Building A Tourism Community: Design for Hon Thom, Phu Quoc, Vietnam

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May 2014

Submitted towards the fulfillment of the requirements for the Doctor of Architecture Degree.

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Acknowledgements

This thesis is dedicated to my family for their unconditional love and support during my research.

To my chair, Dr. Spencer Leineweber, I would like to express my deepest gratitude for your patience and guidance, and do so even in the most difficult times. This thesis wouldn’t have been possible without you lighting a fire, and encourage me to push forward.

I want to express thanks to Professor Wang Yi, my research advisor at Tongji University, for his enthusiastic encouragement and constructive assessments. I am also grateful to have Mr. Don Goo as a committee member; his practical knowledge and precise understanding of the tourism industry had great influences on me.

To my colleagues, I can’t imagine going through this vigorous process without all of your companionships and cares. Thank you!
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Abstract

Host communities are not only supporters of the tourism industry but also providers of distinctive cultures; this is an interesting fact that is often overlooked in tourism design. Lacking considerations for existing populations, conventional approach disintegrates residents from tourism developments. As an alternative, this thesis argues that tourism design should have more focus on building upon existing communities, strengthening their cultural identities, and articulating the spatial integration of tourists and residents.

The recent success of AirBnB and Urbanauts proves that successful integration of tourists within an existing social fabric is not only possible but also economical. By allocating accommodations evenly around the city, tourists’ spending is distributed to the local community and surrounding neighborhoods. Added to this is the successful integration of tourists into three historical communities, which are popular destinations in East Asia. This thesis explores the spatial patterns that contribute to the success of these three case studies, and incorporates the findings into a new spatial program for a tourism community.

The final product is a design proposal for a new tourism community on Thom Island in the district of Phu Quoc, Vietnam. The design successfully addresses the needs of existing residents by improving the social and physical infrastructures in retrospect to the current living condition and local ecologies. Adapting the traditional tube house typology, the design also strengthens the cultural identity of the host community by regenerating vernacular architectural traditions. Furthermore, the design effectively integrates tourists and residents using a spatial hierarchy to accommodate both these groups’ differing needs for moving about the city.
CHAPTER 1  INTRODUCTION

1.1 Project Statement

This thesis was generated by the author’s interest in tourism development, particularly in how historic communities have been able to adapt quickly to the influx of tourists. The successful integration of tourists and residents within historic communities shows that future developments can be articulated to support the mixing of residents and tourists. Integration is an integral part of the development process, its spatial application and its social implication. Architects must develop methods, strategies and designs that incorporate existing communities as key supporters of tourism development.

1.2 Research Objective

The initial goal is to analyze historic communities in order to draw the connections between social interaction and physical formation. It is expected that this investigation will provide insights into the spatial interventions and traditions, which reduce privacy and security risks resulted by the integration of tourists into existing communities. This thesis also attempts to clarify physical and metaphorical methods that become integral part of the development process in the context of tourism design.

The goal of this thesis is to understand how historic communities adapt and integrate tourism into existing physical limitations. From the initiation of tourism growth investigate how traditional structures could incorporate new functions with minimal interventions, and consider their flexibility and significance during the design process.

The case studies used as a basis for this study are a distinct type of destination in Asia. The destination has been attracting cultural tourists due to its unique characters such as a strong architectural heritage, and a preserved cultural identity.
Architectural heritage has been an invaluable resource for tourism development, particularly cultural tourism. Architecture is often related to culture because it symbolizes social patterns with physical forms at different historical moments. The integration of tourism signifies a historical moment of a destination; this thesis examines the social and physical transformation within a destination during this period.

Tourism growth can contribute positively to the preservation of tangible heritage such as historical buildings and architectural practice; however, it often has a negative impact on intangible heritage such as lifestyles, values, and beliefs. Residents of a destination are often exposed to foreign tourists that have contrasting principles, practices, and behaviors. Cultural identity slowly disappears as residents became more accepting to tourists behaviors. Authenticity is questioned when cultural identity is lost; considering this issue, cultural identity becomes essential to the satisfaction of the tourist’s experience. This thesis investigates how architectural interventions help preserve the cultural identity of the destination.

Through these investigations, this thesis hopes to establish a design strategy that is applicable to a hypothetical context for the development of an integrated tourism community. The primary objective is to provide additional knowledge for tourism and architectural design research.

1.3 Process and Product

The approach is broken down into six parts: The first part of the thesis discusses tourism trends in South-East Asia. This section also defines the meaning of sustainable tourism development, as well as relevant theories and researches.

The second part examines three different examples of hotels and luxury resorts, and explores the social-spatial challenges presented in a disintegrated model of tourism development. As a comparison, this section also shows the economic and social benefits of a more integrated model.
The third part gives an overview of existing researches relevant to the integrated model of tourism development, which mainly created privacy and security risks. This section also clarifies the relationship between tradition and authenticity.

In the fourth part, a site is chosen and analyzed to provide a better understanding of natural environments, existing settlements, and social challenges. This includes observations from the author during a two-weeks visit to the region where the site is located. There is also an analysis on proposed master plan for the site chosen.

Three case studies frame the discussion of the fifth part. The social challenges discovered from the site became objectives for research of the case studies. The discoveries from this section are then incorporated as part of the design strategy for an integrated tourism community.

The sixth part of thesis is a design portion. This section will discuss the proposed programs and design strategy resulted from the case studies and research. The final product is a set of illustrations of a new master plan, which includes planned development for phase I, and a possible scenario for phase II and III.

1.4 Literature Review

Issue of Integration: Host/Guest Encounters in Shared-Living Environment

In current literature, not much has been written regarding issues of integrated tourism development, which brings the host/guest encounters into question. Paul A. Lynch is an expert on the subject; he has authored and co-authored many articles and discussions on the commercial home, where work and leisure merged. In 2007, Lynch and Maria Laura Di Domenico explored the spatial complexity of dual-function homes, where commercial activities and domestic retreat take place simultaneously. As society progresses from industrial revolution to technological innovations, the concept of “home” space have proved to be more flexible, and the boundaries
have become increasingly blurred between work and leisure.\(^1\) In the context of tourism, bed and breakfasts (BnBs), guesthouses, and homestays are few examples of a dual-purpose home, where homeowners provide small-scale accommodation inside their private domain. In doing so, the hosts have to implement various methods to create spatial boundaries, control movement, and preconditions of social interaction. The methods employed can either be metaphorical or physical.

We are on the first floor, just off the stairway, so that mean ‘we don’t really want you all over the place’, in the same corridor as the family rooms and another main corridor, which I inadvertently went into one room and got a bit lost and it was the children’s playroom and nor meant to go.\(^2\)

Metaphorical boundaries can be drawn by where the guest is designated within the physical context of the house. The excerpt above is an example documented by the researchers on the spatial arrangement within a commercial home, and how the spaces were perceived. In this example, the guest’s room is located near major access corridors, and visible to communal areas, such as the family room. In a metaphorical sense, this led to an interpretation that the location of the room was articulated to discourage unwanted guest expedition into private areas, such as the children’s playroom. However, this metaphorical boundary was broken when the guest “inadvertently went into one room.” This suggests a disorientation perception, which might cause by the confusion of the guest or the lack of physical separation between spaces.

In contrast, physical separation is a more direct approach employed by the host to clearly define private from communal spaces. One of the mechanisms is the use of locks to limit guests’ access to certain part of the house; compartmentalization is another mean of physical separation. The host can reserved a section or a single floor of the house for private functions, and clearly define the front and back stage of the house.\(^3\) However, clear separation of spaces reduces host-

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\(^2\) Ibid.

\(^3\) Ibid.
guest interaction, and suggests differences between life in the front and back stage. In the context of cultural tourism, disconnections and differences from actual reality and staged experience raise concerns on the authenticity of destinations. The issue of authenticity is evident in the following excerpt.⁴

... it has no real soul... the hosts take away the homeliness of the place, one does feel more the interloper because of the set aside space [for guests], and you know literally just beyond the doors is where the back region starts... where clearly we are not supposed to go into, it feels really very different, and there is some sort of dissonance with the idea of the four children looking forward to greeting you, like it says in the brochure...

Evidently, in Domenico and Lynch terms, the “soul” is removed from the place by physical separation. Here the physical barrier has two connotations, one is spatial, and the other is social. The later occurs when the division of physical space limits the interaction between users. Domenico and Lynch’s findings provide a profound understanding of the social-spatial relationship in a dual-purpose home. While valuable, Domenico and Lynch’s research is limited to the spatial boundaries of a commercial home, which leaves the question of whether the same social-spatial relationship exist within a larger context of a community, a village, or a city. Assuming the same social-spatial relationship exist, what metaphorical and physical methods are implemented to control social interaction? By addressing this question providing architects and community organizers with valuable information to consider while designing a tourism community, where host/tourist interactions are encourage in creating an authentic tourist experience.

**Cultural Identity: Search for Authenticity**

Regarding the issues of authenticity and architecture, Karsten Harries believes:

Buildings that deserve to be called works of architecture...do indeed represent...other buildings that tradition has endowed with a special aura, perhaps because they are associated with a more original and presumably more genuine dwelling.⁵

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An authentic work of architecture is therefore representative of time-honored building traditions, in contrast to traditional architectural language. Hock-Beng Tan, in (Re)presenting The Vernacular, argues the issue of authenticity within modern resort architecture is deeply rooted from the belief that authenticity can be achieved through reproduction of traditional architectural language. This practice of “authentic” imitation has become widely accepted, and raises question as to why modern architecture has resorted to an inauthentic approach in the search for authenticity.

One argument is that the search for authenticity has become quite elusive; according to Erik Cohen: “‘authenticity’ is a socially constructed concept and its social (as against philosophical) connotation is, therefore, not given, but ‘negotiable’... It follows that intellectuals and other more alienated individuals will engage in a more serious quest for authenticity than most rank-and-file members of society.

The perceptions of authenticity thus vary between professionals, middle-class, and rank-and-file members of society. In the world of professionals, curators and ethnographers conceived authenticity with the strictest criteria. “Authenticity, for curators and ethnographers, is principally a quality of pre-modern life, and of cultural products produced prior to the penetration of modern Western influence.”6 In this sense, intellectuals, such as curators and ethnographers, are more alienated with the modern-life because of their profession; therefore they have greater concern for authenticity, whereas the middle-class and rank-and-file members of society are less concern.7 Yet, there is a common interest among the three groups, and that is being at the destination in question itself. Whether a building is mass-produced or handcrafted, authenticity must be conceived at the location of its origin, which emphasized its native-ness.

It is hypothesized further that, the greater their concern for authenticity, the stricter will be the criteria by which they conceive of it. Less alienated and hence less concerned individual,

including mass rank-and-file tourists, will be content with much wider, less strict criteria of authenticity.”

With this notion, Erik Cohen perceives authenticity as a modern value, which is subjective to the observer’s level of intellect. It is, therefore, unsatisfactory to define authenticity from an individual’s perspective; it must be done from a more holistic view, and base on a common idea and definition.

By definition, authentic has a Greek root, authentes; it is a combination of aut and hentes. Aut is a variant of auto, which, in its combined form, means self; hentes is a Greek word for doer. Authentes, thus, refers to “one who does things himself”. This definition has two connotations: 1) its association with making, physical construction, 2) its association with man, a social-spatial relationship. The first connotation has a strong connection with architects, which also has a Greek origin, architekton. Architekton is a combination of arbi-, which refers to first/principal, and tekton, which refers to builder. Therefore, architect, in its original definition, refers to the first craftsman, a master builder. The second connotation relates authenticity with products that are created by men (natural) rather than machines (artificial). According to Lionel Thrilling “machine...could make only inauthentic things, dead things.”

In conclusion, authentic works of architecture are native to the region, and uses local established methods and techniques that have evolved over the years. Therefore, authenticity is a product derived from native building traditions and local materials. The search of authenticity is evident in resort architecture today as shown from three examples in the following chapter. This thesis will expand further into tradition-base design by examining historic communities from an urban perspective.

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Chapter 2 Research Background

Introduction

This chapter defines the background for research, which is divided into two parts:

First is an introduction to the theoretical context of this thesis. The premise of study is based on the expanding reputations of destinations from emerging countries, of which Vietnam has become a popular destination. Rising demands from tourists spur economic growth, and rapid developments at the cost of lost cultural identity. The challenge for sustainable tourism development is to sustain that balance between economic growth and cultural preservation. Here, the issue of sustainable tourism development is further investigated and defined, follows by an analysis of three examples in modern resort development, which displaces and disconnects from existing settlements. In contrast, the success of AirBnB’s room-sharing internet platform, and Urbanauts’ adaptive reuse of vacant commercial spaces as hotel rooms, support the notion that successful integration of tourists within existing urban fabric is beneficial to the local community.

Physical context of research frames the second part. Here, Thom Island is introduced as the hypothetical site for the design proposal of a new tourism community. A brief analysis of the site’s location and geography demonstrates the island’s strengths, which comprise of pristine natural environments, remote setting, and favorable climate. Further investigation on the existing social and physical condition shows the island is not without weaknesses. The social and physical challenges are the poor living conditions, lack of supporting infrastructures, and an unsettling lifestyle. However, opportunities are presented within the diverse economies of the region. Added to tourism services are local specialties such as the production of fish sauce, and black pepper cultivation, in the district of Phu Quoc. These local specialties can be incorporated to develop the local economy for the existing population on Thom Island.
2.1 Theoretical Context

Tourism Trends & Sustainable Development

According to the World Tourism Organization (UNWTO), emerging economies enjoyed a 47% of international tourist arrivals in 2012, and expected to reach 57% in 2030. Tourist arrivals in emerging economies are also expected to increase at 4.4% annually until 2030, two times faster than developed economies.\(^{12}\) Destinations in emerging countries, such as Phuket in Thailand, Bali in Indonesia, and Boracay in the Philippines, are becoming more popular among international tourists because of their tropical climates, natural beauty, and cultural uniqueness.

Among the emerging markets, Vietnam’s tourism industry is still in its infancy compared to its neighbors in the South-East Asia region, but the landscape is changing quickly. In 2013, Vietnam welcomed 7.5 million visitors, a 10.6% increase from the previous year.\(^{13}\) Recent tourism growth resulted from Vietnam’s environmental and cultural uniqueness. Vietnam has the advantage of having 7 UNESCO World Heritage Sites, second only to Indonesia. Like Indonesia, Vietnam has a vast mountainous landscape along its western borders with Laos and Cambodia; diverse ethnic groups populated the mountainous landscape, which can offer tourists a culturally rich experience with spectacular scenery. For sun-chasing tourists, Vietnam also offers a variety of large and small coastal cities along the eastern and southern seaboard, a 3000km coastline. Unlike cities in Thailand and the Philippines, Vietnam’s cities still have the vibe and street life of an old bustling Asian city because of underdevelopment.\(^{14}\) Vietnam’s cultural identity remains intact at the moment, and the challenge is to encourage natural and cultural preservation while sustaining tourism growth.

