



Good Practice Story Title: Zhuangwei Tourism Park- Integrating with Dune Landscape

Destination: NEYC - Northeast and Yilan Coast National Scenic Area

Country: Taiwan

Submitting Organization: Northeast and Yilan Coast National Scenic Area Headquarters, Tourism Administration, M.T.C.

Category:

- Destination Management
- Nature & Scenery
- Environment & Climate
- Culture & Tradition
- Thriving Communities
- Business & Marketing

Destination description:

The Northeast and Yilan Coast National Scenic Area stretches from the ridgeline of Taiwan's northeast coast to the coastal region of Yilan County, extending to Neipi Beach in Suao Township, Yilan County. It also includes Guishan Island. This area boasts a coastline of 102.5 kilometres, with 12,325 hectares of land and 4,805 hectares of sea. Notable attractions include the stunning geological landscapes of Bitou Cape and Longdong, Fulong Beach, the Old Caoling Tunnel, the Caoling Historic Trail, the fishing villages of Mao'ao and Magang, and Guishan Island. The Zhuangwei Dune Ecological Park spans 44,793 square meters and is planned for tourism development. The area features dunes, marshes, and grasslands, surrounded by fish ponds, abandoned fish farms, fallow fields, settlements, and cemeteries. Only a few scattered buildings, mostly tin houses, line the main roads.

Summary of Good Practice Story:

The Zhuangwei Dune Ecological Park aims to boost regional tourism. To balance tourism development with the natural environment, NEYC initiated the "Zhuangwei Dune Ecological Park Construction and Development Project" in 2008. Due to a high groundwater level of the site, making it prone to flooding at low areas. The park is located in coastal area and next to the wetland at the Lanyang River's mouth and coastal windbreak forests. The harsh growing conditions in coastal areas limit the selection of



suitable plant species. The park's construction would cause negative impact on the local landscape and ecological environment. NEYC has formulated and implemented natural and landscape planning principles. These include reducing the volume of significant buildings within the park, establishing regular maintenance and review protocols for park landscaping, and flexibly using outdoor spaces for art performances. These strategies have been recognized with awards, and we have observed that the park possesses rich ecological resources.

Issues faced:

NEYC has embarked on the "Zhuangwei Dune Ecological Park Construction and Development Project," aiming to transform this unique landscape into a sustainable destination. However, significant challenges must be addressed.

The site's high groundwater level, exacerbated by winter rains, causes seasonal water accumulation in low-lying areas, complicating shallow excavation for park buildings and necessitating careful management of surface runoff. Collaboration with neighboring land management units is essential to establish effective drainage solutions.

The area's diverse ecological features, including dunes, marshes, and sandy grasslands, alongside proximity to coastal forests and wetlands, provide habitats for waterfowl. Balancing tourism development with conservation is critical to avoid ecological harm from increased human activity.

The coastal climate, with its humidity, heat, and strong winds, presents difficulties for planting large evergreen trees, limiting options for green coverage in the park. Innovative landscaping and plant selection strategies are needed to thrive in these conditions.

Ultimately, NEYC faces the challenge of harmonizing tourism growth with environmental preservation at the Zhuangwei Dune Ecological Park. Strategic planning and collaboration are key to ensuring sustainable development that respects and enhances the natural landscape.

Solution:

In line with natural and landscape development principles, the Zhuangwei Dune Tourism Service Park seamlessly integrates architecture with its natural surroundings including terrain, natural environmental drainage systems, and visual characteristics. Embracing a minimalist design ethos, it avoids imposing structures, instead opting for a low-profile, earth-toned exterior that harmonizes with the surrounding dunes.

Furthermore, by implementing regular maintenance and review procedures for landscaping and plant care, the preservation of the area's landscape could be ensured.

In addition, integrating public art installations that harmonize with the environment helps reduce the need for additional buildings and mitigates the impact of tourism on the environment. Dynamic and static art performances are utilized to showcase the local landscape and culture, allowing for versatile use of the park's outdoor spaces for tourism activities. Inside, the interior is adorned with curved designs





that evoke the imagery of sandy caves. Art exhibitions creatively incorporate local natural elements like sand, beaches, and windbreak forests, fostering a relaxed atmosphere that encourages visitors to leisurely experience the local nature and lifestyle.

