

Evaluation System Constructing and Exploring of Urban Waterfront Space Ecological Value and Development Potential

Mr. Youyi Huang, Institute Of Urban Rural Planning & Design Xiamen University ; Ms. Lina Zhan, Institute Of Urban Rural Planning & Design Xiamen University
Ms. Xiaoru Lin, Institute Of Urban Rural Planning & Design Xiamen University ; Ms. Li Zhang, Institute Of Urban Rural Planning & Design Xiamen University
Mr. Jing Zhu, POWERCHINA Huadong Engineering Corporation Limited ; Ms. Yingying Zhang, POWERCHINA Huadong Engineering Corporation Limited

Objectives

In the background of ecological civilization, waterfront space needs to be strictly protected and rationally developed as an important ecological element and public space for the city. Due to the lack of scientific and systematic management and technology systems, the problem of ecological damage and inefficient utilization of waterfront space is serious. In order to promote the effective protection and efficient development of waterfront space, water-city integration, and connecting territorial space planning system, we explore the construction of an evaluation system for the ecological value and development potential of urban waterfront space in this paper.

Methods

- 1. Analysis cases and current issues:** Sort out the connotation and standards of waterfront space governance at home and abroad, and summarize the outstanding problems in the utilization of waterfront space.
- 2. Apply the model and define the framework:** Apply the Driver-Pressure-State-Impact-Response (DPSIR) model and the comprehensive evaluation method to determine the evaluation system framework. (Figure 1~2)
- 3. Screen indicators and improve the system:** Construct the evaluation system for ecological value and development potential of urban waterfront space, including target level, criteria level and indicator level. (Figure 3)

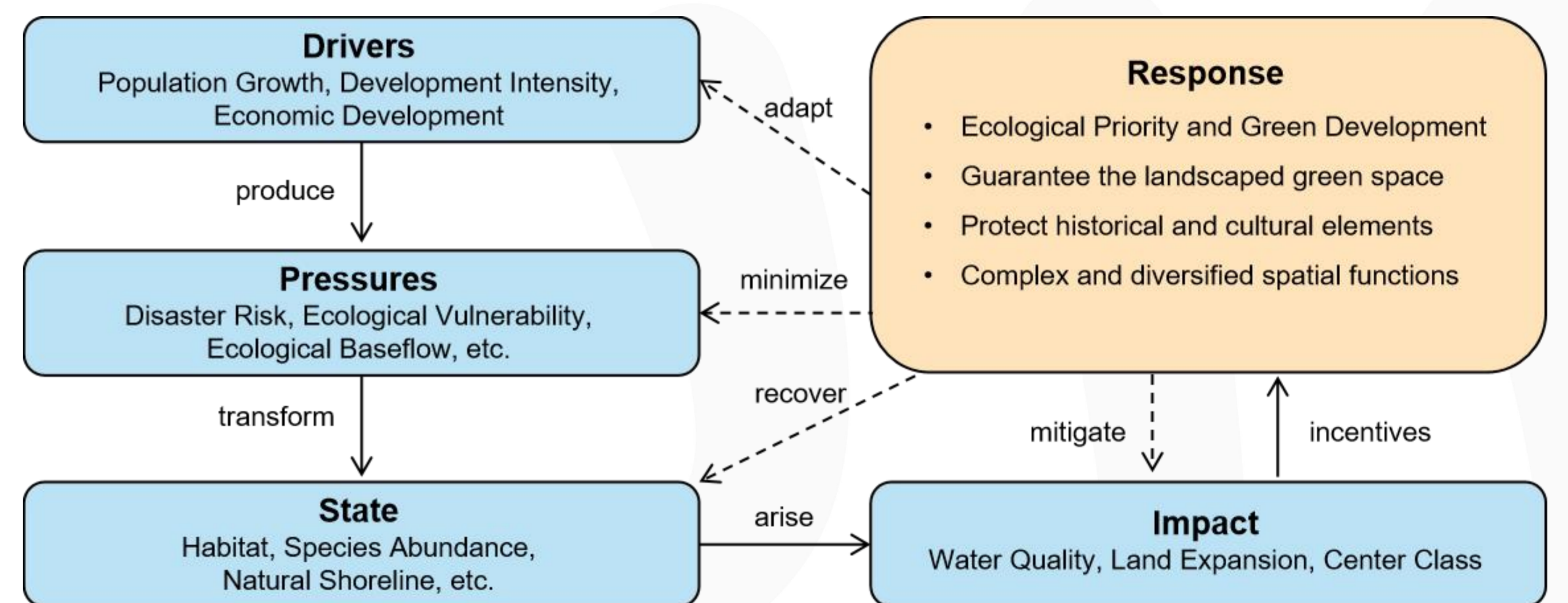


Figure 1: The DPSIR model organically combines the origins and outcomes of ecological and environmental problems with human activities, and identifies the corresponding key elements and their intrinsic connections.

