring the utilization of suitable land size so that several related activities can be undertaken, leading to a creation of an agro-tourism destination;
- (iv) It is a group-based commercial activity rather than an individual activity, to be conducted on a particular plot of land near the place of living of the targeted B40 community; and
- (v) It is a diversified agro-farming activity, producing a wide variety of downstream products, apart from its main products being honey and honey-based products.

Consequently, in efforts to create sustainable revenue-generating activities and opportunities for the stingless bee farm, apart from the main product, honey and propolis, the farm will diversify its products by increasing the scope of product offering. The proposed ideas can be categorized into several groups, namely: (i) honey and based products, (ii) honey farming-related training services, and (iii) honey-farming agro-tourism, as summarized in Table 1 below:

Table 1: Products from Stingless Bee Farm

No.	Category	Product Details	Target Market
1.	Honey and honey-based products	i. Honey and honey-based products – including honey (in bottles and sticks) and honeycomb	-External – retail and wholesale
		ii. Confectionary, cookies, honey candy	-Internal – farm visitors
		iii. Honey-based traditional health drinks (such as ginger-honey drinks)	
2.	Honey farming-related training services	i. Honey farming training	-Farm visitors
		ii. Marketing training	-Learners group
		iii. Financial literacy training	
3.	Honey-farming agro-tourism	i. Agro-tourism – direct experience of stingless bee honey farming	-Farm visitors
		ii. Local fruit picking such as mango, rambutan, guava, etc	-Tourists (local and international)
		iii. Herbs garden – turmeric, ginger, etc	
		iv. Domestic animals rearing such as goose, hens, chicks, rabbits, etc	
		v. Homestay	
		vi. Restaurant	
		vii. Mini-market – souvenirs, t-shirts, honey-based products, cookies, and drinks	
		viii. Cycling and ATV activities	

Source: Authors' own.

The more diversified the activities offered by the stingless bee farm, the wider the market segment available to be captured by the project, thus the greater the revenue stream to be expected. Additionally, all these activities will capture the interest and attention of guests, who will likely spend more time at the farm. Tier-pricing method will be offered to the farm visitors by giving them options of the package of the farm products that are suitable to their time and budget.

Analyzing Market Opportunities for Honey-Related Entrepreneurial Ventures

Customer Analysis

Generally, the stingless bee farm targets specific customer criteria in the hospitality industry, with a focus on those who enjoy rural travelling experience, healthy lifestyle, and skill improvements, all simultaneously. The target customer for the stingless honey bee farm can be further identified along the following segments: demographic segmentation, psychographic segmentation, behavioral segmentation, and geographic segmentation.

- From the demographic aspect, the stingless honey bee farm targets local and international tourists, individuals, or a group. With various agro-tourism products being offered to the guests, the stingless bee farm is expected to provide homestay service as accommodation for guests who would like to spend more time at the farm—targeting middle-income earners who could afford a 3-4 stars accommodation and also looking for rural agro-tourism products. Potential customers can be individual travelers, family groups, or college/university students looking for skill enhancement as agro-preneur. The stingless honey bee farm can also be a destination for family day or team-building activities, as there are various other activities that can be undertaken at the farm.
- From the psychographic aspect, the honey bee farm will offer a place to relax as a getaway from busy life and away from the hustle-bustle of the city. It will be a suitable place for the tourists to spend at least a few days, rather than an overnight staying since there are various activities that can be done at the farm. Consequently, the farm must offer several tourism products, as well as comfortable accommodation and interesting surroundings.
- From the behavioral aspect, the honey bee farm targets customers who require a calm and relaxing environment. The farm should be in operation 24 hours x 7 days a week. The target customers can be rather insensitive to prices, depending on the demographic setting (such as income, age, and education level).
- From the geographic aspect, the honey bee farm is expected to be located in a rural area where land is abundant and to meet the objective of its establishment as a calm, serene and relaxing environment is h as the farm is targeted as a rural and sustainable agro-tourism. It is essentially a place for relaxing and learning for those who want to escape the busy life of the city.

Competitor Analysis

Currently, the main competitor of the honey bee farm is the 24-hours hotels or homestays near the surrounding areas. While there are not many hotels and homestays in the surrounding area, these are mainly accommodation providers that target business travelers or maybe short-term stay. Compared to the competitors, the honey bee farm has more to offer in terms of tourism products including accommodation, agro-tourism, cycling, and more, rather than just the “bed-and-breakfast” facilities only.

