VILLAGE + PARK

USING ECOTOURISM

TO REVITALIZE XIAMEN VILLAGE

IN TEA VALLEY NATIONAL PARK

A CREATIVE PROJECT

SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

MASTER OF LANDSCAPE ARCHITECTURE

BY

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1 INTRODUCTION

With rapidly developing technology, jobs and transportation are much more efficient today than a century ago, allowing people have more income and leisure time. In China, many like to use their leisure time to travel, and vacation destinations vary from undisturbed natural areas to modern urban cities, from vernacular districts to mixed-cultural areas.

This creative project explores using landscape design to enhance tourism at China’s Tea Valley National Park. The design process engages three main subjects: ecotourism, landscape architecture and architecture. It proposes using and developing existing landscape and architecture design principles, and enhancing those design strategies throughout the chosen site. Combining environmental, cultural and economic characteristics of architecture and landscape architecture can contribute to sustainable development through ecotourism.

Ecotourism is a sustainable type of mass tourism that follows principles of sustainable development. The main anticipated cultural outcome for sustainable ecotourism development is increasing peoples’ awareness of environmental and cultural capitals and heritage. Ecotourism is a set of purposeful nature-based activities with the ability to change the host society’s attitudes about environmental, social and economic problems caused by developing capitalism. With appropriate design strategies, ecotourism can ensure the success of these goals, making its host destination more environmentally, economically, and socially sustainable.

Architecture and landscape architecture can contribute to sustainable ecotourism
development. In addition, these are part of the social contexts for interactions between human society and its surrounding natural environment. Being fully sustainable requires using spaces, materials, and renewable energy sources in sustainable ways.

The main cultural outcomes for architecture supporting ecotourism are the anticipated cultural outcomes for sustainable ecotourism development. These outcomes include people’s awareness of their heritage, cultural and environmental capitals, and engagement in the sustainable development process through the architecture of land, buildings and urban form.
2  PROBLEM STATEMENT

2.1  Problem Statement

The project explores how principles of ecotourism could contribute to 1) revitalizing the vernacular community of Xiamen Village in Tea Valley National Park to promote more adaptive future uses, 2) promote tourism with low impact on natural areas from tourists and local citizens, and 3) enrich personal experiences and environmental awareness?

2.2  Parameters

2.2.1  Landscape Architecture

Landscape architecture principles protect existing natural habitat by addressing relationships between culture and nature. Studying and applying landscape principles will define the goals and objectives of the national park development by using eco-friendly methods, such as ecosystem layering (McHarg).

2.2.2  Ecotourism

This study proposes develop the Tea Valley National Park and its surrounding area through ecotourism principles. The goal is to make the tourism site more attractive and generate more incomes for local people while also preserving natural resources.
2.2.3 **Architecture**

Architecture principles will help people find this region’s existing or forgotten culture. The village below the dam is facing tensions between traditional and modern Chinese culture. Carefully designing and organizing buildings inside the village and national park will help people realize their own culture and promote willingness to enrich this culture.

2.3 **Sub-questions**

Four sub-questions guide the research for this project:

1. How can design principles (landscape architecture, building architecture) be integrated to develop an ecotourism site?

2. What design principles of traditional Chinese architecture and landscape architecture could be used in the eco-village?

3. How could ecotourism improve local life though job creation, food production, educational opportunities, cultural events, and arts celebrations?

4. How can Xiamen Village expand its local economy with less negative environmental impact, while ensuring the highest and best use of its existing assets?

2.4 **Assumptions**

The project makes the following assumptions:
• The ecotourism site will attract people and serve as a positive publicity platform.

• As owner of Tea Valley National Park, the Chinese government is interested in adding new programs to make it more sustainable.

• The national park’s environmental, economic, social, and political condition is very stable, but with opportunities for improvement.

• The dam near the village is safe and would not be destroyed by any policy.

2.5 Delimitations

The following delimitations express issues the research will not fully address:

• This project will not consider management aspects of ecotourism.

• This project will not consider construction costs.

• This project will address general concepts of environmental benefits but will not calculate specific financial or demographic outcomes.

• This project will address seasonal programming, but not detailed trail design.
3 LITERATURE REVIEW

3.1 Introduction

China is facing rapid urbanization, leaving many villages with threatened cultural heritage. Because those villages are far away from cities, they are gradually forgotten and lose their value. However, with threatening air pollution in Chinese cities, people want to travel far away from their work place and be surrounded by trees, lakes, and clean air. Under these circumstances, remote rural villages show their potential as destinations for tourists to stay during their vacation.

Many studies explore improving the tourism experience; however, there has been less attention devoted to how to engage nearby communities into the tourism, especially using the community as a resort. The following chapters examine the existing literature in related fields of ecotourism and principles of landscape and architecture design for eco-resorts.

3.2 Ecotourism

3.2.1 Definition of Ecotourism

Ecotourism has been developing during the past few decades, but there is still no general agreement on its definition. Parks Canada first used the term “eco-tour” during the 1960s. In 1990, the International Ecotourism Society (TIES) recognized ecotourism as "responsible travel to natural areas that conserves the environment and improves the well-being of local people.
According to Peter Björk, ecotourism is neither agriculture tourism, nature tourism, nor adventure tourism, but a unique form that has become increasingly popular due to the greening of markets, expanding knowledge about environmental fragility, better informed managers, and recognition of close relationships between good ecology and good economy (Björk 189-202). Tourism is an industry which will influence natural systems. However, Björk notes that ecotourism focuses on protecting nature but also lets people get close to, study, and then coexist with nature.

Based on these definitions, ecotourism is mainly about uniting and balancing conservation, communities, and sustainable travel. It helps create and satisfy a hunger for nature, harness tourism’s potential for conservation and development, and also avert its negative impacts on ecology, culture, and aesthetics (Lindberg and Hawkins 8).