\(^{12}\) According to the UNWTO Tourism Highlights, 2013 Edition. http://dx.doi.org/10.1007/978-3-642-38739-0


The contradiction between preservation and growth is a heavily discussed subject in the discourse of sustainable tourism development. The subject of discussion is to define the true implication of sustainable tourism development. There has been countless research and theories on the subject; below is an excerpt from *Sustainable Tourism and the Question of the Commons*, written by Hellen Briassoulis for the Annals of Tourism Research.\(^{15}\)

The discourse on sustainable tourism development revolves around a central issue of how to manage the natural, built, and sociocultural resources of host communities in order to meet the fundamental criteria of promoting their economic well-being, preserving their natural and socio-cultural capital, achieving intra- and intergenerational equity in the distribution of costs and benefits, securing their self-sufficiency, and satisfying the needs of tourists.

Briassoulis believes that tourism development must balance all three dimensions of economics, environments, and cultures in order to be defined as sustainable.\(^{16}\) This thesis argues the later is missing in modern resort and hotel architecture, which excludes the supporting community during the design process. Exclusiveness limit social interaction between tourists and host communities, thus creating a disintegrated model for tourism development.

**Disintegration: Examples of Recent Hotels and Resorts Development**

There is an extensive body of literatures on the impacts of tourism to a community, yet there is a lack of understanding in the process of tourism development, and the undesirable outcomes caused by this process.\(^{17}\) The following discussion is an attempt to develop a better understanding by examining the situation from a broader community perspective. The approach follows a two-step process; the first step is to define social challenges caused by tourism, and the second step is to study those challenges in recent tourism development.


Tourism impacts can be broken down into three major categories: social, economic, and environment.\textsuperscript{18} While economic and environmental impacts are widely understood and addressed in modern architecture and academia, the discussion of social impacts is less implicit. This section aims to draw greater attention to the social aspects, and focuses on developing a social-spatial relationship in current model of tourism developments.

In 2001, Glenn Kreag outlined numerous social and cultural impacts of tourism, such as the increase of illegal activities (underage drinking, gambling, prostitution), culture discontinuity (language, family value), social fragmentation (lifestyle changes, travel patterns), spatial disparities (displacement of residents, exclusion). According to Kreag, the impacts can be further defined as follows:\textsuperscript{19}

\textit{Increase in illegal activities:} the festive and relaxed atmosphere of tourist areas encourages underage drinking, alcoholism, and prostitution, whereas the large influx of tourists provide greater opportunities for smuggler.

\textit{Culture discontinuity:} cultural customs might change to cater to tourist needs, such as live performances. Residents are adopting tourists’ behavior and customs, such as the introduction of foreign languages.

\textit{Social fragmentation:} local lifestyles are interrupted by tourist activities; interruptions cause strain on the guest/host relationship, and creating negative experiences for tourists as well as the hosting population.

\textit{Spatial disparities:} unequal distribution of land use; tourist facilities are often develop in prime location, which cause the displacement and exclusion of residents.


Based on Kreg’s definitions, there are great implications to the built environment within the issues of social fragmentation and spatial disparity. The challenge is to visualize how the built environment could cause spatial disintegration and inequality. The challenge can be addressed by analyzing several examples of recent developments. Below are three examples of the world’s most eco-friendly resorts and hotels around the world.

Figure 2.1 – Alila Villas Uluwatu, Bali, Indonesia (Source: www.alilahotels.com)

The first example is the Alila Villas Uluwatu in Bali, Indonesia, which was lauded by the website Inhabitat as one of the top must-see eco resorts in the world. They had valid reasons for their decisions. The Alila Villas is a combination of vernacular architecture and modern technologies, and the design is inspired by local farmers house according to the ranking. The construction used local materials and local crafts. The design also integrates passive cooling strategies to capture the natural ocean breeze. Rain runoff is captured and used for bathroom toilets, whereas grey water is used for irrigation. Waste is also being used for energy.20

The second example is Soneva Kirri in Thailand; this is another one of Inhabitat’s top must-see eco resort. Similar to the previous example, Soneva Kirri was designed with a tradition-based approach; the design combined traditional and contemporary passive strategies to create

environmental-friendly spaces. Inspired by traditional stilts houses, Soneva Kirri resorts incorporate raise platforms to keep the cooler air below. The design also uses a modern tensile roof structure to help reduce heat gains. The integration of traditional and modern technology creates a comfortable habitable space in a hot and humid climate, which landed it on Inhabitath’s top 6 must-see resort.\footnote{Inhabitat, LLC., “Top 6 Must-See Summer Eco Resort.” Accessed August 25, 2013.}

![Soneva Kirri, Koh Kood, Thailand](image)

Figure 2.2 – Soneva Kirri, Koh Kood, Thailand, (Source: www.anosetravel.com)

![Aulani Disney Resort, Hawaii](image)

Figure 2.3 – Aulani Disney Resort, Hawaii, US (Source: www.insidethemagic.net)

The last example is Aulani Disney Resort in Hawaii. On June 25, 2013 Aulani became Hawaii’s first resort to obtain LEED silver certification. Some of Aulani’s green strategy include
“the use of waste heat for hot water needs” and “harvesting the heat emitted from the resort’s large chillers which are used to keep the buildings cool and diverting it to generate domestic hot water as well as heating for the whirlpool spas and swimming pools.”

These three examples show two similarities that are part of recent trends in resort architecture. First is the tradition-based design approach. All three cases are inspired by traditional architectural language, and adapted traditional building techniques with the exception of Aulani Disney Resort. Second all three are environmentally responsible designs, and this is part of much bigger trend in recent discourse in architecture, which is “sustainable” or “green” architecture. These are the reasons why all three projects are well perceived within the general community.

However, the perceptions were from a narrow perspective, examining each project as a single development disintegrated from surrounding communities. It is difficult to perceive them in any other way because they were developed from an individualistic approach, which focuses on single group of users, the tourists, while excluding the supporting community at large, the residents. The exclusiveness of their forms, functions, and technology suggest a disconnection to the larger context of their surroundings. To be critically constructive, observers must broaden their perception because it is impossible to understand the social-economic impacts of tourism without examining how each development integrates into the community. The following analysis examines each project in a much larger context, and inspects the pattern of each development in relation to its surrounding.

In A Pattern Language, Christopher Alexander, Sara Ishikawa, and Murray Silverstein used “patterns” found in the built environment to illustrate a concept in which architecture can shape human behaviors. One pattern is the separation of houses and work stemmed by the industrial revolution.

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(a) Soneva Kiri, Koh Kood, Thailand *(Source: Google Maps)*

(b) Aulani Resort, Hawaii *(Source: Google Maps)*

(c) Alila Villas Uluwatu, Bali *(Source: Google Maps)*

Figure 2.4 – Local Community and Resort Spatial Relationship *(Source: Google Maps)*
...this separation creates enormous rifts in people's emotional lives. Children grow up in areas where there are no men, except on weekends; women are trapped in an atmosphere where they are expected to be pretty, unintelligent housekeepers; men are forced to accept a schism in which they spend the greater part of their waking lives 'at work, and away from their families' and then the other part of their lives 'with their families, away from work.'

This study argues a similar pattern exists within the tourism industry, where tourism services supporters are being excluded from where they work. This pattern is also believed to be the cause for the tourism impacts of social fragmentation and spatial disparities revealed in Kreag's study. Following is an analysis showing the spatial relationship between the resorts and the surrounding communities. The results show clear evidence of social fragmentation and spatial separation within the three developments (figure 2.4).

Figure 2.4 shows a disconnection of the resorts with the host communities, and the unequal distribution of space. All three resorts are located in prime locations, which might have been zoned for tourism developments by local government (as is the case for Aulani Resort). This practice of “zoning” displaces residents to less favorable locations, and encourages the exclusion of residents from tourist zone. For residents who support the tourism industry (e.g. resort employees), this poses the problem of commuting between the “working” and the “living” environment (figure 2.5). According to Alexander, Ishikawa, and Silverstein, constantly switching between two different lifestyles increases stress on the social structure of the host community.

Tourism is a multi-faceted industry, which includes the business of accommodations, food services, entertainment, and retail. The industry is driven by tourists and supported by residents; therefore tourists and residents are “consumers” of a common resource, which is the physical and cultural resource of the destination. As tourism continues to develop,

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developments will be more favorable toward tourists than residents due to positive economic impacts, and reduce available resources for residents. This phenomenon is known as common pool resource (CPRs). CPR are defined to “those for which exploitation by one user reduces the amount available for others, but for which exclusion of additional users is difficult or impossible.”25 In Some Fundamental Truths About Tourism: Understanding Tourism’s Social and Environmental Impacts, Bob McKercher suggests that tourism, as an industry, “has the ability to over consume resources”.26 This overconsumption pattern is evident in Figure 2.6, a diagram of the current model of tourism development drawn from Figure 2.4 & 2.5.

Figure 2.5 displays a reoccurrence of a triangular connection between three elements: Gateway (airports, ports, etc.), Residents (local communities, human resources, etc.), and Resort (tourist facilities, tourists) (figure 1.3). The model displays tourists and residents as two isolated elements, which require the division of land resource to satisfy the needs of each element. Yet, both elements have overlapping needs, such as the basic necessities for food, shelter, and entertainment. By excluding the elements from one another, the spaces required to supports those needs doubled; as a result, there is an overconsumption of spaces. This process is unsustainable in the long run, and evidence of over consumption demonstrates the lack of resource sharing within this current tourism development model. Future tourism development needs a more sustainable model that focus on building a community and encourage shared-resources. Architectural practice can begin by examine historic communities from a holistic point of view, including social and economic constructs.

Figure 2.5 – Local Community and Resort Travel Patterns (Source: Google Maps)
From the analyses, it is evident that the current disintegrated approach toward tourism development is socially unsustainable. Sustainable tourism development requires a different approach that has greater integration of tourists and residents.

Integrated Model: Economic and Social Benefits

Over the last decade, information technology has gone from search (Google), to bid trading (eBay), to online shopping (Amazon), to car-sharing (ZipCar). Almost anyone with access to the Internet can search for anything, buy anything, and, most-recently, share anything. Sharing things has become quite a trend in recent years; the rise of the “sharing economy” is a direct result of the recession in 2008. People were looking to spend less, and share more. Sharing has already making an impact on the economy, with car sharing alone estimated to be a $26 billions market (Sacks 2011).

In August 2008, sharing was introduced to the tourism industry with the founding of AirBnB. The name might have says it all, but, in case there are still some confusion, AirBnB stand for Airbed and breakfast. AirBnB started as a web platform that allows travelers to rent an “extra” room in a resident’s home. By doing so, the economic benefits are quite obvious; travelers are getting lower rates, and residents making extra cash for spending (Figure 2.7). However,
AirBnB has also presented to have great social and cultural benefits for the tourist experiences, as well as the local community.

![Figure 2.7 – AirBnB Guests Spending vs. Hotel Guests in San Francisco (Source: Techcrunch.com)](image)

AirBnB recently published a study to show the economic impact it has on San Francisco. It is important to note that AirBnB hired a third party to complete the study; as a result, several issues such as privacy, security, and legal liabilities were not being addressed. Even though the report was done to showcase the economic possibilities of its business, there were figures that show great benefits to the community, as well as a spatial model for the reconsideration of tourism development. Let’s examine Figure 2.8, the figure shows the distribution of total spending by AirBnB guests; the spending is broken down into the following categories: lodging, food & beverage, retail, services, entertainment, transport and industry. The categories comprise of all the businesses that relate and support the tourism industry. And yet, AirBnB is not a hotel; it is a concierge business, connecting providers with consumers. In this case the providers are the hosts (providers of accommodations), and the consumers are tourists (renting the accommodation). Since AirBnB is an online platform, where travelers can contact the hosts

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27 Gansky, Lisa. "Lisa Gansky: The future of business is the “mesh”." *TED Talks*
through the platform, it doesn’t need to cater its business to a single location, but it can profit from anywhere as long as the supply and demand scale is in balance. The economic benefits help revitalize communities, towns, residential neighborhoods, where they aren’t zoned for tourist development.

![Chart showing total spending and jobs supported by AirBnB guests in San Francisco](Image)

**Figure 2.8 – AirBnB Guests Total Spending Distribution in San Francisco (Source: Techcrunch.com)**

![Bar chart showing percentage of visitors who visited a neighborhood by type of accommodation](Image)

**Figure 2.9 – Visiting Percentage of AirBnB Guests by Neighborhood (Source: Techcrunch.com)**
Figure 2.9 further illustrates the community benefits of AirBnB’s room sharing model. The figure shows AirBnB guests are more likely to visit surrounding neighborhoods. This is happening because of two reasons: 1) AirBnB accommodations are more evenly distributed around the city, and not just with the tourist “zone” (figure 2.10); 2) AirBnB users have the benefit of the hosts’ local expertise. Gracious hosts are never shy from telling travelers their favorite spots around the city. This is the authentic experience that cultural tourists appreciate.

![Figure 2.10 - Properties Distribution Hotels vs. AirBnB](Source: Techcrunch.com)

In 2011 during a talk for TED, Lisa Gansky was discussing the significance of car-sharing, and she quickly reminded her audience “It would be really great, if any moment now, you guys could start rolling share-ready cars off the assembly line”. In an article for Fast Company, Danielle Sacks reflected Gansky’s view, and reported “The benefits are hard to argue – lower costs, less waste, and the creation of global communities with neighborly values.” Gansky was specially referred to car companies and manufactures, but the question is also valid for other industries. For example is the tourism industries, is there a share-ready hotels? resorts?

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28 Gansky, Lisa. “Lisa Gansky: The future of business is the “mesh”. TED Talks
As a matter of fact there is, and the fact is Urbanauts. Urbanauts is an up and coming chain of boutique hotels, founded by thee architects: Theresia Kohlmayr, Jonathan Lutter, and Christian Knapp. Their idea is to retrofit unused urban space into street level lofts or a “horizontal hotel”.\textsuperscript{29} The idea of Urbanauts has three similarities with that of AirBnb (beside the fact that they advertise their business through AirBnB platform). First, the rooms are independent from one another, and are located in different parts of the city (Figure 2.12). Second, the three architects are Vienna Locals, who live and work a few blocks down from the Die Scheniderin Loft (figure 2.11). The Die Scheniderin is the first of four Urbanauts lofts; it is an old tailor shop, and remodeled as accommodation alternative to hostels and hotels. Because of its small operation and the local expertise of its owner, Urbanauts is able to provide the guest-host interaction, which is population among AirBnB users. Third, the locations of the lofts forced the users to experience Vienna from a local perspective. There is no lobby or breakfast provided; the

user is encouraged to wander the city for food and entertainment. This will not only improve the relationship between guests and local businesses, but also enhance the guest’s experience.

