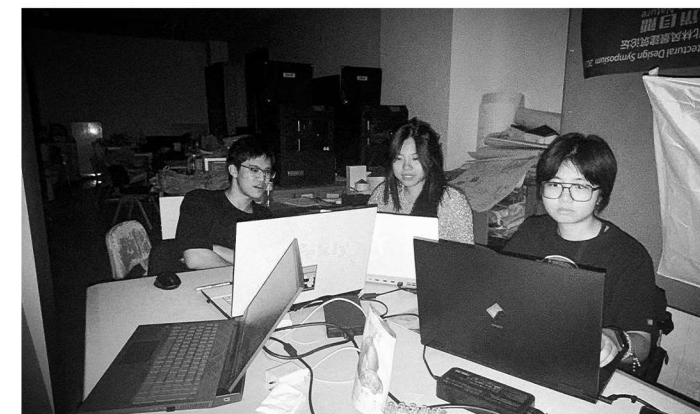


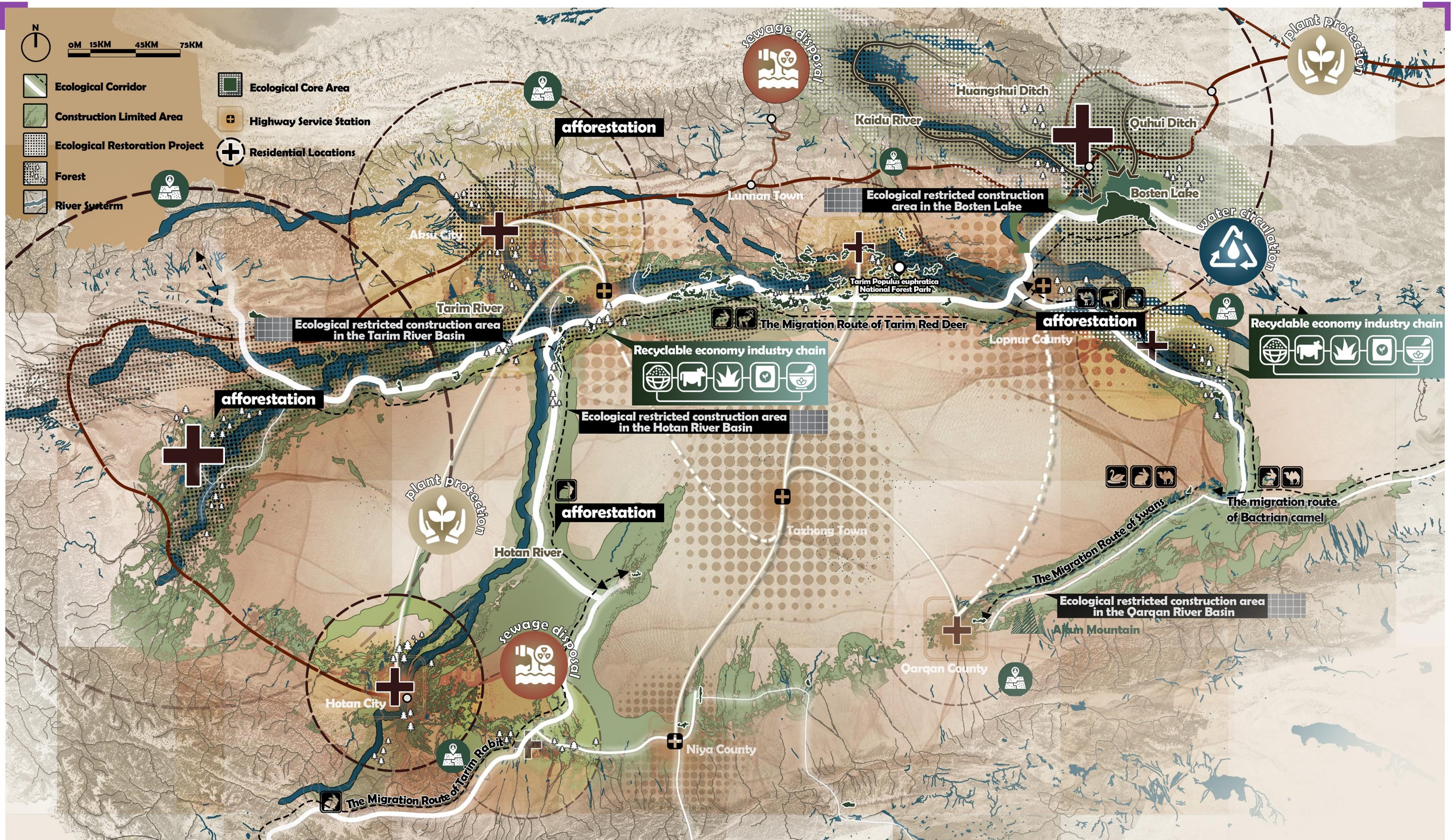


Beijing Forestry University School of Landscape Architecture



Following the theme “Natural Intelligence...?” of the 13th Barcelona International Landscape Biennial, the School of Landscape Architecture at Beijing Forestry University selected five exemplary student projects from outstanding undergraduate and postgraduate coursework completed in the past two years. Selection criteria emphasized intellectual depth, innovation, completeness, and the projects’ capacity to respond effectively to contemporary landscape challenges at diverse scales.

These projects highlight the continuous exploration and integration of “natural intelligence,” addressing ecological processes related to wildlife, plants, water systems, and urban environments. They illustrate the school’s commitment to sustainability and ecological resilience through landscape research, education, and practice at various scales—from regional to site-specific interventions. The school’s landscape education is also deeply grounded in nature-based solutions and applying natural intelligence (NAI) to address climate change, biodiversity conservation, and social inclusion. Collectively, this work demonstrates how faculty and students advance landscape innovation by applying “natural intelligence,” responding to global challenges such as climate change and human health, and providing inspiration and insight for future practices.



Country/City Xingjiang/China

University / School Beijing Forestry University

Academic year 2023-2024

Title of the project Sandstorm Shield: Emergency Action Guide for Sandstorm and Desertification Defense

Authors Ziyu Mei, Yaru Zhang, Xinyan Huang, Hao Li, Kai Zhou

Title of the project	Sandstorm Shield: Emergency Action Guide for Sandstorm and Desertification Defense
Authors	Ziyu Mei, Yaru Zhang, Xinyan Huang, Hao Li, Kai Zhou
Title of the course	Landscape Architecture
Academic year	2023-2024
Teaching Staff	Xi Zheng, Zhicheng Liu
Department / Section / Program of belonging	School of Landscape Architecture
University / School	Beijing Forestry University



Written statement, short description of the project in English, no more than 250 words

