

Expansion of Regional Urban Space Based on Green Smart Growth

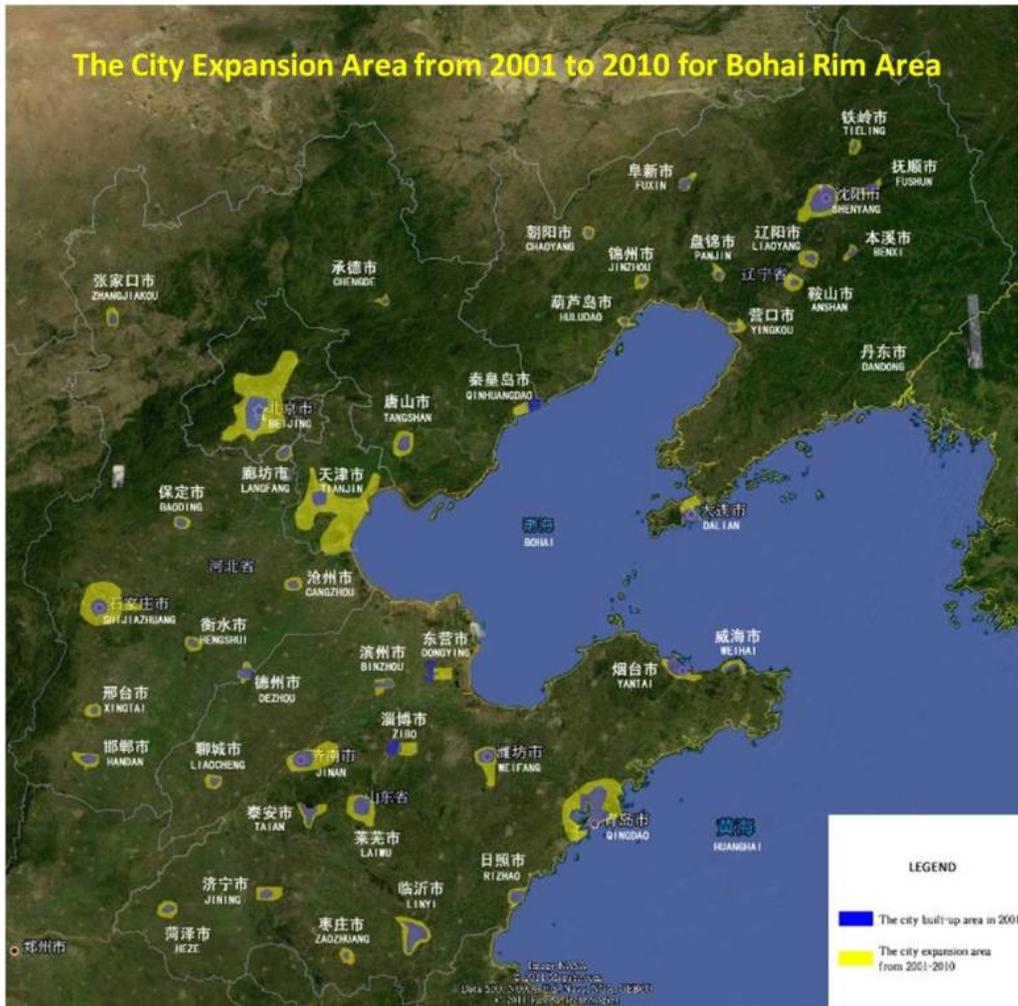
Overview of national urbanization process, have emerged from the city towards the regional trend, but a phenomenon has caused widespread concern along with area urbanization and big city suburbanization has brought urban sprawl. Lewis • Mumford as American urban theorist is that "truly effective urban planning must be regional planning." United States, Britain and other countries manage the urban spread with smart growth means governance has played a very good effect. European Strategy 2020 has "Smart growth" identified as focus one of three keys in the EU's future decades of development. The facts show that with smart growth management as the core of spatial development management for the metropolitan area level, can effectively promote the coordination between urban and rural areas where cooperation between this realization of economic, social and environmental balance of development. Bohai Rim Area as China's economic development pole, growing phenomenon of urban sprawl, which is hereby proposed research "Expansion of Regional Urban Space Based on Green Smart Growth", and then explore the inhibition of the spread of regional cities, protecting the environment means.

