Project Title

Identity, Sustainability, and Vibrancy: Bai'etan Exhibition Center Landscape

Guangzhou, China

Project Statement

Bai'etan Exhibition Center project embarked the transformation of Julong Bay area into a resilient and vibrant mixed-use district along Pearl River. A former industrial site occupied by large warehouses, factories, and docks is now a public waterfront with various spaces and programs serving the nearby communities.

The design concept, Living with Ficus, connects the bay's past with its future via the most distinctive landscape feature on site. Patterns distilled from Ficus, warehouse and river are applied to the floodwall and railing design. The entire site is universally accessible, free and open to all.

As a collaborative effort both within a multidisciplinary design team and with the client, contractors, and local stakeholders, the project fully explored the site's assets to build a vibrant public realm focused on not only the cultural identity, but also carbon footprint reduction, recreation, urban resilience, habitat restoration and economic benefit.

Since its completion on October, 2021, the project has received considerable attention from surrounding neighborhood as well as from the city as a whole. Its success boosted the land value of the district and attracted large capital investment in developing 11 parcels nearby, catalyzing the overall urban regeneration of Julong Bay Area.

Project Narrative

Context

Located next to the rear channel of Pearl River in Guangzhou, one of the most populated cities in China's Great Bay Area, Julong Bay was once an industrial waterfront occupied by large warehouses, factories, and docks, and bustling with cargo ships and heavy trucks. After rapid urbanization in the past few decades, the heavy industries are gradually moving away from the city, leaving extensive concrete yard and abandoned buildings deteriorating their past glory.

In 2020, the area started its regeneration transforming the industrial site into a new urban district mixing office, cultural, commercial, residential, and recreational uses. As a pilot phase, the 3-hectare Bai'etan Exhibition Center site is to become a public waterfront, providing rare opportunities to access Pearl River as well as a variety of spaces and programs serving nearby communities.

The existing site fell far from a memorable public realm. The existing floodwall acted as a physical barrier separating people from the river; the extensive pavement and vertical embankment offered no ecological value or outdoor comfort; the characteristic elements of the place were hidden behind the clutter; the significant amount of debris from demolished buildings required costly disposal.

Project Narrative

Design Approaches

After in-depth site investigation and dialogues with all stake holders, the design team developed a series of innovative approaches which integrates ecological, social, and economic sustainability, to embrace the site's cultural identity, rehabilitate the degraded ecology, reduce the project's carbon footprint, and save its construction and operational cost.

1. Celebrate site's unique character

The design concept, Living with Ficus, connects Julong Bay's past with future via its most distinctive landscape feature. The existing Ficus grove along the canal is preserved for shade, habitat value, and site identity. Patterns distilled from Ficus, warehouse and river are applied to the floodwall panel and railing design, while Ficus Café activates the waterfront and generates income to support project's daily operation and maintenance costs.

The spatial design builds a conversation between the contemporary public landscape and site's industrial history. Warehouse plaza extends the configuration of historical building façade, and the restored Chongkou landing recalls the busy working riverfront while providing a unique focal point and access to the river.

Many existing materials are salvaged and reused to recall the site's memory while reducing the project's carbon footprint. Red bricks from the adjacent demolished warehouse were salvaged and repurposed into warehouse plaza; concrete pavement of former Neisan Port were broken down into blocks and reused on-site as concrete aggregates of Pearl River Blueway. Wood beams dismantled from the demolished warehouse were milled into dozens of iconic benches, offering seating spots for up to a hundred people.

2. Accommodate a variety of programs for all groups of people

Social sustainability played a critical role in the project's design decision-making. The entire site is universally accessible, free and open to all. Flexible spaces are created across the site to accommodate diverse activities. Groves of native trees in the warehouse plaza provide much-needed shade while allowing for various uses, and mosaic pavement of salvaged concrete at Michelia yard composes a casual outdoor party venue. Besides serving as morning exercise areas for senior citizens, Pearl River Overlook offers a rare opportunity boasting spectacular views to the river, and the Ficus Platform provides intimate experience near Chongkou Canal. Pearl River Blueway acts as a comfortable slow traffic corridor featuring shaded paths for cycling, jogging and strolling along the river.

3. Create an environment conscious place

A range of sustainable strategies including preserving and reusing existing materials, rehabilitating habitat, planting native species, creating stormwater amenities were seamlessly integrated in the design, to protect the environment

Project Narrative

while enhancing the project's unique identity as a post-industrial site.

The project maximized material reuse and preservation to reduce carbon footprint. Most existing trees are preserved providing valuable shade and habitat on site. Original floodwall was integrated with outdoor bar tables and benches offering authentic dining spaces along the river.

A strong and fast renewable material, bamboo lumber, is used as a sustainable substitute of tropical hardwood at all benches, bar tables, handrails, and decking to minimize embodied carbon footprint. Comprehensive assemblies are designed at decking and floodwall's cladding, which allows the material to be easily dismantled and reused in the future. LED sources are used at all site lighting to reduce electricity usage and full cut-off design are applied at all post-top lights to reduce light pollution. Local materials and contractors were sourced to decrease the project's embodied carbon and help the local economy.

