

Development Strategy For Eco- Friendly Production Of Community Products In Thailand.

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Acknowledgements

We would like to thank the officials of the Community Development Department, entrepreneurs, experts, and qualified individuals in eco-friendly production for their cooperation

- Declaration of Interest statement
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Abstract

The propose of this research were to study. 1) Analyze the current situation regarding environmental problems arising from the production process of community products. 2) Study entrepreneurs' opinions on environmentally friendly production processes. 3) Define strategic guidelines for environmentally friendly production of community products. is qualitative research by using a combination of research techniques. The samples were 411 persons for a competency survey and using 30 informants. The instruments were questionnaire and structure interview. The statistic were percent, mean, standard deviation and content analysis.

The research was as follow:

1. The assessment of strategic development components for environmentally friendly production of community products was, overall, at a high level. When considering individual issues in descending order, these were: the issue of plans/projects in the strategy for developing environmentally friendly production through the integration of Local Wisdom (LW) and Modern Science (MS), the issue of various measures in the strategy, the issue of the objectives of the development strategy, and the issue of strategic approaches for developing community businesses towards environmentally friendly excellence, respectively.
2. Strategies for developing environmentally friendly production in the community include: 1) Integrating local wisdom (LW) and modern science (MS) 2) Excellence 3) Learning centers and community enterprise and 4) Community economic and cultural development strategy.

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Key Words: *Strategy /The Development Strategy / Eco- friendly production / Community Products*

1. INTRODUCTION

The main concept of the Sufficiency Economy Philosophy of His Majesty the King has been articulated since the year 1974 as a guideline for living and national development, serving as a framework for the existence and conduct of people at all levels, from families and communities to the national level, especially in economic development, to keep pace with globalization (Siamrath, 2012: 2). In 2001, the government set a strategy for grassroots economic development to create links between the domestic economy and the global economy, believing that Thai society has the potential to develop and strengthen Thailand's economic foundation to survive in the future world (Department of Community Development, 2020). The objectives of promoting community products are 1) creating jobs and income for the community, 2) strengthening the community to be self-reliant and capable of local development, 3) promoting local wisdom, 4) promoting human resource development, and 5) encouraging community creativity in product development that aligns with local lifestyles and cultures. These products can be categorized into five types: 1) food, 2) textiles and clothing, 3) household items, decorative items, and souvenirs, 4) non-food herbs, and 5) beverages. This involves producing or managing local resources and community capital to create quality products with unique characteristics that align with local cultures, based on three fundamental principles: 1) Local Yet Global, 2) Self-Reliance & Creativity, and 3) Human Resource Development (Department of Community Development, 2008).

Given the current situation, global society is facing environmental crises in multiple dimensions, resulting from human activities that are not environmentally friendly. This is especially true in the context of sustainable development, which was emphasized by the United Nations Conference on Sustainable Development (UNCSD) or Rio+20 in Rio de Janeiro, Brazil. The conference highlighted the importance of a "green economy" in balancing economic development and environmental preservation.

The development approach consistent with the country's strategy under the 13th National Economic and Social Development Plan (2023-2027) is to move towards a circular economy and a low-carbon society. This supports the efficient and sustainable use of resources, including changing consumer behavior to reduce the use of raw materials and waste from production processes. It emphasizes promoting a circular economy that uses technology and innovation as driving mechanisms to incentivize sustainable economic behavior and lifestyles. However, from decades of implementing community product promotion projects, problems have been found that hinder the success of environmentally friendly production, including: 1) Creating pollution problems and environmental impacts, both intentional and unintentional. 2) Lack of knowledge and understanding about environmentally friendly production, which affects management and operational activities. And 3) Environmental health and maintaining ecological balance in community production systems.

Therefore, it is essential to develop an environmentally friendly production strategy for community products. This will provide a clear framework for operations, ensuring that production proceeds in a consistent direction without harming the environment, and promoting the sustainable conservation of natural resources and the environment. This will lead to the creation of a knowledge base for future community products, which is a crucial foundation for quality and sustainable community development in the new era.