3.2.2 Ecotourism in China

Since around 2000, ecotourism has become an essential strategy for Chinese nature reserves to achieve sustainable development. Ecotourism faces many challenges in China. And disputes about the definition of ecotourism worldwide, China is struggling to determine which of its own tourism destination could be developed for ecotourism. Another issue is the lack of direction and resources to construct truly ecofriendly travel. Most of China’s ecotourism
destinations are concentrated on less developed areas. Many communities within these natural areas have rich biodiversity but face challenges with mass tourism. Although an upward trend in tourism could mean development and higher standards of living, it could also cause bad effect on biodiversity, local culture, and nature resources. These communities should learn and practice about creating sustainable ecotourism programs. (Chappell, 2014)

3.2.3 Ecotourism Principles

Behind the definition of ecotourism, designers should follow several principles:

- Minimize negative environmental impact.
- Provide high-quality experiences for visitors and hosts.
- Provide direct financial benefits for conservation.
- Create social benefits.
- Improve infrastructure.
- Provide financial benefits and empowerment for local people.
- Raise sensitivity to host country’s political, environmental, and social climate.
- Generate funds for managing and conserving natural areas.
- Provide economic justification for protecting of natural resources.
- Stimulate local and/or national economic development.
- Diversify and complement the economic base.
- Foster environmental awareness/values and support for conservation, among local residents and tourists, through on-site educational opportunities (Ross and Wall, 1999).
- Promote cultural preservation (Slinger, 2000).

Ecotourism shows the value of incorporating rigorous scientific insights in specialized fields of research. For example, ecotourism projects should identifying and protect critical habitats where tourists engage with endangered species. Critical issues in ecotourism are an important and ground-breaking contribution to this growing field (TIES, 2014).

3.2.4 Ecotourism and Landscape Preference

A 2000 study by Jose Antonio Atauri, Miguel Angel Bravo, and Asuncion Ruiz, shows a clear relationship between visitors’ activities, behaviors, attitudes and expectations with landscape preferences. In areas with heavy recreational use, knowledge of landscape preferences and demands is essential to allow optional design of recreational areas and preserve more valuable places. A differentiated awareness of the types of visitors should guide landscape planning, considering real users’ needs.

3.2.5 Ecotourism and Environment

Tourism has both positive and negative impacts on the environment. “In the long run, tourism like any other industry, contributes to environmental destruction” (Cohen 220). And “Conservationists see both [tourism] developments and tourists themselves as threats to survival
of wildlife and of treasured natural resources” (Coppock 270). Uncontrolled development of tourism can jeopardize natural conservation (May 113). In a general view, tourism impacts can be separated into two types: those associated with structures (hotels, roads, airports, etc.) and those resulting from tourists themselves.

Weaver and Lawton explain Ecotourism is a sustainable form of tourism. Moreover, ecotourism “posits that the basis of interaction with the natural environment is one of inherent appreciation and/or educational interests, and not merely as a suitable setting for a hedonistic or thrill-seeking experience” (16). As part of the larger tourism industry, Weaver and Lawton considered the ecotourism emphasizes on protecting the natural environment and treating natural scenery as the major attraction.

Discussing relationships between ecotourism and environmental conservation, Buckley believes minimizing negative impacts on the natural environment is critical for its evaluation (149). This means the major goal of ecotourism is to protect ecosystems which provide basic human needs and activities. In terms of ecotourism, an ecosystem “can be described as supporting life, supplying materials and energy, and absorbing waste products” (Gössling 303).

3.2.6 Ecotourism and Local Community

Ecotourism depends on local economic systems, which are based on conserving natural and cultural heritage. Such systems would require participation of local communities and their sustainable activities. The GLOBE 90 international conference and trade fair on environment and
sustainable development (Vancouver, Canada, in March 1990), produced an action strategy for sustainable tourism development. It reveals that one of ecotourism's main goal is to develop greater awareness and understanding of the significant contributions tourism can make to the environment and economy.

By increasing local building capacity and employment opportunities, ecotourism is an effective vehicle for empowering local communities around the world to fight against poverty and to achieve sustainable development (What is Ecotourism). In some societies, particularly among those less developed, the shift from traditional to industrial strategies for economic development has destroyed natural and cultural resources.

Based on these previous studies of the definition of ecotourism, the goal of ecotourism conveys the concept of eco-friendliness and sustainability, reflecting harmonies between mankind and nature. Ecotourism has minimal influence on the environment and also serves educational functions by introducing tourists and locals to the functionality and value of nature’s ecosystem services, conveying new knowledge about nature by going into nature. Meanwhile, ecotourism encourages people to notice the importance of natural resources, and build a sense of social responsibility.

3.3 Architecture Principles

In their book Landform Building (2011), Stan Allen and Marc McQuade explore the trend that human living tends to show increasing concern for the health of nature. The book
examines many manifestations of landscape and ecology in contemporary architectural practice--not as a cross-disciplinary phenomenon (architects working in the landscape), but as new design techniques, new formal strategies and technical problems within architecture.

New technologies, new design techniques and growing demand for enhanced environmental performance have provoked a re-thinking of architecture's traditional relationship to the ground by using green roofs, artificial mountains and geological forms. Buildings are designed to be walked upon or over with networks of ramps and warped surfaces. Buildings carve into the ground or landscapes and/or lift high into the air. With such new design language, some natural rules help buildings fit more stably and harmoniously with their surroundings.

Farshid Moussavi’s research moves architectural experiments away from “mechanistic” notions of systems for re-producing forms, to “machinic” notions of systems that determine how parts of an architectural problem interrelate and multiply. He explores production of singular effects through systems that relate form with program. Moussavi’s work is an essential graphic manual on structural systems and their capacity to produce a variety of forms.

David L. Andersen indicates that a building supporting ecotourism acts as a “window to the natural world” and as a vehicle for learning and understanding. Though the facility is just one component in the ecotourism formula, its design can reinforce and enhance ecotourists’ enjoyment and understanding of the setting. For developing ecotourism facilities, Andersen lists several criteria as a guideline for more detailed standards related to specific local issues and ecological characteristics of a given site. First, site planning issues focus on the location and
context of facilities. Planning also indicates the importance of trail systems and existing natural conditions and aims to decrease the impact of construction. Second, the building design emphasizes construction more than function. Third, energy resources and utility infrastructure issues indicate using green energy and natural ventilation systems as a complement to using green energy. Moreover, waste management issues concern recycling and trash management systems rather than their influences on the ecosystem.

Ecotourism facilities themselves will remain the visual evidence of sensible sustainable development. The architecture of ecotourism should also be viewed as an educational vehicle to enhance awareness and sensitivity of ecotourists, scientists, and students.

The most important concept about architecture is to introduce green buildings into ecotourism. Green construction (also called sustainable or ecobuilding) mainly focuses on reducing pollution and energy use by the structure itself. It provides healthy environments for both human users and the natural context. Ecobuilding creates efficient spaces for human use and also merges itself into nature. Buildings should be more like organic, integrated spaces, and should operate as living creatures, throughout their full lifetime, including planning, design, installation, use, and maintenance.