1、 The Status Quo on the Urban Space Expansion of the Bohai Rim Area

Bohai Rim area includes Beijing, Tianjin, Hebei, Liaoning and Shandong provinces. There are 314 cities in the status quo, including two super cities as population of 8 million or more, seven mega-cities as population of 4 million to 8 million, eight large cities as population of 2 million to 4 million, 13 large cities as population of 1 million to 2 million, 29 cities as population of 500,000 to 1 million, 76 medium-sized cities as population of 20 0,000 to 500,000 and 179 small cities as population under 200,000.

As China's new economic growth pole, this area is in the rapid development of urbanization (area urbanization rate of 53.52% in 2009), but along with the expansion of city size and a significant increase in population, some cities has been arisen the land development uncontrolled and the accelerating trend of spatial spread.

In urban development, urban outer space as location choice of part of the element concentration and spillover, population and industry in the space appear the rapid advance from the city center to the urban fringe. Agricultural function land at Suburban and natural landscape rapidly changing for the non-agricultural features land and urban landscape. Residential, industrial, university town, logistics, entertainment resort area, etc. become the tentacles of outside the extension of urban space. According to statistics, in 2001 -2010, the built-up area of Bohai Rim area increases 3127km², the growth of urban construction land is rapid. But compared to the Greater London area green coverage of 40% and per capita public green space 30 m², the Bohai Rim area, green coverage is 30% less than Greater London area by 10%, per capita public green space is 10.84 m² less than Greater London area by nearly 20m².



Sources of graphic material: Liu Chengcheng make according to Google Earth

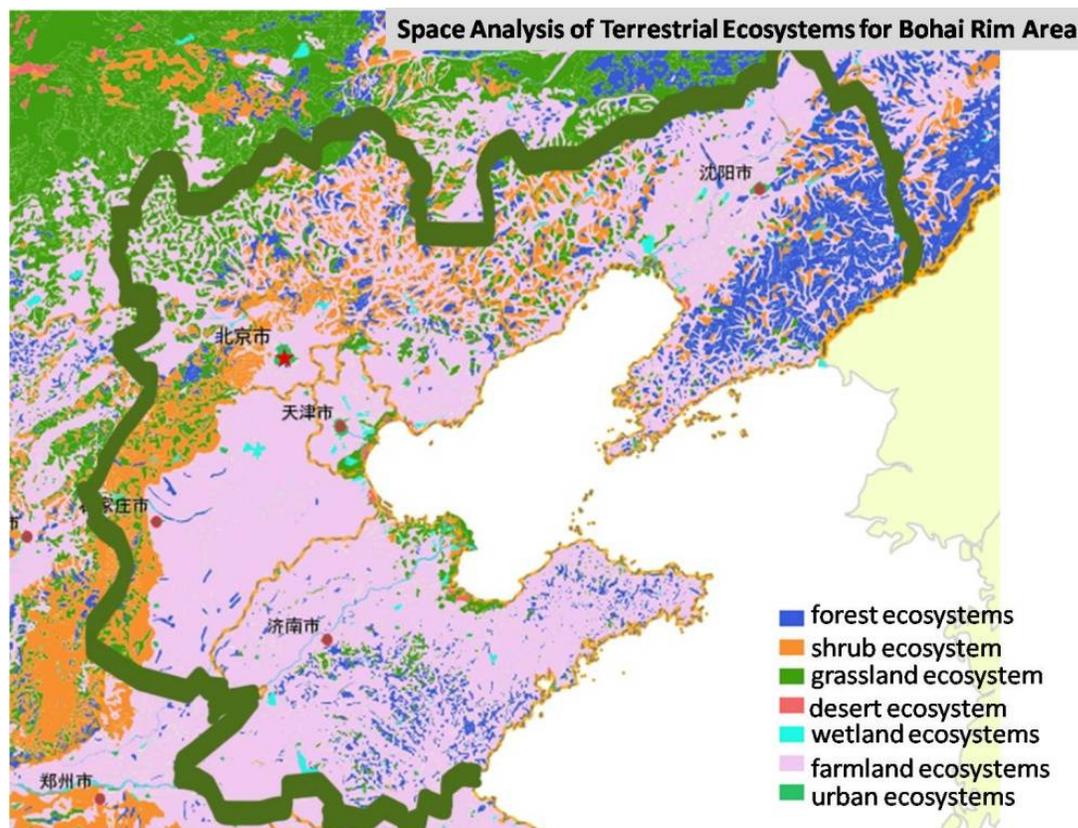
Urban migrants have gathered toward suburban areas. From the live distribution, the floating population of urban core areas has been relatively stable in a saturated state, the floating population began to mainly concentrate in the development new area and the urban function development area. In recent years the spatial layouts of the resident population and employment population showed significant differences. On the one hand, due to high prices of central city, residential population transfer to the suburb, and the quantity of resident population employing in the second and tertiary industries has been declining slowly. On the other hand, due to the employments of tertiary industry have highly concentrated to the core area and the expand zone, a large number of working population as non-resident population in this area influx rapidly, lead to urban employment density is a rapid increase. The separation reality of residential land and work land has inevitably brings a range of issues.