2. MATERIALS AND METHODS.

2.1 Study Design and Data Collection

The study design and data collection for the research were conducted using a multi-instrument approach, encompassing both quantitative and qualitative methods, including participatory action research, research and development (R&D), and survey research. Participants were selected based on inclusion criteria using purposive and random sampling

methods. Qualitative methods were applied to 25 community entrepreneurs and 20 consumers, who were selected using purposive sampling. Concurrently, quantitative methods, utilizing a structured questionnaire, were applied to 411 consumers, who were selected using accidental sampling.

2.2 Concept of the study and Qualitative data from in-depth

The study was conducted based on 9 theoretical concepts, such as (1) strategy development, (2) sufficient economy philosophy, (3) eco-friendly products, (4) community enterprise and cultural economic, and (5) evaluation. The in-depth interview was carried out to obtain the ideas and their suggestion. The in-depth structured interviews were conducted in 3 groups of informants: (1) manufacturers and entrepreneurs of specific target groups (25 participants), (2) 20 affected people in the community, and (3) 10 policy makers.

2.3 Data Analysis

The data were analyzed by using a matrix method which integrate the qualitative and quantitative data. Triangulation and synthesizing were logically carried out to summarize the qualitative data. For quantitative results, the data were analyzed, and described the data with percentage.

3. LITERATURE REVIEW

3.1 Eco-friendly products and common prosperity

The world currently faces numerous environmental challenges, such as climate change, resource depletion, and pollution. One way to address these issues is to promote eco-friendly products. These are products manufactured using sustainable materials and processes, having minimal environmental impact during use and disposal (Nassar et al., 2021). Eco-friendly products have a positive impact on the environment. For example, research by Han (2020), Pahlevi and Suhartanto (2020) found that eco-friendly products have a lower carbon footprint than conventional products. Additionally, they use sustainable materials such as bamboo, which is a renewable material with minimal environmental impact during production (Chi, 2022). Furthermore, eco-friendly products must be designed to be energy-efficient, which helps reduce the amount of energy required for use and has a positive economic impact. Research by Su et al. (2021) found that eco-friendly products positively affect competitiveness, create new market opportunities, and increase demand for sustainable products, leading to the growth of the green industry (Lee et al., 2022). Moreover, adopting eco-friendly products helps reduce long-term costs, as they use less energy and are more durable than conventional products. This positively impacts society, promotes sustainability, and encourages individuals to make environmentally conscious choices (Thorisdottir and Johannsdottir, 2020).

3.2 Eco-Friendly Products and User Satisfaction

Environmental sustainability has received significant attention in recent years due to the global climate crisis, leading to the development and promotion of environmentally friendly products. These products are designed to reduce environmental impact and promote a sustainable quality of life. Although there has been increasing research, research on the impact of these products on user satisfaction is still limited (Baumeister et al., 2022). Environmental concerns are therefore a significant societal issue, leading to an increased demand for environmentally friendly products, which are products designed to have minimal environmental impact, reduce waste, and promote sustainable living (Ali et al., 2021, An et al., 2021, Yingfei et al., 2021). These production processes include recyclable and biodegradable materials, energy-efficient products, and sustainable packaging, leading to the development of eco-labels to certify environmentally friendly products (Chatterjee et al., 2023). Studies on the impact of environmentally friendly products on user satisfaction indicate that it stems from a sense of satisfaction and social responsibility. Additionally, environmentally friendly products are often perceived as being of higher quality and healthier (Peck et al., 2022). Furthermore, studies have found that environmentally friendly

products will result in lower user satisfaction if they are less efficient or less convenient than non-environmentally friendly alternatives (Xie et al., 2023).

3.3 Research Conceptual Framework



Figure 1: Research Conceptual Framework

4. RESULTS

Part 1: Current environmental problems from community product manufacturing processes.

