



**FUTURE GARDEN**



# PROJECT INFORMATION

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Name: Future Garden

Location: Nanjing

Area: 196000m<sup>2</sup>

Design Year: 2019-2020

Completion Year: 2021

## STATEMENT

A brownfield on the outskirts of Nanjing was restored by convening a garden exposition and thereafter is transforming into a tourist resort. The project is located in a large quarry of the brownfield and is planned to be a tourist complex themed by regenerated quarries, which includes a hotel, botanical garden, restaurant, café and outdoor theater. The project faced challenges not only from the severely damaged natural environment of the quarry, but also from the complexity of the project's functions and goals. The proposal adopts differentiated restoration approaches in consideration of the geological conditions and landscape characteristics of different parts of the quarry, creating a new landscape while retaining the memory of the site's history. On the basis of researching conditions onsite like sunlight, ventilation and drainage, the design team chose more than 800 species of plants to form 12 thematic plant areas, which showcases the eco-restoration possibility and plant diversity and provides an opportunity of natural education for the public. It also provides a variety of complex functions to transform a negatively barren quarry pit into a vibrant tourist resort complex, creating high ecological, economic and social value.

# PROJECT NARRATIVE

The Tangshan area, provided with its natural premium hot springs, was a royal spa 1,500 years ago. Today, it remains a resort on the outskirts of Nanjing today due to its monuments, hot springs and good natural environment. Nevertheless, in the 1960s, some limestone hills in the northern part of the region were mined as raw material for cement, as a result plenty of cement plants were built at the foot of the hills. By 2018, the Nanjing government decided to close these quarries and cement plants and transform this brownfield into a tourist resort by restoring the natural environment, regenerating industrial facilities, building comfortable tourist facilities and hosting the garden exposition.

The site that lies on a hillside within the site of the planned garden expo used to be the largest quarry pit in Nanjing, 1,100m long and 10-22m deep, with two levels, and covering a total area of 19.6 hectares. The client hoped the Future Garden to be more than just a show place for the garden expo, meeting the needs of exhibition, but also to own a lasting charm and the possibility of commercial operation, becoming an attractive tourist destination during and also after the expo. It was therefore planned as a tourism complex themed by regenerated quarries, which includes hotel, botanical garden, restaurant, café and outdoor theater.

The project faced with challenges not only from the severely damaged natural environment of the quarry, but also from the complexity of the project's functions and goals. To the east of the pit is a hotel, and adjacent to the hotel lies a grand outdoor theater hosting stage performances and light shows at night with the cliff as a backdrop. The bottom of the quarry is planned as a botanical garden. A series of steps, ramps and escalators connect the different levels inside and outside the pit. The proposal aims to restore the quarry pit and create a characteristic landscape that would become an attractive attraction of the resort area on the one hand. On the other, it is to meet the complex requirements of the buildings for fire fighting, flow gathering and circulation and equipment installation, meanwhile to integrate different types of buildings in the landscape.

As the core of the project, the botanical garden is located on the west side of the bottom quarry, with a set of 2-story commercial buildings on the north side adjacent to the cliff, functioning as café, restaurant, and exhibition. To create a dreamy atmosphere, the architects designed the roof of the botanical garden as a giant transparent pool, supported by 42 tall stainless steel tree-like structural columns, with sunlight pouring into the botanical garden through the water and the transparent roof to irradiate a vibrant green world.

The botanical garden is classified as three different habitat zones from west to east namely, arid area, mesic area and humid area through the analysis of sunlight conditions, moisture conditions and earth-ing feasibility.

As the main entrance of the botanical garden, the arid garden lies on the rocky slope with good sunlight conditions, and a height difference of 8 m. The rocky terraces combine 67 steps and an 86m-long zigzag ramp, on which the drought- and barren-tolerant plants of various forms and colors grow.