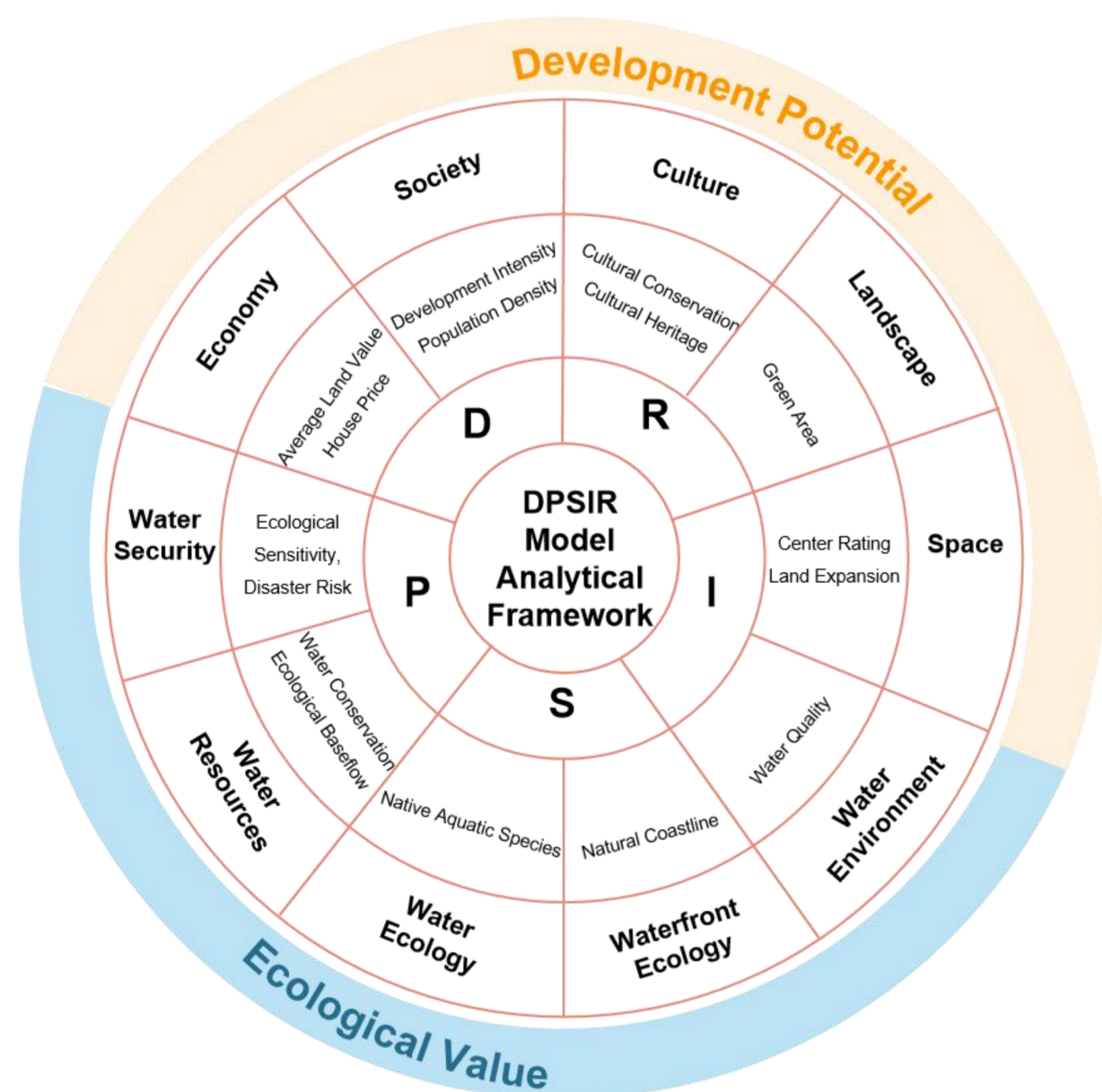


Figure 2: Based on the DPSIR model, analyze the ten major elements of ecological protection importance and urban development potential, and determine the evaluation system framework.

