

# **From wasteland to vibrant rural wetlands: Xining village micro-wetlands Park, NANJING, CHINA**

## **Project Statement**

At present, China's countryside micro-wetlands are not given enough attention due to their small size, scattered distribution, and remote location. However, micro-wetlands are very widely distributed and are closely related to people's production and life, and also play an important role in the conservation of biodiversity and the fight against climate change.

The project has achieved the goal of "small transformation, big improvement" in just 2 years by using undeveloped wasteland in the countryside, and the originally overgrown wasteland and polluted ponds have been successfully restored to a natural and wild micro-wetland. Through the ecological conservation of the wetland and creation of open space, the natural restoration and evolution of the site has been accelerated playing its role as a green infrastructure for the countryside, injecting vitality into the countryside, contributing to the revitalization of the countryside and improving the quality of life of the villagers, ultimately achieving the effect of harmonious coexistence between man and nature.

## **Project Narrative**

### **1. Historical changes and project challenges**

The study of wetlands in China focuses on wetlands over 80000m<sup>2</sup>, while small and micro wetlands under 80000m<sup>2</sup> are easily neglected. Rural micro wetlands are located in the far outskirts of cities and are more easily forgotten, yet the problems faced by rural micro wetlands today cannot be underestimated. On the one hand, rural micro-wetlands are facing ecological problems such as water pollution and uncontrolled encroachment, so how to protect and build micro-wetlands is an urgent issue for the industry to explore. On the other hand, according to statistics, the hollowing out rate of the rural areas in the suburbs near the main city where this design site is located is nearly 70%, with a serious exodus of people from the countryside and a significant decline in vitality; compared to the city, the quality of the rural landscape is low, and there are obvious deficiencies in rural services, including outdoor recreation and sports. The above problems require the intervention of landscape architects to improve the current situation, enhance the quality of the rural habitat and help rejuvenate the countryside. The Xining Rural Micro Wetland is located on the east and west sides of the new service center in Xining Village, Jiangning District, Nanjing, with a total area of about 83000m<sup>2</sup>, including 54000m<sup>2</sup> on the west side and 29000m<sup>2</sup> on the east side. The project insists on improving the ecological environment of the site and restoring the unique landscape of the countryside under the premise of low disturbance and impact on the site; at the same time, it enhances the vitality of the countryside and builds the small micro-wetland of Xining Village into a vibrant center in the countryside.

### **2. Design strategies**

#### **2.1 Low interference, low impact, and low cost**

The project implements the design principles of 'low disturbance, low impact, and low cost' to restore the rural wasteland into an ecological and natural micro-wetland without causing further damage to the original site.

In terms of the site design, the original topography is fully respected. Basically, no excavation is carried out, and only the original ditches are slightly modified to form a rich pool base, creating a landscape conducive to biodiversity. On plant configuration, the original vegetation of the site was fully preserved, what more, the original native trees

and shrubs with rough management were introduced appropriately, which can reduce the cost of maintenance and management later.

The project team has optimized the original water system because water is the soul of the site, the roads, natural barges, and ecological treasures such as streams, wet ponds, drains, and grassed ditches are combined to a certain extent to achieve the collection, purification, and reuse of rainwater in the site, so the total amount of runoff is rationally and effectively controlled in the site and creates a good ecological environment and recyclable landscape space.

## **2.2 Various wetland landscapes enrich biodiversity**

The design team has conducted optimization and readjustment to the shoreline of the water system, the originally unconnected water system space can be opened up; built an undulating bank slope, and the rural wetland water-bank environment can be created better coordinated with the ecological needs. The construction of different water depth regions and diverse habitats is beneficial to the growth of submerged plants, emergent and floating plants. Considering the life habits of birds, fish, amphibians, and other animals, the site has been providing a rich ecological space type, such as bare land, grassland, bushes, marshes, ponds, and so on. The configuration of wetland plants and the construction bring vitality to the villages in Xining. All kinds of water birds flew at the pond, and from the distance came a burst of birds and insects chirping.

## **2.3 Construct natural plant communities to create low-maintenance landscapes**

The project team retained the original vegetation to the maximum extent possible, humans barely intervened and the appropriately planted native trees, shrubs, and herbaceous plants to guide the succession of natural plant communities and promote a stable ecosystem; at the same time, the combination of wetland plant community and water system transformation can bring purification to the site waste, thus further improving the waterscape quality.

## **2.4 Create a local landscape**

To integrate the micro-wetland with the village, the project team tried to make appropriate modifications to integrate the micro-wetland with the village with the natural resources of the countryside, such as 'ponds, ditches and streams'. The modified rural micro-wetland is surrounded by roughly managed wetland plants, with wildflowers and flowering wetland plants to add more colors and create a 'primitive' and rustic landscape, forming an ecologically sound and beautifully landscaped flora that reveals a unique rural landscape.