Methods, Steps, and Tools applied:

(1) Resource Survey and Assessment

From 2009 to 2010, NEYC engaged a professional engineering consulting team to evaluate several aspects of the park's site, including land ownership, current usage, regulations, and natural environmental conditions such as geology, soil, topography, water distribution, and climate. The team also assessed local industrial development opportunities, tourism market trends, and the project's environmental impact. They provided NEYC with a work list to coordinate with private landowners and apply for land use. They also offered recommendations for natural and landscape planning principles. By 2011, NEYC had completed land ownership coordination and use permit applications, formulated development principles, and incorporated these into contractor proposals and contracts. Park planning and construction began in 2011 and finished in 2018.

(2) Guidelines and Strategies for Park Facilities Planning

- A. Avoid large-scale land levelling and tall buildings; follow the original topography for land levelling.
- B. The park's buildings should blend with the local dune landscape, including windbreaks, sand stabilization, and sandy textures. Buildings should be concentrated, including grassy slopes and curved designs that mimic the original dune valley terrain. Use colours close to the landscape and cover rooftops with soil and grass. The architectural style should echo nearby military facilities, helping the park integrate into the landscape.
- C. Using computer simulations of local winter northeast monsoon patterns, design the curvature of buildings and landscape undulations and plant windbreak species accordingly to minimize the impact of the enhanced monsoon winds on the local landscape due to the park's structures.
- D. Design drainage facilities to follow the natural water runoff from high to low areas, discharging into the estuary. Set up ecological detention ponds on the lower sides to create diverse habitats. In 2022, to address water accumulation in low-lying areas during heavy winter rains, NEYC collaborated with the Yilan County Government to install pumping equipment and ecological drainage ditches, connecting the park's environmental detention pond with the surrounding drainage system to enhance regional drainage. NEYC carried out improvements to the detention facilities in 2023.
- E. Use drought-resistant, high-temperature-tolerant, and wind-resistant plants, employing multi-layered planting to prevent strong winds. Select local windbreak tree species (mainly native Taiwanese) for park planting and common coastal plants for building rooftops.





F. Use porous materials for buildings and incorporate natural lighting with atrium designs to minimize the need for artificial lighting.

(3) Subsequent Maintenance

Conduct regular reviews of park planting configurations and maintenance operations, establish plant maintenance rules, and include these in the contracts with the companies responsible for park maintenance. In 2023, NEYC hired a professional team to inspect the health of existing trees and plants in the park. They observed issues such as high planting density, deep planting depth, and poor growth and implemented corrective measures like plant maintenance pruning, partial shrub replanting, and new plantings. The park's planting configuration was re-evaluated and redesigned accordingly.

(4) Outdoor Space Curation

Annually work with a professional team to curate the park's outdoor space for six months. The contract requires inviting artists to reside in the surrounding area and create permanent landscape art. Artists should interact with residents, integrate into local life, use local environmental materials (like driftwood), cultural resources, and techniques, and address public environment facilities and activity needs. The materials must be durable to withstand prolonged exposure to sunlight and rain. According to the principle of retention and maintenance, landscape artworks will be leaved until damaged beyond repair after the curation. NEYC annually compiles catalogues and condition records of these landscape artworks, discusses necessary repairs with the artists, and decides whether to retain or remove the works based on reparability and the artists' consent.