Second, another category of competitor is other agro-tourism providers. Specific honey bee farms mainly offer day trips and specific honey product sales. However, there is much more to do, enjoy and learn at the proposed stingless bee farm.

Third, the individual and local honey sellers are also a competitor to the products of the honey bee farm. These sellers normally sell at lower prices and claim that their product is better quality since it is sourced from wild bees. To face this competition, it is very important that the honey bee production at the farm be transparent so that the quality of the honey produced at the farm is guaranteed as genuine and of top quality. This can be done by getting the certification regarding the quality and pureness of the honey produced by the farm.

Lastly, with the rapid advancement in the area of virtual reality, virtual tourism is gradually gaining interest by many tourists, mainly due to its substantially low cost and the travel restrictions due to the current pandemic situation has further expedited its development and applications. Thus, virtual tourism is a potential competitor to a honey bee farm. Despite this,

their experience offered by the actual honey bee agro-tourism is definitely much more memorable than the virtual one as there will be actual socialization and complete experience with a variety of activities to be done at the farm itself.

Climate Environment

In terms of climate environment analysis, the political, economic, social/cultural, and technology (PEST) analysis is applied on the proposed stingless bee farm.

- The political situation is unlikely to give much impact on the honey bee farming project. Since almost all input or raw materials can be sourced locally, overall, there are not going to be any major impacts of political risks involved in the establishment of the honey farm project, as well as on its sustainability.
- The economic environment is expected to have a direct effect on the performance of the honey bee farm, especially as an agro-tourism destination. Good economic environment which translates into more income among the workers would mean more spending on luxury products such as for travelling and vacations. The honey bee farm will benefit more as more guests will be coming and visiting the honey bee farm. There will also be more group visitors for team building and family bonding activities. This would mean more demand for the products produced by the agro-honey bee farm such as homestays, restaurants and honey bee products. When the economic situation expands and income increases, purchases of high-quality and fresher produce of the farm will increase due to increase in purchasing power.
- The social and cultural factors also affect the number of visitors to the honey bee farm. The social culture of spending more time with family, i.e., family bonding, and rewarding oneself after spending long working hours at the office will affect the number of visitors to the honey bee farm.
- The technological aspects have a significant influence on the honey bee farm business. The farm should be updated with latest technology and updates on techniques and knowledge on honey bee farming, as it is one of the activities of the farm - i.e., giving training on honey bee farming.
- The health aspect - the COVID-19 pandemic has highlighted the importance of considering the health factor in the businesses analysis. This is particularly relevant in the context of the agro-tourism industry where lock down period greatly affect people's movement. Due to movement control orders, and even worse lockdown orders, visits and gatherings in public places are restricted, and even not allowed. These restrictions to visit public places will definitely affect the number of people visiting the honey bee farm

SWOT Analysis

In order to arrive at an effective marketing strategy for the stingless bee farming project, a strength, weaknesses, opportunity and threats (SWOT) analysis is undertaken (Table 2). The SWOT analysis is an effective tool for developing an overall marketing strategy for the stingless bee farming project, taking into account the strengths and weaknesses of the industry, the opportunities that lie ahead, as well as the threats facing the honey bee farming project.

Table 2: SWOT Analysis of Honey-Related Businesses

<u>Strengths</u>	<u>Weaknesses</u>
<ul style="list-style-type: none"> ➤ Wide support from government and private sector to develop stingless bee industry ➤ Bee keeping/farming has positive environmental benefits ➤ Low cost ➤ Technical expertise and collaboration from specific government agencies ➤ Great yield area, where land price is reasonable ➤ Easy accessibility of farm due to good road/highways connectivity ➤ Nearby villages and the main town with its own guests' attractions ➤ Many fruits (especially durian) orchards nearby 	<ul style="list-style-type: none"> ➤ Group members commitment and dedication ➤ Uncertainty of continuance stingless beekeeping and growing fruit trees ➤ Possibility of flood during rainy season ➤ Weak social media presence ➤ Many other domestic honey producers ➤ Possible no interest from local residents to serve as workers on the farm
<u>Opportunities</u>	<u>Threats</u>
<ul style="list-style-type: none"> ➤ New business model, new motivations and create new ideas ➤ Increasing and widening scope of production/products ➤ Start consistent marketing and venturing into social media ➤ Nearby technical support and pollination services from MARDI agency ➤ Increasing awareness on intake of healthy food among the public ➤ Continue widening network with the Bee Keeper Association for marketing and technical support ➤ Potential collaboration with relevant ministries to supply honey for national health and food for school programs 	<ul style="list-style-type: none"> ➤ Increasing competition, domestic and local honey ➤ Increase in imported honey- losing market shares ➤ Competition with fake honey ➤ Global warming that potentially brings new new/more diseases and pests that risk the bees ➤ Group members' health and working condition ➤ Elephant intrusion resulting in unsustainable supply