With the rapid progress of the regional urbanization, while human beings enjoy the civic life of modern cities, they had to face the troubles and cruces coursing by urbanization, especially the trouble of "urban disease". Such as traffic congestion, energy shortages, water security, garbage Siege, etc.

For example, traffic congestion. Internationally recognized warning line of urban traffic congestion is 20 km/h. But Beijing's the average speed is only 10 km/h in city during all road sections of the day, in contrast London and Singapore as the world-class city are respectively 29 km/h and 35 km/h. According to the survey shows, Beijing increased by one people as well as the daily traffic trips increased 2.64 times. The current, the daily traffic trips has reached more than 35 million passengers in the region within the sixth ring road, growing traffic pressure.

2、The Terrestrial Ecosystem Analysis for Bohai Rim Area

How to guide the healthy development of the region spatial extension by green smart growth. As well as we solve the urban disease. In the beginning, the researchers must bring the terrestrial ecosystem analysis for Bohai Rim area. In terrestrial ecosystems, we distinguish the natural ecosystems and artificial ecosystems. For the natural ecosystems, according to the constructive species life-form and the community looks is similar, as well as moisture conditions can be quite similar, natural ecosystems is divided forest ecosystems, shrub ecosystem, grassland ecosystem, desert ecosystem and wetland ecosystems. For artificial ecosystems, according to human land use differences, the human impact on land ecosystems into farmland ecosystems and urban ecosystems.



Sources of graphic material: Liu Chengcheng make in the light of Database for Ecosystems and Ecosystem Services Zoing in China

3、Countermeasure for Expansion of Regional Urban Space Based on Green Smart Growth

The core about expansion of regional urban space based on green smart growth is: designating urban growth space, using enough the stock space, reducing the blind expansion, protecting the environment. Therefore, the paper proposes three strategies.

3.1 Urban spatial development guidelines for Bohai Rim area

The first, for regional land use, urban development boundary identified to prevent excessive expansion of large urban area, protection of natural environmental resources. Thence we offer urban spatial development guidelines in order to Bohai Rim area. The regional space is divided into four areas: ecological protection area, control the development area, optimally enhance the development area and key development areas.

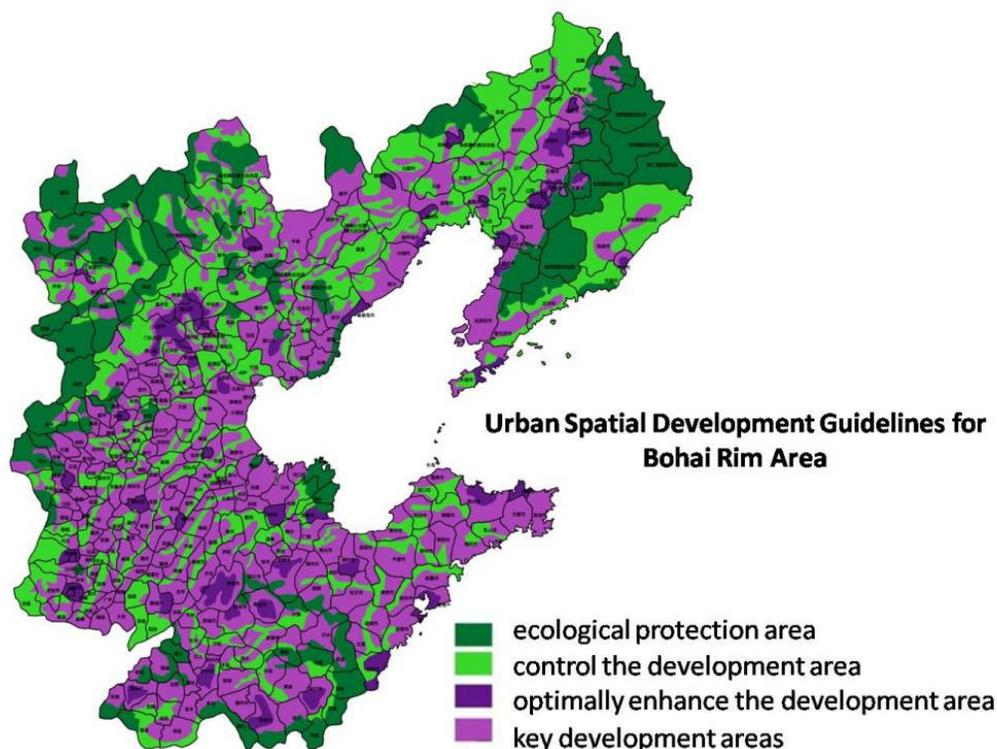
Ecological protection areas, including nature reserve and basic farmland are a total of 20.873 million ha in provincial and municipal land, according to the relevant law prohibits construction practices.