The project also adopted nature-based solutions to increase urban resilience and restore native habitat. Vegetation equivalent to five time of the existing amount were planted, which not only provides comfortable outdoor space and enhanced local landscape but also effectively reduces the urban heat island effect and reduced AC usage at nearby buildings. Rain gardens and permeable paving help to control 82% of runoff on site. All new plants are native to the region which not only reduces water usage for irrigation but also provides valuable habitat for wildlife. Gabion walls replaced existing hard embankment to provide habitat for aquatic species.

As a result, the project has not only became a memorable place embracing its industrial history and native landscape, it also reduced 365 tons of carbon emission and 12% material costs during construction while cut down 60% electricity usage and saved $8,000 in stormwater management costs annually after occupation, compared with conventional design. The project has received the first SITES platinum certification in China. It is now serves as a sustainable model for the urban regeneration of post-industrial sites in Guangzhou.

Collaboration

The success of this project relies on in-depth communication and collaboration within the interdisciplinary team and with the client, contractors, and local stakeholders. At the onset of the project, its design approach was met with skepticism. The design team invested a significant amount of time in educating the client, local stakeholders, sub-consultants, and contractors on how the proposed approach would lead the project to a long-term success. Sustainable SITES experts from USGBC were also introduced to the client to provide education and guidance. This trust-building process was pivotal to the eventual success of the project.

Project Narrative

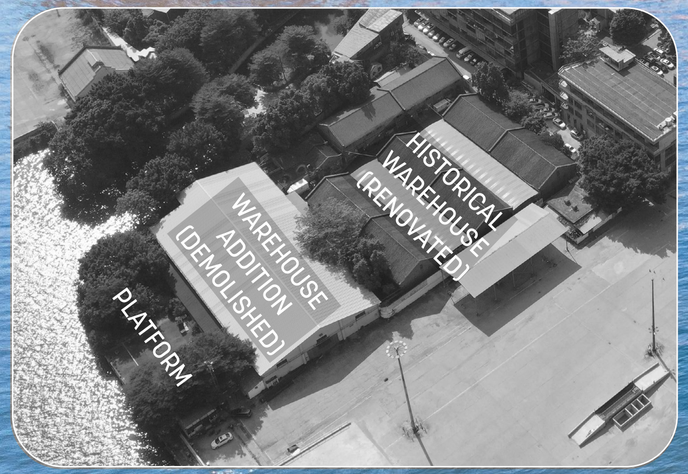
For instance, design with native plant species such as Ficus were initially opposed by multiple stakeholders. The long history of trade at Guangzhou introduced the city to many exotic plants, which in many cases attracts more interest than native species due to their unique appearances. The design team had many dialogues with the stakeholders promoting native species' habitat and cultural value. As a result, most existing trees were preserved and only native species were planted. During construction, some migratory birds stopped on site, which was extremely encouraging to both the client and the design team.

Material reuse had also been debated a lot during the design process. The client was once suspicious about salvaged materials due to their aged appearance and possible degradation. The design team elaborated the benefit of environment conscious practice and worked with the contractor testing the material's integrity. The client was finally convinced.

Impact

After close collaboration with the team throughout the design and construction process, the client has become the strongest supporter of its sustainable design and led the efforts in applying for SITES Platinum certification. The client expressed high regard for the project on their official social media platform, describing it as "the onset of the largest sustainable urban regeneration project in Guangzhou, encompassing a full-cycle of redevelopment and management of historic factories, villages, and cities in the area."

Since its completion, the project has received considerable attention from the surrounding neighborhood and the city as a whole. It has greeted many visitors from local schools, government agencies, and the design field. Its success has also attracted large capital investment in developing 11 parcels nearby, catalyzing the overall urban regeneration of Julong Bay Area.



AERIAL VIEW IN 2020

PRESERVE EXISTING FICUS

FICUS CAFE

EXHIBITION CENTER
CONVERTED FROM
HISTORICAL WAREHOUSE

PROVIDE SPACE CLOSER TO THE RIVER

PRESERVE EXISTING TREES

COMBINED PATH

ALIGN PATHS WITH BUILDING ENTRANCE

USE RAIN GARDENS
TO COLLECT RUNOFF

OFFER SHADE ALONG THE RIVER BANK

BLUEWAY

STROLLING

JOGGING

CYCLING

OUTDOOR BAR TABLE ACTIVATING WATERFRONT LIFE

PROVIDE SHADE TO ACCOMMODATE
OUTDOOR ACTIVITIES

USE RAIN GARDENS
TO COLLECT RUNOFF

AERIAL VIEW IN 2022

BAI'ETAN EXHIBITION CENTER'S YESTERDAY AND TODAY

Bai'etan Exhibition Center project embarked the transformation of the Julong Bay area into a resilient and vibrant mixed-use district along the Pearl River.

AERIAL VIEW IN 2020

PHOTO CREDIT: GOOGLE EARTH

SITE PLAN

A former industrial site occupied by large warehouses, factories, and docks is now a public waterfront with various spaces and programs serving the nearby communities.