Factors Influencing the Selected Honey-Based Business Venture

Although there is a huge opportunity to elevate the stingless bee honey industry as economic empowerment program, there are several factors that need further consideration in ensuring its effectiveness as a sustainable source of income for the low-income group. The marketing aspect has been identified as one of the major factors needing further refinement to enable the industry to be producing at its highest potentials and able to contribute effectively to the economy. The specific marketing issues include market positioning and segmentation as well as marketing strategies of the stingless bee farming, which information has been insufficient due to lack of research in this specific area.

Market Positioning

Market positioning reflects how consumers perceive a product based on its important attributes made known to the consumers. It indicates consumers' perception of a product or the place the product occupies in consumers' minds relative to other competing products. Consequently, companies would strive to stand out from their competitors by identifying and highlighting their unique selling propositions, being the unique features or attributes, which are exclusive to the product that brings benefits and satisfaction to target consumers, which not be found in the competitors' product. Through a carefully designed positioning process, companies are able to ensure strong, positive & stable positioning in a consumer's mind.

Honey and honey products have longed been accepted as "super food", a nutrient-rich food considered to be especially beneficial for health and well-being. Honey is specifically considered as the "cure for mankind" in many religions. Among Muslims, it has a special significance as the Holy Quran denotes it as a cure for mankind. It states in chapter 16 (Surah al-Nahl, the Chapter of the Bee), verses 69-70:

"And thy Lord has inspired the bee, saying, 'Make thou houses in the hills and in the trees and in the trellises which they build. Then eat of every kind of fruit, and follow the ways of thy Lord that have been made easy for thee.' There comes forth from their bellies a drink of varying hues. Therein is cure for men. Surely, in that is a Sign for a people who reflect."

This is a unique selling point for honey and honey-based products. In fact, many of the current honey promotion highlight on the superfood aspect of honey which has shown to be an aspect most favored by the majority of consumers in Malaysia.

Customer Segmentations

It is important to capture the widest customer segments for the products from the stingless bee farm, which will enable the achievement of the basic objective of the marketing plan, which is to maximize sales in order to achieve the highest revenue. For this reason, potential customers of the proposed stingless bee farming project can be categorized into retail customers and wholesale customers, with each customer segment would be pursued through a specific promotion technique and approach.

Direct Retail Consumer – Farm Visitors/Guests

Direct consumers of the honey bee farm product – these are the retail or direct consumers being the guests or visitors to the honey farm.

Retail Consumers – Through Mini Markets/Stores/Bazaar

Products of the farm can be supplied to mini-markets/stores to be sold to retail customers. Also, the workers participated in the honey farming projects can sell to retail customers at bazaar or agro-market on open concept.

Wholesale Customers – Through Trade Exhibition/Suppliers

These are businesses purchasing at wholesale price and resell directly to customers at higher retail prices. Honey and honey-based products can be sold under a specific brand.

Wholesale Institutional Customers – Through Government Agencies

Such as honey to be supplied to the Ministry of Education – to be included in the National Food Supplement Program to ensure healthy food intake by school-children. Also, there can be a collaboration with state-sponsored religious schools to supply honey sticks on a daily basis during breakfast to students.

Selected Marketing Strategy

Product

The main product being proposed is the stingless honey bee farming project has the following characteristics:

- (i) It will have a social enterprise set up;
- (ii) It will employ and empower a targeted group of B40 community in a particular village – to be categorized as a cottage industry;
- (iii) It is a clustered agriculture sector that requires utilisation of suitable land size;
- (iv) It is an agriculture-based industry to be conducted on a particular plot of land near the place of living of the targeted B40 community; and
- (v) Its main product will be honey and honey-based products.

