

A New Approach - Dealing with the Challenges of Rapid Urbanization in Hainan, China

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1. Introduction:

During the rushed process to urbanize, land development practices can be harsh on local people as well as the natural and cultural character of the land. With strong governmental power in China, land acquisition by government and developers is usually much easier than in the US. Local residents may be relocated without asking for their input, making way for expensive housing and large hotels; the land they depended on to earn their living may be replaced by seemingly endless identical luxury vacation villas, shopping complexes, and theme parks. Residents face the threat of losing the traditional income source and, later, becoming a part of the social problems of the local society. In the conventional practice, the landscape architects' role in urbanization development is limited in China. The government, the developer, and the local people all have their own different objectives. The team's task becomes a key role in coordinating and guiding them, in creatively leading the development process

This presentation, using the Yanoda Ecotourism Zone Planning project of Hainan, China as an example, demonstrates the landscape architecture team's successful attempt to work in a leading role and propose an Ecotourism and Sustainable Development method, a creative way to plan the land use that rejects the conventional model in favor of a progressive blend of ideas, directly involving and benefiting the local people in an ecologically and culturally sustainable way.

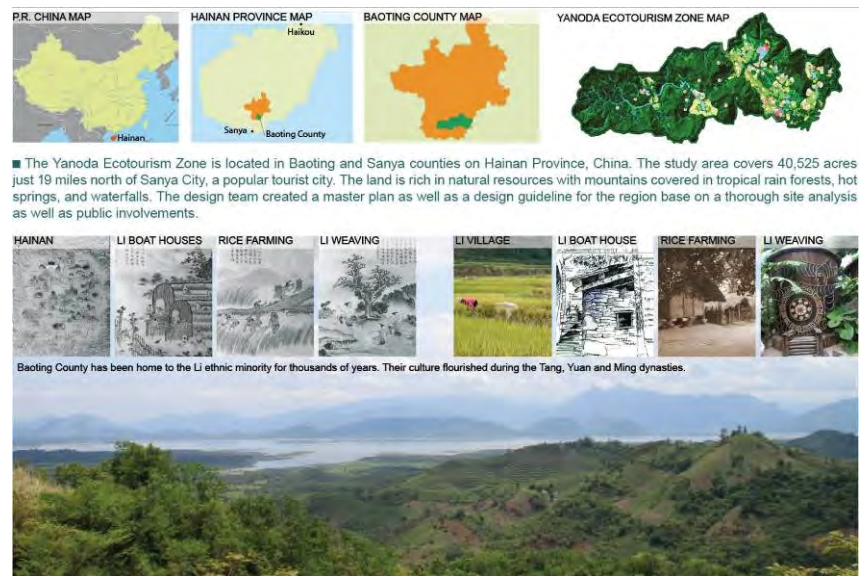


FIG. 1. PROJECT LOCATION AND HISTORIC CHARACTER OF THE AREA

2. Project Background

The Yanoda Ecotourism Zone is located in Baoting and Sanya counties on Hainan Province, in the South China Sea (Fig.1). The study area covers 164 Km² (40,525 acres) near the Wuzhi Mountains. This project was a collaborative project between the developer and two county jurisdictions. Initially, when the ECOLAND design team was called in, the plan showed no connection to the local land which is rich in natural resources and culture, but was also home to

extreme poverty. Its residents, the Li people, are one of China's 55 ethnic minorities living among mountains covered in tropical rain forests, hot springs, and waterfalls, they have little access to electricity, plumbing, or clean drinking water. The widespread poverty and uncontrolled local construction, if left to continue, would have been harmful to the ecological system. (Fig. 2) At the same time, the developer is accustomed to the conventional approach for development.