The site features several low pavilions and pavilions mostly made of wood and imitation wood, with sloping roofs built into the rural landscape. The pavilions and other architectural designs are abstracted from the vernacular architecture, both rooted in the countryside and expressing the characteristics of the rural site, showing a unique vernacular atmosphere.

## **2.5 Meeting the needs of villagers and enhancing the vitality of the village**

Village public living space is the carrier of the village public spirit. Recently, there has been a general trend of shrinkage in village public living spaces in China. According to statistics, the local village community's public space has decreased by 65% in the last decade. As an extremely important open space in the village, the micro-wetland landscape in this project provides a green space environment for rural residents to live in with the functions of rest, exercise, waterfront, recreation, folklore and other activities.

According to the research, the population structure of Xining Village is composed of approximately 32% newborns and children, 23% teenagers and adults, and 45% elderly people. Most of the young and middle-aged population are seeking for jobs outside of the village. The elderly and children being the main population in the community. On this basis, the facilities should be balanced. The pavilions and galleries have been selected at suitable locations for rest and enjoyment for the elderly. There are also some flatter areas to play basketball, badminton, and a small



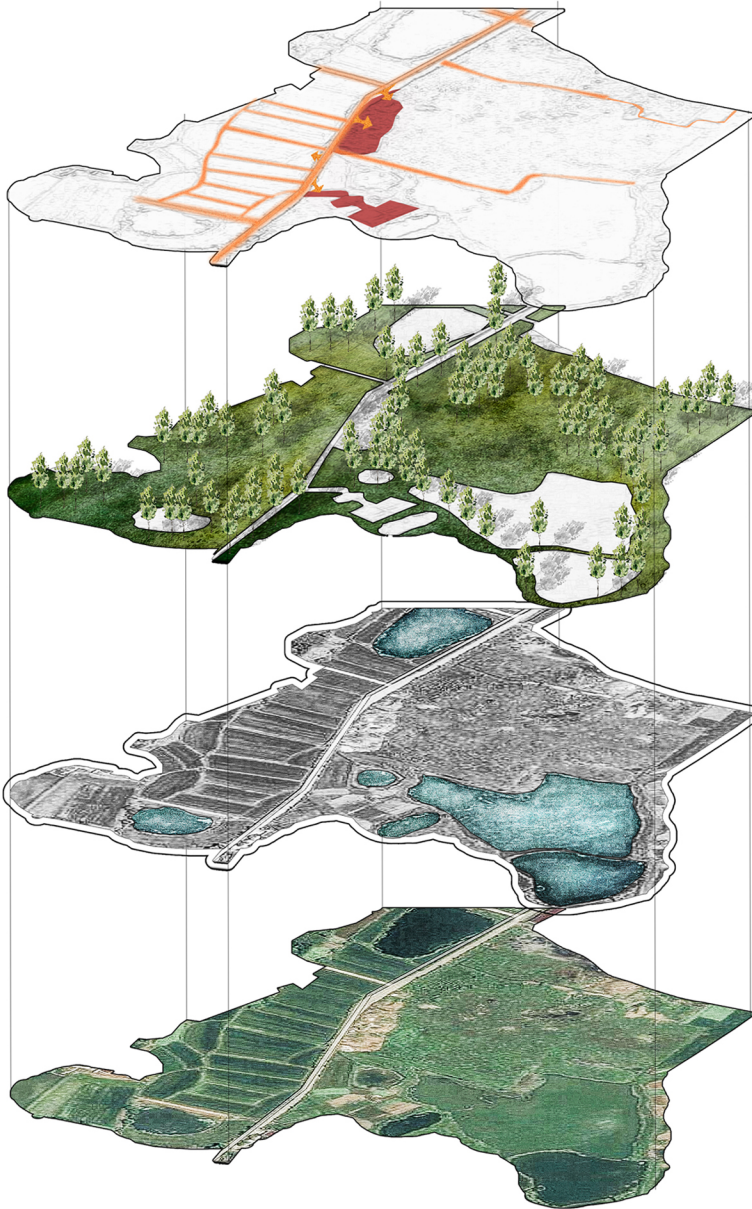
square, where activities can take place for the youth.

The village water resource is also a source of entertainment. The recreated shoreline landscape attracts village residents to water activities, creating water platforms, wetland trails, and fitness walking paths to face the different needs of villagers for outdoor activities. Residents have already used it for special parenting activities, water sports, and cultural performances, bringing changes to their daily lives and breathing new life into the derelict land.

### **3. Conclusion**

The Xining Micro-Wetland is dedicated to energizing the countryside and increasing the activity space for villagers, while actively improving the quality of ecological services, respecting the original texture, adopting a low-impact, low-maintenance and low-cost approach to transform and enhance the local ecological environment, creating different types of plant and animal habitats and creating a more rational landscape space. Since its completion, the micro-wetland has become a leisure and recreational paradise for local villagers, as well as a habitat for local flora and fauna such as birds, fish, and insects.