The difference between Urbanauts and AirBnB is there are no space-sharing relationship between Urbanauts guests and their hosts outside of the public realm. The locations of the loft are completely independent from the host-occupied “home”, instead of guests sharing the host-occupied home space. Urbanauts lofts are similar to a conventional hotel rooms in this sense. Even though the function of the space has changed, it is still a single function room located at independent locations.

Figure 2.12 – Urbanauts Street Level Lofts Location (Source: Urbanauts.at)

In conclusion, AirBnB has presented a working model for guest-host integration (Figure 2.13), but the problem is most of the homes and apartments were designed as residential units. That proved to be problematic due to the fact that hospitality designs have different requirements.
and standards. On the other hand, Urbanauts has proved that the model can be managed in the real world, but lack the guest-host integration and sharing space. So what does this mean for tourism design? Can this model be applied architecturally to mitigate social issues while promoting cultural tourism?

Figure 2.13 – New Model for Tourism Development (Source: Author)

The concepts of BnBs, Homestays, and guesthouses has been realized and practiced for several decades. With the addition of AirBnB, this type of accommodation has become more accessible to travelers, and as a result there is an increasing number of host-occupied accommodations around the world. As shown in the study presented by AirBnB, this trend continues to grow and become increasingly popular. Combined with the growing interest in cultural tourism, this becomes a challenge for tourism and community organizers to control accommodation standards and growth. However, for architects, this is an opportunity for further exploration of the shared-environment in order to provide a socially informed and desirable design alternative of a future tourism development. Additionally, architects can learn from the disciplinary of leisure studies, such as the research of Di Domenico and Lynch, to gain spatial concepts within the social context of shared-environment.

2.2 Physical Context: Hon Thom, Phu Quoc, Vietnam

In a vision to 2030, Vietnam recognized the long-term potential of sustainable tourism development, and creating “green” tourism products, respecting natural elements and local
cultures.” The priority is to focus on the development of Vietnam’s maritime tourism, cultural tourism, and eco-tourism. In its strategy, Vietnam wants to emphasize on its cultural diversity by strengthening the sub-cultures in 7 different regions: Midland and mountainous areas in the North, Red River Delta and coastal Northeast, North Central, Coastal South Central, Central Highlands, Eastern South Viet Nam, Mekong Delta.  

This thesis proposes a solution for Thom Island, a small community located in the Mekong Delta region. This section provides analysis of natural conditions, social-physical challenges, as well as economic opportunities present on Thom Island.

**Location and Geography**

Thom island is the administrative body of Hon Thom commune within Phu Quoc district, Kien Giang province, Vietnam. It is located south of Phu Quoc Island in the Gulf of Thailand, at the coordinates of 9° 57’ 23” North, and 104° 00’ 57” East (Figure 2.14). Being an island, the site has several stretches of sandy beaches along the East and West coast; the island is also surround by coral reef (Figure 2.15). In addition to the island features, Thom Island also has a tropical climate and a topography that is favorable for tourism development.

Thom Island has a tropical monsoonal climate with high humidity year-round, and high annual rainfall, 2340mm (92 inches), according to Weather2Travel.com. The climate is characterized by two seasons; the dry season runs from December to March, and the monsoon season runs from April to November. February is the driest month with only 17mm (-.5 inches) of rainfall, compared to August, which is the wettest month with 576mm (-22.5 inches) of rainfall. Monthly average temperature are always above 18°C (65°F); the hottest months are in April, May, and June with max daytime temperature of 31°C (88°F). The coolest months are in December, January, and February with minimum night-time temperature of 21°C (70°F).

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Figure 2.14 – Location of Hon Thom (source: author)
Figure 2.15 – Natural Environments of Thom Island (source: author)
Figure 2.16 – Topography of Hon Thom (source: author)
The typography of Thom Island presents several advantage for future tourism development (figure 2.16). With a total area of 5.71km², the island has a sloped topography that makes up steep hills on the North and South side of the island, leaving a relatively large area of land in the middle of the island for future planning. The flat area presents opportunities for distribution of new populated areas, and construction of roads and pedestrian network. The flat land can also be used for agriculture. The geology comprised of different layers of sand, pebbles, silt, clay, and sandstone, which make it favorable to black pepper cultivation. Further evidence of farming is shown in figure 2.15, where various areas of vegetation with a grid formation is presented. The grid formation has a stark contrast to other areas covered by vegetation that is common to the region such as mangroves, coconut trees, and other terrestrial trees.

Thom Island has the geographical advantage to become a major destination as presented by well-preserved natural resources, as well as a comfortable climate year-round. The natural sloped and flat topography only add to the island advantage. Yet, the existing living condition presents several social-physical challenges, which require carefully planning for interventions.

**Social and Physical Challenges**

Hon Thom commune was established in 2003, and comprised of 15 islets in the An Thoi archipelago. Only three of the 15 islets are populated, of which Thom Island is the most populous with 2076 residents as reported in 2003. The population has increased to approximately 3000 according to more recent reports. Travelers can take a 30 minutes taxi ride from Phu Quoc International airport to the city of An Thoi, and another 30 minutes boat ride from An Thoi to Thom Island. Because of its remoteness, Thom Island is still largely underdeveloped. And signs of underdevelopment can be seen through an analysis of existing density, infrastructures, and social conditions.

In terms of density, the living condition is much higher than Vietnam’s national average. Figure 2.13 shows the concentration of existing building footprints, which mostly concentrated along two coastal areas: east and west. There is also a less concentrated group of buildings between the two villages, and other isolated structures scattered around the island. The building
footprints have a total area of 38,264m², which is approximately 12m² per person. As a comparison, the national average in Vietnam is 16m² per person; the higher density suggests a minimal lifestyle, whereas the concentrations represent a close-knit, community-oriented lifestyle.

At present, Thom Island lack the infrastructures for easy mobility and water security. The existing population is connected by a network of one major and smaller dirt roads. One major dirt road, which runs through the town center, connects the east and west village. Several smaller dirt roads run north-south between some of the larger buildings. Figure 2.17 shows sign of heavy erosion from rain runoff. Combination of heavy rain and well-preserved permeable environment has provide Thom Island with a rich resource of groundwater, but currently there are no infrastructure to collect and contain water resource.

![Sign of Erosion, Major Dirt Road, High Density](image)

*Figure 2.17 – Social Physical Challenges (source: SALA Design Group)*

Existing settlement patterns also display the population’s vulnerability to extreme weather condition, such as sea level rise and heavy wind condition. Because most of the population is involve in fishing, buildings were concentrated closer to shore for the convenience of loading and unloading. One of the challenge of this pattern is the risk of flooding during extreme climatic change due to low elevation. Figure 2.18 illustrates a large portion of the existing structures risk being under water during a 5m change in sea level rise. Another challenge is the exposure to heavy winds during windy seasons. Hon Thom has windy climate; heavy and dominant winds are coming from the Southwest (March-October) and Northeast direction (November-February).\(^\text{32}\)

This forces the residents to migrate between east and west during high wind seasons. It is said

\(^{32}\)Wind data collected online from Windfinder, [http://www.windfinder.com/windstats/windstatistic_duong_dong_phu_quoc.htm](http://www.windfinder.com/windstats/windstatistic_duong_dong_phu_quoc.htm)
that most of the population have two houses, one in the east and one in the west. Islanders stay in the east for 8 months, and 4 months in the west.

*Figure 2.18 – Building footprints of existing structures, total of 38264m² (source: SALA Design Group)*
The analysis above illustrates various social-challenges, which require careful consideration during the design process. The challenges are to decrease density, improve infrastructures, and reduce vulnerability to weather conditions.

Diverse Economies

Currently, 80% of the population depends on sea fishing, and fishing-related trades; the other 20% depends on farming and small trades. Thom Island has the highest percentage of fishing-related employment, in comparison to the wider region of Phu Quoc district, which has only 27% of the employment involve in fishing. In addition to fishing, Phu Quoc has various local specialties, which are keys to its economic strength (Figure 2.19).

One key addition to the economic strength is farming, particularly the cultivation of black pepper. Black pepper is a local specialty, and its quality is famous for over a century. Black pepper farms offer islanders opportunity for a lucrative business because of the region’s natural features. Phu Quoc, as well as Hon Thom, has favorable climate and soil for growing black pepper, which grow inland, and thrive on red soil. According to Vietnam Plus, Phu Quoc has as many as 43,600 hectares of land for black pepper cultivation. However, current black pepper farms totaled at 385 hectares, and produces approximately 1000 tons per year. With the land resources available, black pepper can help local islander develop the local economy.33

![Figure 2.19 - Diverse Economies](image)

a) Thom Island fishing population  
b) Black pepper farm  
c) Fish Sauce factory

33 Vietnam Plus, "Phu Quoc Island promotes black pepper,".
Another local specialty is the production of fish sauce, and Phu Quoc's fish sauce is said to be the best of the best. There are approximately 100 fish sauce factories on Phu Quoc with total production of 30 million liters per year. Fish sauce is liquid extracted from fish (anchovies) fermented in salt; the process requires draining the liquid and circulating them through the barrel for an entire year. A fish sauce factory has row after row of wooden barrels, containing tree part fish to one part salt. The barrel are made from “boi loi”, a tree indigenous to Phu Quoc, which is believed to add a special flavor to the sauce. The unique taste of Phu Quoc's fish sauce has made it a coveted name, and counterfeited by others in the industry. In 2013, Phu Quoc's Fish Sauce is the first ASEAN product to receive Protected Designation of Origin (PDO) protection from the EU.

In conclusion, Phu Quoc has diverse economies that include specialties unique to the region's geography and climate. Local specialties, such as black pepper cultivation and fish sauce production, have the potential to help islanders on Thom Island to develop and diversify its local economy. Doing so will also help strengthen its connection to the regional area by adapting local traditions.

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Chapter 3 Spatial Patterns of Historical Destinations

Introduction

This chapter identifies three discoveries from the case studies: 1) cultural identity can be preserved through various architectural interventions, 2) a strong spatial hierarchy can help reduced privacy and security risks, 3) adaptability can be controlled by different spatial integration.

First discovery is cultural identity can be preserved through various architectural interventions. One intervention is by the traditional practice of architectural preservation; this helps to sustain the integrity of traditional work of architecture, therefore preserved the physical representation of different cultures. Adaptive re-use is another way to preserved architectural integrity by introducing new functions, such as cultural museum, galleries or workshops. In some cases, reconstruction is required to preserve the building traditions of symbolic architectures and cultures, which have been passed down from generation to generation.

Second is the possibility to reduce privacy and security risks by articulating and implementing different levels of spatial hierarchy. The case studies show that a highly ordered built environment has a greater sense of privacy and security because it offers multiple means of accessibility for the host community. High spatial hierarchy doesn’t mean reduced interactions due to the existence of various types of preconditioned social spaces, such as public buildings, parks, scenic spots, communal spaces, and etc.

Another discovery is the chosen case studies demonstrate different methods of spatial integration can be incorporated to control adaptability. One, physical separation can slow the pace of tourism growth because of reduced accessibility. Another is having multiple levels of hierarchy can help reduce privacy and security risks while mixing different groups of users. This thesis also finds that different construction systems correlate to different level of adaptability.
Figure 3.1 – Satellite Image of Tongli (source: Google Maps)
3.1 Tourism and Historical Communities

**Tongli Water Town, Jiangsu, China**

Tongli is a historic water town of southern Yangtze River regions; the old town is situated in Wujiang city, Jiangsu province, and it is one of the top ten historical destination in China. With a history of over 1000 years, Tongli is rich in architectural heritage with 40 percent of its architecture date back to the Ming and Qing Dynasties. Tongli is recognized by UNESCO as a World Heritage Site for its’ historical charms, which include pedestrian bridges, traditional houses and reflective gardens.

*Figure 3.2 – Tongli Watertown Boundary (source: Google Maps)*
Established during the Song Dynasty, Tongli consists of seven islets separated by 15 canals. There are 49 bridges connecting the islets. Historically, outsiders can only arrived in the city by wooden boat; bridges thus became an important part of the city because they allow residents to move between islets. The bridges are still in use today by residents, but they have also became cultural symbols that attract many tourists. The Three bridges of Taiping (peace), Jili (luck) and Changqing (celebration) are the most popular among tourists. On occasions such as weddings and birthdays, residents walk through the Three bridges for hope of peace, fortune, happiness and wealth.\(^{36}\)

Other major attractions in Tongli are the well-preserved courtyard houses of various sizes. The courtyard is a transitional space, which provides connection between indoor and outdoor spaces. The courtyard typology is common in traditional Chinese architecture, and the sizes of the courtyards correlate with the wealth and social status of their owners (figure 3.4). Tongli is famous for some of the largest and most elaborate courtyard houses in China, and each one has different functions. There are private gardens, wealthy residences, temples, traditional teahouses, and administrative buildings. Even though the functions are different, these houses and gardens shared similar spatial characteristics, which were studied and analyzed by Feng Dan in his Master thesis research. In Feng Dan research for The Ancient Town of Tongli Traditional Settlement Spatial Patterns, he recorded three spatial models in 10 large courtyard houses.\(^{37}\)

![Hierarchical Single Axis and Parallel Models](image)

*Figure 3.5 – Courtyard Houses Spatial Models (source: Feng Dan)*

1. **Hierarchical Single Axis** – this model reflects a series of buildings, separated by courtyards, layout on a major axis. The functions of the buildings follow a hierarchy from the least to most private.
2. **Parallel Axis** – This model follows a parallel layout of houses, rooms, and gardens.
3. **Mixed** – This model is a combination of the hierarchical model and the parallel model. This model is used when there is a limited space, and the owner want to increase the living space.

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Figure 3.6 – Courtyard Houses Mixed Spatial Models (source: Feng Dan)

Compared to other water town attractions, Tongli’s tourism development began much later, but it was developed at a much faster rate. Tourism development began in 1986; by the year 2000, Tongli has already attracted 87 million visitors, with 80,000 of the visitors are foreigners. In 2006, Li Lui and Lin Lu completed a Research on Residents’ Perception in Tongli Town, which was published in the Journal of Anhui Normal University. The study shows residents perceived tourism positively in terms of improving local economy, and they are indifferent on the cultural impact of tourism.