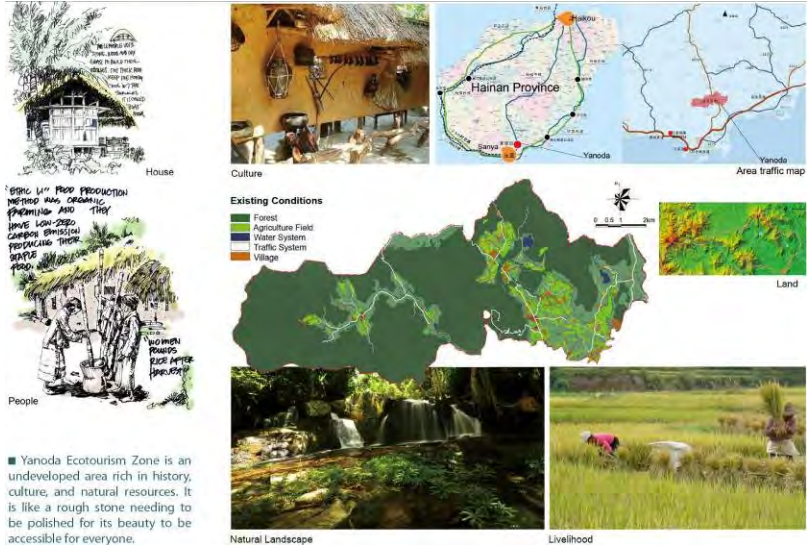


FIG.2. BACKGROUND OF THE YANODA REGION

Their original plan would have called for the common practice, simply relocating the local people to make space, replacing their farmland with golf courses and ‘Spanish-Mediterranean’ style resorts. Since the local government has a strong influence in land acquisitions, the local people would have been removed from their land, and thus their source of income and cultural heritage, with little improvement to their situation. In all, no value was placed on the unique character of Yanoda prior to the changes made by the design team. (Fig. 3)

3. Goals and Objectives:

The design team realized that to only meet the objectives of the developer was not enough to fulfill landscape architect's own social responsibilities and professional ethics. They had the opportunity to creatively establish a planning process that involves all three parties to coordinate a master plan that best reflects the interest of all parties as well



FIG.3. PROBLEMS AND ISSUES

as respects the richness of the land itself. The ECOLAND landscape architectural team decided to take the higher goal. The objectives of ecological, cultural, and economic sustainability can be combined creatively to propose a successful development for all parties involved – developer and local government, as well as for the local Li people and their land. (Fig 4)

Conventional Strategies	Conventional Strategies	Conventional Strategies	Conventional Strategies	Conventional Strategies	Conventional Strategies
<ul style="list-style-type: none"> ■ Building imposes upon the landscape ■ Large carbon footprint ■ Expensive mechanical systems 	<ul style="list-style-type: none"> ■ No sense of place ■ Destroys existing communities ■ Disrupts ecological functions ■ Car-based design 	<ul style="list-style-type: none"> ■ No center to attract tourists ■ Existing unplanned development ■ No Infrastructure ■ Lack of conservation 	<ul style="list-style-type: none"> ■ Spread out development ■ Large area impacted ■ Disrupts habitat preservation 	<ul style="list-style-type: none"> ■ Little diversity between tourist programs ■ Competition in tourism program ■ Appeals to a small group of users 	<ul style="list-style-type: none"> ■ Easier to build, harder to maintain ■ No wildlife habitat ■ Algal growth ■ Murky sediment in water ■ Uncomfortable and hot
<p>1 Construction</p> <ul style="list-style-type: none"> ■ Buildings harmonize with landscape ■ Small carbon footprint ■ Naturally heated & cooled 	<p>2 Tourism</p> <ul style="list-style-type: none"> ■ Compliments local design style ■ Preserves traditional livelihood ■ Maintains existing ecology ■ Walking-based design 	<p>3 Development</p> <ul style="list-style-type: none"> ■ New town centers ■ Centralized markets ■ Centralized infrastructure ■ Increased conservation 	<p>4 Density</p> <ul style="list-style-type: none"> ■ Compact development ■ Smaller areas impacted ■ Maximizes habitat preservation 	<p>5 Program</p> <ul style="list-style-type: none"> ■ Many complimentary tourist programs ■ Community connections in tourism ■ Appeals to a wide range of users 	<p>6 Water Edge</p> <ul style="list-style-type: none"> ■ Harder to build, easier to maintain ■ Encourages biodiversity ■ Filters micronutrients ■ Absorbs sediment ■ Cool shaded space
Our Strategies	Our Strategies	Our Strategies	Our Strategies	Our Strategies	Our Strategies

FIG.4. CONVENTIONAL STRATEGIES VS. CREATIVE STRATEGIES

4. Master Planning Process

A. Site Analysis

The data collection and analysis phases are the foundation of an intellectually honest program (Fig 5, 6). The landscape architects of ECOLAND conducted a thorough site analysis, including the compiling of information with GIS Spatial Analysis to generate a study of water loss, soil erosion, and mountain development. Greenway and Blueway ecological corridors were also identified for protection. The team conducted numerous field visits, which included an investigation of how poverty had affected the character of the land. The Li people lived in 43 spread-out villages of 300 to 500 residents each, with scattered commercial centers and few