## Transportation

The internal traffic of the site is connected through the north-south main road in the middle, while the site path in the east is not connected. The internal space is relatively fragmented, and the traffic is not convenient enough.

## Plant resources

The original vegetation on the site is abundant in quantity and type, and the proportion of green coverage area is large; However, there are problems such as scattered vegetation layout and no hierarchy.

## Water resources

Abandoned ponds have problems such as pollution and siltation; Moreover, the original water areas are not connected to each other, so they have not been able to display their landscape effects and ecological functions well.

## Satellite image

he figure clearly shows the overall outline of the site, its general layout, and the positional relationships of various elements within the site.

### Site analysis

Before the plan, the current situation of transportation, plant resources, water resources, etc. on the site was analyzed.





**NOW**  
Natural wetlands and recreational spaces

**BEFORE**  
Wasteland with polluted ponds

### Now and before

Existing wastelands and polluted ponds are transformed to create new natural wetland landscapes and expand the activity space.



### **Terrain texture and wetland network**

The design maximizes the preservation of the original land texture and ditches, forming a wetland network system of the whole site in series.





## **Ponds**

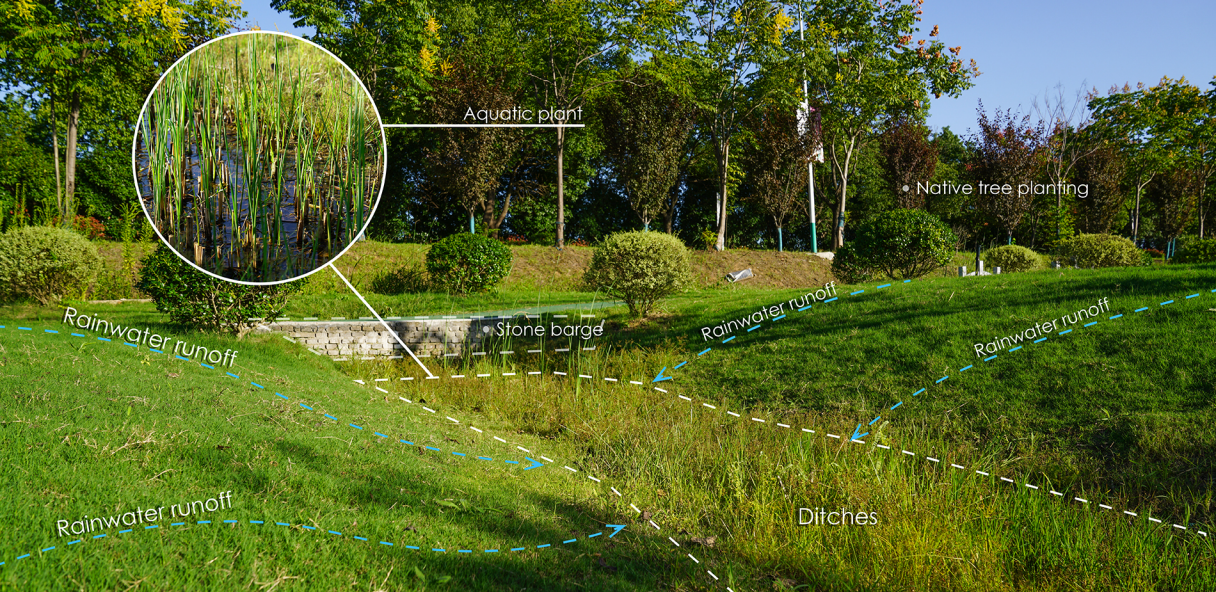
Planting aquatic plants with strong adsorption capacity on the pond bank is beneficial to purify water quality.



## Streams

Streams connect water bodies to purify rainwater, optimize the drainage system, and promote a more bio-friendly ecological environment.





Aquatic plant

• Native tree planting

• Stone barge

Rainwater runoff

Rainwater runoff

Rainwater runoff

Rainwater runoff

Ditches

## Ditches

Native aquatic vegetation planted in the ditch collect rainwater, stabilize the ecosystem and provide habitat for animals.





**Hydrophilic space that can be submerged**

A platform and a path were constructed among the reeds, offering visitors the chance to admire the stunning scenery from a distance.





#### Wetland plants

On the basis of preserving the original wetland plants, carefully selected flowers are dotted throughout the area to form a beautiful wild landscape. Reeds are full of natural charm and artistic conception under the sunset in winter.





### Rural architecture

The recreational pavilions and corridors feature unique designs and reflect the rich local culture. Surrounded by natural beauty, the rest pavilion provides villagers better integration with nature.





### Rural vitality

The current site can be used by the villagers at all ages for leisure. It has brought unprecedented popularity and vitality to the original wasteland.