



Development of Lungworn Garden Project by Planning Adjusts Business Plans and Vernacular Architecture to Increase Project Revenue.

Monchai Bunyavipakul* Sutina Changkwien, Watcharaporn Emrat, Wiyada potat
Phuripat Duangthongpool, Ploynatcha Pananwattanasiri and Sirimon Ruensuk

Faculty of Architecture, Rangsit University, Pathum Thani, Thailand

*Corresponding author, E-mail: monchai.b@rsu.ac.th

Abstract

This research of the Development of Lungworn Garden Project by Planning Adjusts Business Plans and Vernacular Architecture to Increase Project Revenue has three purposes that are)1(to study whether the project master plan can help improve the usability and increase the income in each area,)2(to study whether the business plan adjustment of the Lungworn Garden Project can generate revenue and consistent value to users, and)3(to study whether the selection of local materials can create an architecture that is uniquely promoting the Lungworn Garden project. The research was conducted using the theory and a survey of Lungworn Garden Project, Bang Hin Subdistrict, Kapoe District, Ranong Province. It was found that the area is still a wide-open space with the adjustment of soil and landfilling at different levels. There are a tent and a bathroom with a landscape area, high mountains surrounded by palm plantations, forests, and streams. In-depth interviews were conducted directly with project owners to investigate their needs and operational problems. Then, the information gathered were brought to workshops to change the layout, business plan adjustment, and architectural work for a target income of 300,000 baht per month. From the presentation to the entrepreneurs, it can conclude that the area layout adjustment is appropriate and leads to good income distribution. The business plan adjustment is possible by 50% due to different seasons, which results in many parts, and the beautiful vernacular architecture that can creates a unique identity for the project. However, there is a possibility that it is difficult to invest. It can be modified in the future as appropriate.

Keywords: *Architectural design, design studio, design method, architectural education, Ranong, Business Plan, Development Project, Master Plan, Vernacular Architecture, Project Revenue, ENO studio*

1. Introduction

In Academic Year 2010, the project of “4+1” by Faculty of Architecture, Rangsit University, awareness of Love Hometown was established, with the 4th and 1st-year students working together, to be responsible for the homeland architecture. It is an important foundation for national development)Thipayanet, 2013(from the past to the present by selecting areas for research. The organizing team, together with the advisor, concluded that Lungworn Garden Project is an interesting place to study 4 + 1 in the awareness of homeland love at this time.



Figure 1 shows the environment of the Lungworn garden project in the mountain area

[809]



Figure 1 shows the atmosphere of Lungworn Garden Project or Glamping accommodation that comes from the intention of the project owner, Mr Amon. Ngamsawatkul, who wants to promote tourism businesses in three provinces and to have high possibilities from tourism benefits and benefits from neighboring countries in the future, like Ranong Province. The area of the Lungworn Garden Project in Bang Hin Subdistrict, Kapoe District, Ranong Province, is a project area of 15 Rai and 7 square wah. The area is surrounding with landscapes of high mountains, palm plantations, and forests and is adjacent to a picturesque clear stream. The project has adjusted some land. Currently, there are activities such as tent camping, restrooms, showers, and customer service spots. From direct, in-depth interviews with the project owner using the interview with 30 Checklist Questions for Invertor (GSB, 2017), it was found that this business plan can be achieved with a target income of 300,000 baht per month. Changes to a new architectural style can attract the distinctive project and business plan adjustments to increase revenue, such as the Lungworn Garden Project.



Figure 2 shows the atmosphere of the interview with the project owner

Figure 2 shows the atmosphere of interviewing the project owners and skilled technicians who are local people. The researchers also used an in-flight drone to explore and survey the area in parallel with the use of measuring equipment in various areas. The organizers set up a discussion with the group and joined workshops together by capturing the advantages and disadvantages of SWOT (Dag Øivind Madsen, 2020). Another method is the Design process of ENO Studio to properly integrate the analysis process with 7 Modes (Francisco, 2018) and business planning methods like Business Model Canvas (Techsauce Team, 2018) and Value Proposition Canvas (Techsauce Team, 2018), which is another process that ENO studio used in the research of ENO Method: A Method for an Innovation Creation in an Architectural Design Studio (Bunyavipakul, 2019). Therefore, the idea was to solve problems by assuming that use the area plan to integrate with the business plan for a successful business and changing the Vernacular architecture to the uniqueness of the Lungworn Garden project.

