

Thoughts over Sustainable Urban Regeneration on the Urban Fringe in Transformation

In the rapid urbanization process of our country, the blind expansions of urban construction land use not only waste the land resources, but also damage the ecological environment of cities. The land out of urban constructing and urban growth management is two aspects of one question. The Urban Fringe is the transition belt from the urban environment to rural areas; is the blurred region with the change of the urban scale, environment, and Urban-Rural evolvement; is the complex and metabolic area in Urban-Rural construction. Tianjin North New Urban is the fringe of urban center. In here, a contradictory proposition as a problem with the blind expansions of urban construction land and plenty water system is widely attention. There are many lands out of urban constructing, too. At present, the area is running to the swart posture. The environmental problems have become increasingly prominent with the upborne GDP. It is badly effecting the urban sustainable development.

In order to the North New Urban will change from the environmental pollution area to the low-carbon eco-city. We need to deal with the connections among the environment, energy, safety, education, innovation, economy, culture and the urban development, as the important issue of sustainable urban regeneration.

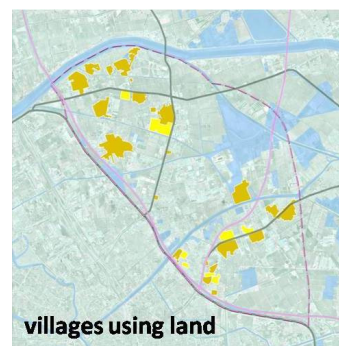
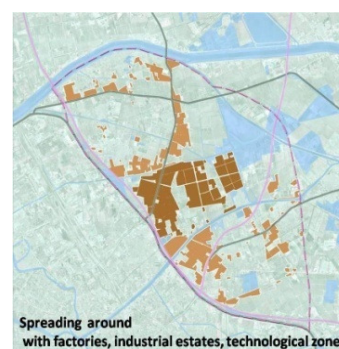
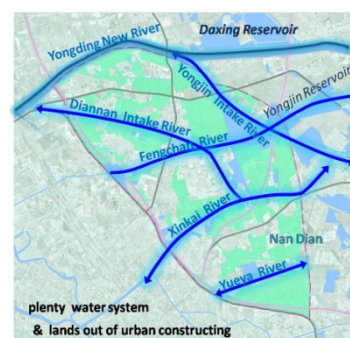
1 Distinguish from Questions

The project: "CONCEPTUAL PLAN OF NORTH NEW URBAN" planning scope is 103km². There are three questions in the status quo. We need change as follows:

1.1 The first is extensive consumption of urban land use.

One hand, the government attract bid for investment promotion on the policies of land and revenue. It was bring on enclosure of industrial enterprises. Besides, the position is dispersedly. Now, the lands are about 17.6 km² and percentage 17.62%. On the other hand, In the City-Country Duality, the villages are no plan and the living farmhouses are over size.

1.2 The second is lag on urban infrastructure and public service facilities.



Driven by market economic profit, investors are usually unwillingly taking on that construction of public facilities. Due to the land fabric of urban fringe is irrationally.

1.3 The third is the lowly industry, the dishevelled contaminative corporations.

The lowly industry includes many the small contaminative factories, such as chemical pulp mills, printing and dyeing mills, dyestuff mills, tanneries, electroplating factories, oil refineries and pesticides manufacturers. In spite of the state shall forbid construction of any small enterprises, devoid of measures for prevention and control of water pollution.



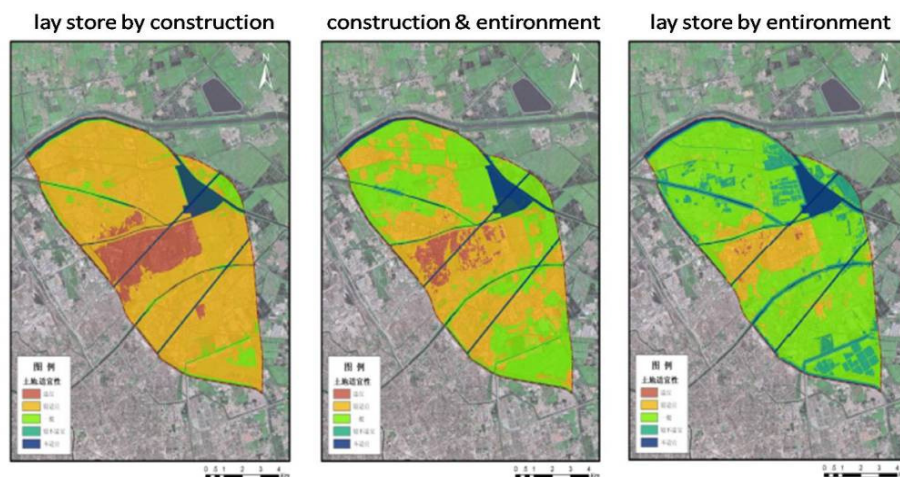
commercial public facilities, civic center

2 Countermeasures

Formulation of the conventional urban plan is always forecast the city size at first so that the land using and the space layout is doubtless confirm. The Green land System is only a small part of the master plan. But the planning way has many questions in fact. The biggest question neglects the eco-sights as the organic system. The city is devoid of continuity and whole among the areas, cities and cells. The phenomenon is the blind expansions of urban construction land. The eco-lands are more and more nibbling.