In order to create more revenue-generating activities and opportunities for the honey bee farm, apart from the main product, which is honey bee, the farm will diversify its product and increase the scope of product offering. This includes the followings:

- (i) Honey and honey-based products – including honey (in bottles and sticks) and honeycomb
- (ii) Cookies and honey candy
- (iii) Honey-based traditional health drinks (such as ginger-honey drinks)
- (iv) Honey farming training
- (i) Agro-tourism – direct experience of stingless bee honey farming and other fruit tree picking
- (ii) Domestic animals rearing such as goose, hens and chicks, rabbit
- (iii) Homestay
- (iv) Restaurant and mini-market – souvenirs, t-shirts, honey-based products, cookies, and drinks
- (v) Cycling and ATV activities

Price

Price is usually an important factor affecting the success or failure of a transaction, and it is also the most difficult factor in the marketing mix. The goal of pricing is to promote sales and make profits. Therefore, we must consider not only the cost compensation but also the consumer's ability to accept the price so that the pricing strategy has the characteristics of two-way decision-making between buyers and sellers. In addition, price is also the most flexible factor in the marketing mix, and it can respond sensitively to the market.

Place (Distribution)

As discussed in customer segmentation, the distribution of the honey bee farm products, especially the honey bee-related products, will depend on the customer segments. Thus,

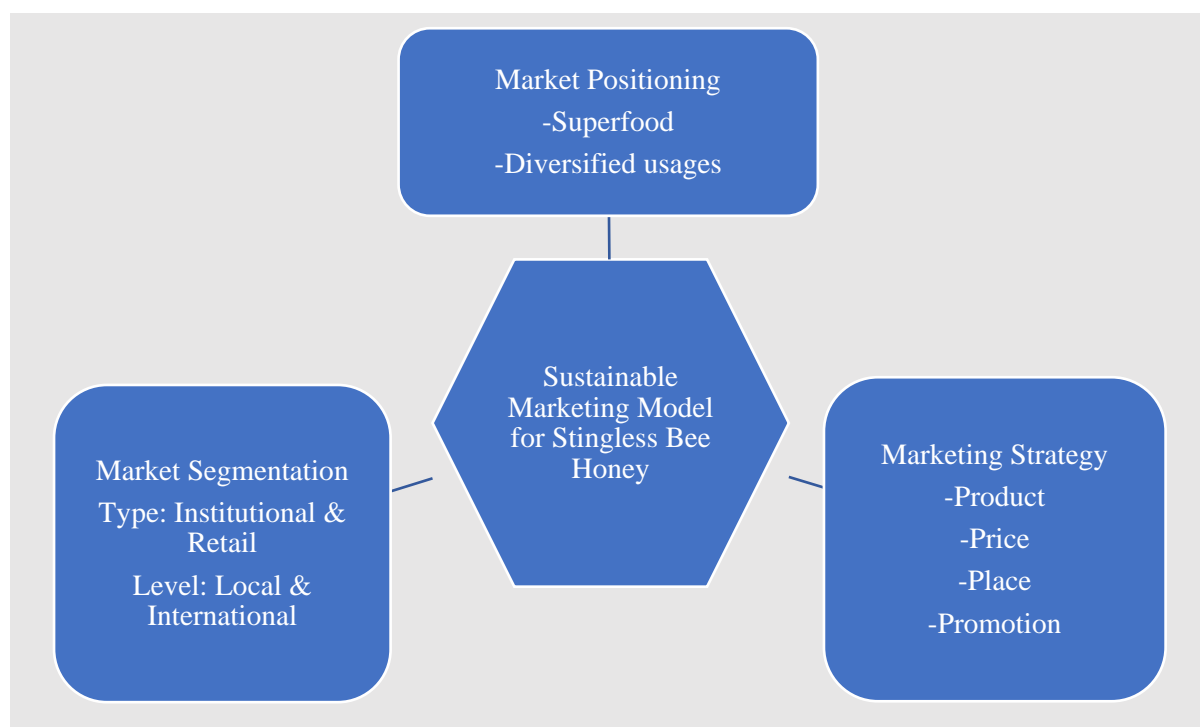
products will be distributed to local and national marketplaces. For future expansion plans, the stingless bee honey and honey products will be promoted at the international market, where annual demand is very high, especially under the umbrella of the “halal” products.

Promotion

Promotion efforts will be undertaken as wide as possible, exploring all possible channels. First, in the immediate future, following the setting up of the business, the company will focus on social media marketing, including Facebook, travel blogs, Tripadvisor, Youtube, Shopee, etc. Collaborations with the Malaysian Agricultural Research and Development (MARDI) and Federal Agriculture Marketing Authority (FAMA) will focus on promoting stingless bee honey to wholesale and institutional customers.

The Search Engine Optimization (SEO) will be used so that potential customers and clients can discover stingless bee honey quickly and efficiently. Related info such as direction, contacts, video, products, discount and promotions, and customer testimonies will be provided on the website.