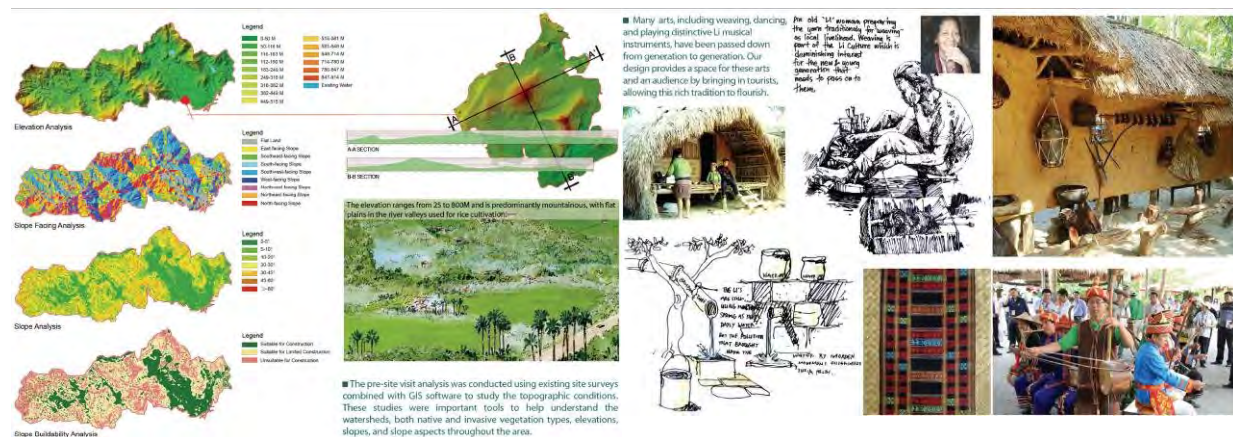


FIG.5. SITE ANALYSIS INCLUDING NATURAL AND CULTURAL ASPECTS

paved roads. The lack of a proper sewage system not only increased the incidence of disease, but also polluted the environment. There was little education or access to markets, and farming was their primary source of income. Heavy fertilizer and pesticide use polluted waterways and infiltrated sources of drinking water. Without a system to store water from the heavy summer rains, high-intensity irrigation was required during the dry winter, straining water reserves. To supplement their incomes some residents had been illegally harvesting natural rain forest trees, and replanting with monotonous tree farms, lacking in diversity, for paper and rubber production. Such practices were very detrimental to the ecosystem. Despite these problems the site, with tropical rain forests and mountains, has many features conducive to tourism, most notably areas of beautiful scenery and a unique culture. Li architecture excels at natural climate control, using local materials without concrete or metal. The Li minority people are famous for their weaving, which is used to make clothes and to decorate homes, and their rich festival traditions are all tourist attraction opportunities.

Although there was little awareness of the site as a tourist location before the project began, many local people were trying to attract visitors by displaying their culture. These scattered efforts only competed with each other, failing to make a large impact. A comprehensive tourism program was needed, including marketing, access from regional airports, and a plan for directed growth and preservation to stop the cycle of poverty. The developer's conventional plan did not address these issues and would have caused additional destruction with its lack of regard for existing conditions or conservation ideals. The design team identified the challenges and opportunities and presented a new plan. The proposed master plan calls for protection of the land and the people, at the same time enriching the tourist program with organic experiences increasingly sought by modern travelers. Incompatible program elements were eliminated and local involvement was brought into the project. Realizing that the future of tourism lies with this Ecotourism approach, the government enthusiastically supported the project as a development model worthy of following. A phase I demonstration project commissioned by the government to apply these planning principles, called Zajin Village Center and Forest Park, is already nearing completion.

