

CREATING AN ENVIRONMENTALLY FRIENDLY PRODUCT VALUE CHAIN MODEL FROM BANANA STONES TO ENHANCE THE COMMUNITY GRASSROOTS ECONOMY IN BANNANG SATA DISTRICT, YALA PROVINCE

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Abstract

The objectives of this research are to 1) study consumer behavior and marketing mix factors of environmentally friendly stone banana products, 2) analyze the original value chain of environmentally friendly stone banana products for upgrading community grassroots economy, and 3) create a new value chain model for environmentally friendly stone banana products for upgrading the community grassroots economy. The study was a mixed methods research. The quantitative research used a questionnaire as a research instrument. The sample was 400 consumers in Bannang Sata District, Yala Province. The results found that the majority of consumer behavior chose to buy products with the OTOP, FDA, Halal marks, The product integrity and marketing mix factors overall were at the highest level. The product received the FDA and Halal marks. The price was worth it when compared to the quality of the product. For the place, opening and closing times of the sales location were convenient for purchasing the product. In addition, the promotion focused on after-sales service and product guarantee, for example in case of dissatisfaction or damage, product can be returned. The qualitative research using a focus group discussion and in-depth interviews found that the main activities and supporting activities promoted the development of environmental products to raise the level of the community's grassroots economy in the district. Moreover, the research model found that stimulating factors outside the organization (Environmental regulations and market) had a positive direct influence on green manufacturing practices and stimulating factors within the organization (Social responsibility, commitment of senior management, and shared vision) had a direct positive influence on environmentally friendly production practices.

Keywords: Value Chain Model, Environmentally Friendly Products, Banana Products, Community-Based Economic Development

Introduction

Driving the development of the grassroots economy is an important operation in developing the country to be a high-income country with unfluctuating distribution of income. It lays a solid foundation for the Thailand economy in the future by promoting local community economies to be strong, competitive, and able to rely on themselves. This will help raise the standard of living and well-being of the people in the community and lead to solving the problem of poverty and inequality according to the development goals of the national strategy. Especially, creating opportunities and social equality makes everyone beneficial from comprehensive and fair

development through restructuring the economy and behavior and creating competitiveness. Developing and promoting the creation of value in agricultural products generate income for farmers and promote community enterprises in self-reliance. In the past, economic structural problems were one of the causes of poverty and inequality, especially among farmers and general workers as low-income and unstable population (Soonthornpipit et al. 2021).

Developing the grassroots economy, therefore, is one of the important goals according to the current government policy. There are many problems of inequality in Thai society, especially the household economic problems of the largest group of society members. Most of whom are farmers living in rural areas. Some of them immigrates to be hired or doing small trade in the city or working as a laborer in the industrial area. They have low and unstable income, lack savings and have accumulated chronic debt. Grassroots economic development, thus, is expected by the government that it is a way to manage the problem correctly and sustainably and create stability and prosperity at the grassroots community level (Hiranphaet et al., 2023). Yala Province aims to develop “The stable quality of life, wealthy agriculture, and sustainable tourism” in view of the marketing development of the province in order to generate income for the community and households. In addition, for distributing products to consumers according to their needs and sufficiency in every sector in the province, communities are involved in various activities in order to be used as a guideline for upgrading the grassroots economy and increased community participation” (Sooksai et al., 2022).

Therefore, this research aims to The objectives of this research are to 1) study consumer behavior and marketing mix factors of environmentally friendly stone banana products, 2) analyze the original value chain of environmentally friendly stone banana products for upgrading community grassroots economy, and 3) create a new value chain model for environmentally friendly stone banana products for upgrading the community grassroots economy. With the purpose that banana stones farmers so can earn more income by developing community products that were originally available locally into processed agricultural products with higher value. It also results in driving the process of changing the original supply chain towards a new value supply chain of products.