The Proposed Marketing Model



Source: Authors' own.

CONCLUSION

Stingless bee farming has a bright potential to be developed as an economic empowerment program in view of its versatile nature and diversified demand for downstream products. The study suggests that stingless bee farming be developed as a form of agro-tourism product offering various related projects, which are highly viable given the current society lifestyle. The proposed stingless bee farming project will not only benefit the low-income community directly related to the project, but it will also promote related business and improve land productivity in the area.

In order to get a better understanding of stingless bee farming and be able to arrive at an effective marketing strategy, several analyses were undertaken to enable the assessment of the viability and sustainability of the proposed project. From the findings of these analyses, it may be concluded that the proposed stingless bee farming project is highly viable, profitable, and sustainable as it fits well into the future trend of society and the economy.

Future extensions of this study are expected to focus on sustainability issues in major aspects of developing the stingless bee industry. The study has identified several threats to the industry's future development, including increasing competition from other types of domestic honey producers, international (imported) honey producers, and fake honey producers. There are also concerns regarding the sustainability of the industry due to threats from global warming that could potentially bring new diseases and pests that pose a risk to the production of honey as well as the survival of the bee population itself. Another threat is pertaining to the human-wildlife conflicts, which are becoming more frequent and widespread as new farming and agricultural areas are explored and expanded to jungle and forest areas (IUCN SSC Human-Wildlife Conflict & Coexistence Specialist Group, n.d.). In the specific context of the bee farming industry, elephant intrusions into the farming areas located near forests are rather common, resulting in an unsustainable supply of honey and posing a threat to the financial and operational sustainability of the bee farming business. As sustainable income is very much tied to supply continuity and sustainable marketing, future studies should consider exploring how beehive fences can be used as biological control of elephant intrusion. Such biological control has not only proven to be successful in mitigating human-animal conflict in the case of the African honey bee, but more importantly, it would result in sustainable farming output due to higher honey production and less tendency to swarm (Schneider, 1990).

REFERENCES

- Imenda, S. (2014) Is There a Conceptual Difference between Theoretical and Conceptual Frameworks? *Journal of Social Sciences*, 38, 185-195. <https://doi.org/10.1080/09718923.2014.11893249>
- Ismail, S., Safar Al Kahtani, Nuru Adgaba, Ahmed A. Al-Ghamdi, Abdu Zulail. (2014) Factors That Affect Consumption Patterns and Market Demands for Honey in the Kingdom of Saudi Arabia, *Food and Nutrition Sciences*, 2014, 5, 1725-1737 Published Online September 2014 in SciRes. <http://www.scirp.org/journal/fns> <http://dx.doi.org/10.4236/fns.2014.517186>
- IUCN SSC Human-Wildlife Conflict & Coexistence Specialist Group (n.d.). *Human-Wildlife Conflict & Coexistence*, accessed at <https://www.iucn.org/commissions/ssc-groups/cross-cutting/human-wildlife-conflict-coexistence-specialist-group>, accessed on 24th June 2022
- Jaffé, R., Pope, N., Carvalho, A.T., Maia, U.M., and Blochtein B. (2015) Bees for Development: Brazilian Survey Reveals How to Optimize Stingless Beekeeping. *PLoS ONE* 10(3): e0121157. doi:10.1371/journal.pone.0121157
- Kiran, V. and Jose, D. (2013) Marketing practices in small businesses: concentration on cottage industry with special reference to Channapattana, *International Journal of Advanced Research in Management and Social Sciences*, 2(7), July, 68-81.
- Schneider, S.S. (1990) Nest characteristics and recruitment behavior of absconding colonies of the African honey bee in Africa, *Journal of Insect Behavior*, 3(2), 225-240

- Sirjana, Y., Raj, P.B., Anish, S., and Bibas, B. (2020) Production and marketing economics of honey from Apis Cerana Indang District of Nepal, *Reviews in Food and Agriculture*, 1, 22-26
- World Tourism Organisation (2004) *Rural Tourism in Europe: Experiences, Development and Perspectives*. Retrieved from <https://www.e-unwto.org/doi/epdf/10.18111/9789284407163>
- Yeserah, S., Abebe Jenberie & Desalegn Begna (2019) Honey marketing, structure and conduct of honey market in Gozamen district, East Gojjam Zone, and Amhara Region, *Cogent Food & Agriculture*, 5:1, 1620153, DOI: 10.1080/23311932.2019.1620153