Ecobuilding well achieves the ecotourism’s goal to reduce negative environmental impacts. The buildings themselves act as tourist attractions and contribute to the economy. Also, buildings provide people sufficient activity space without displacing nature. New building technologies also display knowledge about sustainable and ecofriendly design and operation.
Ecobuildings also showcase local culture, and express the current understanding of that culture.

### 3.4 Landscape Principles

In their book *Inside Outside* (2003), Anita Berrizbeitia and Linda Pollak argue that the visual, experiential and cultural impoverishment of much of our environment stems from designers’ incapacity to connect their work with the world beyond their immediate building sites.

The Inside Outside concept frames interpretation for architecture and landscape architecture, and celebrates normally overlooked relationships between them. Five intriguing "operations"—reciprocity, materiality, threshold, insertion, and infrastructure—each initiate an alternative way of looking at the representation and construction of relationships between architecture, landscape, city, and individuals.

In his book *Land Mosaics: The Ecology of Landscapes and Regions* (1995), Richard Forman explains animals, water, wind, and people flow at different rates according to spatial patterns common to almost all landscapes and regions. This subject has great relevance to contemporary society, and Forman’s work reflects the breadth of this importance. This has many applications for planning, conservation, design, management, sustainability and policy. Designers provide spatial solutions for society's land-use objectives.

In her discussion of climate thread, Maria Hellström mentions as a side effect of the climate threat, this renewed celebration of creative agency may be welcome from a landscape
architecture perspective. In the context of sustainable development, every design action is also a landscaping gesture with environmental implications. The articulation requires reconsidering landscape aesthetics beyond the consoling and beautiful, plus a fundamental shift in landscape thinking from representation to agency (Maria 24-37).

### 3.5 Conclusion

Through researching eco-resort design methodologies and solutions, this creative project explores the main problem and sub-problems. The next chapter discusses case studies that apply design principles of the knowledge described in the literature review.
4 CASE STUDIES

4.1 Hoshinoya Karuizawa, Japan

The first eco-resort in Japan, Hoshinoya Karuizawa is located on the banks of the Yukawa River. The connection between the resort entrance and rooms features a special trail enclosed by canopy, stream, shrubs and forest, to create a quiet and isolated space (see Figure 4-1). Hoshinoya Karuizawa resort promotes life without electricity, TV or phone. It provides a slow lifestyle and a unique environment for people to enjoy nature. Each room features a balcony with a good view of nature and the community (see Figure 4-3).
The resort and its Tombo-no-yu hot springs are powered by geothermal heat from volcanos in the surrounding topography. Hydroelectricity from mountain streams provides energy for the rest of the resort's power needs. The buildings have double-layered roofs, which reduce the need for air conditioning. The whole architecture of the resort reflects traditional Japanese design. Housing typologies include riverside villa, hillside villa, garden villa and garden villa marionette (see Figure 4-2).

To also be economically and socially sustainable, the resort offers tourism programs all year around. During spring, the trails provide bird and flying squirrel observation. For summer, the theme changes to escape from urban heat. And autumn offers trails for observing fall foliage. During winter, visitors enjoy an astronomical observatory and frozen waterfall trail. Tour guides make specialized visiting plans for tourists based on their individual interests, they can enjoy their trip without worry about others (Hoshino Resorts, 2005).
Figure 4-2: Housing Typologies (Hoshino Resorts)
Naked Retreats, China

Naked Retreats is located at the top of Mogan Mountain (see Figure 4-4). The designer developed the Naked Retreats to provide people ways to nourish their own needs for recreation, while not leaving a massive carbon footprint. Naked Retreats was conceived to provide an
accessible refuge from a hectic city lifestyle, a place to regain balance and restore oneself through closeness to nature. It is a place where people relax, get active and get well, and get “naked.”

Figure 4-4: Naked Retreats Master Plan (Naked Retreat, Master Plan)

Figure 4-5: Tree-Top Villas (Naked Retreat, Gallery)

This village currently has guesthouses, villas and hotels (named Studios, Bungalows and Lodge) in various states of functionality and several mixed decades of decor (see Figure 4-5).
Naked Retreats also offer several programs for visitors, including corporate/school/wedding events, yoga weekend and naked by candlelight. Visitors can enjoy many activities in Mogan Mountain, including yoga, tennis, fishing, mountain biking, hiking, forest walk and daytrips to Tianshan. The resort uses a water source heat pump system and rainwater collection to reduce impact on nature (Naked Retreat).

Naked retreats follows its eco-friendly concept, reduces carbon emissions, and brings life back to nature. Also, the resort is committed to working with the local community, by generating job opportunities, contributing to local economies, and sharing with them a sense of pride and fulfillment (Grant Horsfield 14).

4.3 Concordia Eco Resort, US Virgin Islands

Located on the side of a hill overlooking Salt Pond Bay, Ram Head, and Drunk Bay on St. John, UVI, Concordia Eco-Resort offers 25 studios, eco-tents, and eco-studio accommodations that reflect low-impact philosophy in its recycled buildings. Concordia offers guests an “unplugged” getaway with yoga classes, a freshwater pool, and access to the nearby beach at Salt Pond Bay. Sister property Maho Bay Camps offers affordably unique lodgings with tent cottages and studios, using hillside settings and connecting walkways to blend with nature (Siting and Design 40).

Ecotourism guru Stanley Selengut, the founder of the Concordia Resort, carefully selected materials and used design to leave the natural environment virtually undisturbed. Tent
cabins and studios are tucked away into the hillside among the vegetation, avoiding visual intrusion and offering privacy to guests. Sites for the cabins, studios and the central service facilities were chosen to minimize environmental damage. The units are connected by raised wooden walkways and stairs, which have been designed to minimize impact on vegetation. Ground cover and other plant and animal life continues undisturbed beneath the cabin platforms and raised walkways, while undisturbed vegetation above the walkway provides shade for guests (Concordia Eco-resort, 2013).

Figure 4-6: Resort Overlook (Concordia Eco-Resort, 2013)
Concordia Eco-Resort also incorporates technologies to manage the use and supply of energy and water. The 25 units at Concordia eco-resort are self-sufficient in energy, making full use of renewable technologies, including solar-powered water heaters. Rainwater harvesting on almost every building diverts more than 1,500 m³ of rainwater per year into cisterns, which supply water for laundry, housekeeping and bathhouses. Cisterns are strategically located in the hilly environment so water can flow using gravity, without need for energy-consuming pumps. An anaerobic system treats greywater, which is subsequently recycled and carried through lateral pipes to irrigate orchards, gardens and surrounding vegetation (Concordia Eco-resort, 2013).