Literature Review

Value chain

Value chain, as invented by Porter (1985), is a model that views business as an activity that continuously creates value and is related like a production chain. Each activity in the business process from the import of raw materials until the production is completed helps create added value to products and services before they are delivered to customers. Activities in the value chain model are divided into 2 parts. First, primary activities are activities related to product production and direct services, consisting of five sub-activities: inbound Logistics, operations, outbound logistics, marketing and sales, and service. Second, support activities are activities that help support the main activities, comprising four sub-activities: procurement, technology development, human resource management, and Firm Infrastructure. The basic structure of the organization

includes accounting systems and financial systems. This concept is studied in many current research (Tirastittam et al., 2020; Sommanawat et al., 2021; Waiyawuththanapoom et al., 2022).

Grassroots economy

Grassroots economy refers to the economic system of the local community that can be self-reliant under the philosophy of sufficiency economy with generosity and morality. It is an economic system that facilitates the development in the economy, society, people, cultural communities, the environment, and natural resources strongly and sustainably. Strong capital and funds have been created. There are basic production, processing, services, marketing, food production, and basic necessities for living together for people in the area sufficiently. Both small and large social enterprises of various communities have been contemporarily developed by using both knowledge accumulated and unique culture of the area. Techniques, science, knowledge and technology have been established further to suit the market or economic society changed. People and local communities become self-reliant and have more income than expenses. They can be a producer and creator of various modern and unique services from a local area that is efficiently connected to the market system (Nualkaw et al., 2021; Sangchareontham & Aunyawong, 2023; Kerdpitak et al., 2022; Wararatchai et al., 2023).

Environmental products

Environmentally friendly products (Green product) are products produced from processes and technology that take care of their impact on the environment since the selection process of raw materials for production (Waiyawuththanapoom et al., 2023). An appropriate energy and technology are selected to enable the production process uses energy from water and electricity in the most cost-effective manner (Wisedsin et al., 2020). This includes reuse and recycling raw materials are used to conserve the environment and costs by taking into account methods to increase productivity with less waste or emissions (Prachayapipat et al., 2022). Moreover, the correct management of product remains without causing pollution to the environment is concentrated (Pimonratanakarn & Aunyawong, 2023). The emergence of environmental product innovations for the environment arises from three main factors: materials, energy, and pollution (Pintuma & Aunyawong, 2021).

Methodology

The sample included 400 consumers who had purchased or eaten products from stone bananas in the area of Bannang Sata District, Yala Province, with a confidence level of 95 percent and an error level of 0.05 percent. The researcher used simple random sampling. Research tool was a questionnaire. Data was analyzed using descriptive statistics, including frequency, percentage, mean and standard deviation, and inferential statistics comprised Chi-square to test the hypotheses. The quality of questionnaires was checked using IOC Cronbach alpha coefficient. For qualitative Research, the researcher used purposive sampling method to select key informants for focus group and in-depth interview based on qualifications and genuine involvement. They

were: first, representative of the president or vice president or representative of a group of producers of banana stone products in Bannang Sata District, Yala Province, totaling 3 groups, second, representative members of the best group of stone banana product producers in Bannang Sata District, Yala Province, consisting of the president, vice president, totaling 1 group, third, representatives of government agencies, consisting of the director or academic experts or a leader involved in evaluating environmentally friendly products both in terms of policy and practices in Bannang Sata District, Yala Province, totaling 2 agencies. Data was analyzed and synthesized by descriptive analysis.

Results

Objective 1: To study consumer behavior and marketing mix factors of environmentally friendly stone banana products.

The results of general information about the respondents found that most of them were single female, aged 21-30 years, graduated the bachelor's level, had employment with average monthly income/baht is less than 10,000 baht, living in Yala Province, and had experience in buying or eating banana stone products in Bannang Sata District, Yala Province.