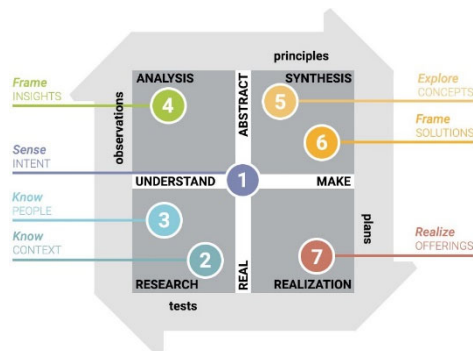


Figure 3 7 Mode model of creating innovative design process (www.julianavanmatre.com)

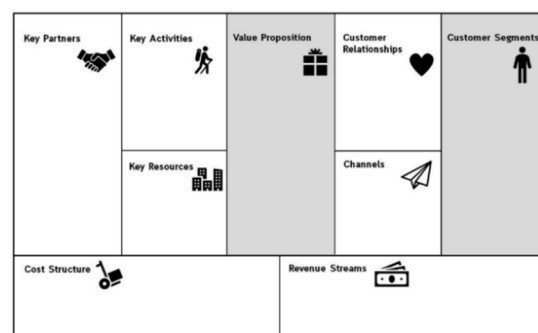


Figure 4 Business Model Canvas



2. Objectives

1. To design a project master plan to help improve usability and increase income in each area
2. To development and modify the Lungworn Garden business plan with the Business model canvas tool that can generate consistent revenue and value for users
3. To experiment with the selection of local materials that can create architectural works to promote the identity of Lungworn Garden Project

3. Materials and Methods

This study is research in social sciences and physical design, of which the methods are as follows;

3.1 To study of Lungwornn Garden Project based on the reviews from both the website and the hearsay of those who have traveled to the activity site at Lungworn Garden project. The reviews were concluded at the meeting, and interesting ones were selected together with the research team of Lungworn Garden Project.

3.2 Study case studies of the master plan theory of Vernacular architectural (Hobrob, 2020) style and business plan adjustment.

3.3 Collecting primary data

3.3.1 Explore the field by taking illustrations and measuring various proportions In the project area.

3.3.2 Survey of physical areas.

3.3.3 Interviews with project owners, local people, and technicians in the Lungworn project with relevant issues Including the physical environment, livelihoods and needs of the Lungworn Garden Project.

3.4 Data analysis using SWOT and business plan design using Business Model Canvas, Value Proposition Canvas and Composite Master Plan.

3.5 The business plan design with Business Model Canvas has changed to a new Master plan with Composite and Vernacular Architecture based on the trial of local materials.

3.6 Summarize the results from the data analysis by bringing the workshop and present to the project owner in order to find joint possibilities in the project.

4. Results and Discussion

Lungworn Garden Project is located in Bang Hin Subdistrict, Kapoe District, Ranong Province. There are occupations in agriculture, livestock, fishery and industry. The plans for the development of Ranong city related to the Lungworn Garden project are as follows: (1) Developing to be world-class marine tourism (2) Developing trade and investment systems (3) Promoting ecotourism

Lungworn Garden has an area of 15 rai, 7 square wah, or 24,000 square meters in the physical condition of Lungworn Garden at present. In front of the stream is surrounded by palm trees. Behind the garden is a national park. The Lungworn Garden project area has cut and fills the mountain soil down to fill the area below 2 meters in order to raise the soil level higher than the stream shown in Figure 5, which is because, in the rainy season, the high seawater flooded the stream causing flooding of Lungworn Garden. From the alias that says “eight rain, four sunny” because Ranong province is the province that has the most rain in Thailand due to being adjacent to the Andaman Sea, there are eight months of rain and four months of drought Currently, the usage of Lungworn Garden is divided as follows: (1) Tent area (2) Bathroom (3) Groundwater wells for water in the bathroom and a raised area for homestay preparation. (Department of Mineral Resources, 2550).



Figure 5 Showing ground picture in the project by using cut and fill methods

4.1 Survey, the tools used in marketing analysis techniques such as SWOT are as follows:

- 4.1.1 Strengths Mountain at the back, stream at the front and surrounded palm plantations
- 4.1.2 Weakness No permanent service point, not enough bathroom, the resting point does not have much shade and incomes throughout the year not permanent
- 4.1.3 Opportunity Able to make money from producing local material
- 4.1.4 Threat Rainy season is an obstacle to the camping area

4.2 Direct, in-depth interviews with project owners using the Checklist 30 Questions for Invertor interview are as follows shown in Figure 6:

- 4.2.1 The project owner sets a target profit of 300,000 baht per month.
- 4.2.2 The project owners expect three tourist groups as follows: (1) Tent group, (2) People who come to stay at a homestay, and (3) People in the area.
- 4.2.3 The project owner has a plan for hiking activities and restaurants in the project (At present, Lungworn garden has a One Day Trip, three island boat tours, namely Ko Kam Tok or Khao Kwai Bay, Kangkaw Island and Japan Island which a deal with boat experts in the area)
- 4.2.4 The project owner wants to inherit on local wisdom regarding weave patterns and bamboo weaving techniques in the area, with the lobby gallery as a source of knowledge, beauty and preserving local wisdom from the past to the future.