Table 1 Environmental problems from production causing issues and nuisances in the community. (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Soil pollution	339 (82.5)	72 (17.5)
- Water pollution	381 (92.7)	30 (7.3)
- Air pollution	338 (82.2)	73 (17.8)
- Noise pollution	375 (91.2)	36 (8.8)
- Waste pollution	216 (52.6)	195 (47.4)
- Pollution from energy use	314 (76.4)	97 (23.6)

It was found that the environmental problem situations from product manufacturing that created problems and nuisances in the community were water pollution (72.7%), followed by noise pollution (91.2%), soil pollution (82.5%), and air pollution (82.2%), respectively. For product manufacturing that did not create problems and nuisances in the community, it was garbage pollution (47.4%), followed by pollution from energy use (23.6%) and air pollution (17.8%), respectively.

Table 2 Environmental problem situation from production: Soil pollution (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Disposing of chemicals into the soil	359 (87.3)	52 (12.7)
- Disposing of waste into the soil	352 (85.6)	59 (14.4)
- Burning and destroying topsoil	386 (93.9)	25 (6.1)
- Agriculture and agricultural materials	284 (69.1)	127 (30.9)
- Disposing of wastewater into the soil	266 (64.7)	145 (35.5)

It was found that the environmental problems and nuisances in the community: Soil pollution was Burning and destroying topsoil (93.9%), followed by Disposing of chemicals

into the soil (87.3%), Disposing of waste into the soil (85.6%) and Agriculture and agricultural materials (69.1%), respectively.

Table 3 Environmental problem situation from production: Water pollution (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Agricultural wastewater for raw material production	302 (73.5)	109 (26.5)
- Disposing of waste into water	394 (95.9)	17 (4.1)
- Disposing of chemicals into water	405 (98.5)	6 (1.5)
- Washing and cleaning raw materials	206 (50.1)	205 (49.9)
- Disposing of wastewater from product manufacturing	281 (68.4)	130 (31.6)

It was found that environmental problems and nuisances in the community: Water pollution was Disposing of chemicals into water (98.5%), followed by Disposing of waste into water (95.9%), Agricultural wastewater for raw material production (73.5%) and Disposing of wastewater from product manufacturing (68.4%), respectively.

Table 4 Environmental problem situation from production: Air pollution (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Unpleasant odors	299 (72.7)	112 (27.3)
- Airborne dust	265 (64.5)	146 (35.5)
- Airborne haze	333 (81.0)	78 (19.0)
- Airborne chemicals	385 (93.7)	26 (6.3)

It was found that environmental problems and nuisances in the community: Air pollution was Airborne chemicals (93.7%), followed by Airborne haze 333 (81.0%), Unpleasant odors (72.7%) and Airborne dust (64.5%), respectively.

Table 5 Environmental problem situation from production: Noise pollution (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Annoyance, irritability, insomnia	278 (67.7)	133 (32.4)
- Interference with communication	290 (70.6)	121 (29.4)
- Reduced work efficiency	224 (54.5)	187 (45.5)
- Health hazards such as stomach ulcers, headaches, deafness	217 (52.8)	194 (47.2)

It was found that environmental problems and nuisances in the community: Noise pollution was followed by Interference with communication (70.6%), Annoyance, irritability, insomnia (67.7%), Reduced work efficiency (54.5%) and Health hazards such as stomach ulcers, headaches, deafness (52.8), respectively.

Table 6 Environmental problem situation from production: Waste pollution (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Smoke from burning garbage	327 (79.6)	84 (20.4)
- Smell from rotting garbage	390 (94.9)	21 (5.1)
- Littering	238 (57.9)	178 (42.1)

- Creating more garbage than necessary	386 (93.9)	25 (6.1)
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It was found that the environmental problems and nuisances in the community: Waste pollution was Smell from rotting garbage (94.9%), followed by Creating more garbage than necessary (93.9%), Smoke from burning garbage (79.6%) and Littering (57.9%), respectively.