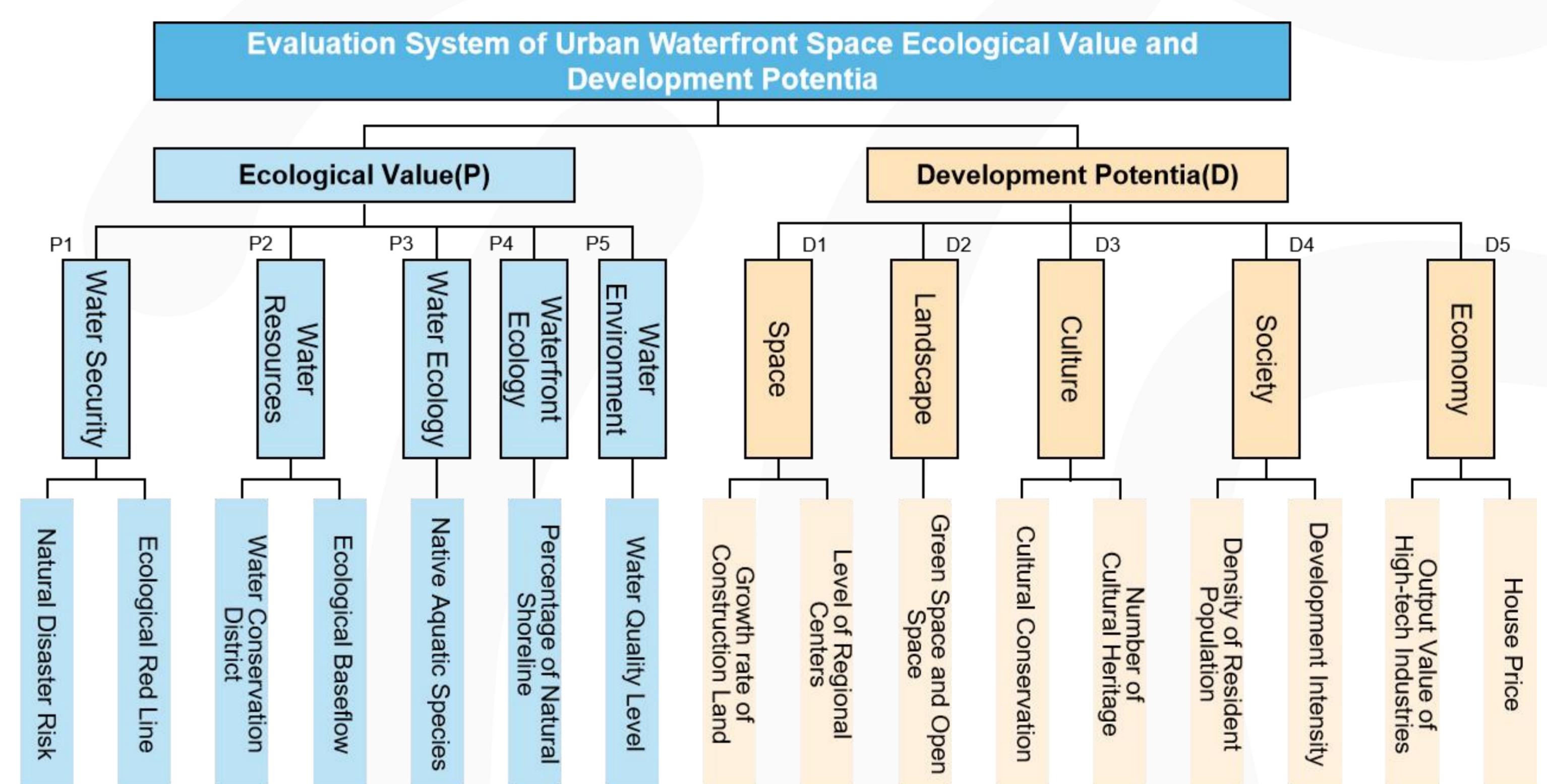


Figure 3: Sort out the existing indicator systems related to waterfront space at home and abroad, screen out the indicators with strong operability and representativeness, and innovatively supplement and improve the indicator system.