Figure 6 Showing the atmosphere of the workshop to present the project owner

4.3 Vision of Lungworn garden project is a business for distributing income and creating a career for local people with a profit of 300,000 baht per month, with the following factors that can lead to the goal of the project:

- 4.3.1 Homestay (owner plan): important factors are the staff are people in the community, community technicians and local materials.



4.3.2 Restaurant (owner plan): the important factor is the purchase of raw materials from communities that are engaged in fishery, animal husbandry, agriculture, and staff members are members of the community.

4.3.3 Coffee shop (additional presentation because Ranong has coffee growing, we came up with this function to increase our income to our target). Buying coffee from villagers for processing sold in the project and exported.

4.3.4 Lobby Gallery (Owner plan) the important factor is buying bamboo from the villagers and local processing technicians.

4.4 The total area of the Lungworn Garden Project is 24,000 square meters, divided into seven parts as follows:

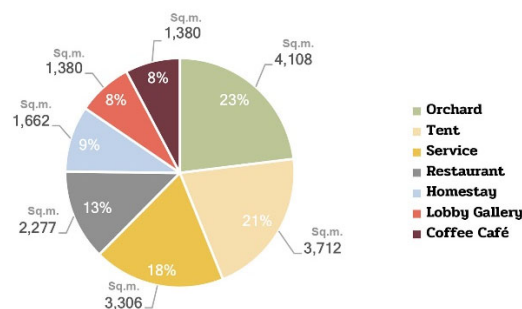


Figure 7 The proportion of living space in the project.