The results of overall opinion regarding consumer behavior of environmentally friendly banana stone products were at the highest level ($\bar{x} = 4.44$ and S.D. = 0.51). When considering each item, it was found that opinions at the highest level included things you want to buy or want to get of products from banana stone that are environmentally friendly ($\bar{x} = 4.75$ and S.D. = 0.43), selection of products from stone bananas that are friendly to the environment ($\bar{x} = 4.75$ and S.D. = 0.43), the decision to purchase products from banana stone that are environmentally friendly ($\bar{x} = 4.69$ and S.D. = 0.48), and the reasons for purchasing products from stone bananas that are environmentally friendly ($\bar{x} = 4.51$ and S.D. = 0.54), followed by opinions at a high level, including people who have influence in deciding to purchase environmentally friendly banana stone products ($\bar{x} = 4.16$ and S.D. = 0.51), the time period for choosing products from stone bananas that are environmentally friendly ($\bar{x} = 4.13$ and S.D. = 0.58), and the channel for purchasing products from stone bananas that are environmentally friendly ($\bar{x} = 4.10$ and S.D. = 0.58), respectively.

The results of overall opinion regarding the marketing mix factors of environmentally friendly stone banana products were at the highest level ($\bar{x} = 4.66$ and S.D. = 0.51), When considering each item, it was found that all opinions were at the highest level, comprising product ($\bar{x} = 4.71$ and S.D. = 0.45), price ($\bar{x} = 4.71$ and S.D. = 0.47), place ($\bar{x} = 4.65$ and S.D. = 0.54) and promotion ($\bar{x} = 4.55$ and S.D. = 0.58).

For testing hypothesis 1: Different personal factors affect consumer behavior of environmentally friendly stone banana products, consisting of buying reasons, the need to buy, the choice to buy, the time to buy, buying channels, people influencing buying decision, and buying decision differently, the results found that consumers with different ages, highest education levels, statuses, occupations, average monthly personal incomes, livings, and experiences had buying reasons, the

choice to buy and buying decision of environmentally friendly stone banana products differently with a statistical significance at the 0.05 level.

For testing hypothesis 2: Different personal factors affect the marketing mix, including product, price, place and promotion of environmentally friendly stone banana differently, the results found that different highest education levels affected product, place and promotion of environmentally friendly stone banana differently with a statistical significance at the 0.05 level. It explained that marketing mix factors were social factor that consumers had knowledge and understanding of stone banana products. High importance was given to well-known product, product reliability, product quality, convenience in purchasing and traveling, marketing promotions, and power to purchase products.

For testing hypothesis 3: Different consumer behaviors of stone banana products affect the marketing mix of environmentally friendly stone banana products differently, the results found that the all marketing mix factors in terms of product, price, place and promotion related to consumer behavior of environmentally friendly stone banana products in the district with a statistical significance at the 0.05 level.

Objective 2: To analyze the original value chain of environmentally friendly stone banana products for upgrading the community grassroots economy in Bannang Sata District, Yala Province.

1. Interview results from farmers

In the area of Bannang Sata District, Yala Province, all farmers began by growing bananas with the same method for planting. Holes' size was 50x50x50 centimeters and holes were 2-4 meter apart. They used a banana shoot in the center of the hole, 10-20 centimeters above the soil level to prevent waterlogging when watering thoroughly. The suitable season for planting was the rainy season (from May - June). The Saba stone banana was selected. Weed control in planting was in a natural way. The production period was approximately 6 months. Banana cuttings were bananas that had mature characteristics with the best yellow color, depending on the output, about once a week. Banana care was natural. The bananas were resold to community enterprises in the district (middlemen). Fertilizing used both natural methods and chemical fertilizers.

2. Interview results from middlemen

Most of the middlemen were from the Bannang Sata District. However, the nature of being a middleman was buying for resale and processing into products. Experience as a middleman was between 15-40 years. Criteria for purchasing were bananas that were 80% or more mature. The purchase price was 13-15 baht per kilogram. Most of the items were sold to groups of merchants, including fried banana sellers, tapped banana seller, and fried banana seller in community enterprises in Bannang Sata District at Bannang Sata Old Market to process into banana stone products every day. The sales characteristics and selling prices were divided into two types: wholesale in the form of bundles, 17 baht per kilogram, and retail in the form of combs, 25-70 baht. The prices were divided according to the characteristics of small, medium and large bananas.