Achievements and Results:

1. The design of the Zhuangwei Dune Tourism Service Park won the Silver Public Infrastructure/Amenities Award at the 2020 FIABCI World Prix d' Excellence Awards.
2. The original site was a flat wasteland with graves, small mounds, ponds, and sparse vegetation. Following the park's development, a variety of native Taiwanese plants, including trees, shrubs, and grasses, were introduced. An ecological detention pond was also created, providing stable habitats that support diverse flora and fauna, thereby enhancing biodiversity. A 2019-2020 environmental survey revealed the park is home to bird species such as herons, finches, and sparrows, as well as one species of field mouse commonly found in Taiwan's lowlands.
3. Based on the 2019-2020 environmental survey, 268 plant species, including 13 ferns and 167 native plants. In 2023, a survey of the park's plant health shows that there are 905 planted trees and about 93% of trees are native with 18 species. About 7% of trees are not native but common coastal plants in Taiwan. Trees which showed poor growth received immediate care.
4. From the park's completion in 2018 until 2019, there were no incidents of prolonged water accumulation. However, in 2020, during a three-month rainy season, the park experienced





waterlogging issues, causing the ecological detention pond to exceed its capacity. NEYC had to use pumps to drain the excess water. In 2021, NEYC improved the landscape to prevent waterlogging on tourist pathways. Since connecting the drainage system with surrounding management agencies in 2022, no further incidents of prolonged waterlogging have been recorded.

5. There have been 36 landscape artworks created from 2018 to 2023. The materials of the works including driftwood, metals such as steel and iron, bamboo, wood, cloth, fishing nets, sand, and stones. Most of the works are available to exhibit about 1 to 2 years. According to the record at 2024, 11 works, about 30.6% of the created landscape artworks from 2019 to 2023, are still leaved in the park.
6. Starting in 2019, the park has hosted landscape art exhibitions and events incorporating music, picnics, ecological tours, and local markets. These activities utilize the landscape's potential, attracting 160,000 to 280,000 visitors annually, with a satisfaction rate of 96%. From 2022 to 2023, 11 local performance groups from Yilan were invited and 10 local cultural studios, farms, and associations (including Kirippoan, one of the Kavalan tribe) hosted 66 cultural events, with approximately 14,249 participants, estimating a tourism economic value of around 28.6 million NT dollars. Zhuangwei has become a core development area in Yilan, connecting local businesses and developing two cycling routes.

Lessons Learned and Advice:

1. The site's environment poses many challenges for planning and construction. Still, we have learned how to adapt and plan new developments harmoniously with the natural surroundings of the dune landscape. This approach preserves the local environmental functions and enhances the site's unique features and diversity.
2. Establishing an effective drainage system required collaboration with neighbouring land management units. Addressing unanticipated extreme weather events, such as heavy rainfall, necessitated continuous problem-solving and practical implementation of solutions.
3. Weather conditions pose a significant challenge to the sustainable maintenance of landscape art in regions with extended rainy seasons. Since 2019, the park has operated for six years, refining material selection and artistic presentation through trial and error. By arranging various types of art in indoor and outdoor spaces, the park increased the diversity of visitor experiences and extended the lifespan of the artworks.
4. To reduce tourism's impact on the local landscape, the park introduced art performances suitable for the "slowness" concept that aligns with the unique dune environment. This approach allows visitors to experience the distinctiveness of the local landscape in a way that respects and preserves its natural features.

Recognitions and Additional References





The “29th FIABCI World Prix d’ Excellence Awards” submission, “Zhuangwei Dune” (including the introduction of strategies for facilities planning and landscape design of the park).

https://drive.google.com/drive/folders/1bTxPQSGIKFNAburFetKGG4BV8tFpfidw?usp=drive_link

2019-2024 Zhuangwei Dune Landscape Artworks Marketing Campaign.

<https://drive.google.com/file/d/1j2S8x4B8FIO8GtmEHNRI dpTJiaehZMRi/view?usp=sharing>

The introduction of artists and landscape artworks(2018-2023).

https://drive.google.com/drive/folders/1yNjHrTkL3S0z14JDgHLA64F8ffAVI7Rs?usp=drive_link

The Introduction of the Survey on Visitor Satisfaction for landscape art exhibitions and events from 2022 to 2023.

https://drive.google.com/drive/folders/1yNjHrTkL3S0z14JDgHLA64F8ffAVI7Rs?usp=drive_link

Planting regular maintenance and review procedures of the parks in NEYC.

https://drive.google.com/drive/folders/1DtAYJLhUNnLom_iVn2L_N25e18Me3ItM?usp=sharing