4.5 Business Plan

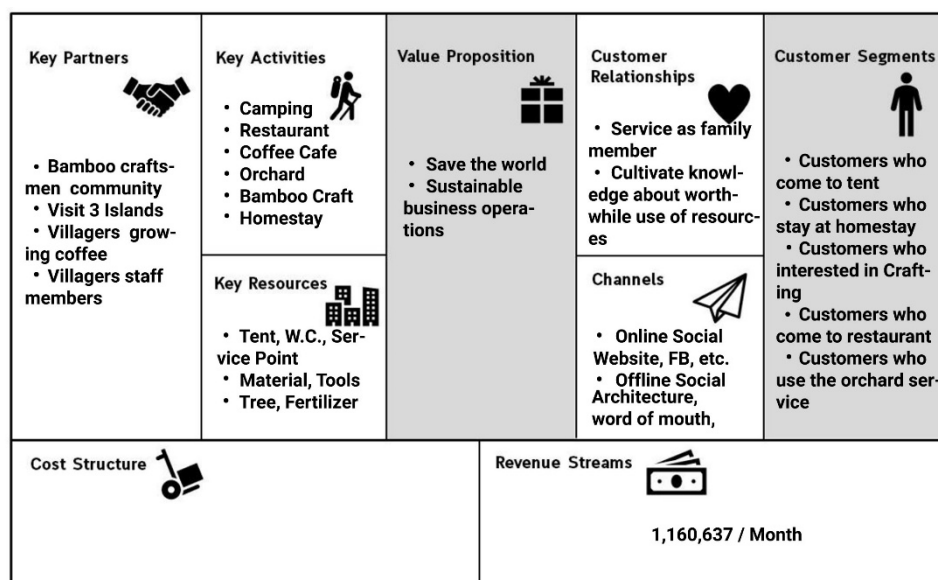


Figure 8 Business Model canvas

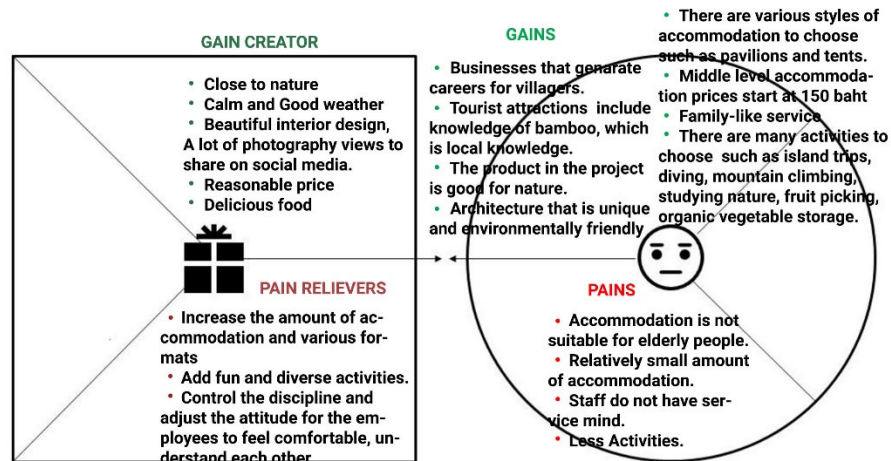


Figure 9 Value Proposition Canvas

Table 1 Revenue from business plan of Lungworn Garden Project

	Accommodation (Baht)	Coffee shop (Baht)	Bamboo product (Baht)	Restaurant (Baht)	Orchard (Baht)	Total amount (Baht)
Income 100% / month	464,000	139,000	84,050	255,500	218,087	
Income 60% / month	278,400	83,400	50,430	153,300	130,852	
100% income						1,160,637
60% income						696,382

4.6 Master plan adjustment of the Lungworn Garden Project



Figure 10 Modify Isometric of the Lungworn Garden Project



Figure 10 shows the Master plan adjustment of the Lungworn Garden Project. The Coffee shop is at the front of project access to service customers who check-in and general customers. The original plan of the coffee shop is still an open space that has not been constructed. Furthermore, the plan has a lobby gallery located next to the coffee shop for the convenience and easy access of the function to support the customers who come in contact and outsiders who are interested in the bamboo product. The restaurant and viewpoint are the center and highlight of the Lungworn Garden project. You can sit and dine in Lungworn Garden. In which the original plan was used for camping tent by the project owner. The customer service and bathroom will be in front of the accommodation for thorough care of the accommodation zone, including food service, convenient toilets, accommodation, homestay and camping ground. It will be in the inner zone of Lungworn garden because of wanting to make it a private area with the area as stair steps since originally the current plan, the project has cut and filled all four steps in order to divide the zone between the homestay and the camping ground, as well as solve the flooding problems caused by the rainy season from May to October. Moreover, it is also the point that gets good scenery. For the final part, another highlight of the project such as the waterfront pavilion will be in front of the stream of the residential zone which the current plan is just a clear, cool water stream open for tourists to enjoy playing shown in Figure 11. From this chart, adjustment increase the waterfront pavilions for the comfort of the users.



Figure 11 Showing the tourists to enjoy playing in a picturesque clear stream

4.7 Designing of Vernacular Architecture



Figure 12 Coffee Café

Figure 12 shows the concepts from southern architecture to be distinctive and attractive by using a roof and gable. The roof is quite sloping for sun protection and rainwater drainage such as Restaurant by placing the building facing the traffic. The material used is the bamboo structure to create an identity and show the effectiveness of bamboo with a long span design. Moreover, the bending of the structure can be planted as a replacement and can be bamboo treatment Varnished lacquer, which can extend the lifespan of up to 20 years. It also shows the potential of bamboo that was combined into the concrete through the architectural design; it may have 40% steel and cement structures to be combined and to increase the strength of the building. The design was in the position of a bunting post using steel beams to increase the support

[815]



area to bear much weight of the Rest Point Pavilion, which is a bamboo structure. There may be parts used for the foundation. For stability, the shape emphasizes simplicity, opens to every angle and can be disassembled and modified in a variety of shapes, which is because the welding of materials only uses the rope, nailing, and cutting the wood together.

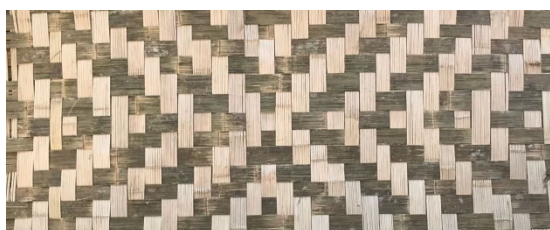


Figure 13 Bamboo pattern in the lobby gallery

Figure 13 shows the Bamboo pattern in the Lobby Gallery, by which the bamboo was weaving with beautiful weaving patterns and unique craftsmanship of the villagers. The owner chose to decorate the interior of the lobby gallery and set up an exhibition to display the weaves and handicrafts that are the identity of this place. It was remembered by the visitors who came to have a "First Impression" with the uses of these natural materials. Also, as it is a native material that is easy to find, it can bear all weather conditions throughout the year. It also takes less time for construction, helps reduce costs, creates strong and durable objects, and can bend according to the design as desired.