The resort offers a Work Exchange Program, an economical way to experience the island of St John and the surrounding United States and British Virgin Islands. In exchange for free lodging, the resort ask for a commitment of one month working in one of its various departments: maintenance, housekeeping, registration, or other specified area.
5 METHODOLOGY

5.1 Introduction

This chapter outlines several research methods used in this creative project, including literature reviews, observation and data collection, and case studies. In particular, these methodologies will be used to answer the key question and sub-questions.

5.2 Literature Review

The research begins with a literature review that introduces sustainability, ecotourism as a sustainable type of tourism, and sustainable architecture and landscape architecture as components of ecotourism. The literature explains the main principles used as objectives to develop a framework for ecotourism, architecture, and landscape architecture.

5.3 Observation and Data Collection

The observation took place from May, 5, 2014, to May, 22, 2014. Observation includes data collection, mapping and photography on site. The landforms, existing facilities, structures, land use, hydrology conditions, existing plants, and natural habitats were recorded as data and mapped for site inventory and analysis. Data categories include forest types, birds, entomology, hydrology, and other issues. This strategy for data collection provides an opportunity to explore strengths and weaknesses of the information systems and, if necessary, propose guidelines for
their development.

The data can be classified into three types:

- Visitor data (number of visitors each year, nationality, average visitor nights per year)
- Data related to facilities, services and products used (types of transportation and accommodation services)
- Tourism activities data (number of visitors hiking, picnicking, etc.)

5.3.1 Data Analysis

The analysis was conducted at two scales: regional and site. The aim of the analysis is to explore interactions between the ecological, cultural and economic characteristics of ecotourism and its related products and activities, such as architecture, through sustainable development.

5.4 Case Studies

The creative project explored case studies related to the topic of ecotourism park design. The studies consider both single-day and overnight visitors. The Hoshinoya Karuizawa and Naked Retreat are a good case studies for housing typologies. Concordia Eco-Resort is a good example for eco-resort housing design strategies. Important lessons can be learned from these existing projects for their success in achieving nice human-scale environment.
CASE STUDY: CONCORDIA ECO RESORT  LOCATION: ST. JOHN, VIRGIN ISLANDS

BUILDING RATIO = 1.9%

What's Eco-Friendly About It?

Concordia’s eco-tent concept is akin to living in a luxurious tree house. The standard unit has a composting toilet, a solar-heated shower and electricity powered by a 12 volt photovoltaic system.

“Absolutely Wonderful Eco-friendly Vacation!”

“Most Relaxing Vacation with a Breathtaking View!”
CASE STUDY: NAKED STABLES PRIVATE RESERVE
LOCATION: HUZHOU, CHINA

BUILDING RATIO = 5.3%

What's Eco-Friendly About It?
All buildings are designed to minimize the environmental impact and fit in with the natural surroundings. Innovative construction technology such as prefabricated SIP (structural insulated panels) has been used in the construction of the Tree Top Villas. The Earth Huts and clubhouse are built with modern rammed earth walls using compressed mud from the local area, resulting in an environmentally friendly structure and striking coloured striations and design.

This was a fascinating stay, although it was only three days. The room and the environment are perfect. It's a place for us to relax and rejuvenative. We had a good time here at Elephant 4, despite the fact that the route to the room is not so easy. But good things never come easy.
CASE STUDY: JETWING VIL UYANA  LOCATION: SIGIRIYA, SRI LANKA

BUILDING RATIO = 6.9%

What’s Eco-Friendly About It?
The hotel increases the area’s biodiversity, since it was built on manmade wetlands previously used for slash and burn agriculture. The Jetwing Eternal Earth Programme (JEEP) works to innovate in ecotourism and give back to the community.

Jetwing Vil Uyana is situated among reed beds and paddy fields and over the first man-made lake since the era of Parakramabahu I. Situated in the shadow of the historic rock fortress of Sigiriya, is what Harper’s Bazaar calls the Best Eco Luxury Hotel in Sri Lanka.
After each case, there are conclusions of the building ratio and other relevant design.
elements (see Figure 5-5). These are used as references for the proposed design land uses and also the programming guidelines for the whole project. In conclusion, there will be about 50% housing, 25% open space and 25% green cover.
Figure 5-5: Space Pool Analysis

Concordia Eco Resort, US Virgin Islands
Housing: 23%
Open Space: 8%
Green cover: 69%

Hoshinoya Karuizawa, Japan
Housing: 60%
Open Space: 23%
Green cover: 17%

Naked Retreats, China
Housing: 25%
Open Space: 5%
Green cover: 70%

Xiamen Village, China
Housing: 55%
Open Space: 22%
Green cover: 23%
6  SITE INVENTORY & ANALYSIS

6.1  Site Location and History

Zhoushan is a city located in China’s Yangzi Delta in the overlapping estuaries of the Yangzi and Qiantang Rivers. Many well-developed cities in China are also in this region such as Shanghai, Nanjing, Hangzhou and Ningbo (see).

Figure 6-1: Yangzi Delta Region
The proposed project site is located in Tea Valley National Park, on the Main Island of Zhoushan City, 30 minutes’ drive from the Dinghai district, the cultural center of Zhoushan City. This project includes Xiamen Village and a major part (30%) of Tea Valley National Park (see Figure 6-2).

Tea Valley National Park is upstream from Xiamen Reservoir, and covers about 500 acres. Named after the hilltop tea farmland, the park is famous for tea farming, waterfalls and streams (see Figure 6-3).
6.2 Site Climate

The site is located in an oceanic monsoon climate region. The average temperature during the year is between 15.6-16.6°C (60.08-61.88°F). Annual precipitation is about 927-1620 mm (36.5-63.8 inches). The island experiences dry conditions and water shortages in summer, so drinking water must be brought from the mainland.
During summer, the prevailing wind direction is southeast, while during winter, it shifts to west (see Figure 6-4). Wind speeds range from about 3.3-7.2 m/s (10.8-23.6 ft/s). The major weather problem is typhoons, which typically happen from July to September.