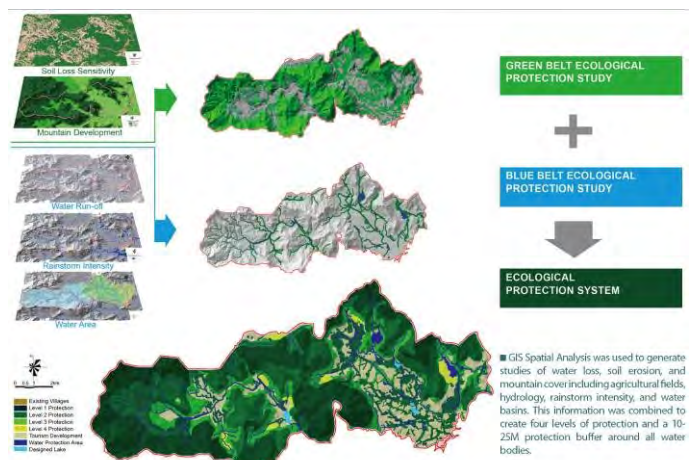


FIG .6. GREENWAY - ECOLOGICAL CORRIDORS

B. Strategies and Empowerment of Local Public

Using an approach that had never been tried in the region before, a series of public meetings was held with all residents of the study area invited to attend prior to finalization of the master plan. Once ideas were generated regarding the plan, they had the opportunity to vote on their favorite ideas. People were slow to participate at first, having never been asked for their input before. As they realized the direct impact that they could have on a plan that would shape their futures, the response was overwhelming. This unique experience in the residents' lives generated meaningful design and program input and gave the Li a sense of investment and ownership in the changes

taking place, increasing chances for the project's success, both for the people and for the developer.(Fig 7)

C. Establishing and Finalizing Master Plan Objectives

The master plan developed from the site analysis and community meetings expanded tourist access to the beauty of the land and the unique crafts of the Li people through directed growth that values environmental protection, improves infrastructure, and increases business opportunities.

A road connecting to Sanya, an internationally known tourist city, leads to and from the site. Vehicular access is limited to areas close to this road, with parking provided at key locations. Further tourist access beyond this area is encouraged by electric vehicles, horse carts, bicycles, and walking. A system with four levels of land protection was designated, serving the interests of each stakeholder based on ecological and cultural value. (Fig.8).

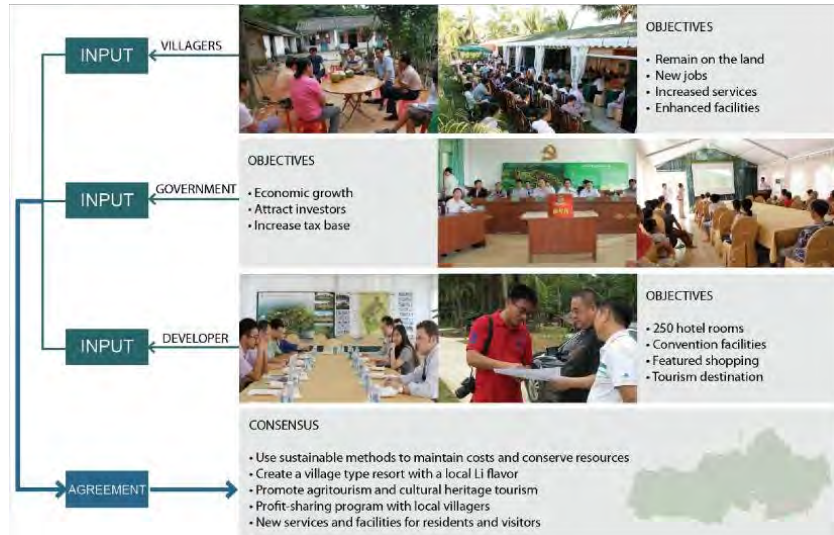


FIG.7. PUBLIC EMPOWERMENT

- **Rain forest protection zone:** The first level calls for a government sanctioned high-priority conservation area with a ban on farming and construction. This area will experience very little development, leaving the rainforest intact, and has no thru-traffic, making it a natural choice for preservation and scientific research.