PHOTO CREDIT: GOOGLE EARTH

SITE CONDITION IN 2000

THE PEARL RIVER OVERLOOK AT CHONGKOU LANDING

The Pearl River Overlook offers a rare opportunity boasting spectacular views, and the restored dock recalls the busy working riverfront while providing a unique focal point and access to the river.

FICUS

WAREHOUSE

RIVER

IDENTITY AND INTERPRETATION

Patterns distilled from Ficus, warehouse and river are applied to the floodwall and railing design.

CONCRETE BLOCKS ARE SALVAGED AND REPURPOSED
AS MOSAIC PAVEMENT FOR THE MICHELIA YARD

RED BRICKS ARE SALVAGED AND REPURPOSED AS
SPECIAL PAVEMENT FOR THE WAREHOUSE PLAZA

CELEBRATION OF THE INDUSTRIAL HISTORY

Multiple existing materials are salvaged and reused to recall the site's memory while reducing the project's carbon footprint.

A SERENE SPACE OVERLOOKING PEARL RIVER

Extensive shade space underneath the canopy provides comfortable outdoor experience in the hot and humid climate.

FORMER INDUSTRIAL WATERFRONT

PROVIDE CONTINUOUS SHADE AND SEASONAL EFFECTS

TRANSFORM INDUSTRIAL SITE INTO A REGIONAL BLUEWAY

SUNKEN PLANTING AREA

SUNKEN PLANTING AREA

CYCLING PATH

JOGGING PATH

EXISTING RAIL

STROLLING PATH

THE WATERFRONT FOR PUBLIC RECREATION

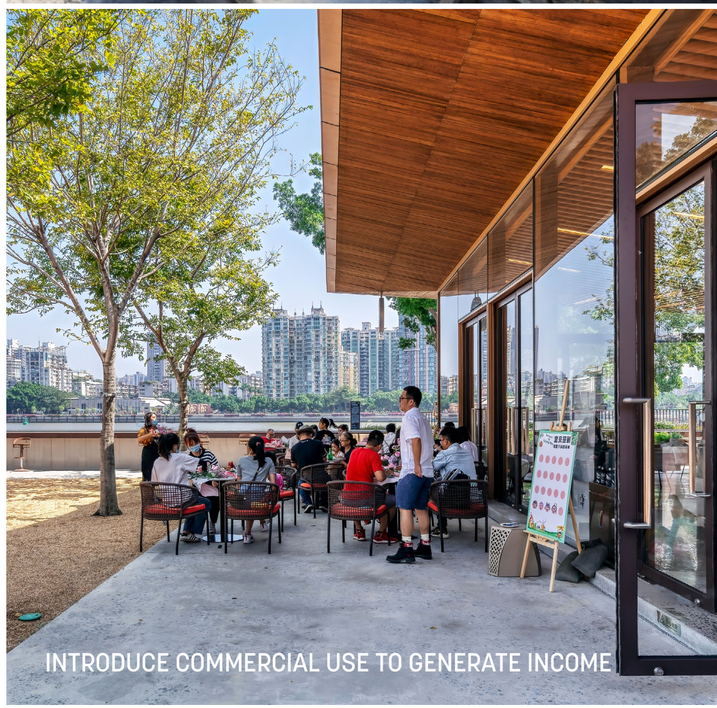
A former industrial waterfront was transformed into Pearl River Blueway, which performs as a comfortable slow traffic corridor featuring shaded paths for cycling, jogging and strolling along the river.

DIVERSE PROGRAMS FOR ALL GROUPS OF PEOPLE

The entire site is universally accessible, free and open to the public. Flexible spaces are created across the site to accommodate diverse activities.

HABITAT VALUE AND URBAN RESILIENCE

Preserved Ficus and other native species provide valuable wildlife habitats. Nature-based solutions featuring rain gardens and permeable pavement manage 82% of runoff on site.



MATERIALS	QUANTITY PRESERVED OR REUSED	REUSE METHOD	QUANTITY OF ITEMS MADE OF EXISTING MATERIALS	MATERIAL PRICE (CNY)	SAVED COST (CNY)
BRICK	17,700 PIECES	PAVEMENT AND WALL	17,700 PIECES	1.7 EACH PIECE	30,000
WOOD BEAM	1248 M^3	BENCH	26 PIECES	3000 EACH PIECE	78,000
CONCRETE BLOCK	1000 M^3	AGGREGATE	/	100 PER M^3	100,000
CONCRETE BLOCK	2000 M^3	PAVEMENT	/	150 PER M^3	300,000
STEEL BAR	0.6 TON	REINFORCED CONCRETE	/	6000 PER M^3	3,600
TREE	36	PRESERVED ON SITE	36	12,000 EACH TREE	432,000
TOTAL					**943,600 (USD 136,830)**

ECONOMIC BENEFIT

The project saved CNY 943,600 (USD 136,830), which is 11.8% of the total construction cost of the Bai'etan Exhibition Center Landscape by using recycled materials and preserving existing trees.