Large-scale migration and unreasonable land reclamation have exacerbated the dust storm hazards in oasis cities of arid regions. Focusing on the Tarim River Basin in Xinjiang, we analyzed the ecological and socio-economic changes from 1949 to 2020. Using assessments of anthropogenic interference intensity, ecological footprint, and carrying capacity, our analysis reveals that human activities following policy-driven migration have severely damaged the Tarim River Basin's environment. In recent years, desertification has intensified, posing a critical ecological threat.

Based on our findings, we propose the "TSD" Multi-dimensional Synergistic Response Strategy. This strategy constructs a planning and implementation framework for desertification control in oasis cities of arid regions from temporal, spatial, and digital dimensions. The ultimate goal is to achieve harmonious coexistence between humans and the desert, and between humans and nature. This study also provides a novel, holistic governance framework for global dust storm prevention, source area management, and desertification control. It promotes multi-scale intervention, multi-dimensional synergy, and shared prosperity for all humanity!

Barcelona International Landscape Biennial

Contact via email:
biennaladm@coac.net

Venue:
COAC - Col·legi Oficial d'Arquitectes de Catalunya
Carrer Arcs 1-3, 08002 Barcelona - Spain

Implementation of blue-green space restoration strategies under digital ecological network planning.

- Based on the planning results of the prevention phase, we propose to protect and monitor key ecological nodes.
- Build ecological corridors in combination with rivers and species migration corridors, and ensure the function of ecological security barriers through afforestation and sand fixation.
 - Control the scale of cities and population, and optimize and enhance the regional industrial structure. Build an ecological network to resist desert erosion and prevent desertification.



Ecological Source

Zoning and Supervision

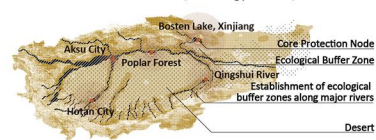
- Eco-priority development
- Rationalization of protected zones
- Establishment of Laws & Regulations



- Define the scope of ecological source areas and designate them as prohibited development zones.
- Establishment of a comprehensive system of laws, regulations and supervision.

Building Ecological Buffer Zones

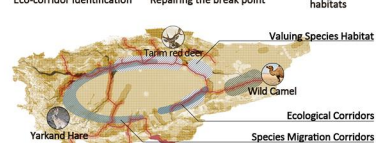
- Delineation of buffer zones
- Screening for highly resistant, sand-fixing plants
- Building buffer zones to protect core areas



- Construction of ecological buffer zones along rivers and important ecological sources. Screening of highly resistant, wind and sand-fixing native plants, combined with engineering measures for sand control, to build ecological buffer zones.