3. Interview results from stone banana product manufacturers

Every sample had not less than 10 year experience in operating. Entrepreneurs registered with Community Enterprise Promotion Division, Department of Agricultural Extension, Yala Province received various certification standards such as GMP, Food and Drug Administration (FDA), Halal, Community Product Standard, OTOP, etc. They met the criteria for selecting outstanding farmers in the area of conservation of natural resources and the environment using five activity principles, including raw material usage, production process, exporting, sales promotion and services, four activity principles, consisting of procurement of raw materials sources in the area, product development, personnel management in production, and financial management, community participation principles, comprising participation in decision making, participation in operations, participation in benefits, and participation in evaluation, and the principles of the community grassroots economy, containing financial system, occupational income, environmental conservation, and welfare.

4. Interview results from best representative of group members

Entrepreneurs registered with Community Enterprise Promotion Division, Department of Agricultural Extension, Yala Province received various certification standards such as GMP, Food and Drug Administration (FDA), Halal, Community Product Standard, OTOP, etc. There was continuous production of products, namely the community enterprise group, the group of housewives, farmers developing and processing Nang Ta stone bananas.

5. Interview results from government agencies

The raw materials used to create products and the banana stone production processes were consistent with the environment. The products had a high quality and standards as the market demands, such as having product certification marks: Halal, FDA, GMP, etc. The group exported products in many areas and there were various markets that bought and sold banana stone products. Some had orders in large quantities. This caused a problem of insufficient raw materials. In addition, the group distributed products to various stores both in the area and outside the area, such as convenience stores and Provincial Public Health Office. All groups received GI standard certification, while currently some community enterprises were in the process of requesting the GAP standard certification mark.

Objective 3: To create a new value chain model for environmentally friendly stone banana products for upgrading the community grassroots economy.

For main five activities, there should be a public or government agency to promote and campaign for farmers in the area to turn to growing bananas to stimulate income and create a career, unique and plant in the community where agriculture grows naturally. Community enterprises should produce quality products and develop standards as the market demands, such as having product certification marks, such as Halal, FDA, and GMP. The agencies, moreover, should support exporting products abroad to be the market leader in the area, while community enterprises should increase the number or frequency of marketing promotions to encourage more purchases. For providing services to consumers, community enterprises should have a service system that uses a variety of marketing tools to increase marketing channels and services.

For four supporting activities, the public or government agencies should promote farmers in the area to grow green bananas that are environmentally friendly by using green raw materials to stimulate income and create a career that is unique and is a community plant which is naturally grown by agriculture. Enterprises should develop stone banana stones for processing, such as banana flour, a polished product to add value and create new products that are environmentally friendly by taking into account the consumer mainly. For financial management, community enterprises should use revolving funds or wait for budget support from other agencies.

Discussion

The results of the analysis of objective 1 found that the results of overall opinions regarding consumer behavior of environmentally friendly stone banana products, Bannang Sata District, Yala Province, were at the highest level. When considering each item, it was found that the opinions were at the highest level and at a high level. These findings are in line with the research of and Amberg and Fogarassy (2019). Therefore, it can be explained that environmentally friendly female consumer are more open to purchasing than males. Consumers and producers are increasingly open to using natural products. The novelty of the analysis lies mainly in the fact that consumers are grouped according to their consumption of biological foods and their choice of natural products. There are many variables: consumer behavior in terms of biological product, new natural product brand or health and environmental preferences, plus environmental and health awareness. The preference for natural products does not necessarily create a connection. In addition, health and environmentally conscious consumers are more motivated to purchase natural products. However, they still choose to buy intensively according to the knowledge and information available.