Figure 14 Homestay Type 1



Figure 15 Homestay Type 2

After presenting the architectural style to the entrepreneurs through video chat. Entrepreneurs explain that the design is beautiful and impresses the entrepreneur very much. It can create an appropriate local identity for the project. However, because the whole shape may be quite large and relocation, including the use of skilled craftsmen in building work, it may be difficult and require relatively high costs. Before ending the conversation for this presentation, the entrepreneur explained that for costs and labor may be difficult. Nevertheless, in the future, it will be able to change the shape to look like the model by the local method of the expert in the community. The method includes revising the business plan adjustment with a possibility of 70% as there may be many problems, both the condition of the area and the community in each area of work. However, the likelihood of achieving the target of 300,000 baht per month is still a high percentage of success.

5. Conclusion

5.1 From the project master plan to help ease access to various areas and increasing convenience for users. From the hypothesis, it was found that Layout of the composite project master plan makes a difference in routes and access points that are convenient and free for users in which the division of activities in the project, privacy is considered by dividing the private and public sections to ensure orderliness for both residential and



temporary users. From the presentation of the entrepreneurs, it is found that there is a high possibility because they are clearly divided, and the operation is easily accessible.

5.2 Business plan revision of the Lungworn Garden project can generate revenue and consistent values for the users. From the hypothesis, it was found that the business plan adjustment in the Lungworn Garden project was created by adding a building model, a variety of activities, and local products to use. It is interesting and is a good source of income for the surrounding communities, including cultivating communities in terms of resources in limited areas. However, for the weather fluctuations, it may affect the possibility of uncertain output or some incomes.

5.3 The selection of local materials can create an architecture that is uniquely promoted to the Lungworn Garden Project. From the hypothesis and presentation of various architectural styles, there are two types of homestay selecting of first-year students, as shown in Figure 14 and Figure 15. Of 10 types that are outstanding and interesting, it was found that materials used such as bamboo do not only create a unique identity for the project, it also promotes the identity of local works that are not easily found elsewhere, as well as raise awareness of forest preservation. The reason is that it is considered as a substitute material, which includes the cost of moving the construction and is more convenient than other types of materials, which is unlikely to be a labor cost that may be at risk for costs and skilled community technicians.

6. Acknowledgements

The research of Development of Lungworn Garden Project by Planning Adjusts Business Plans and Vernacular Architecture to Increase Project Revenue, this project was well accomplished with kindness sponsored by all the experts, both the professors and the people in the Lungworn Garden project area, including Khun Amon Ngamsawatkul which has welcomed and cooperated in walking around the area as well thanking the 4 + 1 project for the love of the hometown of the Faculty of Architecture, Rangsit University which gives an opportunity to study and research on the development of Lungworn Garden Project.

7. References

- Bunyavipakul, M. (2019). ENO Method: A Method for an Innovation Creation in an Architectural Design Studio. *RSU International Research Conference 2019*, 1-8.
- Dag Øivind Madsen. (2020). *SWOT analysis*. Retrieved from Wikipedia: https://en.wikipedia.org/wiki/SWOT_analysis
- Department of Mineral Resources. (2550). *District classification for management of geology and mineral resources*. Bangkok: Ministry of Natural Resources and Environment.
- Francisco, W. (2018). *Seven modes of the design innovation process*. Retrieved from Prezi: https://prezi.com/p/bz0enli_2egc/seven-modes-of-the-design-innovation-process/
- GSB. (2017). *Checklist 30 Questions for Inventor*. Retrieved from Smestartup GSB: <https://smestartup.gsb.or.th/>
- Hobrob. (2020). *Vernacular architecture*. Retrieved from Wikipidia: https://en.wikipedia.org/wiki/Vernacular_architecture
- Techsauce Team. (2018). *Alexander Osterwalder, a global thinker who invented the Business Model Canvas*. Retrieved from Techsauce: <https://techsauce.co/tech-and-biz/alexander-osterwalder>
- Thipayanet, W. (2013). *4+1 project for the love of the hometown*. Retrieved from Google sites: <https://sites.google.com/site/4plus1document/>