- **Mountain hiking zone:** The second level provides limited access to wilderness areas and requires some future restoration to revert the paper and rubber plantations back to natural forest. The High Mountains and steep slopes in this area offer plenty of

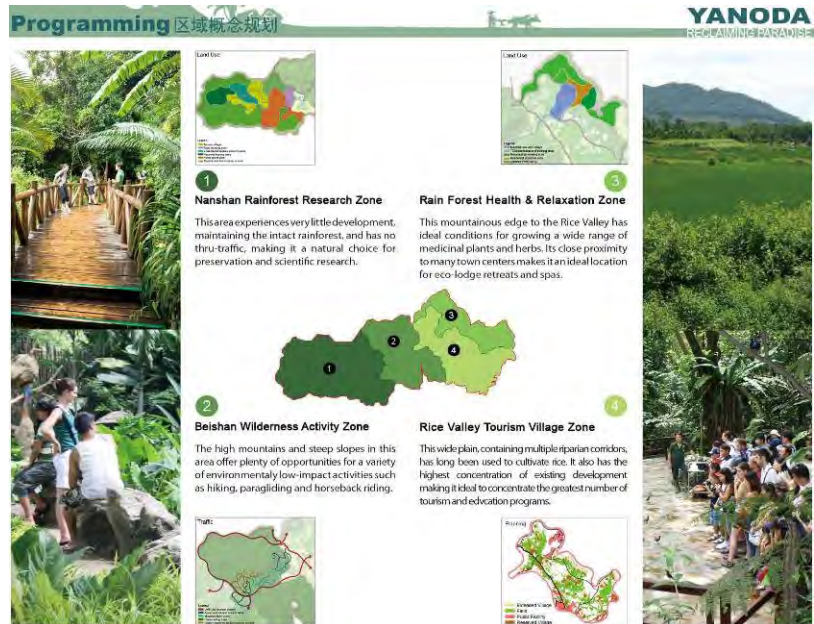


FIG. 8. FOUR LEVELS OF ECOLOGICAL PROTECTION

opportunities for hiking, horseback riding and mountain biking. It will include small parks and botanical gardens, showcasing native flora and fauna.

- **Eco-lodge retreats zone:** The third level allows only low impact development such as Chinese herbal medicine centers and small boutique hotels. The mountain edge adjacent to the rice valley has ideal conditions for growing a wide range of medical plants and herbs. Its proximity to many town centers also makes it an ideal location for eco-lodge retreats and spas.
- **Tourist resort village zone:** The last level, designated for areas with poor soil and forest growth, proposes guided growth and site amenities including new town centers, eco-resorts, services, farmer’s markets, and a training center. This wide plain, containing multiple riparian corridors, has long been used to cultivate rice and had the greatest concentration of development on the site. It will handle the greatest volume of tourism programs.