From Lui and Lu’s survey, a majority of residents believe tourism development was beneficial to promote economic activities, increase revenue, increase employment, improve traffic, improve life, and attract investment and other aspects. This is evident in the urban landscape of Tongli Water Town, where restaurants, café shop, and souvenirs shops flank main streets and canals (Figure 3.7). Tourists can take gondola tours to experience the town from the water, which was the traditional mode of transportation for town residents. The gondolas provide economic opportunity for residents while providing tourists with a cultural and local experience. Similar, the residential lodges allow tourist to stay overnight in a renovated traditional houses. According to the survey conducted by Lui and Lu, such tourism services increase local awareness and acceptance of foreign cultures, spread the popularity of Mandarin, encourage local to learn English, and strengthen cultural identity. However, residents are uncertain about the impact of tourism development on the local lifestyle, with 39.3% perceived tourism negatively, and 41.3% perceived it positively.

Lui and Lu’s research, which was published in the Journal of Anhui Normal University, suggests there is close a residents & tourist relationship. The research’s survey shows 78.3% of
residents have non-tourism related business, but 49.2% acknowledged to have friends and families engaged in tourism business. 45.8% resides on tourist routes, and a majority (37.4%) of residents live between 100m – 500m from a tourist attraction. 25.2% lives within 100m of a tourist site (figure 2.6), and 23.2% live between 500m – 1000m from tourist spots. This data suggests a majority of residents live within a quarter mile radius (walking distant) of tourist attractions, which is representative of residents and tourist integration this thesis is working toward an understanding.

Currently, tourists can arrive in Tongli only by bus because mass transit is not available near Tongli. Suzhou Railway Station is the closest mass transit station available, and it is a 50 minutes ride by bus or 30 minutes ride by Taxi. For an overnight stay, Tourist can stay at convention hotels or residential lodges. Due to preservation policy, most hotels are located outside the boundary of the ancient town; this can become quite inconvenience for tourist due to the long walking distance. The residential lodges are more convenient since they allowed tourists to stay inside the town. Residential lodges are traditional houses that has been preserved and renovated to accommodate tourists; they are bringing tourist closer to the residents, and therefore provide greater opportunities for interaction between tourists and residents. As Tongli’s reputation grows, the residential lodges also increased because cultural tourists prefer this type of close interaction with local residents. This growing number of residential lodges is a reflection of the town transformation from a “living” to a “visiting” environment due to the high influx of tourists.

**Hoi An, Quang Nam, Viet Nam**

Hoi An is a big seaport, a meeting place for merchants from many countries. The main road, three to four leagues long, runs along the bank of the river; it is bordered on both sides by closely built houses inhabited by people who came from Fujian. The street ends at the Japanese bridge, in other words Cam Pho; on the other bank, at Tra Nhieu, foreign vessels moored.

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41 Thích Da San quoted from UNESCO Bangkok.
Figure 3.9 – Satellite Image of Hoi An (source: Google Maps)
Since its establishment, Hoi An has always been a bustling trade center due to its strategic location; its’ proximity to the Thu Bon estuary allows the city to establish a deep and protected harbor. During the Cham Period (200 – 1500 AD), Hoi An was a trading ground for Arab, Persian, and Chinese merchants. As Hoi An continued to grow, different villages became specialized in different form of craft production such as pottery and woodcarving. The craft of woodcarving are still practiced today in Kim Bong village, and the same for pottery in Thanh Ha Village. During the Shuinsen era (1592-1636), there were a significant increase of Chinese and Japanese merchants in Hoi An due to a political fallout between Japan and the Ming dynasty, which ban exports to Japan. The influx of Chinese and Japanese traders was a significant event culturally and architecturally; the influence of Chinese and Japanese techniques are apparent in the Old Quarter of Hoi An.  

![Figure 3.10 – Public Buildings (source: UNESCO Bangkok)](image)

Hoi An architecture heritage is a combination of Vietnamese building techniques with Chinese, Japanese, and French character. Today, there are 1254 artistic and architectural structures of heritage importance. The structures include shop houses, family chapels, communal houses, assembly halls, pagodas, churches, bridges, wells, markets, temples and tombs. The large types of buildings, including public buildings, have different functions to serve the community (figure 3.10). For example, the family chapels are attached with the rituals of ancestral worshiping; this is where family clan members pay respect to their ancestors, and younger  

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generation learn about the importance of ancestral worship. Public buildings only made up a small portion of the urban landscape in Hoi An; a majority of buildings in Hoi An are shop houses. The shop houses are multifunctional buildings, where families can both live and work. Shop house typically are on long and narrow lots, which has two buildings separated by a courtyard. The building facing the streets are reserved for working, and the other is for living.\footnote{UNESCO Bangkok, S.v. “Tourism and Heritage Site Management in the World Heritage Site of Ancient Town Hoi An, Vietnam.” http://www.unescobkk.org/culture/world-heritage-and-immovable-heritage/impact/impact-luang-prabang/download-e-book/ (accessed January 5, 2013).}

The shop houses are little remnants of history that reflect the evolution of the town. There are five distinct façade types, and each type correlates with different periods of time as shown in figure 3.11.\footnote{Ibid.}

![Shop houses Facade Types](image)

<table>
<thead>
<tr>
<th>18th – 19th centuries</th>
<th>Late 19th– early 20th centuries</th>
<th>Late 19th– early 20th centuries</th>
<th>Late 19th– early 20th centuries</th>
<th>early 20th century</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) One-Story Wooden Wall</td>
<td>(b) Two-Story Wooden Wall with eaves</td>
<td>(c) Two-Story Wooden Wall with balcony</td>
<td>(d) Two-Story Wooden Wall with brick wall</td>
<td>(e) Colonial Style</td>
</tr>
</tbody>
</table>

*Figure 3.11 – Shop houses Façade Types (source: UNESCO Bangkok)*

During the Vietnam War from 1959 to 1975, Hoi An slowly began to decline. A big reason for the decline of Hoi An is the rise of Da Nang as a major port. From then till the 1980, Hoi An remain a quiet rural town with a deteriorating economy. In the 1980s, there were an increase in number of tourist, which changes the economy and the architectural heritage. The situation were accelerated after Hoi An became a UNESCO World Heritage Site, and it became
a challenge for policy makers to preserve the architectural heritage, while maintaining tourism growth.

Tourism development has help revitalize Hoi An in three ways: 1) Increase economic activities in the old quarter, 2) Provide tours to surrounding cultural villages, 3) Promoting adaptive reuse of traditional shop houses.

Like Tongli, tourism development in Hoi An has revitalized the town economy in various areas, including hotels, restaurants, tailoring services, tour organization, cafes, retails, and lantern making. Increasing economic demands has driven job growth as reported in IMPACT: Hoi An, Vietnam published by the UNESCO Bangkok. Data, from the Department of Statistics of Hoi An, shows that 9,900 jobs created in 2005 are related to the tourism and services sector. Furthermore, that number has increase to 10,778 workers; this is an increase of 9 percent compared to the previous year. If divided between tourism enterprises and trade and service enterprises, the jobs numbers are 3,411 and 7,367 respectively. 45

![Image](image1.jpg)  ![Image](image2.jpg)  ![Image](image3.jpg)

(a) Café & Restaurants  (b) Tailor Shops  (c) Retails & Souvenirs

*Figure 3.12 – Economic Opportunities*

The growth in employment and economic opportunities are not limited to the Old Quarter of Hoi An, but they are extended to the surrounding villages as well. These villages are popular among tourists because each one specialized in particular food and craft production.

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Currently tourists can enjoy bike tours to the Pottery Village of Thanh Ha, the Carpentry Village of Kim Bong, Vegetable Village Tra Que and Fishing Village An Bang (figure 3.13).

![Image](image1)
(a) Vegetable Village

![Image](image2)
(b) Fishing Village

![Image](image3)
(c) Pottery Village

*Figure 3.13 – Surrounding Specialized Village*

![Image](image4)

*Figure 3.14 — Evolution of Non-Tourism Related Activities in 1993 and 1995 (right); 2003 and 2009 (left) (Source: Huynh Thi Bao Chau 2011)*

Tourism development has also proven to be beneficial in terms of architectural preservation. In order to balance the needs between preservation and tourism growth, officials often encourage an adaptable-reuse approach, turning habitable space into commercial space. As *figure 3.14* have shown, the commercial activities are ranging from tailor shops, galleries,
restaurants, and souvenirs shops, to museum.\textsuperscript{46} The preservation of the historical structures in Hoi An are strongly enforced to meet the standards required of a World Heritage Site. The new functions provide economic opportunities, and the renovation help retained architectural integrity.

After its achievement of the UNESCO World Heritage Site award in 1999, Hoi An has seen a steady growth of tourists arrivals each year, and quickly became a major tourist destination, with more than 1 million visitors annually. The influx of tourists transforms the spatial patterns in the development of the old quarter, as well as the surrounding areas. Between 2003 and 2009, tourist arrivals more than doubled from 463,196 to 1,105,910. As a result, the number of residents housing has falling more than 50%, from 122 to 58 during the same period. This number includes both the residential units with and without commercial activities. The number of residential buildings without any commercial activity is 20 in 2009 compared to 54 in 2003 (Huynh Thi Bao Chau 2011). The presented data represents a migration pattern between tourists and residents; more residents tend to move outward as more tourists move inward. The data also suggest that residents are moving outward in order to make room for commercial activities cater to tourists. Such commercial activities “transform the spatial pattern development thereby affecting long-standing socio-cultural practices related to the civic use of space.” (Mike & Melanie) Coupled with listed data, the commercial activities diagrams (figure 3.14), drawn by Huynh Thi Bao Chau in 2011, provide a much clearer image of spatial consumption patterns as the direct result of increasing tourism numbers.

**Wae Rebo, Flores, Indonesia**

Wae Rebo is an origin village on the westerly highlands region in southern Mangarai; Mangarai is located on the Indonesian island of Flores. Mangarai is home to “a linguistically and culturally diverse population of some half a million people”, where Wae Rebo is a part of a smaller community of 500; this community is divided into two different villages, one is Wae Rebo on the highlands, and the other is the satellite village of Kombo in the lowlands. In Allerton’s terms Most of the population often “swings” between the two villages. Wae Rebo’s

\textsuperscript{46} Bao Chau Thi Huynh, “Patrimoine architectural, urbain, aménagement et tourisme : la ville de Hôi An – Viet Nam.” PhD diss., Université de Toulouse, 2011.
economy relies mostly on corn, rice, tubers, and coffee. Recent “cultural” and “ethnic” tourism promotion in Mangarai has also provided new economic activities, and saved the Mbaru Niang from the verge of extinction.\footnote{Catherine Allerton, “Authentic Housing, Authentic Culture? Transforming a Village into a ‘Tourist Site’ in Mangarai, Eastern Indonesia.” \textit{Indonesia and the Malay World}, 89 (2003): 119-128.}

\begin{figure}[h!]
\centering
\includegraphics[width=0.5\textwidth]{map.jpg}
\caption{Map of Wae Rebo, Indonesia (source: Google Maps)}
\end{figure}

Mbaru Niang in Wae Rebo Village, Flores Island, East Nusa Tenggara, Indonesia, received an Award of Excellence. The community-led rebuilding project, initiated by the voluntary effort of Indonesia’s Rumah Asuh Foundation, is exceptional for the way that it successfully engaged with a broad range of conservation issues at the local level. Through the valorization of traditional knowledge in continuing architectural form and construction practices, the project has reestablished sustainability of the local built environment and has promoted the pride and spirit of the community.\footnote{Ibid.}

Mbaru Niang is a tall cone-shaped structure and covered with thatch that reaches down from the roof to the ground. The structure is often constructed with a sacred drum in the middle. The Mbaru Niang is made of wood and bamboo, and held together entirely by strong rattan fiber. The Mbaru Niang has 5 levels: 1) first level is the living quarter, 2) second is for food storage and goods, 3) the third floor reserves food stocks for drought season, 4) the fourth floor stores seeds, 5) the fifth is for ancestors worshipping. The first/ground floor is the primary living
space for multi-generation family. The living space comprises of a reception area, a central hearth/kitchen, and 6 booths/bedrooms along the perimeter.49

Figure 3.16 — Mbaru Niang (Source: http://payload.cargocollective.com/)

For Wae Rebo, tourism development has saved the Mbaru Niang from the verge of extinction. Before the development of tourism, there were four, but at the present there are 8 Mbaru Niang in Wae Rebo, four of which are the original and four were added to promote “ethnic” and cultural tourism. The rebuilding of the Mbaru Niang has great significant on how architecture can serve as a mechanism to preserve culture, while gaining economic benefits of tourism. The act of rebuilding revived the building traditions, while the participation of the local craftsmen strengthen the sense of community within the town.

The “discovery” of four original Mbaru Niang was nothing short of a miracle, consider the following fact pointed out by Allerton in her article for Indonesia and the Malay World in 2003.

A large number of nearby villages were forced to relocate in the lowlands at this time, following a general pattern of spatial ‘development’ in eastern Indonesia whereby village relocation went hand-in-hand with the destruction of traditional housing.50

The unusual split between two villages, Wae Rebo (highlands) and Kombo (lowlands) required a unique lifestyle, where most of the population moving between the two sites. Every day villagers travel between the two villages on a mountainous trek because there are no roads. The journey is a 3-4 hours trek up the mountain. Tourists, who want to get to Wae Rebo, will have to endure the same journey as the villagers. However, when arrived at Wae Rebo, tourists are welcomed to experience life inside the Mbaru Niang, constructed to accommodate tourists, built and maintain by the local population. Tourists can stay inside the houses as local do.  

3.2 Urban Hierarchies

![Figure 3.18 – Configuration: Tongli (left), Hoi An (middle), Wae Rebo (right) (Source: Author)](image)

Figure 3.18 illustrates the figure ground diagrams of the built environment in each case study. The diagrams clearly demonstrate a hierarchy within each neighborhood. The case studies represent three different levels of interaction, and each level correlates with a different

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51 Ibid.
hierarchy system. First diagram on the left represents Tongli’s three levels ordering system, which provides the least amount of interaction, but provide the highest degree of privacy and security. Second diagram in the middle is representative of Hoi An two levels system, which offers greater level of residents/tourists integration, but increases privacy and security risks for residents. Last diagram on the right displays the highest degree of integration due to the lack of physical boundaries presented in Wae Rebo village.