Ecological Corridor

- Eco-corridor identification
- Repairing the break point
- Connecting isolated habitats

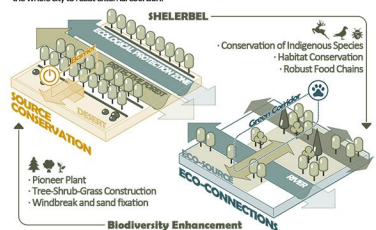


- On the basis of identifying ecological source areas, ecological corridor construction is carried out along rivers and species migration paths.
- Connect isolated habitats, thereby reducing the threat to biodiversity from habitat fragmentation and mitigating desert encroachment.

Oasis City

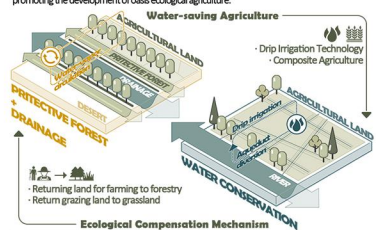
STRUCTURE: Forest + Field + City

The edge of the oasis city is adjacent to the desert and the Gobi Beach, which is highly susceptible to wind and sand erosion, and the landscape is extremely unstable. Therefore, we propose the urban structure of forest-field-city, building edge protection forests to resist wind and sand erosion, and enhancing landscape abundance, so as to improve the ability of the whole city to resist external coercion.



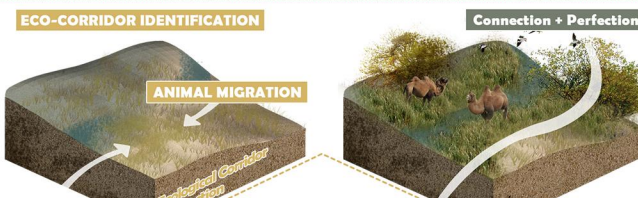
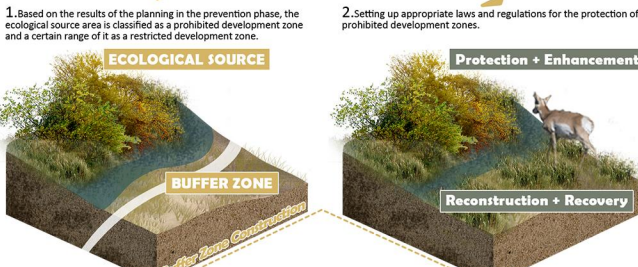
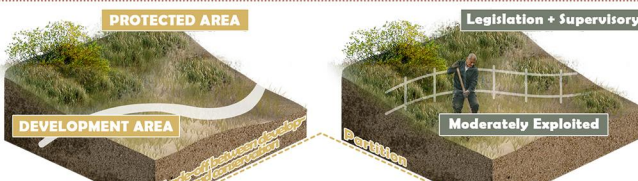
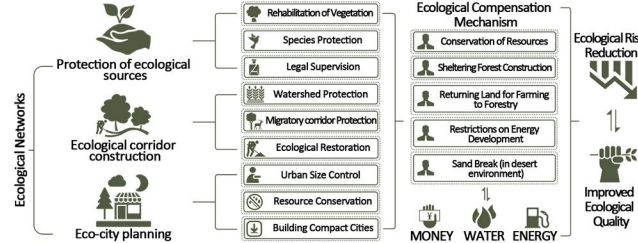
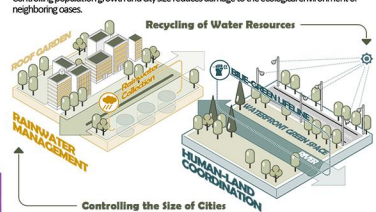
Conservation Agriculture

Implementing ecological compensation mechanisms, returning farmland to forests and pasture to grass, developing water-saving agriculture, easing the pressure on urban water resources, and promoting the development of oasis ecological agriculture.



Compact City

Studies have shown that a compact urban form is more conducive to the protection of precious water and arable land resources in oasis cities. Controlling population growth and city size reduces damage to the ecological environment of neighboring oases.



- Based on the results of the planning in the prevention phase, the ecological source area is classified as a prohibited development zone and a certain range of it as a restricted development zone.
- Setting up appropriate laws and regulations for the protection of prohibited development zones.
- Corridor construction is carried out using engineering measures based on the results of planning in the prevention phase.
- During the corridor construction process, we will focus on protecting rare species habitats and species migration corridors.