In order to protect the limited the eco-spaces, we fine-tune the scheduling of plan. Design links with the environment points that countermeasures include five parts in order to solve these matters.

Evaluation on Land Suitability



2.1 At first, the space control avoids the land waste.

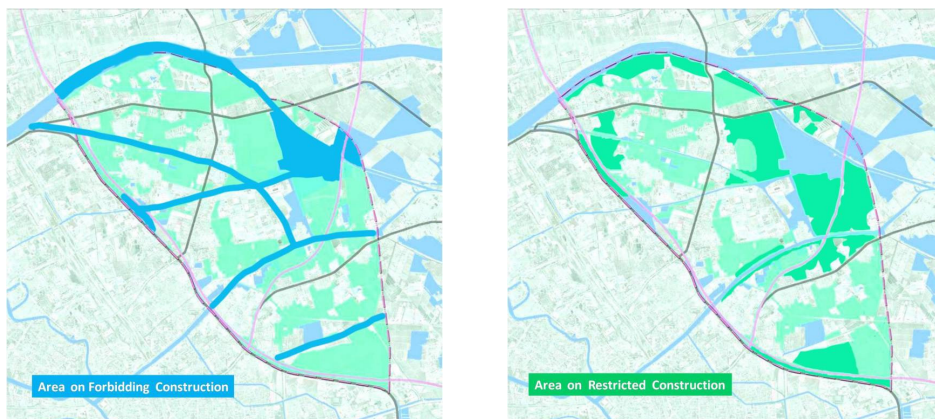
Forbidding Construction Area and Restricted Construction Area is being demarcation by evaluation of land suitability based on Remote Sensing and GIS.

Sensitivity and weak eco-system as preconditions (to include biodiversity conservation, water conservation, water resources protection, environmental regulation, ecological corridor) apart

establish the types of the control spaces. The area must enhance the environment protection as soon as bring the ecological restoration and technique planning.

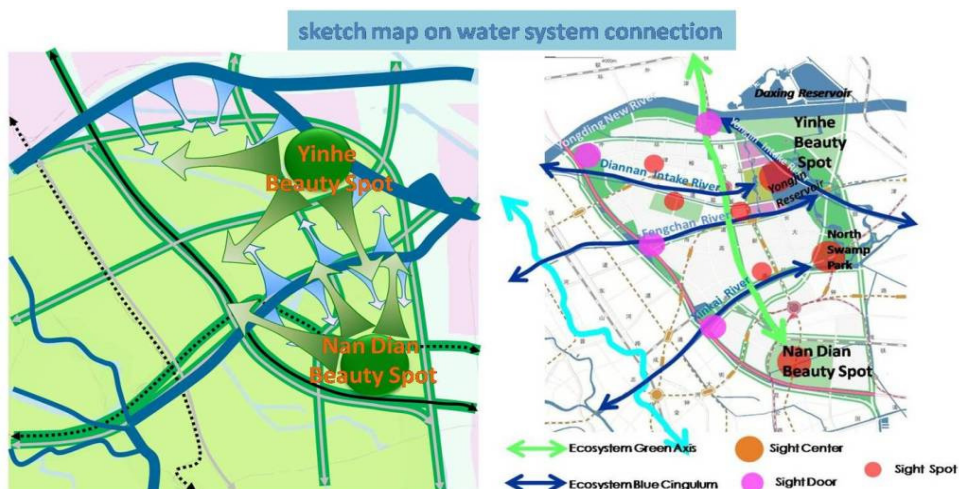
Forbidding Construction Area include waters with size 13 km². There are six watercourses and Yongjin Reservoir. Thereinto, the bank protection forest belt of Yongding New River and Yongjin Reservoir is both breadth 30m. The others as including Xinkai River, Fengchan River, Diannan River, Yongjin Intake River and Yueya River are all breadth 15m. It is forbidden to all build activities. Existed builds will move out of the protected belt step by step It is forbidden to discharge or dump industry waste residues, urban refuse or other wastes into any water body.

The construction land size of Restricted Construction Area is not over 4%. On the development of Yinhe Beauty Spot and Nan Dian Beauty Spot, the build density is not over 15%, the high of main body is not over 15m, the green space ratio is not less than 70%.