Three Levels System

In Tongli Water Town, the neighborhood can be broken down into three levels: the streets/canals, the alleys, and the dwelling units (figure 3.18). First level has a dual canal-street network, where most of the communal activities and social interaction happen. The streets are planked by a series of shop houses; the shop houses are adjacent to one another, which form what is commonly known as commercial street. Second level is made of smaller lanes and alleyways, which provide a transition from the streets to the dwelling units. Lanes and alleyways offer a secondary circulation network for residents, but they have greater privacy due to the lack of commercial activities. Third level represents the dwelling units, where people can enter directly from lanes and alleyways. Traditional courtyard houses are the common dwelling units that made of a cluster of individual centers a single courtyard.\textsuperscript{52}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure3.19.png}
\caption{Tongli Spatial Program: D=dwelling, A=Alleys, S=Streets, P=Public Spaces, H=Hotels/Accommodations/Commercial (Source: Author)}
\end{figure}

Two Levels System

The neighborhoods in Hoi An are much more integrated because there is no transition between different spatial boundaries. The two neighborhood levels are the streets, and the dwelling units. Similar to Tongli Water Town, the streets level has the highest level of interaction because of various commercial activities offered by the shop houses. Unlike Tongli however, the tube houses are the common dwelling units, where people can enter directly from the streets. The tube houses are multi-family housing, and have an alternate layout buildings and voids (courtyard). The courtyards offer a separation between the semi-private (shops) and private (living) spaces. Outside of the dwelling units, privacy is reduced due to the lack of transition between the streets level and the dwelling units. The difference is not due to the absence of lanes and alleyways, but it is because lanes and alleyways, in most cases, only connect one street to another in the ancient quarter of Hoi An.

One Level System

As shown in figure 3.11, there are no clear spatial boundaries in the village of Wae Rebo, which has a single neighborhood level, the dwelling units. There are no streets, lanes, or alleyways, and the Niang is the single type of dwelling units in the village. Moreover, the Niang is multi-families housing unit, which could be considered as semi-private spaces. The Niang does not offer much privacy between families, and even less outside of it.
3.3 Spatial Controls

This section analyzes the built environment of each case study at various scales to explore how different physical boundaries control movements and behaviors. At an urban scale, reducing accessibility limits growth while preserving cultural identity. At the neighborhood level, having clear spatial boundaries reduces privacy and security risks. At the housing scale, compact designs provide greater flexibility and adaptability.

Reducing Accessibility

Residents and visitors enjoy a car-free environment due to Wae Rebo isolation from modern society. There are no roads to and from Wae Rebo, and the same goes for inside the village. Even though not as isolated, both Tongli Water Town and Hoi An ancient quarter have an urban environment that is unfit for automobiles. Both communities were designed when walking was the only mean of transportation; therefore narrow roads, and smaller pedestrian blocks are the main urban design concept to support life on the streets.

Clear Spatial Boundaries

The business of tourism involves a network of commercials, accommodations, entertainments, and services; it is thus incomprehensible to study tourism development from a narrow perspective. The study must be done from a larger social-economic context. Since tourism is the business of consumption, and the consumption is not constrained to products and services but also spaces, the study begin by question the consumption of spaces in and around the tourism development. Doing so will help architect to conceptualize tourism spaces from a social behavioral perspective.

The approach, used in this study, derived from an analytical research on the pedestrian network transformation process of Tongli by a group of architects professionals from the College


54 Ibid.

of Architecture and Urban Planning at Tongji University. The results present different levels of
hosts/tourists interaction, which were shaped by their physical environment. Wae Rebo
represents highest level of interaction, and Tongli presents the least amount of interaction. The
results can be used as a model for future design of a tourism community.

In the case of Wae Rebo, there is no difference between the spatial consumption patterns
among tourists and residents in the common areas. In fact, Wae Rebo residents and tourists also
shared spaces in a more private setting, such as that of the Niang. As shown in figure 3.22, there
are no roads in the village, therefore the behaviors of both tourists and residents are unpredictable
because they are able to move freely between spaces. In order to get to Wae Rebo, tourist must
endure hours of trekking from the Denge Sebu village to the Race Wae river; this is the same
path that residents took to travel between Kombo and Wea Rebo. In this case, the tourists get
the full experience of life as a local.

*Figure 3.22– Wae Rebo Pedestrian Network (Source: Google Maps)*
As for Hoi An, a more interactive pattern emerges. This interactive environment is the product of an organized urban form in the ancient quarter of Hoi An. In the ancient quarter, tourists and locals shared the streets; the lack of alleys between residential units forced residents to use the main streets, which cross path with tourists. However, outside the ancient quarter, the interaction between tourists and tourists reduces as tourists only travel on roads from the hotel to the ancient quarter and vice versa. This proves to be problematic during rush hour, where the streets are congested with packs of bicycle, mopeds, and pedestrians. In an UNWTO report, the noise generate during the time of congestion are damaging to the tranquility image of the town (organizers are trying to recreate the atmosphere of town during historic times). For now that pattern is being controlled by regulations, i.e. mopeds are only allow to go through during certain times of the day, this helps reduce congestion and noise level in the ancient quarter during rush hour. This is the opposite of Tongli Watertown as there are more back alleys, which are convenient for residents, but intimidating to tourists.

The case study of Tongli shows the lowest level of interaction between residents and tourists according to aforementioned analysis. There are two reasons to support this notion: 1) the organization of spaces for tourist consumption is along the larger streets and rivers, which correlates with the travel patterns of tourists; 2) The intricate networked of smaller streets, alleys,
and lanes between buildings allow residents to travel through town without any interaction with tourists.\textsuperscript{56}

\textbf{Figure 3.24 — Street & Water Networks vs. Building Footprints (Source: Author)}

Between the 19th and 2009, the commercial streets moved from the southwest along the river corner of the town to a more even distribution along the major streets. This is, as Chen pointed out in his research, because of the emergence of the automobiles. The town transformed from water centric to road centric with the additional of new streets to allow cars into the city. Even though the spatial distribution of commercial spaces has changed, one pattern remains the same, which is the commercial activities happening at the edge of each section in the city (figure 3.25). From this, the edges of the each section in town can be interpreted as the most public space, and commonly shared by both tourists and residents. This creates an edge condition that kept the tourists along major streets away from the more private inner condition of the town. Because tourists are outsiders, it is easier for them to navigate along the path commonly travel. Whereas, residents are more familiar with the physical environment of the town; therefore it is easier for them to navigate through the intricate alleys network and avoid congested areas. This spatial consumption pattern reduces the chance for interaction between tourists and residents. This is not to say there is no chance for tourist to interact and cross paths with residents, as evidently shown in figure 3.26. The figure shows the importance of public buildings and scenic spots as

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major nodes for tourists/residents integration. For future tourism development, a successful design required a well-articulated organization of these public nodes and scenic routes.

Figure 3.26 – Density of Pedestrians, Commercial Streets & Public Building: Resident (top); Visitor (bottom) (Chen et al. 2012)
Compact Design

*Figure 3.27 – Construction System Diagram: Tongli (left), Hoi An (middle), Wae Rebo (right) (Source: Author)*

The models shown in *figure 3.27* show the different types of construction found in each case study. Each model provides a certain level of flexibility, in which the architect can use as a mechanism to control the functionality of the space. The model on the left represents the common type of construction used in Tongli Watertown. The Tongli model is least flexible due to the use of solid walls construction for the interiors, permanently divided the interior spaces, and in turns limit its use. The model in the center is a little more flexible by using wooden columns instead of solid walls. Coupled with light, removable wooden walls, users can effortlessly reconfigure the space to serve their social and economic needs. Similarly, the model on the right offers a very flexible space. The model is a cone-shape construction supported by a central column, and there are no solid walls separating the interior spaces. The reconstruction of 4 Mbaru Niang suggests this type of construction is easy to replicate and expand.

Spatial consumption and configurations are interdependent to each other. Spaces are designed and build upon existing social conditions; therefore it is logical to further compare the case studies by examining their physical constructs and configurations. In doing so, the study expose the correlation between the flexibility of space and different level of interaction. This section will build upon the previous conclusions that Tongli represent the lowest level of interaction, follow by Hoi An, and Wae Rebo represent the most interactive environment. It is important to note that for the Tongli case, there aren’t enough available resources found in regard
to a typical layout of individual units, there for scope of study were limited to the overall urban condition, pictorial resources, and a tentative study done by Zhou Jian Huang Yong. The author recognized this as an issue that requires further studies in the futures.

![Tongli Urban Core](image)

*Figure 3.28 – Tongli Urban Core (source: Google Maps)*

In figure 3.28, the satellite image shows a highly dense urban core, where the buildings appear to be pushing, and squeezing against one another. There are almost no signs of the streets and public spaces. The streets are quite narrow, and do not have any functions to support life on the streets that help improve the sense of community.

Figure 3.29 shows an example of a traditional residence in Tongli, the house is quite small; the area is only 95.2 square meters, and there are 5 people reside in this building. That is about 19 square meter person. In order to accommodate 5 people in such a small area, the spaces in the house must have multiple functions during different time of days, which is also shown on Figure 3.29. However, those are only proposed function of the house after its renovation, and the current functions are unknown. It is impractical to use of structural/solid

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walls to compartmentalize such a small space. The structural/solid walls are permanent physical barriers, which do not offer the flexibility required to support the daily activities of 5 occupants.

![Image](image.png)

*Figure 3.29 – No. 168 Yuhang Street in Tongli Town (source: Jian Zhou 2006 p. 36)*

Unlike Tongli, the spatial configuration of Hoi An old quarter is much more flexible in an urban context, as well as the smaller context of individual residence. Hoi An has one of the largest collection of historical shop houses in the Southeast Asia region. Each shop house carries the architectural uniqueness of Chinese, Japanese, and Vietnamese traditions, which emphasize on the importance of a family-first culture. As a collective unit, the shop houses form a continuous, harmonizing urban landscape that support the activities of community life and private life. This is the essence of the ancient quarter, where the shop houses created a sense of community. The streets are wide enough for various activities to take place, and the Hoi An central market offers a place for trading between people within the city, as well as people from outside the city. Because of this notion, Hoi An was able to adapt to the tourism industry quite quickly. The flexible house design also played a major role in Hoi An transformation to a tourist destination.

Figure 3.30 characterizes the construction layers of a traditional shop house in Hoi An. The layout of the house resembles to the grid, but it is based on a 3 bay x 3 bay module commonly used in traditional Vietnamese architecture. The module allows great flexibility for adding or removing spaces. A shop house can be constructed with a single module, and an addition of overhangs to mediate the relationship between inside and outside spaces. Another module can be added later in the back of the house as the family grows.

![Construction of Traditional Hoi An Shop House](source: UNESCO BANGKOK)

The 3 bay x 3 bay module also allow the house to have different spatial arrangements, such as those of a single story traditional shop house. Figure 3.31. Type 1.1 shown in figure 3.31 is the traditional arrangement with the commercial space faces the streets, and inhabitant must cross the commercial space to get to other space or other building. This traditional arrangement provides a gradual progression between public and private spaces; therefore it doesn’t allow any further interaction between the living the visiting besides the act of trading. Type 1.2 shows the
arrangement for a multifamily habitat, in which case the commercial is place in front of each building. The third type illustrates the front building as a commercial space, while the rear building is reserved for family living. Similar to the first arrangement, this arrangement formed a gradual progression from public to private, however better integration is created because of a bigger commercial space, which facing directly at the courtyard and the rear building. The fourth type is the most destructive in terms of cultural heritage preservation because it completely removes the original inhabitants from their natural living environment. The whole house is used as a commercial space.

Figure 3.31– Single Story Traditional Shop house Commercial Space Arrangement (Source: Huynh Thi Bao Chau)

Figure 3.32 depicts three arrangements of a two-story shop house. The first type represents the traditional form, where the front building on the first floor is devoted for commercial practices, and living functions occupy the rest of the house. This is similar to the third arrangement for a single story shop house with the exception of extra living space on the second floor. The second arrangement creates a clear separation between living space and commercial space. Visitors will have a better sense of the architectural heritage of the building
because they are fully immersed without disrupting the privacy of the inhabitants. Similar to the last arrangement of a single story house, the third type allocates the entire house for commercial functions, and completely removes original inhabitants. It is an empty shell, because the architecture is preserved without the presence of its habitant. Yet, this type of arrangement is most commonly use with rising tourist arrivals, therefore a correlation between tourist arrivals and spatial transformation must be question and analyze further.

*Figure 3.32* – Double Story Traditional Shop house Commercial Space Arrangement (Source: Huynh Thi Bao Chau)
In the case Wae Rebo, the simple construction of each Mbaru Niang makes it easy for the village to expand. The Mbaru Niang is built around a central worok wood column; the roof is a framework of bamboo tied together with rattan fiber. All materials are collected from a forest nearby. The use of local materials and light construction methods negate the need for skilled workers, and allow villagers to collaborate and work together as shown in figure 3.33. Wae Rebo is unique because tourism has not only improved the village economy but also maintain local building traditions and customs through architectural intervention.

(a) Collaboration  (b) Thacth Weaving  (c) Villagers Resting

*Figure 3.33 – Simple Construction & Collaboration (source: Yari Antar)*
Chapter 4 Design Strategy

Introduction

The overall design strategy is to establish a framework, as an alternative to conventional tourism development, for building a community that supports and benefits from future tourism developments. The proposed framework follows three main approaches:

First approach is to plan for several stages of growth, which was inspired by Christopher Alexander’s work, “The Nature of Order”. Alexander has spent most of his career researching and learning on the process of form-creation based on nature, or morphogenesis. His work led to the discovery of an alternative to the template-based approach of modern architecture. The alternative is a step process, in which transformations unfold and adapt to changes at different phases of development. Following Alexander’s generative process, this thesis believes Thom Island is at the stage of preparation, where the physical, economic, and social conditions of existing residents need to be improve before tourism can be fully integrated. The design strategy focuses on this particular stage of development, while leaving space for future growth.

The second approach is to analyze the current master plan for Thom Island, which was proposed by SALA Design Group (SDG) in 2008. The analysis suggests various requirements for a mixed-use program, which includes: 1) resettlement areas for 2900 existing residents, 2) 4280 housings for new residents, 3) 1940 accommodations for tourists, and 4) commercial and public buildings to support this demographic. The proposed layout exhibits several social challenges, which includes social-spatial inequality, fragmentation, and exclusion of existing residents. This thesis address these challenges by following a more equitable, integrated, and inclusive design strategy.

The third approach is to explore the vernacular architecture that supports existing residents’ present way of life. This exploration leads to the discovery of neo-tube houses, which
mix commercial and living activities within elongated structures. Neo-tube houses are economically efficient because of its dual functionality, serve as both commercial and living space. However, neo-tube houses lack the eco-efficiency of traditional tube houses, which have an alternating mass/void layout. The alternating mass/void layout provides traditional tube houses with courtyards that allow natural ventilation and lighting. The courtyard typology in traditional tube houses is unique to Vietnam Architecture. Therefore, along with their eco-efficiency, traditional tube houses are adapted in the design strategy as a solution to support existing residents on Thom Island.

The design strategy provides a framework for building a community that supports tourism growth, reduces social disparity, and regenerate architectural traditions.