Figure 6-4: Wind Pattern
Figure 6-5: Winter Wind Direction
Figure 6-6: Summer Wind Direction

Based on an air quality report from the China National Environmental Monitoring Center, Zhoushan Island’s air quality ranks second best among all cities in China. This makes it a desired resort location. Excellent air quality makes the site a unique and treasured place in China for people to get away from haze in big cities and enjoy nature. Compared to other cities near
Zhoushan, the island is a good destination with cool weather during summer.

6.3 **Tea Valley National Park**

Tea Valley National Park includes Tea Valley, Xiamen Village, Xiamen Reservoir, and other villages and trails. The whole region is about 30 square kilometers (11.58 square miles). Tea Valley and Xiamen Village are the center of the whole National Park and will be developed first. All other tourism areas will be developed in later phases.

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>AREA (m²)</th>
<th>PERCENTAGE</th>
<th>PROGRAMMING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tourism</strong></td>
<td>338.08</td>
<td>14%</td>
<td>Visiting natural and cultural sites</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>178.3</td>
<td>6.68%</td>
<td>Open space recreation</td>
</tr>
<tr>
<td><strong>Local dwelling</strong></td>
<td>197.5</td>
<td>7.4%</td>
<td>Culture experience</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>8.9</td>
<td>0.33%</td>
<td>Trails</td>
</tr>
<tr>
<td><strong>Forest</strong></td>
<td>1746.77</td>
<td>65.47%</td>
<td>Nature preserve</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>198.5</td>
<td>7.44%</td>
<td>Waterfront recreation</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2668</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Tea Valley National Park has abundant natural resources, such as water, wildlife and forest. Cultural resources are famous for the old village and trail. Scenic resources are very close to each other, facilitating ecotourism construction and development. Also, such pattern could be connected by liner trails for a continuous travel experience. However, the natural resources in
this region are not unique in Yangzi Delta Region. Therefore, the park needs a unique attraction to draw more people to enjoy nature. Such unique attraction need integrate with local culture, for example food, handcraft, art, etc.

Figure 6-7: Tea Valley National Park
6.4 Topography

Zhoushan Island has very hilly topography, with elevations ranging from 0-500 meters (see Figure 6-8). Xiamen Village is relatively flat, with a dam along the north edge being the highest part of the village. The whole site is in the valley and has very good drainage.

Figure 6-8: Topography (Dao 5)
Figure 6-9 : Slope (Dao 6)

6.5 Site Context

The site is located in Tea Valley National Park, surrounded by beautiful mountains. The north boundary is the edge of the Xiamen Reservoir, which provides water for nearby villages. The west boundary is Shuangxiao Line, a road providing important North-South connection in Tea Valley National Park. The south boundary of the site is the edge of Xiamen Village. With 300 families, the village is the entrance of Tea Valley. The east boundary of the site is the well-developed part of the Tea Valley.
6.6  Current Tourism Situation

6.6.1  Zhoushan Tourism Situation

Tourism is the main economic driver for Zhoushan City. As Chinese people’s need for vacations increases, Zhoushan attracts 15% more visitors each year (Zhoushan Tourism Department).

![Annual Tourism Data, 2008-2012 (Zhoushan Tourism Department)](image)

As the Zhoushan Tourism Administration indicates, 46.39% of tourists are from Zhejiang Province, 10.73% are from Shanghai, 8.82% are from Jiangsu, 5.44% are from Fujian, and 3.92% are from Anhui.
Among all tourists, 35.15% are mainly visiting sites; 26.40% are vacationing; 7.14% are attending family gatherings; 1.54% are for business; 3.20% are for health recuperation; 18.88% are for religion temples; 1.98% are for cultural exchange; 1.52% are for holidays; 1.48% are for education, and 2.71% are for other reasons. From this data, we see site visiting and vacation are two main reasons for tourists coming to Zhoushan.
Figure 6-13: Reason for Travelling to Zhoushan

6.7 Current Tea Valley National Park Tourism Situation

Currently, two types of tourists come to Tea Valley National Park. Those from Zhoushan City typically come just for a day during weekends or holidays, and are attracted by various tourism programs, including picnic, hiking, zip line, tea drinking, and etc. The second type come from Yangzi Delta region, and are mainly attracted by Zhoushan vernacular culture and good
travel environment. They typically come during weekends for a two-day trip. But due to the bad housing condition in Xiamen Village, most of them chose to spend one day in the valley and then go to other places on the island for housing.

In 2012, most tourists came during spring (about 17,000 from March-May) for flowers and fall (about 8,000 in October) to enjoy natural resources. During other seasons, fewer tourism programs meet tourists’ needs.

Figure 6-14: Tourists During 2012
6.8 Similar Resort Analysis

Figure 6-15: Ecotourism Site in Yangzi Delta Region
Dongtan Wetland Park
Wetland-themed ecological park characterized by natural conservation, scientific research, science popularization, ecological tourism and recreational resort.

Users: Public tourists, family

Dongping National Forest Park
It is a desirable choice for people to return to the nature. The major tourism activities include paintball, grass skiing, aquatic park, camping, horseback riding in the forest, rock climbing, zipline, picnic and BBQ, happy forest kart, forest golf, water ball, etc.

Users: Public tourists, family during weekends

Sheshan National Holiday Resort
With the beautiful natural scenery such as thick bamboo forest and magnificent mountains and colorful religious culture on the top of the mountain, it’s very appealing to both Chinese and foreign visitors.

Users: Public tourists, family, business

Dianshanhu resort
Dianshanhu resort is beautiful scenery, preservation and construction of a large number of cultural relics sites, Pi Dianshanhu ‘resort, area lakes and mountains, the environment elegant, winter plum blossom everywhere, the scenery is exceptionally moving.

Naked Stables
Luxury accommodation is in spacious Tree Top Villas or single bedroom Earth Huts, spread across a broad, secluded valley in the foothills of Moganshan. Access is by foot or electric buggy. No motor vehicles are permitted inside naked Stables.

Tengtou Village
Tengtou has been selected as the only village to have an exhibit in the Urban Best Practice Area of Shanghai Expo. This tiny two-square-kilometer settlement under the jurisdiction of Fenghua, Ningbo City in eastern China’s Zhejiang Province is acknowledged for its distinctive, eco-friendly development model.

Xixi National Wetland Park
The park is densely crisscrossed with six main watercourses, among which scatter various ponds, lakes and swamps.