In terms of marketing mix factors, it was found that the results are consistent with the research of Kotler and Armstrong (2016). Therefore, it can be explained that the marketing mix is considered a marketing tool used in strategic planning to achieve the marketing objectives of community enterprises. It can be seen that the marketing factors affect operational efficiency. For product factors, products must have quality, standards, and beautiful packaging. The types and sizes of products must be diverse. For price factor, the price must be reasonable and suitable for the quality. There should be many price levels. It must have a clear sign showing the price of the product. For place, the sales location must be located in a place that is easily accessible and has appropriate opening and closing times. For promotion, there should be special activities organized according to festivals, with discounts, exchanges, giveaways, the speed of service of the employees, and advertising products through various media.

For results of testing hypotheses 1-3, it can be explained that consumers with different personal factors have different buying reasons, the choice to buy and buying decision of environmentally friendly stone banana products. Place affects buying reasons and the choice to buy as well as promotion affects the need to buy, the time to buy, buying channels, and people influencing buying decision, and buying decision differently. In terms of product and price, raw materials and costs

can be calculated. The price can be negotiated for a discount, if buyers are local people. The findings are in line with Aunyawong et al. (2020) and Phrapratanporn et al. (2022).

The results according to objective 2 are consistent with the research of Hiranphaet et al. (2022) in terms of operations or production processes by using various activities to develop the value chain to be reliable and creating products to increase income with more and more groups of people involved. For raising the level of the community grassroots economy in Bannang Sata District, Yala Province Environmentally friendly stone banana product value chain consisted of procurement of raw materials sources in the area, product development, personnel management in production and financial management. In addition, community participation comprised participation in decision making, participation in operations, participation in benefits, and participation in evaluation. Moreover, stone banana product manufacturing process included financial system, occupational income, environmental conservation, and welfare.

Community development agency continued to promote marketing for the development of products that did not harm the environment. However, the agency has conducted a preliminary analysis on the main factors of product development, including a lack of knowledge or innovation within the community or even expanding distribution channels. These were the main reason for the management of agencies involved in upgrading the quality of life of the community. The relevant agencies cooperated in being lecturers providing knowledge to those who were interested, providing educational tour, allocating budgets, organizing promotional activities and establishing training on the project to expand the area of growing stone bananas for every community enterprise sub-committee.

The results according to objective 3 found that a new value chain model for environmentally friendly stone banana products for upgrading the community grassroots economy in Bannang Sata District, Yala Province should focus on behavior and marketing mix that designs attractive marketing promotions. Communities must cooperate and play a role in promoting and developing the value chain system for management from upstream, midstream, and downstream for community enterprises in Bannang Sata District, Yala Province to be efficient according to the Sufficiency Economy Principles to sustainably raise the level of the community's grassroots economy in Bannang Sata District, Yala Province. It is consistent with the research of Phinichchan et al. (2018) revealing that stimulating factors outside the organization (environmental regulations and market factors) have a positive direct influence on green manufacturing practices and stimulating factors within the organization (social responsibility Commitment of senior management and having a shared vision) have a direct positive influence on environmentally friendly production practices. In addition, it is in line with Maneerat and Charoenwisana (2022) and Sutikasana et al. (2023) representing that value chain will be the driving force in the process from the beginning of production to the delivery process. In the process, it is necessary to add value to products or services at various stages of the chain system in order to create value and create an advantage to make service recipients satisfied and have a good travel experience to create interest and deciding on the use of strategic marketing and transportation services requires an evaluation

of the chain system in order to be able to prevent problems which will make service recipients decide on purchasing, choose services, and be a loyal customer.

For practical recommendations, entrepreneurs should raise the level of people in the local area and in the province, promote export of products to foreign countries, and develop product ingredients for better quality of the best products. People or those who use services should strengthen and support the development of skills and careers for integration in creating products that do not destroy the environment under the community. Related agencies should propose control operations under the rules and regulations of the agency that have been laid down to make the practice consistent with the way of life of the community. For further research recommendations, how environmentally friendly products affect the production management process in the digital age should be studied to obtain information on innovations that can be used to promote entrepreneurs and communities to learn and innovate. In addition, a model of causal factors in environmentally friendly products that influence the participatory management process in the three southern border provinces should be studied.

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