4.1 Tourism Growth

Nature of Growth

For the past 40 years, the works of Christopher Alexander have raised, as well as answered, many questions on the process of growth in nature and human construction. The depth of his research has extended architects, designers, and planners’ understanding of morphogenesis as an adaptive growth strategy to transform cities. Fascinated by the effortless formation process of the self-sustaining living forms found in nature, Alexander began to look for similar processes hidden in human traditions, and the methodology to apply these processes in modern architecture. Alexander layouts the answers in The Nature of Order, in which he exploits the process of morphogenesis in comparison to modern methods.60

Morphogenesis is the biological pattern of evolution; it is the process that creates highly balanced, distinguished, living organisms. Biologists refer to this process as “adaptive morphogenesis”, the key to create complex forms in simple steps: combine, and multiply in

repetition. Each step is part of a transformative process from an existing whole into a new whole. There is no plan, but only a continuous evolution. For example, the protein structures, formed by DNA and RNA molecules, bend, fold and interact, and form human tissues in an embryo. A similar “unfolding” process can also be seen in the transformation of traditional tube houses; traditional settlers make small adjustment in the position and shape of their houses, and adapting to social changes within context. Section 4.2 provides more details on the evolution of traditional tube house.

In contrast, the modern approach to city building lacks the adaptation and layering over time found in nature and traditional cities. Modern methods often propose fully developed master planned models of city overnight, which completely ignores the existing social context through standardized repetition. Standardization creates rigid structures, incapable of adapting to change. Examples of this approach can be seen all over developing countries in South East Asia (figure 4.1). In these examples, the designs use artificially inserted western-influenced templates, completely removed from the surround context and existing conditions.

Alexander believes there is a need for a more adaptive approach that applies the natural process of growth to modern building practice. He also believes that traditional structures have a living quality that can’t be achieved by modern designs without a generative process for adapting the form. Similar to those in nature, the generative process is a stepwise transformation, unfolding and adapting to changes.

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a) Vinh Đ炯 City, Phú Quốc (source: http://www.skyscrapercity.com/showthread.php?t=680016&page=5)


Figure 4.1 – Modern Development in South East Asia
Generative Code

A generative code specifies the steps of transformation, which follows the natural order of growth. The generative process offers an alternative to the conventional method of development. Rather than inserting a template-based design, the process focuses on the changes needed in the existing conditions at different stages of growth. The following summarizes key elements of a generative code, which is divided into two groups: considerations and implementations.\(^{64}\)

The code considers three elements during the generative process. First, human’s actions are driven by certain rules, combined with feeling assessments, and adapted to previous conditions. Second, human patterns and spaces come before infrastructures, such as transport, sewers, water security, and etc. Third, visual expression also comes after human patterns.\(^{65}\)

With the aforementioned considerations, the code provides three additional elements to be implemented at each step of the process. First, the code follows a holistic approach, and transforms the existing condition as a whole. Second, the code analyzes the existing condition, recognizes the weaknesses, and acts to strengthen and improve them. Third, the code can adapt solutions and patterns from previous implementations to different conditions.\(^{66}\)

A generative code is a tool for planners and designers to analyze existing conditions, and plan for future changes. In comparison to the modern approach, which imposed rigid artificial traits into a constantly changing reality, the generative process is a more adaptive model for growth. The process is continuous, and requires various stages of transformation. The changes are irreversible, but each transformation is a finer articulation of the last.\(^{67}\)


\(^{67}\) Ibid.
Stages of Transformation

Adapting Alexander’s generative process, this thesis believes tourism should be introduced in several stages instead of having a fully developed master plan. The transformation of Thom Island can be divided into three stages: introduction of human patterns, improving infrastructure, and complete integration of tourism. The stages are further defined below.

Existing condition on Thom Island represents the complete transformation of the first stage. Here, Thom Island transformed from vacant natural landmass into an inhabited area. Human patterns and spaces were introduced and expanded organically without planning and adequate infrastructure. This transformation has limited impact on the natural environment; the well-preserved natural environment and simple rural living draw increasing attention from curious tourists. However, the weakness lies within the inadequate social and physical structure. These challenges have been discussed in section 2 of Chapter 2.

The next stage of transformation addresses the social and physical challenges by establishing supporting infrastructures for the development of local cultures and economy, which includes tourism growth. Here, the word “infrastructure” refers to both the social and physical. In the physical context, accessibility needs major improvement, such as paved roads and seaport, to support the logistics of construction, as well as supporting population growth. An increase in population will also increase water consumption, therefore new infrastructure is required to provide adequate water supply. In terms of social infrastructure, previous study has shown Thom Island lacks the human resources necessary to support incoming tourists. Increases in human capital are expected to fill this gap, and a new type of housing is required to support new residents.

With proper infrastructures in place, one possible transformation for the next stage is development of the tourism industry, in which demands begin to rise and diversify. During this stage, Thom Island will be transformed into a full-scale tourist destination, with diverse accommodation options for different types of tourists. In a probable scenario, the challenges
include the lack of supply for rising tourism demands, as well as the shortage of human capital to support tourism services. Base on this scenario, the transformation includes new developments, such as private resorts, eco-tourism resort, as well as new housing for new residents.

In this thesis, the design mostly focused on the second stage of transformation. The primary goal is to improve the social and physical condition of Thom Island before full-scale tourism development can take place. The argument is that addressing the social and physical challenges helps strengthen the cultural identity, and create a supporting infrastructures for Thom Island. The implementation of the generative process offers flexible spaces for adaption in cases of unpredictable social and economic changes, which might be costly for a rigid blueprint of a full-scaled development.

4.2 Social Parity

Program Requirements

In 2008, SALA Design group proposed a master plan for Thom Island. Two iterations of the proposal are collected through various sources, and the files collected are in the form of images (jpg) and CAD drawings (dwg). Due to confidentiality issue, the designer did not disclose many details on the project, thus the following program are drawn from an email exchange with the designer and deconstruction of the drawings and images collected from various sources.

SALA proposed a mix-use resort town that hopes to improve social and economic conditions of the local population. The program consists of four resorts (varying sizes 50 to 300 rooms), one amusement park, one oceanarium/marine exhibit, one customs immigration and quarantine station, and a deep-water boat harbor (200 key). There is also a planned hillside walking trails, natural reserves, marine park reserves, town center and retention of local fishing village and fish product production.\textsuperscript{68} Most of elements of the described are visible and labeled in figure 4.2. However, there are still a lot of details missing such as land use areas, expected

\textsuperscript{68} E-mail exchange with the designer of SALA design group on January 17, 2013.
population growth, and planned building height.

![Figure 4.2 - SALA Master Plan Proposal #1 (Source: SALA Design Group)](image)

The second iterations, provided by an associate who has worked on the project, display a more detailed program that includes total area of residential resettlement, land use area distribution, and building floor area. Table 4.1 shows the total area for resettlement is 4.91ha, and each unit is 4.5m wide by 15m long; this means there are 727 units planned. According to Thanh Binh Nguyen’s report on recent trend of Vietnamese household size, there was an average of 4 persons per household in 2008; it can be estimated that the existing population in 2008 is approximately 2900. As for the total number of new residents, it is assumed that they would live in apartments, which has the total area of 6.21ha. In Vietnam, the national average living area per capita is 16m², therefore the number of new residents is estimated to be at around 3880. Similar approach was used to determine the number of rooms provided.

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Figure 4.3 – SALA Master Plan Proposal #2 (Source: SALA Design Group)
<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (ha)</th>
<th>Est. Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>8.94</td>
<td></td>
</tr>
<tr>
<td>Accommodations</td>
<td>50.19</td>
<td>1940 rooms&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>5 Star Resort</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>4 Star Resort</td>
<td>14.46</td>
<td></td>
</tr>
<tr>
<td>3 Star Resort</td>
<td>9.15</td>
<td></td>
</tr>
<tr>
<td>4 Star Resort</td>
<td>15.03</td>
<td></td>
</tr>
<tr>
<td>Budget Hotel</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>21.25</td>
<td>7180</td>
</tr>
<tr>
<td>Villa A (1000m&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>5.08</td>
<td>200</td>
</tr>
<tr>
<td>Villa B (1000m&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>5.06</td>
<td>200</td>
</tr>
<tr>
<td>Apartment</td>
<td>6.21</td>
<td>3880 (new residents)</td>
</tr>
<tr>
<td>Resettlement (67.5m&lt;sup&gt;2&lt;/sup&gt;/unit)</td>
<td>4.91</td>
<td>2900 (existing residents)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Based on the assumption that 3880 new residents are tourism supporters, and 2 supporters required per room.

Table 4.1 – Proposed Program and Land Use (Source: SALA Design Group)

From the proposal, it is clear the program requires major consideration on the integration of three groups of users: tourists, existing residents, and new residents. However, further investigation of the proposed program and layout show the lack of social consideration for the existing residents and cultures.

Proposed Layout

In terms of design, there are obvious differences between the two iterations. The first iteration follows a curvilinear street network, whereas the second iteration has a traditional grid layout, run North-south and East-west. The street blocks are ranging from 200m by 200m to 200m by 100m. In terms of social sustainability, the two are similar and have three major
challenges: 1) uneven spatial distribution; 2) fragmentation; 3) disintegration.

The uneven spatial distribution is evident in the proposed program, as well as the spatial arrangement of the Master plan. In the proposed program, accommodations have a total area of 50.19 ha, which is close to double the total residential area. Accommodations will take up 2/3 of the total build area. Furthermore, the spatial arrangement of private luxury resorts along coastal areas limit residents access to the ocean, thus successfully excluding the tourism supporting community.

Another issue of the proposed layouts is social fragmentation due to the lack of consideration for existing social structure. As noted in Section 3 of Chapter 2, 80% of the existing population are fishermen or related to fishing trade. Yet, figure 4.2 and 4.3 show the residential and resettlement areas removed from the water. The situation is worsen when privatize resorts make the sea inaccessible for fishermen and their fishing boats. Clearly, the exiting population was excluded in the design process of both proposals.

Added to the social challenges is the lack of the spatial integration required to support different groups of users. For example, figure 4.4 is a bubble diagram based on the spatial arrangement of both layouts. Each bubble represents a space based on function, and each line represent direct access between spaces. From the diagram, it is clear that all the spaces disconnected from each other, and the street served as the only indirect connection between spaces. The arrangement offers a single node of connection for all users, creating an overcrowded common space.

The discussion above illustrates the issues of modern fully developed master plan in term of social consideration. This thesis aims to create a more equitable, inclusive, and integrated program. This new program is part of a design strategy to sustain the existing social structure on Thom Island.
Equitable, Inclusive, Integrated Program

Table 4.2 shows a new program required for the second stage of transformation, the main focus of this thesis. The strategy is to deliver a socially sustainable design that has equitable spatial arrangement, culturally inclusive, and a well-integrated network.

<table>
<thead>
<tr>
<th>User Group</th>
<th>Population</th>
<th>Unit Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Residents</td>
<td>3000 (750 household)*</td>
<td>D</td>
</tr>
<tr>
<td>New Residents</td>
<td>1000</td>
<td>D/H</td>
</tr>
<tr>
<td>Tourists</td>
<td>500 rooms**</td>
<td>H</td>
</tr>
</tbody>
</table>

*Based on national average of 4 persons per household
**Based on assumptions that 2 employees required per room70

Table 4.2 – New Program

One improvement in the new program is an even spatial distribution between different groups of users. One sample is the reduction of land reserved for private luxury resorts, and provide equal access to the water by reserving beaches as public spaces. Public beaches increase opportunities for interactions between tourists and residents. Additionally, resource consumption is reduced when fragmented hotels are integrated into residential areas; this approach is inspired by Urbanauts’ “horizontal hotels” and AirBnB model. As discussed earlier in Section 3.1, by decentralizing accommodations, economic benefits are redistributed to surrounding communities, and generate positive experiences for tourists.

The design solution also takes into consideration the differences of living requirements by different group of users. For example, the existing population, who are involved in fishing trades, needs to settle closer to the water, whereas the rest of the population can settle further inland. The new residents, who are tourism service provider or temporary construction workers, would

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70 According to a report from the Hawai‘i Tourism Authority, there are total of 145, 235 tourism-related jobs in 2010, and 77,731 lodging units in 2011. From this statistic, it can be estimated that there approximately 2 employees required for each unit. http://www.hawaiitourismauthority.org/default/assets/File/research/2011%20State%20Factsheet%2020120402.pdf
need to live closer to tourism establishment and attractions. Public spaces, such as school, administrative center, hospital, must be within close proximity of all residents, as well as tourists.

An integrated solution requires a well-connected program, which provides alternative access routes to ease congestion in contested spaces. Drawing solutions discovered from the case studies, the most integrated design has three different levels of connection. First is the in-house connection; this level uses open spaces (inner courtyards) in the house as a node of interaction between occupants and families. Second is the neighborhood connection; at this level, the “street” becomes communal spaces between neighbors. However, since the program requires consideration for existing residents, new residents, and tourists, the “street” might become overcrowded, and disrupting residents’ daily activities. Therefore, it is important to have alternative passageway for residents only (i.e. alleys). Third is the town connection, this level connects users from different areas of town. At this level, public spaces and public buildings become interaction nodes.

![Street Activities in Hanoi, Vietnam](source: http://hanoipackagetours.net/ta-bien-street-hanois-backpacker-area/)

![Day Market in Thom Island](source: Author)

![Night Market in Phu Quoc](source: Author)

*Figure 4.5 – An Active and Commercialized Culture*

The new program frames the spatial requirements for different group users, particularly the existing residents. As shown in figure 4.5, existing residents have an active and commercialized culture, where dwelling and working overlaps. This commercialized culture has developed the vernacular architecture of Neo-tube house, which functions as both a dwelling space and a commercial space.
4.3 Vernacular Architecture

Neo-Tube House

Tube house is a reference to a specific building type with a long and narrow layout, a “tube form”. To Kien used “neo-tube house” to refer to the common typology in many larger urban areas of Vietnam after the Vietnamese economic reform in 1986 (figure 4.6). Neo-tube house has a tube-form layout (depth much longer than width), as well as a tube-form façade (height much longer and width). Neo-tube house is mostly self-financed and self-built, which is why it is sometimes called "Nhà dân tự xây" (literally translate to “Self-built residential housing”).

Today, neo-tube house has become a cultural symbol of Vietnamese cities, and neo-tube houses are popular among Vietnamese because of its financial flexibility and commercially efficient.