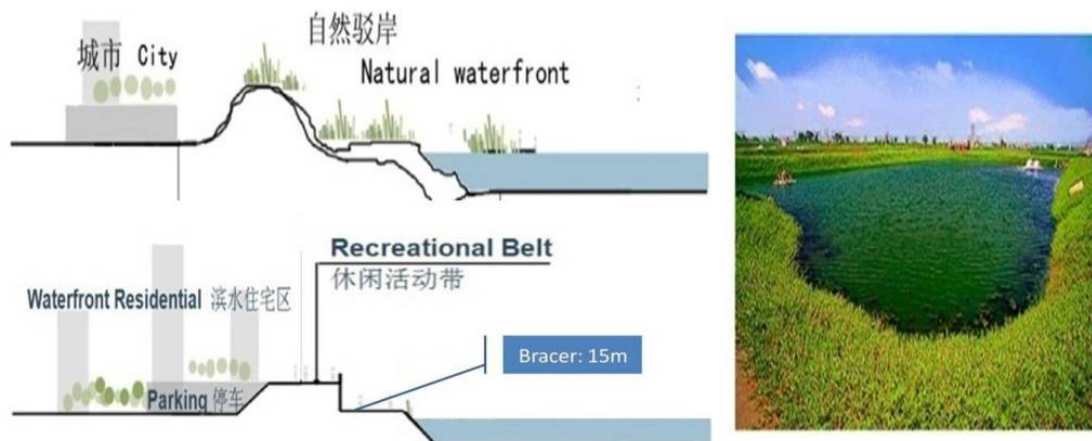
2.2 The second, the green infrastructure design preserves the ecological resources.

Water system connection is connecting Yinhe Beauty Spot, Nan Dian Beauty Spot, Yongding New River, Yongjin Intake River, Xinkai River and Yongjin Reservoir to heal. And advance the density of water net within measure to create open spaces as well as step up land-value near the shores.



To extend the shores, the part as swamp buffer, come into being the multilayer eco-water-system combine with the reservoir, riverway, pound, swamp. It will become the ecosystem venation of North New Urban.

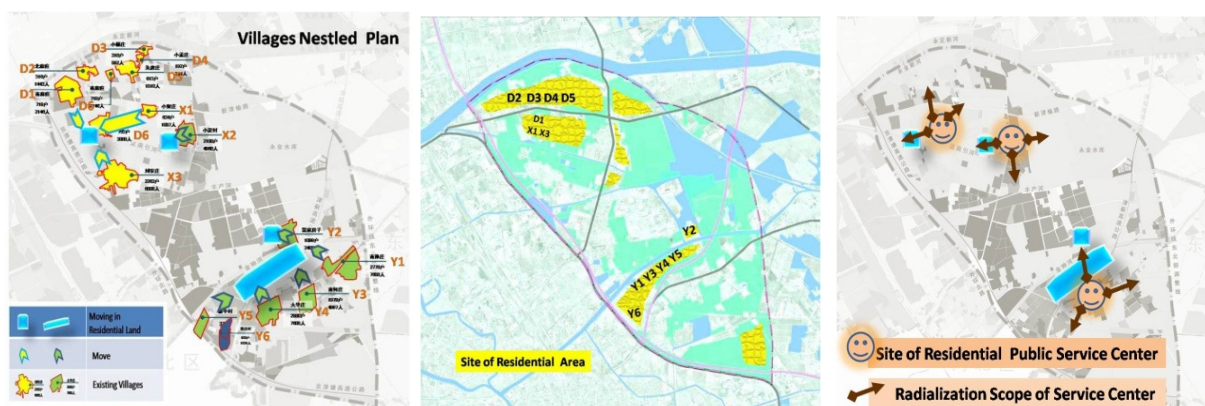
Make the most of natural waterfront, design of recreation is the over bracer 15m. Yinhe Beauty Spot and Nan Dian Beauty Spot brings into play osmosis, using the minority to bring along the majority, the roads net as the axis to compose green net.



2.3 The third, the comfortable housing project plan of villages in city is replying the own urbanization problem.

With spatial restructuring of large city, increasing the number of moving out, a large number of residents from the city center placed in urban-fringe, and became the moved-type settlements which composed mainly by return residential area.

The way as Sustainable urban regeneration of Chinese is the villagers concentrates the new pattern community. The new urban area inhere 16 villages, villagers 4,9000, size 6.8km². According as the population scope of village and obtain employment, plan village D1-village X1-village X3 focus on the return residential area, plan village Y1-village Y3-village Y4-village Y5 focus on the return residential area, plan village D2 -villageD3 -village D4 -village D5 focus on the return residential area. As well as arrange three public service centers.