West Lake Park
West Lake has influenced poets and painters throughout China’s history for its natural beauty and historic relics, and it has also been among the most important sources of inspiration for Chinese garden designers.

Figure 6-16: Ecotourism Destination
6.9 Site Attributes

6.9.1 Land Tenure

Tea Valley National Park is nationally owned.

6.9.2 Building ownership

Houses are legal property of local residents, about 300 families. The few abandoned houses are publicly owned buildings. The restaurant and visitor center are also publicly owned, with a gift shop and farmers’ market in the visitor center.
Figure 6-17: Building Ownership
6.10 Xiamen Village

6.10.1 Housing Conditions

Xiamen Village is populated with about 750 people on 60.1 acres. About 90% of buildings are one or two stories and used for dwelling. A typical house in the village is about 40 feet long and 30 feet wide. Some houses include a courtyard or front yard enclosed by brick walls. Others are single houses with narrow alleys.

Figure 6-19: Wood Building (Photographed by Author)

For houses, the most frequently used materials are brick and stone. Since most residents in Xiamen Village are farmers, some buildings have their own gardens or yards. The village has
some old wooden houses, but most need maintenance. There are few abandoned houses in this village (see Figure 6-20), but in some open spaces, many surplus building materials are just abandoned and not being used.

![Figure 6-20: Brick and Stone Houses (Photographed by Author)]

Other buildings are very close to the open space, and gathering space is very limited. Bridges, street corners and house gates are the main places where people like to gather. A public park is poorly developed and has insufficient landscape furniture, so it is not used frequently.

![Figure 6-21: Houses with Garden (Photographed by Author)]
Figure 6-22: Houses with Courtyard
Figure 6-23: Building Materials
Figure 6-24: Green Space
Figure 6-25: Circulation
6.10.2 Existing Circulation Networks

West of the village is Shuangxiao Line, the main road through Tea Valley National Park. Along this road are two bus stops near the village. The main road through the village is a two-way concrete street. The only part of the village not served by the street is on the other side of the canal that brings water from the reservoir into the village. The other roads are narrow alleys which can only be used by pedestrians, bikes or golf carts. Most alleys are formed by building walls or grasses and weeds. They provide a unique quiet walking experience for visitors, but with poor construction, most pavement is covered with broken stones and weeds, making walking difficult.

Figure 6-26: Two-way Street (Photographed by Author)
Figure 6-27: Pedestrian Alley (Photographed by Author)

Figure 6-28: Country Road and Bus Station (Photographed by Author)
6.10.3 **Canal**

The canal enters the northeast side of the village and flows along the west side, between the main road and a country road. The canal was designed as a floodway. For regular days, people have access to water and do their laundry in the canal. But during summer, the island does not receive enough rain, and the reservoir is always lacking water, so the canal does not adequately meet the village’s needs. The canal becomes stagnant and aesthetically, and water must be brought from the mainland, unpleasant.

Figure 6-29: Canal (Photographed by Author)

6.10.4 **Cultural Merits**

Old houses with Chinese traditional style are spread randomly throughout the village. These houses are mainly built with local materials, wood and stones. Due to the material properties, most of the stone houses survive longer than those constructed of wood. Even though these houses were built during the 1940s, they are still kept in good quality, with cultural and
Moreover, some of these building retain the original local handcraft tools for making fishing nets. Other traditional furniture is also well protected in the houses.
6.11 Trail System

Some trails through Tea Valley National Park are well developed. Some are well paved with concrete, and some are wooden trails elevated for minimal impact on nature (see Figure 6-32).

Figure 6-32: Trail System (Dao 41)
6.12 Conclusion

Valley landform makes the Tea Valley National Park site a unique micro-climate compared to other places on the Zhoushan Island, which are much warmer, and not very windy.

The site conditions provide an opportunity to find a solution that balances ecotourism development with culture and nature. The existing village is a developable area, but the Tea Valley National Park would only develop a trail system to help tourists get close to nature while also protecting nature. Developing the village area would help connect traditional and modern cultures. Meanwhile, the developed area could provide housing for the National Park to minimize negative environmental impacts in the natural areas.

6.13 Strengths and Problems

6.13.1 Strengths

- The park has rich natural resources and beautiful scenery. Mild climate and good air quality attract people to spend leisure time enjoying nature.
- Xiamen Village maintains rich cultural treasures and vernacular handcraft skills for weaving fishing nets.
- The trail system inside the park is well developed.

6.13.2 Problems

- The park’s tourism infrastructure is relatively simple and outdated. Tourism is
mainly based on site visiting. Vacation, recreation, business and education are neither well developed nor included in tourism. Recent development has mainly focused on landmarks instead of open spaces for recreation and relaxation.

- Vernacular culture is not well developed, especially in Xiamen Village. Most of the Cultural Heritage is only known by locals. Tourists have limited information about that heritage.

- Tourism facilities are relatively outdated. The restaurant, hotel and other services are insufficient or low quality.

- During summer the canal become an unpleasant place.
7 SITE DESIGN

7.1 Introduction

This creative project has two intentions: to address basic tourism development needs of Tea Valley National Park, and to integrate ecotourism design strategies. This chapter provides direction for land planning and design principles, including positioning and integrating buildings within their surrounding context to minimize negative environmental impact and limit site disturbance.

Two main design goals and corresponding objectives address these intentions.

7.2 Goals and Objectives

Goal 1: Protect tourism and natural resources.

- Preserve historical buildings in Xiamen Village.
- Protect natural resources and native species diversity.
- Develop tourism infrastructure with sustainable strategies.

Goal 2: Promote Xiamen Village economic development.

- Develop village residential quality with local materials.
- Design resort to meet tourist housing needs.
- Creatively use Xiamen Dam as a terraced resort.
- Design more public green spaces where possible.
- Display locally handcrafted fish nets to celebrate Xiamen Village culture.

### 7.3 Design Concept

Instead of developing facilities in the park area, the existing village provides space for basic facilities such as housing, restaurant, and farmers’ market. Integrating original vernacular culture into the resort, the new development gives opportunities for visitors to stay longer around Tea Valley National Park. Meanwhile, the resort acts as a prototype for locals to show how their house could be transferred into a bed and breakfast.

![Figure 7-1: Design Concept](image)
7.4 Design Process

The whole design system weaves together architecture and landscape architecture elements. Since space is the key unit of landscape and architecture design, the creative project breaks the limitations of landscape and architecture, and just considers the function and arrangement of spaces.