![Neo-tube House in Hanoi, Vietnam](source: http://redwhitelost.wordpress.com/2012/10/03/gooood-morning-hanoit)

![Neo-tube House in Ho Chi Minh, Vietnam](source: http://asitcools.wordpress.com/2013/04/22/saigon-dalat-saigon-2/)

_Figure 4.6 – Neo-tube House in Vietnam_

Neo-tube houses are often self-built because of its simple typology and construction; owners can build their houses as tall as their financial situation can afford. In term of typology, neo-tube house is a single mass built group with an average lot size of 4.5m by 20m, and is 3-5 stories tall. In his research, To separate the typology into 6 different morphologies: 1) full plot &

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full height, 2) single sky-well with full height, 3) multiple sky-wells with full height, 4) single-step façade, 5) multiple-step façade, 6) front yard with full height (figure 4.6). In single house-group, neo-tube house is also categorized by number of open access: single, double, or triple. In terms of construction, neo-tube houses use low cost materials such as reinforced concrete, bearing frame, brick walls, and plaster. The process employs a mono-phase construction technique, which requires low-skill manual labor.\textsuperscript{72}

![Diagram of tube house types]

\textit{Figure 4.7—Traditional Tube House Evolution (Source: Author)}

Neo-tube houses are commercially efficient because most are multifunctional, which mix commercial activities into living spaces. For example, front spaces are frequently used as shops, garages, and offices when the house has direct access to the street. The backspaces are reserved for living or for rental; however, most rentals belong to houses located along small alleys, without direct street access.

It is evident that neo-tube houses are physical constructs of Vietnam’s commercial culture. Therefore it is important to incorporate this typology to support an economically diverse population on Thom Island; doing so will strengthen its cultural identity, and increase its competitiveness as a tourist destination. However, neo-tube houses lack the environmental and spatial efficiency required in modern architecture. According to To’s study, traditional tube houses are much more efficient in terms of natural lighting and ventilation.\textsuperscript{73}


\textsuperscript{73} Ibid.
Traditional Tube House

Traditional tube house refers to common houses built in various urban areas of Vietnam before the 19th century. The traditional tube house has many influences in the development of Neo-tube house, and this is evident in the similarities between the two forms. Both forms have a “tube-form” layout, direct street access, and multiple functions (commercial and living). However, traditional tube house has a longer history that is deeply rooted in Vietnam’s cultural development; traditional tube house also has better environmental and spatial considerations than neo-tube house.

According to Nguyen Ba Dang, the traditional tube house has its origin from wooden rural housing; he theorized “earliest urban settlers probably applied the traditional wood technology smartly into new urban context”\(^\text{24}\). To Kien, whose found supporting evidence in old archived photos, accepts Nguyen’s theory. Following Nguyen’s theory, the evolution of traditional tube house can be subdivided into five stages: 1) Indigenous rural wooden housing, which typically has minimum structure of a three-bay (3m each bay) main house, and a sub-house, was introduced into an urban context; 2) houses were modified with main building facing the road to function as shops and workshops; 3) post-1800, feudal governments began taxing shops by the width of their street frontage, and the results were the width began to get smaller and reduced to a single-bay; 4) During the mid-1800s, population grew, street facades were filled up, and house began to expand inward and upward with an alternating mass-void layout; 5) Commercial demands increased after the Vietnamese Economic Reform in 1986, and courtyards were filled in, transforming traditional tube house to neo-tube house. Nguyen’s evolution theory has not only confirm the cultural significance of traditional tube house, but it has also illustrate how the flexibility of traditional tube house helps residents adapt to changing social conditions.

\(^{24}\) Ba Dang Nguyen, "Preserving Hanoi’s Architectural & Landscape Heritage" (1999).
a) Indegenious rural wooden housing type was introduced into an urban context. A typical layout consist of 3 bays; each bay had an average of 3m

b) Traditional housing was modified with street-facing building, which functions as workshops and shops.

c) Feudal governments taxed shops by the width of street frontage, reducing the shop-houses to a single bay.

d) Street facades are filled up, the shop houses expanded inward and upward.

e) Due to land scarcity, courtyards are filled in, transforming traditional tubehouse to Neo-tubehouse. Neo-tubehouse are less energy efficient due to the lack of opennings for ventilation and natural light.

Figure 4.8—Traditional Tube House Evolution (Source: Author)
In addition to its cultural significance, the traditional tube house also has a well-articulated spatial composition, which is customizable, eco-efficient, and community oriented. Traditional tube house consists of similar modules; each module can be customized to be proportional to the owner's body size. Furthermore, the neighborhood can expand quickly by replicating the wooden module in a mass-void composition. The mass-void layout provides spaces for expansion when there are increasing number of occupants. Each house can expand further inward where land is available; if land is scarce, each house can also expand by partially build up the void spaces. Traditional tube house also has an eco-efficient spatial composition; the voids (courtyards) provide open space for natural lighting and ventilation, and the raise platforms reduced damping and prevent flooding. In a house-group composition, the voids lined up to create a natural green zone that allows natural ventilation among houses. In terms of social connection, the voids serve as common spaces to encourage in-house interaction between families/occupants, and the streets serve as common spaces to connect all neighbors between houses. Traditional tube houses are never more than two-story tall, creating a audio and visual connection between residents and people on the street.\(^\text{75}\)

This section clearly illustrates that the spatial composition of traditional tube house has a strong social connection to Vietnamese culture, and is very community oriented. Therefore, it is important to regenerate these traditional structures and knowledge to support a dynamic population on Thom Island, as well as reviving a unique cultural identity. Even though the tube house typology is favorable to the existing population, a study of other typologies is required to make tradition more adaptable to modern living requirements.

Different Typologies

Figure 4.11 shows various typologies and the related density, which can be measure by two parameters: floor area ratio, and site coverage. Floor area ratio (FR) is the total floor area divided by the building area, and site coverage (SC) is the building area divided by the site area. Values of the two variables can be increase or decrease to form four combinations (typologies); following is a brief description of each combination, its spatial implication, example, and probable usage.

Low Floor Area Ratio (LFR) – Low Site-Coverage (LSC): this typology has the least
efficient land use, and the lowest density.\textsuperscript{76} However, this typology offers privacy and security because of larger open green space between units. An example of this typology is the residential villas proposed by SALA Design Group. This typology is unfit for areas required higher density, however it is favorable for less dense areas such as private luxury resorts.

HFR – HSC: this typology has the least healthy environment because of poor lighting and ventilation condition for the middle areas and lower floors. A group of neo-tube houses is an example of this typology. This typology is undesirable due to the lack of open spaces, which make them hazardous under extreme conditions.\textsuperscript{77}

LFR – HSC: this is the most community-oriented typology due to its direct relationship to the street; therefore it is advantageous for the existing residents. Examples are neo-tube houses with two floors or lower. This typology is not capable of supporting density growth because of low housing space per unit area of land.\textsuperscript{78}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure4-12.png}
\caption{From Tube Typology to HFR-LSC Typology (Source: Author)}
\end{figure}

HFR – LSC: this typology offers high levels of supply to provide affordable housing, which make it socially equitable. This typology also provides the most open/green spaces and

\textsuperscript{77} Ibid.
\textsuperscript{78} Ibid.
permeable surfaces. This is common typology proposed by SALA Design Group to serve as commercial spaces, apartments, schools, and other public buildings.

From above, HFR – LSC is the most desirable solution for high-density areas with limited land resources. The challenge is, unlike traditional tube house, HFR – LSC is not community oriented because of the building setback from the street, and its tall façade does not provide audio-visual communication connecting residents with people on the street level. However, a typology study shows that a traditional tube house group has the same density as a 4 story, HFR – LSC building (figure 4.12), simply by rearranging the masses. This typology study supports the notion that a traditional tube house group is more fitting as cultural response than a conventional HFR – LSC building.
Chapter 5 Design Proposal

Introduction

This chapter concludes this thesis with a design proposal for the development of a tourism community on Thom Island. As an alternative to conventional tourism development, the following design follows a community-oriented approach, which focuses on the needs of existing residents rather than tourists. By focusing on the existing community, the proposal offers a sustainable model of tourism development that addresses the environmental, economic, and social challenges discussed in Chapter 2.

Section 5.1 discusses design responses to the natural environment, and economic growth. In response to local ecology, the design proposes several solutions that improve the living conditions of existing residents. One of the solution is to relocate the existing residents to a more favorable location that provides better shelter from extreme weather conditions. Another solution is to ensure water security by designing a system for rain water collection. In terms of economic growth, the design proposes a step-process development that is adaptive to changes in the future. The first step is to develop zoning for different phases of development. The second step is to develop the infrastructures necessary to support the local economy, as well as provide logistical support for future developments.

Section 5.2 emphasizes on three responses to social-spatial challenges resulted from the integration of tourists and residents. The first response is the adaptation of established building traditions (traditional tube-house discussed in section 4.3) to support and preserve the cultural identity of existing residents. Another response is to create a spatial program (drawn from the case studies in Chapter 3) to reduce privacy and security risks for residents from crowd of tourists. The third response is the spatial integration of “horizontal” hotels/accommodation (AirBnB and Urbanauts discussed in section 2.) on top of commercial spaces, and complete a residential block.
Section 5.3 presents two master plans for the development of Phase II and III, follow by a comparison between this new program and SALA’s proposed program. The proposed master plans for the second and third phase only represent one of many possible scenarios since changing economic and cultural conditions may change the outcome of any future development. The final program of this proposal is then compared to that proposed by SALA Design group in the context of spatial distribution, and density.

This design proposal illustrates a model for an environmentally, economically, and socially sustainable tourism development by stressing on the needs of existing residents. The proposed model is a combination of traditional building techniques, historical building patterns, and contemporary spatial integration. Similar practice is repeated at each step of the development to ensure adaptability for a natural generative process, in contrast to conventional practice of rigid development.

5.1 Environmental Response & Economic Infrastructures

Windbreak

As discussed in Section 2.2, one of the major social challenges for the existing residents is the migration between east and west during heavy wind seasons. The unstable living condition also puts economic stress on the existing population because of the damage, and the requirement of having two separate homes. The proposed design addresses this issue in three steps.

The first step is to relocate the current population to the east side of the island. There are two reasons to support this intervention. One reason is because the east side has a shorter duration of wind (refer to section 2.2); therefore it is a more desirable location for relocation. Second reason is the opportunity to reduce social and economic stress by providing existing residents with permanent homes, eliminating the migration process.

The second step is to build inward, and on higher grounds. There are two advantages for the implementation of this intervention. Existing structures are currently too close to shore, and
have high risk of flooding in case of sea level rise. When buildings are moved further inland, the risk of flooding is reduced. Building further inland, and on higher ground, also reduces the risk of structural damage due to land erosion.

1. Move East permanently, shorter wind period

2. Move population inward, and above 5m elevation.

3. Planted Malaleuca Leucadendra Forest, reduce wind speed during high wind season, wave break during tsunami.

*Figure 5.1 – Steps of Intervention (Source: Author)*

The final step is to planted a forest between the shore and new settlement areas; this planted forest has several functions that benefit the community. The planted forest comprises of local Malaleuca Leucadendra trees, also as Cajuput trees in South East Asia, “Tram” tree in Phu Quoc. Tram trees can grow from 10-40m tall, and can grow on rough soil condition. The primary function is to reduce wind speeds during heavy winds season. However, the forest also functions as a wave break in case of tsunami or rough ocean condition.
Figure 5.2 – Windbreak (Source: Author)

The result of these interventions is a new permanent settlement area, protected from the various climate conditions by the planted forest. However, there are other economic and social
advantages of the “Tram” forest. For example, tram trees produce oil, known as Tea oil, which can use for medicinal purposes. The medicinal oil is popular among South East Asian Countries; this adds another element to the local economy of Thom Island. As for the social benefits, “Tram” forest offers large and shaded open spaces along the waterfront areas, which is accessible to everyone. These spaces are interaction nodes that connect tourists and residents in a natural setting.

**Water Security**

Water security poses another challenge for the existing residents, as well as tourism development. High annual rainfalls provide Thom Island with a large resource of groundwater. However, the existing residents access the water through traditional-dig wells due to the lack of infrastructures to collect and store water. This issue is addressed with a proposed water reservoir for water collection and distribution. Designing a water reservoir requires two major consideration: favorable location, and its capacity.

The location of the reservoir is necessitated by the major concentration of rain runoff. The area, where most of the runoff intersect and accrue, is most favorable because there are more water running through. Figure 5.3 is an overlay of the area that has the most runoff with the runoff diagram (done by SALA Design Group). The blue lines illustrate trails of rain water runoff, and the pink dots represent the locations where the trails merged. There are other areas in the North and South of the Island, but they are far from the existing settlement. Therefore, the area indicated in figure 5.3 is the most desirable area for a water reservoir.

*Figure 5.3 – Rain Runoff (Source: SALA Design Group)*
Another major consideration for the reservoir is its storage capacity, in terms of the total number of people it can support per day. The capacity can be determined by finding the total amount of water collected, and then divide that by the average water consumption, in gallon per person per day. The total amount can be calculated by multiplying the catchment area with the total amount of annual rain fall and a conversion factor of .623 (amount of water in 1” deep of 1
square foot). Figure 5.4 illustrates the calculation for the proposed water reservoir, which can collected 43,248,411 gallons per year. Base the average water consumption in Vietnam’s urban areas, the proposed reservoir has the capacity to support over 6,500 people. According to green economy tourism, an average tourist consumes approximately 79 gallons per day. With that said, the proposed reservoir has the capacity to support 1500 tourists.

From the calculation, the proposed reservoir has the capacity to support the existing population of 3000, 2000 new residents, and 1500 tourists per year. Therefore the proposed reservoir not only provides water security for the existing population, but also has enough water resource for future population growth, and tourists.

Economic Infrastructures

With a majority of the population involves in fishing and farming, the existing residents are not trained for the tourism industry. However, Phu Quoc has diverse economies and local specialties that can be adapted by the large fishing and farming demographic on Thom island. Proper planning and infrastructures are required to develop the local economy with local specialties. This design proposes different zonings for different industries, as well as a network to connect them.

In term of zoning, the island is subdivided into four different regions: South East, West, Mid-West, and North. Each region is reserved for various purposes. For example, the South East region is reserved for the development of a tourism community, which includes the resettlement of the existing population, housings for new residents, accommodations for tourists, and spaces for commercial activities. This region has a total area of 92.5 hectares of land. The West, comprised of 14.2 hectares of land, is reserved for farming, particularly the cultivation of black pepper. This region also serves as land reserve for future expansion in case of an increase in population or tourism demands. The Mid-West, and North are reserved for phase II and phase III, respectively, of tourism development (figure 5.5).
All the regions are connected by a single artery, which offers several benefits to the tourism community. This artery is a 14m wide and 7 km long paved road, which can be used during the
construction process for transporting resources, materials, and workers. Once the construction of all phases are completed, it can be used as an island-wide public transportation route. The artery is wide enough for two bike lanes in the middle, and two lanes reserve for an electric transit system. The transit system uses an 8-passenger electric autonomous shuttle; the shuttle travels at 20km per hour. A trip around the artery would take approximately 20 minutes. The idea is to create a pedestrian-oriented development; the artery encourages automobiles independence by connecting residents to places outside of a comfortable walking radius (approximately 400 meters or a 10-minute walk) with reliable transportation.