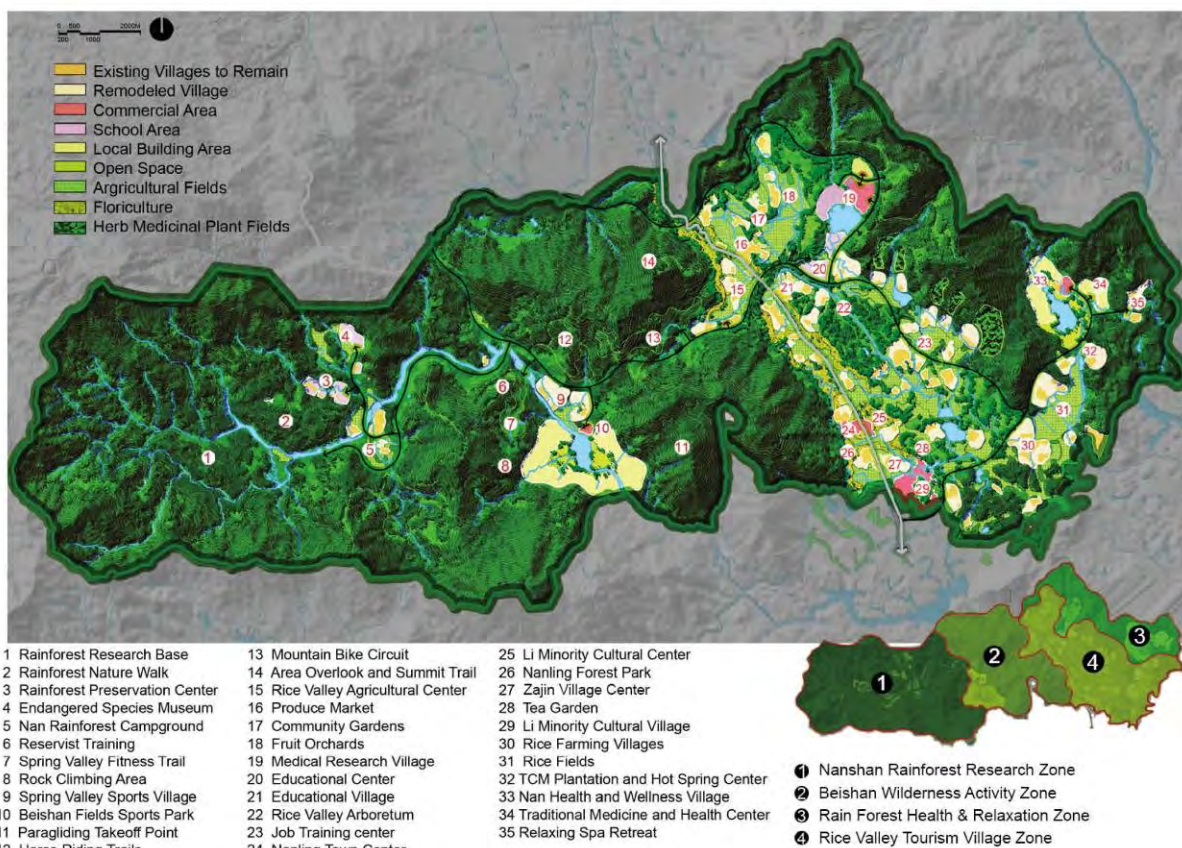


FIG.9. MASTER PLAN OF YANODA ECOTOURISM ZONE, HAINAN, CHINA

D. Phase I Development Detailed Demonstration Plan and Design Guidelines

The phase I area demonstrates the model for future urbanization in the area -The designers designated twelve new centralized town centers, minimizing random sprawl and increasing the amount of contiguous land available for preservation. These centers allowed improved infrastructure to reach all the residents, routing them through the town centers. They also created centralized locations for farmer’s markets, restaurants, inns, etc, concentrating tourists in a few areas, in order to minimize the disturbance of the natural surroundings.

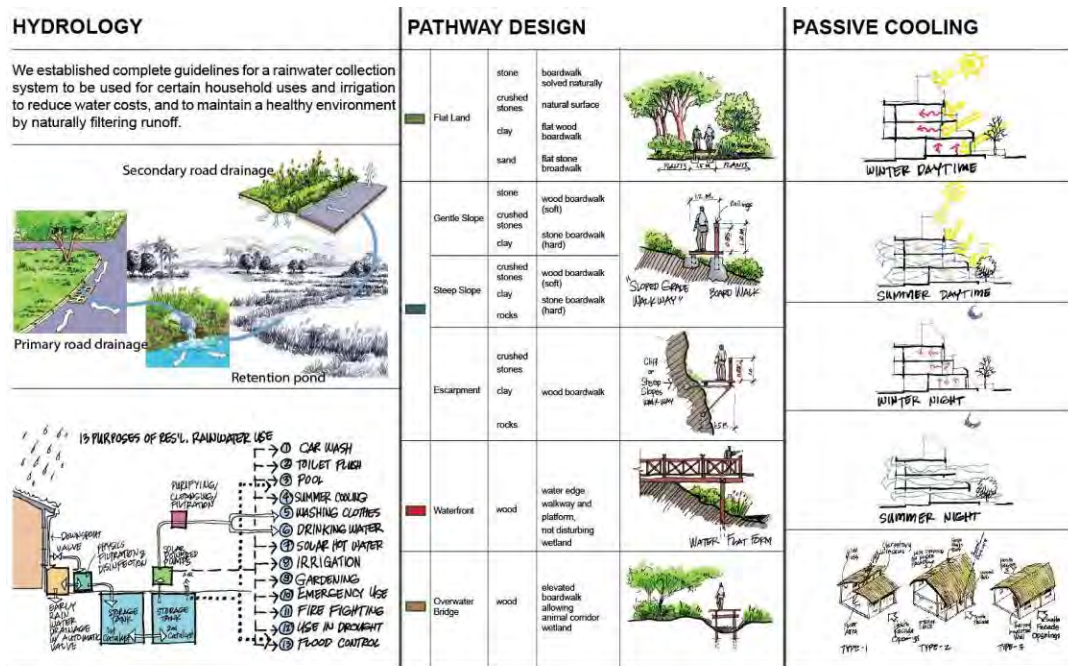
- a. Local residents picked a theme for each town such as medicinal plants, water sports, art and regional cuisine, highlighting the many unique features of the area and attracting a wide range of visitors without competition between the town centers. Existing farmhouses were remodeled, sometimes adding guesthouses overlooking the rice fields to give locals an additional source of income.
- b. One of the twelve town centers, the Zajin Village was selected to be the first area for implementation of urbanization of sustainable growth. Zajin is located between three small villages on land that was once a rubber tree plantation. It includes a tropical park on the edge of the rainforest reserve with a walking trails, and educational trails for children. It also provided the infrastructure service to nearby villages eliminating the need to build duplicate facilities for their own, controlling the sprawl of the three small villages. All new buildings use Li architectural elements and reflect a sophisticated aesthetic. They feature locally sourced materials and no concrete.
- c. The regional governments authorized an initiative to apply the same guidelines and style of planning to the entire region. For example, raising floor levels high above the ground reduces the need for destructive re-grading of the land and captures breezes, as well as allowing for the creation of unique experiences that increase one's sense of connection with nature. Following the established transportation guidelines, electric and horse driven carts are used, contributing to the special experience.