The proposed resort includes two major spaces: public and private. The public space includes lobby, hall, gardens, parking lots, indoor swimming pool, spa, roads, lake, stream, and teahouses. The private space includes living rooms, bedrooms, bathrooms, staircases, kitchens, terraces, and gardens. Some spaces could be semi-private, such as terraces and gardens, which are shared by groups of visitors.

After this, vernacular design elements are key to form these spaces, for example, walls, windows, plants, water, landscape and other features.

7.5 Program

Based on Chinese traditional category of people’s daily life, the design program includes shopping(衣), food(食), housing(住), and activity(行).

7.5.1 Shopping

The visitor center is the major hub for shopping. It is designed to hold the gift shop, and provide vernacular handcrafts. Also, tea and other local fruit will be provided in the farmers’
market inside the visitor center.

7.5.2 **Food**

An eco-restaurant provides food as an official restaurant in the village. With its own garden next to the building, the restaurant directly farms some of its own produce. Additional food will be supplied by local farmers.

Residents might also open their homes as restaurant. Locals will be other homemade food restaurant. If tourists want to have a taste of real Xiamen food, these places will be their best choice. Tourists will enjoy fresh fish and other seafood which brought from the best fishing port in China.

7.5.3 **Housing**

Just like food housing, also includes official and unofficial locations. The eco-resort is the main place for housing. It offers different accommodation types that serve different groups of tourists.

Local residents also might rent out their spare rooms, kind like a bed and breakfast in the United States. Such housing type provide tourists cheaper housing choice with the opportunity to live with local family and experience their daily life.
Table 6-1: Space Programming

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>Public Structure</th>
<th>Waterfront Cottage</th>
<th>Hillside Cottage</th>
<th>Cluster Cottage</th>
<th>Public open space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking lot</td>
<td>Living room</td>
<td>Living room</td>
<td>Living room</td>
<td>Living room</td>
<td>Garden</td>
</tr>
<tr>
<td>Lobby</td>
<td>Bedroom</td>
<td>Bedroom</td>
<td>Bedroom</td>
<td>Bedroom</td>
<td>Pavilion</td>
</tr>
<tr>
<td>Hall</td>
<td>Bathroom</td>
<td>Bathroom</td>
<td>Bathroom</td>
<td>Bathroom</td>
<td>Lake</td>
</tr>
<tr>
<td>Garden</td>
<td>Staircase</td>
<td>Staircase</td>
<td>Staircase</td>
<td>Staircase</td>
<td>Stream</td>
</tr>
<tr>
<td>Swimming pool</td>
<td>Kitchen</td>
<td>Kitchen</td>
<td>Kitchen</td>
<td>Kitchen</td>
<td>Forest</td>
</tr>
<tr>
<td>Spa</td>
<td>Terrace</td>
<td>Terrace</td>
<td>Terrace</td>
<td>Terrace</td>
<td></td>
</tr>
<tr>
<td>Road</td>
<td>Garden</td>
<td>Garden</td>
<td>Garden</td>
<td>Garden</td>
<td></td>
</tr>
<tr>
<td>Lake</td>
<td>Stream</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stream</td>
<td>Forest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teahouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Club</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavilion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convention center</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.5.4 **Activities**

All tourists’ activities follow the rules of ecotourism and will be planned with the help of a tour guide to customize their own unique experience. And tour guide also ensure tourist respect the natural environment, to minimize negative impacts. Each season has different activity programs to meet the goal of increasing tourism during summer and winter.

1. **Morning Nature Watching Tour**

Invite tourists to encounter wonder of the forest creatures as they are escorted through a colorful world of beautiful birds and flowers. Both adults and children alike will find their curiosity stimulated by this guided tour through the Tea Valley National Park. In addition to the natural areas, a few existing play areas let children get close to nature. Gradual slops and steps are accessible to a wide range of tourists.

2. **Daytime Nature Watching Tour**

During daytime, tourists encounter the wonder of creatures in the forest. Tour guides will escort visitors through a world of wild birds and flowers. Both adults and children alike will find their curiosity stimulated by this guided tour through the Tea Valley National Park.

**Mountain Biking Tour**

Offering a refreshing ride in the forest, this course accommodates many cycling skill levels with paths suited to even those who have never tried mountain biking before, and more challenging courses for those skilled mountain bikers. Rental bikes are available, as are guides who will conduct tourists through the forest around Tea Valley National Park.
3. Private Tour

Knowledgeable tour guides will arrange customized tours at tourists’ request. Since this is a private tour, limited to one group of guests, the itinerary, starting times, and other details will be arranged upon consultation, allowing tourists to observe and experience the wonders of Tea Valley National Park and its nature at their own pace, in a more private setting.

4. Seasonal Program

Tour program will vary based on different seasons. During summer, the park provide cool natural tour through waterfall and stream for tourists get rid of heat island effect. During winter, hot spa provide tourists a good opportunity to relax themselves. And stargazing tour provide people a good opportunity to forget haze in big cities.

Table 6-2: Seasonal Programming

<table>
<thead>
<tr>
<th>SEASON</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>Wild Bird Forest in the spring</td>
</tr>
<tr>
<td></td>
<td>Spring Sunrise Hiking</td>
</tr>
<tr>
<td>Summer</td>
<td>Cool Falls Hiking Tour</td>
</tr>
<tr>
<td></td>
<td>Tea tour</td>
</tr>
<tr>
<td>Autumn</td>
<td>Outdoor Cooking</td>
</tr>
<tr>
<td></td>
<td>Changing Leaves tour</td>
</tr>
<tr>
<td>Winter</td>
<td>Stargazing Tour</td>
</tr>
<tr>
<td></td>
<td>Spa</td>
</tr>
</tbody>
</table>
7.6 Architecture Design Guidelines

The following Design Guidelines address building style and size requirements. The architectural design should reflect Xiamen Village vernacular architecture. The resort below Xiamen dam will develop a modernized version of the traditional Chinese house that embraces modern construction techniques and sustainable materials.

7.6.1 Architectural Style

- The architecture of the new buildings should not directly imitate the vernacular buildings, so tourists could better appreciate the vernacular buildings and easily distinguish new resort facilities. Architectural forms shall be simple and practical.

- The existing Xiamen Village houses are mainly stone and brick. New buildings should use local materials as façades with modern structures which provide better building quality.