The mesic garden is proposed to create rich spatial variations by shaping undulating hills, deep ravines and steep rocks, offering the suitable environment for different plants to grow. In the complex topography there are several thematic plant display areas, such as areas separately for medicinal plants, aromatic and nectariferous plant, relict plant, tea plants, and fantastic plants, as well as garden areas themed by different colors. A winding skywalk connects the second floor of the commercial building to the rockery and viewing platform in the garden, providing a unique experience of traversing through the treetops and overlooking the garden scenery.

With low-lying position, the humid garden has poor sunlight condition, rainwater and water seepage from the rock flow down to the lowest part along the terrain. The humid garden consists of two parts: one is the glistening pond with a winding bridge through the lush aquatic flora; and the other is the sunken area as a shady plant area, with terraces and a zigzag ramp leading visitors to the lowest part of the garden. There is a narrow stone canal by the side of the terraces and ramp, running to the left of the ramp, to the right and across the ramp, and diving into the flowers. At the edge of the terraces of different levels, water drops from the stone troughs into small pools, presenting small shimmering waterfalls, leaving a pleasant sound, and eventually joining the lowest pool. On each level of the terrace and on the edge of the ramp are grown many hygrophilous and shady plants. The channels, cascades and ponds not only produce a rich landscape, but also increase the humidity of the environment and create better conditions for plant growth.

The misty garden stands at the middle level of the quarry, which is 10m higher than the botanical garden. To preserve the memory of the original quarry and differentiate it from the botanical garden on the ground floor, restoration method is only partially used in a series of scattered island-like areas and leave the existing gravel on the surface of the quarry site in the rest of the area. The planting islands of the misty garden simulate pioneer plant communities with pine trees and wild scrub and herbaceous plants. A steel boardwalk traverses the gravel desert and planting islands, with several viewing platforms on the edge of the cliff overlooking the underwater botanical garden.

As the most representative landscape of the quarry, the south side of the cliff is preserved, which is over 130 meters high, partly to act as a natural backdrop for the performance and a screen for the light show, and partly to increase vitality and set off the enormosity of the cliff by planting pine trees and climbing plants on the earthed terraces.

The proposal adopts differentiated approaches as non-intervention, semi-restoration and full restoration in consideration of the geological conditions and landscape characteristics of different areas of the quarry, and utilizes the abandoned stones of the quarry as materials for landscape construction, creating a new landscape while retaining the site's memory of the quarrying. The design team investigated and analyzed the sunlight environment and water permeability onsite and worked with relevant institutions to conduct light transmittance tests on the transparent roof of the botanical garden, and digital simulations of the wind environment under the roof to obtain accurate data and calculation results. Based on this, plant species were reasonably selected to ensure their healthy growth.

The Future Garden showcases more than 800 species of plants and 12 thematic plant areas while preserving the characteristics of the existing quarry, has now become a model of ecological restoration by transforming an abandoned quarry site to a garden of plant diversity, meanwhile provides numerous opportunities for public nature education. The proposal reinvented the barren quarry as a vibrant tourist resort complex offering a variety of functions and creating high ecological, economic and social value. It restores the nature once destroyed by human activities and showcases a future scenario in which man and nature coexist in harmony.