V. Outcome and Benefits of the Master Plan

The phase I development area has become a popular destination that is a success for all parties involved.

- a. Environmental benefit – Reforested degraded areas are recovering, water bodies have become cleaner, encouraging biodiversity
- b. Tourist Benefit – The master plan fosters unique experiences, creates connections to nature, provides a wide range of visitor's activities, yet still in a limited area that reduces the disturbance of the rainforest.
- c. Economic benefit – A rise in annual income, more job opportunities, and a successful tourism program. Local residents have seen an increase in average per capita income from 2,170 RMB/year in 2008 to 5,280 RMB/year in 2010 with a projected income of 10,000RMB/year in 2015.
- d. Social Benefit – improves living standards and local incomes, protects the local culture, improved local education.

FIG.10. EXAMPLE OF DESIGN GUIDELINES



VI. Conclusion: What We Can Learn from This Case and Apply to Practice in a Wider Scope

The benefit of expanding the role of the traditional landscape architect in urban development is obvious. The master plan for Yanoda is not merely a development guideline for the areas in the un-avoidable urbanization process, but a model for a system of continued sustainability and growth for the region. By incorporating scientific research and education, infrastructure, and job training, the master plan shows that the goals of ecological, cultural, and economic sustainability can be combined to create a successful development for all parties involved.

A win-win master plan can be achieved by evolving the relationship between government, developer and residents and the role of the landscape architect. Lessons can be learned from this development model. The result is a popular tourist destination that has the support of both the people and the government. Although the interests of the individual have not always come first in the rush to build in China, Yanoda

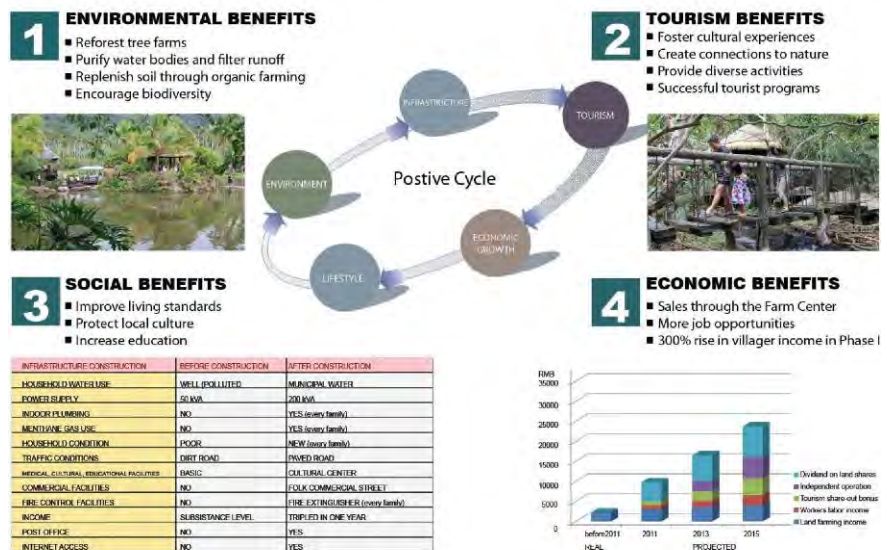


FIG.11. ENVIRONMENTAL, TOURISM, ECONOMIC AND SOCIAL BENEFITS

Ecotourism Zone shows how a different model can lead to successful future growth in a guided sustainable way.

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