- Building pattern frames views and controls solar exposure. The whole resort should be designed as a single unified cluster. Buildings should be closely spaced and vary in size to accommodate different people.

7.6.2 Building Massing and Scale

- Resort lodging structures follow the existing dam topography for phase three.

- The building scale should meet the ventricular housing type, which is about 25-60
feet wide, 30-40 feet long.

7.6.3 Sustainable Design

- All windows should be double-paned
- Water usage and heating devices should be energy-efficient
- Light colored roofing material should be used where appropriate to reduce cooling loads.
- Landscape, vegetation and architectural devices should shielding increase energy efficiency, by buildings from winter wind, and shaping and orienting them to minimize winter wind turbulence.
- Individual controllability should be used for space heating.
- All windows shall be operable.

Figure 7-2: Available Material
7.7 Design Elements

Design elements are separated into two groups: wall and vegetation.

The wall group (see figure 7-4), it has solid walls, walls with windows, walls with doors, half walls, and grid walls (see figure 7-5). And vegetation includes trees, shrubs, groundcover,
water plants and penzai (same as Japanese bonsai).

With different arrangements and materials, these design elements could form different spaces from private to public.
Figure 7-4: Wall Elements
Figure 7-5: Vegetation Elements
7.8 Building Massing

Two types of building massing form resort space and organize circulation.

The first type is the courtyard massing with roof orient rain into the courtyard. The gate of resort using this type to create a buffer space for inside houses (see Figure: 7-6).

![Figure 7-6: Courtyard Massing](image)

The second type is called linear massing. With angled house direction, it create space between houses, which provide opportunity for outdoor open space or landscape. The space between wall and canal provide open space for walk along the canal but still feel the under the roof.
Figure 7-7: Linear Massing
7.9 Housing Typology

The resort design provides 4 different types of housing--garden house, town house, garden villa marionette, and elevated villa--which can be fit into the site to form spaces.

Figure 7-8: Space Analysis
7.9.1 **Garden Cottage**

Garden cottage is a single house with its own garden. It has a spacious bedroom with two beds, one bathroom, and a comfortable living room. The first floor features a spacious room with an enclosed private miniature Chinese garden. It is about 64m²-67m², and accommodates 3 to 4 guests. For additional guests, beds will be laid out in the living room (see Figure 7-9).

![Figure 7-9: Garden Cottage](image)

7.9.2 **Twin Cottage**

A twin cottage offers two units with a shared wall and common garden. A wide terrace opens up from the living room. The bedroom comes with two beds with one bathroom, and a
living room. People share a courtyard with quiet space. It is about 50m², and accommodates 2-4 guests (see Figure 7-10).

![Figure 7-10: Twin Cottage](image)

7.9.3 Garden Villa

The garden villa features a two-level in a townhouse-like layout, with one bedroom, two beds, one bathroom, a balcony, and a living room. It is about 100m², and accommodates 4 guests. There are two types of garden villa. Some of the first floor includes living rooms which could be turned into an extra bedroom. And the second room is mainly for bedrooms. The other type has commercial and open space on the first floor, which provide gathering space for visitors and locals (see Figure 7-11).
7.9.4 Raised Villa

The raised villa is built on columns to nestle against steep slopes and minimizes the negative impact on nature and provides shaded open space beneath it. From the second floor, the villa provides spectacular views of the Wild Bird Sanctuary and is perfect for single guests or couples to enjoy privacy. It is about 44m2-53m2 and accommodates 2 guests (see Figure 7-12).
7.10 Design Scope

This creative project is designed at two scales: macro and micro. The macro-design scale develops the village and park level ecotourism strategies. The master plan (macro scale) shows the big ideas and design concept. Micro-design concentrates on the scale and addresses site details, systems and forms.
7.11 Design Phases

Figure 7-13: Design Phases

The master plan covers three different phases of development. Phase one focuses on the west part of the northern canal, phase two develops the public park areas, and phase three further develops resort south of the dam (see figure 7-13).
Figure 7-14: Section of Phases
7.12 Site-level Design

7.12.1 Village resort

The resort is located north of the village, with the canal passing through the resort lowing north to south. The design mainly provides housing space for the national park. The public structure is resort center with courtyard house on the southeast corner portion of the resort. It provides space for lobby, conference room, gym, tea houses, etc. Three buildings to the west of the public structure are the houses for volunteers who will do maintenance, housekeeping, registration, and other specified jobs. The attached garden for these houses requires volunteers’ maintenance and will provide food for resort.

The center of the resort has two courtyards surrounded by guests’ cottages. Each units has its own terrace which provides access to the courtyard. Guests can relax and enjoy the Chinese style garden in the courtyard. Townhouses near the canal share their semi-private garden.
7.13 Canal

7.13.1 Introduction

Most of the year, the canal has little water. The part of canal inside the resort is filled up with water by a dam. It works as the rain container for stormwater system, as well as water features for the resort. The trail through the canal provides open space for people to enjoy a unique experience to go through the canal (see Figure 7-16). A linear eco-machine installed along the trail helps treat water and provides habitat for animals. A system of locally woven fish nets provides canopy over the canal, and hanging sheer strips of fabric create a 3-dimensional space that represents flowing water.
Figure 7-16: Canal Program
Figure 7-17: Canal Park Section
Figure 7-18: Different Water Level
Figure 7-19: Canal Park

Figure 7-20: Canal in Resort
7.14 Conclusion:

The creative project redesigns part of Xiamen Village to provide housing for Tea Valley National Park and open space for locals. The project required understanding ecotourism.
principles and landscape and architecture design methodologies. The village is facing the problem of people moving out and being forgotten, while Tea Valley National Park draws visitors’ attention with its attractive natural resources. With this situation, the primary goal of this creative project is to use the existing developed area as the resort for Tea Valley National Park, and also revitalize the village itself.

The project follows the principles of sustainable design methods, integrating a stormwater system in the resort to solve the problem of water shortage. Using local materials and handcrafts as part of the design elements can attract more tourists and promote vernacular culture.

This project is limited by available time. If given further research opportunities, the following aspects would need to be addressed. Though the resort area is designed as a prototype for local housing, the existing houses could provide more opportunities for visitors as places to stay. Also, designing a cultural trail through the village will be essential for people to experience the vernacular culture. For inside the park, the design will focus on the landscape design strategies for low-impacted trail design. Such design provides opportunities for tourists to better experience nature and have less negative impact on the environment. Housing inside the park will be another part to address in the future of this project.
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