The design also proposes three fishing docks and a harbor to support the fishing industry. The fishing docks provide fishermen stable anchors for their boats during high wind season. The docks are built at angle perpendicular to the dominant South East wind, and on top of artificial oyster reefs, which naturally filter pollution in the water and break incoming wave. The proposed harbor offers a large platform for loading or unloading of goods and passengers.

In conclusion, the design offers numerous solutions to support the development of a diverse local economy along with tourism. Farm land reserves for black pepper cultivations, infrastructure network for logistical supports, and increasing accessibility and mobility within in the island.

5.2 Social-Spatial Response

Adaptation of Traditional Tube house

In Chapter 4, Section 3 demonstrates the cultural-spatial relationship between Vietnamese commercial-oriented culture and the traditional tube house typology. Because of the strong cultural-spatial relationship, this design proposes an adaptation of the traditional tube house as the primary typology for the existing residents. The design adapted the modularity, spatial arrangement, and passive strategies present in a traditional tube house.
Each unit are constructed from a core module of 4.5m wide, 6m long, and 3m high (figure 5.6). The sizes were adapted from the average building size of a traditional tube house. The width of each module is fixed at 4.5m to create a coherent townscape from the street. However, the depth and height of each module is flexible; depends on the owner's personal taste, the depth can range between 5-7m, while the height can varies between 2.5-3.5m. The limitation in height and depth can be controlled by instituting enforcing building regulations.

Similar to the traditional tube house, each module is layout in a mass/void arrangement to form a housing unit. The voids function as inner, and back courtyards. The masses serves as buildings to support several functions. Front buildings can either be used as retails, commercial, or living spaces; back buildings can be used for private living, and courtyards function as transitional spaces between public and private activities. Each housing unit has a maximum of 24m in depth, and 2 stories high. Based on these requirements, there are three different spatial arrangements for a housing unit: 1) two single story buildings, 2) a single and a double stories buildings, 3) two double stories buildings. The chosen spatial arrangement of each house depends on the owners’ financial capacity.

![Spatial Arrangements](image)

*a) two double-story  b) a single-story & a double-story  c) two single-story*

*Figure 5.7—Spatial Arrangements (Source: Author)*

Several passive strategies are adapted from the traditional tube house. Each housing unit, as shown in figure 5.8, employs the courtyard typology to allow for natural ventilation, and lighting to enter living spaces. The buildings also have air vent at the hip of the roof to improve ventilation by exhausting hot air out of the building. The raised platform is another adaption.
from traditional tube house, the raised platform prevent damping, while reducing the risk of flooding by differentiated the heights between outdoor and indoor spaces. The courtyards between buildings create a microclimate system within a house group. The situation is better when the houses are oriented opposites of the wind direction, except for few cases that requires orientation toward the water. This orientation reduces the wind speed when it enters the house creating a more comfortable living environment.

Figure 5.8 – Adapted Passive Strategies (Source: Author)

The adaptation of traditional tube house has several advantages for the existing population. The modular construction is easy to customized to meet the needs of the occupying family. The adapted spatial arrangements provide residents with an economically efficient housing typology. The adapted passive strategies produce an eco-efficient living environment that reduces energy consumption.

Spatial Program

One key concept of this proposal is the integration of tourists and residents. However, such integration poses a challenge of increasing privacy and security risk for residents due to overcrowding of tourists, which disrupts residents’ daily activities. Drawing from the spatial patterns discovered in Chapter 3, this design proposes a new spatial program that allow the mixing of tourists and residents, while reducing privacy and security risk for residents. This is achieved by establishing a spatial hierarchy, and providing alternative access.
The bubble diagram, *figure 5.9*, shows the new spatial program, and illustrate three different levels of spatial hierarchy. The first, and most private is the dwelling units, represented by the dark circles. This level is only accessible to residents; the private and public functions, within each residence, are separated by the courtyards. The second level, a semi-integrated level, is the secondary passageways, which connect residents with commercial spaces, public buildings, and hospitable spaces. At this level, residents and tourists are connected through the secondary passageway, public buildings, and commercial spaces. Interaction is reduced when tourists return to their spaces of accommodations. This approach preserves the privacy of both tourists and residents. The last level, and most integrated is the primary passageway, connecting the secondary passageway, public buildings, commercial, and hospitable spaces. The different spatial hierarchies provide different levels of spatial control for the integration of tourists and residents.

Another key element of the new spatial program is that every housing unit has two direct access: from the secondary passageway, and from the alleys. A network of alleys is formed when a “block” is filled up with house groups. Alleys provide extra accessibility for residents (*figure 5.10*). It is hoped that the complexity, and physical characteristics of the alley will be intimidating to tourists, and deter them from intruding. Unlike those found in the case study of Tongli, the alleys proposed in this design is planned and regulated. The alleys are between 1.5 and 3m wide, and
function as transitional spaces for residents to move between houses without entering tourists congested areas.

Figure 5.10 – Perspective sketch of a typical alley (Source: Author)

The new spatial program offers a feasible solution for addressing the challenge of tourists/residents integration. Integration is controlled at different levels through the application of various spatial separations, which help to reduce interruption to residents’ daily activities.
Privacy and security risks are reduced by allowing residents alternative access that skip congested areas.

**Spatial Integration**

The new spatial program provides a framework for the spatial integration of various types of spaces for different groups of users. In this proposal, new residents are expected to support a growing tourism industry, therefore a tourism community requires spatial integration of different spaces for existing residents, new residents, and tourists. The spaces for the existing residents must come first before new residents, and tourist can be integrated into the community.

Spaces for existing residents has already been discussed through the adaptation of traditional tube house. The adapted tube houses are attached and adjacent to one another, which form a house group (*figure 5.11*). Each house group has a minimum of 6 housing units; this is required to create a continuous facade along the streets. One house group can be attached to another; however, there shouldn’t be more than two combined house groups because doing so will decrease the town’s walkability by reducing alternative connections, which make the alleys network less effective.

*Figure 5.11 – Typical house group (Source: Author)*
Figure 5.12 – Spatial Integration of a typical block – first level (Source: Author)

When the a block is filled up with house group, spaces for new residents and tourists can be integrated into the excess spaces. Due to the modularity of its construction, a concentration of multiple house group often leaves empty, large, and ambiguous spaces at the end conditions. The excess spaces offer opportunities for the integration of commercial spaces with "horizontal" hotels, similar to those used by Urbanauts. At each corner, new modular structures are introduced to serve as accommodations for tourists, these are not traditional hotels because they are not centralized and can be manage by private or public organization. Depends on the size of the excess spaces, the size of these modular structures varies from 10m x 10m to 20m x 20m. Each structure is 2 stories high; the first level functions as commercial spaces to support and encourage street level activities, while tourist’s accommodations take up spaces on the second level. In other case, the second level provides apartments to support new residents. By introducing new typology and functions into excess spaces, the design managed to accommodate tourism growth and
population growth without extra consumption of land resources. The solution offers greater spatial integration for tourists and residents than conventional approach to hotels/resorts development.

*Figure 5.13 – Spatial Integration of a typical block – second level (Source: Author)*

Figure 5.14 shows the complete master plan for a community that includes the adaptation of traditional tube house, a new spatial program, and residents housings and tourists accommodation. The final design illustrates how different spaces can be integrated by adapting traditional building practice, and incorporating a modern concept of horizontal hotels. The adaptation of traditional practice offer existing residents with a familiar living environment. At the same time, The horizontal concept help bringing tourists closer to residents.
5.3 Future Growth

Spatial Expansion

One of the design strategy for this proposal is the concept of adaptive growth, where the design must be able to adapt to future changes of social, economic, or environmental condition. Of the three, social and economic changes are the most likely. Considering future population growth, and rising economic demands, this proposal is designed with additional spaces for expansion. Spatial expansion are mostly likely to happen at the residential level.

![Diagram showing three options for expansion: a) two single-story, b) a single-story & a double-story, c) two double-story.]

*Figure 5.15 – Expansion (Source: Author)*

Each housing unit has the capability to expand in various ways depends on the existing spatial arrangement. For example, housing units, with two single-story buildings, can transform into the other two spatial arrangements by expanding upward. Housing units, with a single-story and a double-story buildings, can transform into the third spatial arrangement by add a module to the single-story building. The third spatial arrangement (two double-story buildings) is also expandable, simply by filling in the back courtyards with a single or a double story building. All housing units have direct access to the alleys, therefore filling in the back courtyards will not reduce the unit’s eco-efficiency because the alleys provide adequate spaces between buildings for natural ventilation and lighting.

The various way of expansion allows residents to accommodate growing demands without encroaching on common property. It is also important to regulate different diameters for expansion, such as maintaining at least one courtyard to reduce energy consumption. Enforcing
these regulations will help maintain an eco-efficient living environment, as well as creating a coherent and attractive urban landscape.

**Complete Master Plan**

*Figure 5.16* shows the complete master plan, which include three different phases of development. Each phases focus on different areas of tourism and community development. Phase I focuses on the redevelopment of the existing community, phase II focuses on eco-tourism, and phase III focuses on luxury resorts. Phase I has been the primary focus of this thesis, thus the details of its development has been extensively discussed in the previous sections. The following provides a possible outcome for the development of Phase II and III.

In Phase II, the focus will be on the development of a luxury resort, and an eco-tourism resort. It is also expected that the new resorts will required new employees, therefore the focus is also on the development a new residential areas for the new employees. *Figure 5.17* shows one possible outcome of this scenario. The outcome is a series of apartments complex, which can support up to 1200 occupants. The apartments are located on the east side of the proposed water reservoir, and takes up approximately 4.6 hectares of land. On the east of these apartments complex is an eco-tourism resort on 5.1 hectares of land. The luxury resort is located on the western shore, and comprised of 8.5 hectares of land.

*Figure 5.18* illustrates a probable solution for the development of phase III, which focuses on expanding tourism growth with a private luxury resort. The luxury resort is located on 17 hectares of land. It is expected Thom Island, by this time, has enough human resource to support the new luxury resort. Therefore, it is not necessary to construct new residential housings.

Having multiple phases provides several benefits for tourism development. For one, it strengthens the human capital required for tourism growth by integrating the supporting community in the design process of each phase. And two, different phases allow tourism to development at a sustainable rate by providing another dimension of flexibility to weather economic downturn.
Figure 5.16 – Complete Master Plan (Source: Author)
Chapter 5 Design Proposal

Figure 5.17 – Phase II (Source: Author)
Spatial Distribution Comparison

As a proof of concept, a comparison, between the new design proposal and the SALA Design Group’s proposal, is given here. The comparison is based on the total density and the spatial distribution of each program.

Figure 5.19 – Density Comparison (Source: Author)

Figure 5.19 shows the density comparison between different sources. First is the current density on Thom Island. At 12m² per person, this represents the highest density. Next is Vietnam’s national average, which is a little lower the existing density at 16m² per person. Following is the density proposed by this thesis. The proposed square meter per person is a 100 percent increase from the existing condition, and a 50 percent increase from the national average. Last is the density proposed by SALA design group, which has lowest density of 30m² per person.

Figure 5.20 – Spatial Distribution Comparison (Source: Author)
Figure 5.20 shows the spatial distribution comparison between SALA Design Group's proposal and this thesis proposal. The figure clearly represents the differences between the two approach. One of the differences is the community-oriented approach this thesis has taken verses the conventional economic-driven approach. The distribution of residential development accounted for 58% of the built areas, and only 19% are for accommodation. On the contrary, SALA proposed 40% for accommodations, and 17% for residential. Another major difference is the lack of land reserves in SALA proposal.
Conclusion

Cultural identity is an invaluable resource for any destination; it offers tourists a unique experience with a culture that is much different from their own. Yet, cultural discontinuity remains a challenge for tourism development, whether it is building new communities or redeveloping existing ones. Host community, who supported the tourism industry, are often overlooked by designers as a source of labor instead of a cultural resource. The findings in this thesis emphasizes on how conventional design practice disconnects tourism development from the host community, and how integrating tourists into existing social fabrics can have great social-economic benefits for the local community. Lacking consideration for existing residents, conventional approach to tourism design is highly disruptive to existing social structures, economies, and natural ecologies. Spatial characteristics such as privatization, separation, and overconsumption further support a development pattern focused on social disintegration. As an alternative approach, this thesis look toward historical communities, which are popular tourist destinations, for design solutions that address the social-spatial challenges of a sustainable and integrated tourism community. Within an integrated community, the overriding conclusion is that cultural identity is strengthen when better living infrastructures are in place, existing lifestyle is supported, and privacy and security is preserved. Below are some potential interventions that help building a successful tourism community on Thom Island in Phu Quoc District, Vietnam.

To emphasize on the importance of the host community as a cultural resource, it is imperative to focus on and improve upon existing social and physical challenges of the host community. The traditional development pattern of “accommodating” tourists and “ignoring” residents creates difficulty for residents to perceive tourism positively when it comes to social sustainability. By focusing on building necessary infrastructures to support the existing population, host community are no longer being overlooked as supporters of the tourism industry but as cultural providers, thus improving residents’ perception of tourism. The implication of social-
spatial reinforcement not only improve existing living conditions for residents but also promotes cultural uniqueness.

Once the social and physical challenges are resolved, the next step is to offer a probable housing typology that supports the current way of life. To support a commercially-oriented culture, many residents are living in houses that has dual functionality of a living and working environment. By combining these functions, a new typology is created, potentially making housing more affordable. For example, Neo-tube house, a common topology in Vietnam, is an elongated structure (long and narrow in plan) that faces the street, thus most of the residents used the front, or the entire first floor, as shops, workshops, offices, or rental spaces. The simple construction make Neo-tube house highly customizable and easy to replicate. However, Neo-tube houses are eco-inefficient due to a high floor area ratio and high plot coverage. The design proposed in this dissertation is an adaptation of the traditional tube house, which has a lower floor area ratio. In addition to the low area ratio, traditional has a courtyard typology, which allows for better natural lighting and ventilation. The proposed design simply illustrates how current way of life can be preserved by adapting old building traditions.

For the integration of tourists with residents, A new program that includes historical building patterns, such as a spatial hierarchy, are incorporated in the design. While the adaptation of the traditional tube house preserves the current way of life, residents’ privacy and security are still being threaten outside of the housing units. The new program introduced a network of alleys as an alternative access for residents to move around the city without being interrupted by crowd of tourists.
CITATION


[10] Dianne Dredge, Destination Place Planning and Design, 1999


[16] Goo, Don. E-mail to Allison Schaefers, March 10, 2013.


[42] Raoul V. Bianchi Place and Power in Tourism Development: Tracing the Complex Articulations of Community and Locality