Table 7 Environmental problem situation from production: Pollution from energy use (n=411)

Environmental problems from production	Problem situation	
	Creates problems [n (%)]	Does not create problems [n (%)]
- Smell from burning	290 (70.6)	121 (29.4)
- Using the wrong type of energy	341 (83.0)	70 (17.0)
- Using renewable energy	363 (88.3)	48 (11.7)
- Using more energy than necessary	281 (68.4)	130 (31.6)

It was found that environmental problems and nuisances in the community: Pollution from energy use is Using renewable energy (88.3%), followed by Using the wrong type of energy (83.0%), Smell from burning (70.6%) and Using more energy than necessary (68.4%), respectively.

In summary, the important environmental problems from the production of goods that create problems and nuisances in the community in each area are Water pollution: Disposing of chemicals into water (98.5%), followed by Noise pollution: Interference with communication (70.6%), Soil pollution: Burning and destroying topsoil (93.9%), Air pollution: Airborne chemicals (93.7%), Pollution from energy use: Using renewable energy (88.3%) and Garbage pollution: Smell from rotting garbage (94.9%), respectively.

Part 2: Development strategies for environmentally friendly production of community products. The researchers and participants presented a framework for development strategies for environmentally friendly production of community products through SWOT analysis using the AIC process, and then jointly defined the vision, mission, and objectives as follows: Vision: Committed to excellence in community business with environmentally friendly products.

Mission:

1. Enhance learning processes in environmentally friendly production and increase production potential.
2. Promote and support entrepreneurial groups in environmentally friendly production in various forms according to their potential.
3. Coordinate cooperation with government agencies, private sectors, network partners, and communities to foster environmentally friendly production processes.

Goals:

1. To enable entrepreneurs to learn about developing environmentally friendly production.
 2. To enable entrepreneurs to effectively manage environmentally friendly production.
 3. To ensure entrepreneurs receive systematic, unified, and needs-based promotion and support.
 4. To enable community product promotion projects to grow and progress towards full-scale environmentally friendly production activities.
 5. To increase job creation, income generation, and profit seeking for community members.
- In this regard, four development strategies for environmentally friendly production of community products have been defined as follows:

1. Development strategy for environmentally friendly production through the integration of local wisdom (LW) and modern science (MS).
2. Development strategy towards excellence in environmentally friendly community economy.

3. Development strategy for learning centers and management of environmentally friendly community enterprises.
4. Development strategy for environmentally friendly community cultural economy.

5. DISCUSSION

Part 1: Current Situation and Opinion Study on Knowledge and Understanding of Eco-Friendly Production Processes

Environmental problems from community product manufacturing. Various pollution issues arising from non-eco-friendly production processes can be controlled and prevented sufficiently and appropriately. Additionally, there is a lack of awareness, negligence by some manufacturers, a lack of public consciousness, and insufficient cooperation and responsibility towards the environment from manufacturers. The various impacts that occur afterward, from creating more pollution than nature can absorb and self-purify, include the destruction of headwater forests, leading to unseasonal rainfall and rapid flash floods. Reliance on raw materials from factories for production, such as vegetable oil, gas, fuel, and various alternative energies, for environmental pollution management issues, makes it difficult to achieve concrete progress due to a lack of equipment or tools and a lack of support for environmental pollution management. There are no standard facilities for receiving and disposing of waste materials. There is a shortage of places or areas for waste disposal, leading to problems in quantity and quality, as well as a lack of specific, concrete regulations or laws that can truly enforce non-destructive production. This will lead to the creation of awareness and appreciation for the environment through eco-friendly production, including understanding the harm and disregard for environmental impacts. There should also be the establishment of a National Community Product Promotion Organization, concretely structured as a public organization, serving as a learning institution for both local wisdom (LW) and modern science and technology (MS), including the creation of Green Product or Eco-Production prototypes or models, for individuals and all product types, that can serve as eco-friendly production process models for manufacturers, entrepreneurs, and the general public.