# SITE CONTEXT



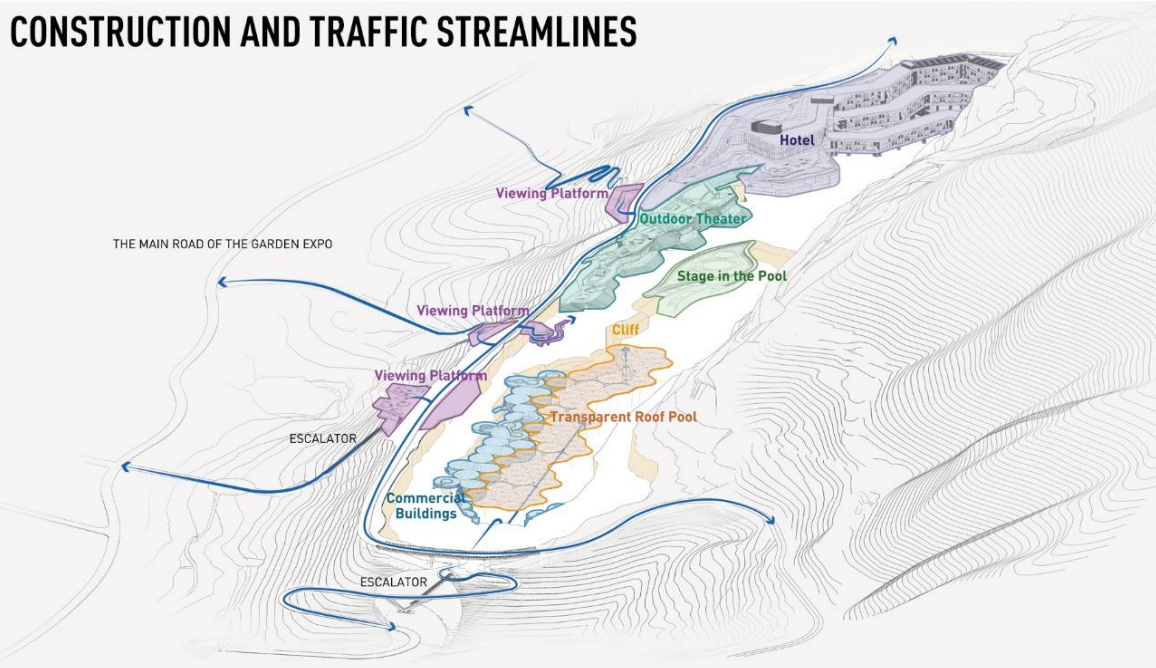
The site that lies on a hillside within the site of the planned garden expo used to be the largest quarry pit in Nanjing, 1,100m long and 10-22m deep, with the cliff on the south side more than 130 meters high. The site covers a total area of 19.6 hectares, the area of landscape design and ecological restoration is 15.7 hectares.



# MASTER PLAN

The client hoped the Future Garden to be more than just a show place for the garden expo, meeting the needs of exhibition, but also to own a lasting charm and the possibility of commercial operation, becoming an attractive tourist destination during and also after the expo. It was therefore planned as a tourism complex themed by regenerated quarries, which includes quarry pit-themed hotel, botanical garden, restaurant, café and outdoor theater.

The project faced with challenges not only from the severely damaged natural environment of the quarry, but also from the complexity of the project's functions and goals. To the east of the pit is a hotel, and adjacent to the hotel lies a grand outdoor theater. The bottom of the quarry is planned as a space for ornamental plants and beautiful fish. The middle floor is the Misty Garden. Several viewing platforms is arranged on the northern edge of the pit towards the main area of the garden expo and the interior of the pit respectively.







The misty garden stands at the middle level of the quarry, where plants are partly restored in the scattered planting islands and the rest of the place remains the gravel on the surface of the quarry.





The planting islands of the misty garden simulate pioneer plant communities with pine trees and wild scrub and herbaceous plants. A steel walkway traverses the planting islands and the remained gravel desert.





As the core of the project, the botanical garden is located on the west side of the bottom quarry, under the roof of a giant transparent pool, as if it were the Garden of Eden hidden underwater.





In arid garden, the organically arranged rocky terraces combine steps and the zigzag ramp cleverly. The drought- and barren-tolerant plants of various forms and colors grow on the terraces.





In the mesic garden, undulating landform, deep ravines and steep rocks create rich spatial variations and meanwhile offer different plants with suitable environments.





A winding skywalk connects the commercial building to the garden, provides unique experience of traversing through treetops and overlooking the garden scenery.





Small spaces in the garden are created to provide places for rest and outdoor classes.





In the humid garden, the zigzag ramp with small canal by the side leads visitors to the lowest part of the garden. Water flows in the canal, drops at the edge of terraces into small pools, presenting shimmering waterfalls.





In the bottom quarry, with a giant transparent pool roof supported by tree-like structural columns, the botanical garden could be overlooked in the viewing platforms on the edge of the misty garden.