Conclusions and Results

1. Explore the construction of waterfront space evaluation system.

Based on the DPSIR model, the evaluation system is constructed from the two dimensions of waterfront ecological value and development potential, forming 2 target levels, 10 criteria levels and 16 indicator levels. (Figure 3)

2. Propose four types of waterfront space development. (Figure 4)

- (1) Protection and conservation type: it is recommended to formulate protection plans and programmes.
- (2) White space upgrading type: it is recommended to leave white space to be determined, and can be upgraded appropriately.
- (3) Protection and development type: It is recommended to explore the synergistic development strategy of protection and development.
- (4) Efficient development: It is recommended to formulate high-value and high-efficiency planning and construction programs.

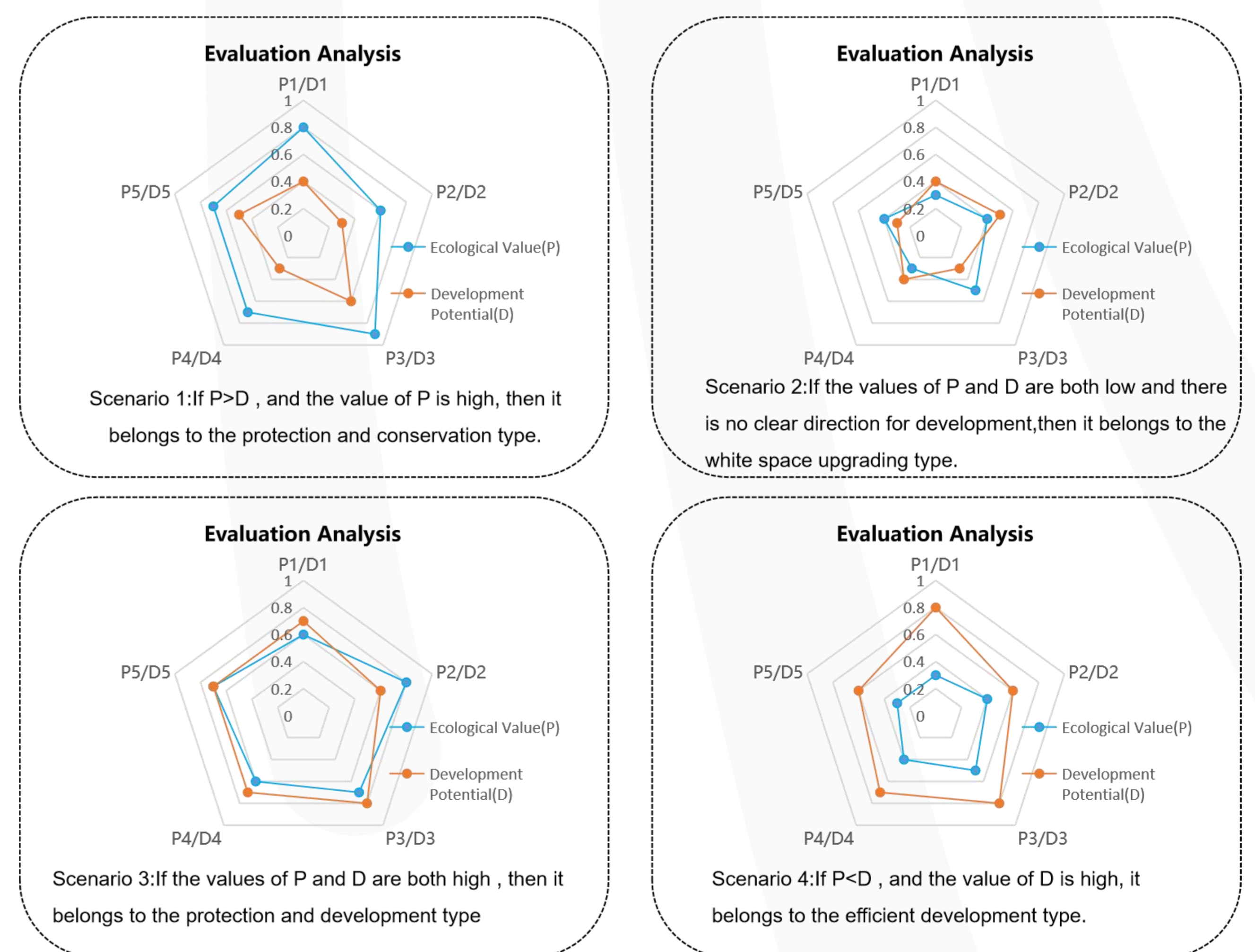


Figure 4: Based on the scenario analysis of the evaluation model, the development types of waterfront spaces can be classified into four categories.