Part 2: Development Strategies for Eco-Friendly Production of Community Products

Data analysis leads to development strategies for eco-friendly production of community products, in an overall view from experts, based on the philosophy of sufficiency economy with eco-friendly production (PHILOSOPHY: Eco-Friendly Production for Community Product on Sufficiency Economic Based). This is a goal for entrepreneur groups in implementing development strategies, meaning access to knowledge to gain understanding about the physical environment, and to have environmental awareness, a positive attitude towards the environment, good skills in preventing and solving environmental problems, participation in various environmental activities, and the ability to assess environmental situations. The analyzed development strategies consist of 4 strategies and 14 plans/projects, as follows:

2.1 Development Strategy for Eco-Friendly Production through the Integration of Local Wisdom (LW) and Modern Science (MS), comprising: 1) Project for promoting and developing eco-friendly production for community products. 2) Project for learning about eco-friendly production with clean production technology and appropriate technology. 3) Project for establishing a practical learning center for eco-friendly production to create community product innovations. 4) Project for creating eco-friendly community product prototypes. 5) Project for establishing a local wisdom institute, learning center, and wisdom transfer.

2.2 Development Strategy for Excellence in Eco-Friendly Community Businesses, comprising: 1) Project for professional development towards excellence in community economy. 2) Project for establishing a practical learning center for integrated professional community economic management. 3) Project for establishing a National Community

Product Promotion Organization. 4) Project for developing and promoting green marketing for eco-friendly products.

2.3 Development Strategy for Learning Centers and Eco-Friendly Community Economic Management, comprising: 1) Project for developing models and increasing the value of eco-friendly community products. 2) Project for developing change leaders in eco-friendly community cultural economic development.

2.4 strategies for developing community cultural economy that is environmentally friendly consist of: 1) Community cultural economy development project with community products, 2) Curriculum development project for community cultural economy with environmentally friendly community products, 3) Learning center establishment project for community cultural economy development with environmentally friendly community products. This also aligns with previously developed works, where knowledge and cooperation are key factors in the context of a changing global society. In detail, the value of the strategy consists of direct (economic) and indirect (social and ecological) benefits, aiming to provide financial returns to entrepreneurs, while considering job creation, income generation, adding value to products, and contributing at both micro (community economy) and macro (national economy) levels. In terms of social benefits, the goal is to promote cooperation, mutual support, and harmony within the community, human resource development, and the overall well-being of society, to create a society with shared values and a positive culture. In terms of ecological benefits, the goal is to promote responsible natural resource management and environmentally friendly production methods that emphasize environmental conservation. This has been developed from research that conceptualizes effective environmental management as requiring careful and cost-effective allocation and use of resources to meet human needs, while achieving economic, social, and environmental stability (Ashraf et al., 2024).

6. Suggestions

For evaluating the quality of development strategies for environmentally friendly production for community products, it will be a process of monitoring, inspecting, and evaluating whether the quality of the strategy has achieved its desired objectives. What problems or obstacles have arisen, and how should they be rectified or adapted to truly access the strategic concept of the community product promotion project, as well as requiring a review or change of development strategies to align with the situation and reality in a borderless global society, and how. This is to utilize the development of strategies for environmentally friendly production for community products. The results of this strategy development can be used by the government to review, consider, define, or promote policies for community product development in another way.

Authors' contributions: conceptualized the research by J.V., S.N., and S.L.; Data curation by J.V. and S.N.; formal analysis by J.V. and S.N.; investigation by J.V. and S.L.; methodology by J.V. and S.N.; resources by S.N. and S.L.; supervision by J.V., S.N., and S.L.; writing—original draft by J.V. and S.L.; writing—review and editing by J.V. and S.N.

Conflicts of Interest: The authors declare no conflicts of interest.

Acknowledgements

We would like to thank the officials of the Community Development Department, entrepreneurs, experts, and qualified individuals in eco-friendly production for their cooperation.

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