Control the development area is mainly refers to more vulnerable areas of agricultural land, important rivers coastal areas, disaster-prone areas, coastal zones, etc, to strictly control the development of strength, to encourage local residents to the towns and cities.

Optimally enhance the development area is the center of the 314 cities will optimize the upgrading strategy.

Priority development areas based on national strategies, regional economic development needs identified include high-tech industry zone in southern Beijing, Tianjin Binhai New Area, Hebei Caofeidian Industrial Zone and Huanghua Port, Shandong Peninsula Blue Economic Zone in addition to optimizing the development outside the towns and the Yellow River Delta efficient ecological zones, and Liaoning Shenbei, Shen-Fu new town and other towns.

In short, we limit a development volume of construction land. In 2020, the total scale of construction land of control the development area, optimally enhance the development area and key development areas are not more than 6.2603 million hectares, accounting for the total area of the Bohai Rim area 12%.



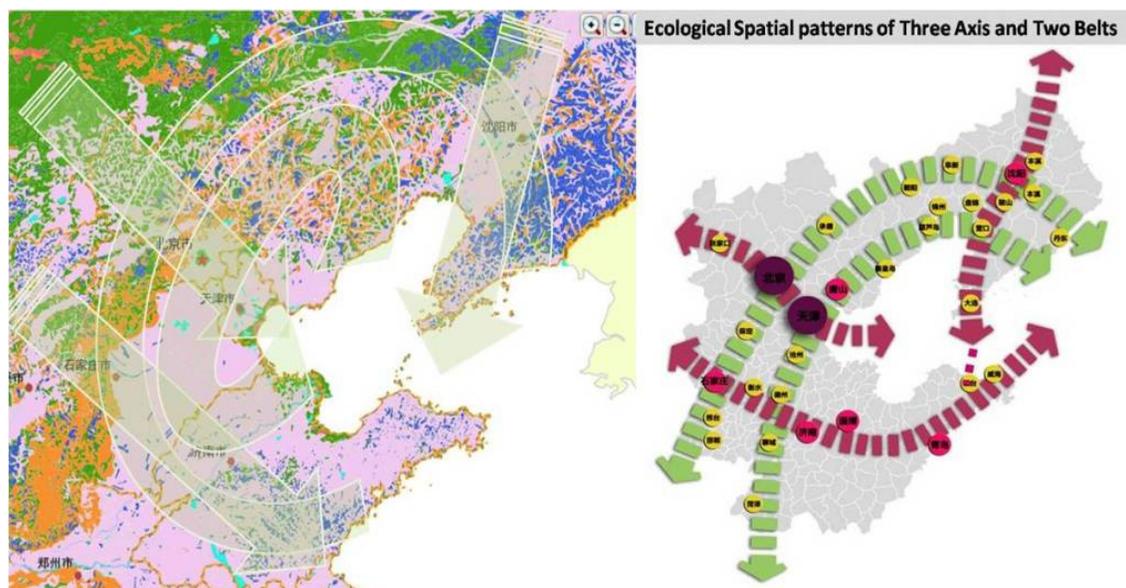
Sources of graphic material: Liu Chengcheng

3.2 Ecological Spatial Patterns of Three axis and Two Belts: communicating the regional urban green corridors

The second, communicating the regional urban green corridors, maintenance and increase of the opened space connectivity, establishing green nodes, enhancing diversity and complexity of the green network.

"Three Axis" is mainly intended to point out the direction of the green channel of communication include: Jin Zhang axis of the urban ecosystem, Qing Shi axis of forest ecosystems, Shen Da axis of forest ecosystem.

"Two Belts" has two meanings: one that regional eco-cooperation: green belt area of communication, strengthen Hebei - Beijing - Liaoning's ecological and environmental protection cooperation, namely Handan - Dandong ecological conservation zone. Another aimed at strengthening the Yingkou - Heze eco-development belt. This band includes Liaoning's Yingkou to the development of Shandong's Heze. There is the coastal zone among the belt, also covering from the Tianjin Binhai New Area - Hebei Cangzhou - Dezhou, Shandong - Liaocheng, Shandong - Shandong Heze coastal and inland transportation hub combining development with the main cities.



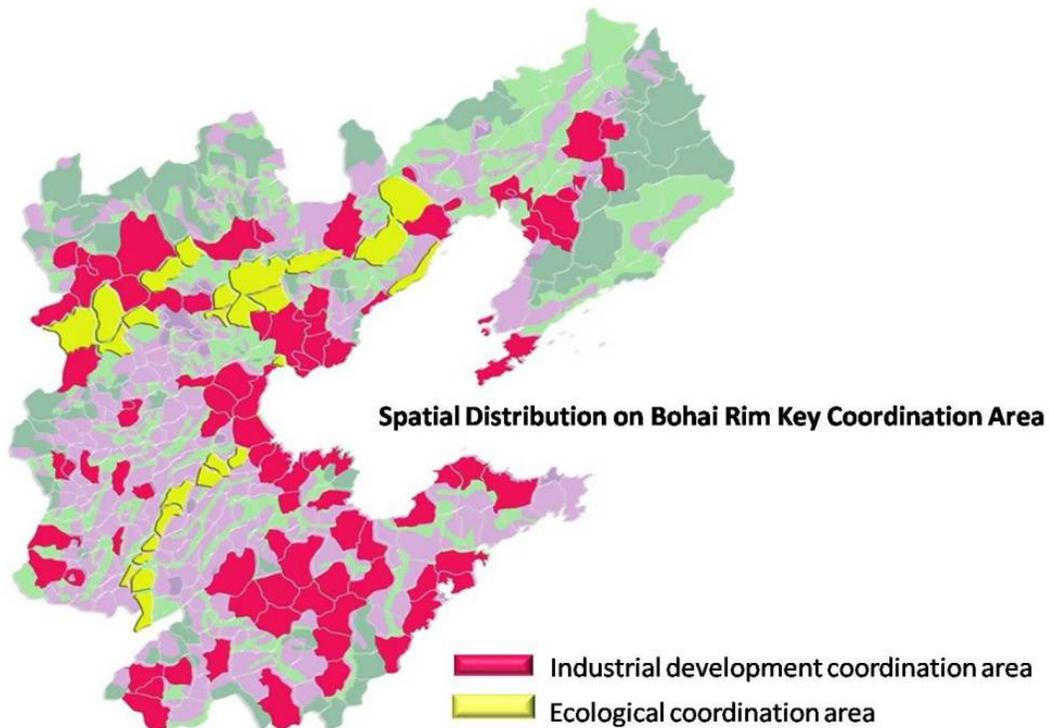
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3.3 Determine the eco-coordination areas in order to set up a perfect mechanism of eco-compensation

The third, determine the eco-coordination areas in the region and proposed ecological compensation measures from the watershed scale, regional scale. In order to set up a perfect mechanism of eco-compensation, achieve the balance between environmental protection and economic development.

Focus on coordination of regional areas, including the industrial development coordination area and ecological construction coordination area. Coordination of industrial development area is the same area of industrial structure, intended to coordinate the Bohai industrial layout, strengthen the town contact.

Ecological coordination area involves metropolitan areas stretching, of towns, along the main basin to the inter-provincial border of provincial administrative regions. Adjacent provinces need to protect nature reserves ecological safety.



Sources of graphic material: Liu Chengcheng

Based on ecosystem-coordination of regional settings, in order to establish eco-compensation mechanism, specific measures are as follows:

- To establish a unified coordination mechanism for provinces planning of Bohai Rim area, like European Union to develop a "European Spatial Development Strategy" for the coordination and collaboration of member states to provide a guiding framework for spatial development.
- The establishment of institutional framework for cooperation mechanisms. May consider setting up a "Coordinating Committee for Bohai Rim area Environmental Protection", the main role is to develop policies and regulations for a unified regional economic development, environmental protection.
- Development of Bohai Rim area circular economy, establish Bohai Rim area environmental industry cooperation mechanism.

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