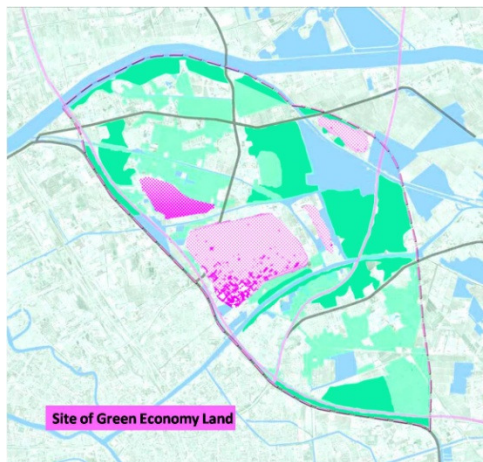


2.4 The fourth, green economy lead to a prosperous future economy consistent with

the needs of the resource-saving and environmentally friendly society called for by the government of China.

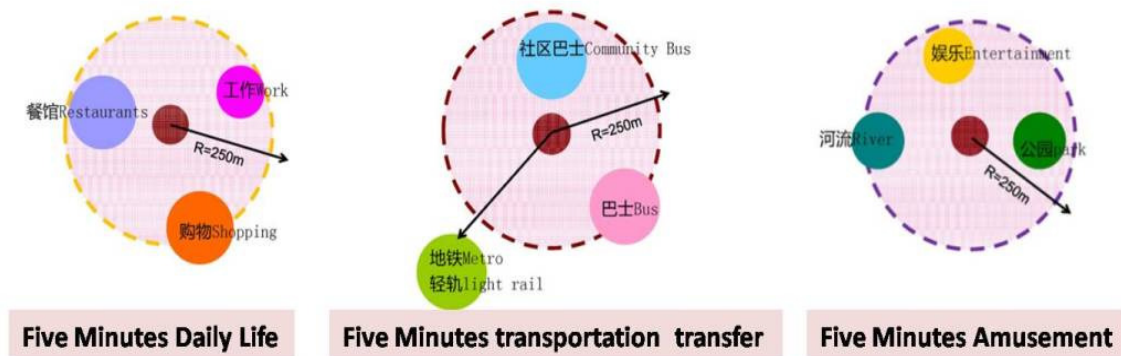
To reduce percentage of industry land and increase percentage of services land, form Spatial Concentration of Urban Services and Spatial Concentration of Urban Industry. The industry land develop solar using and wind using. To authorize environment join-in standard. Bring the Effect of Supervisal Network of Environmental Protection into Play, do Well of “One Controlling and Two Criterion”.

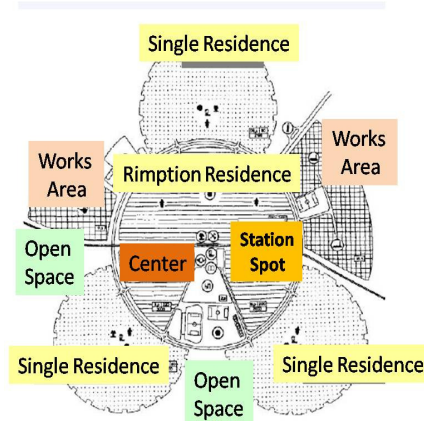
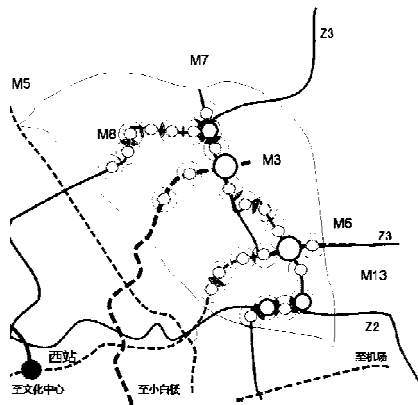
The area develops Industry Circular Economy on the waste recycle and cyclic economy in the tertiary industry.



2.5 The fifth, thoughts over TOD in North New Urban abound in the integrate function.

Research on TOD reasonable area around urban rail traffic site. Plan the public facilities land and commercial facilities land in the perimeter zone of the railway station spot. The radius is 600m or 800m with laying over area. The 600m radius is over 36%, the 800m radius is over 49%. The accessibility of railway station is five minutes.

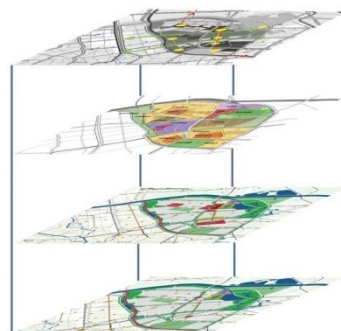
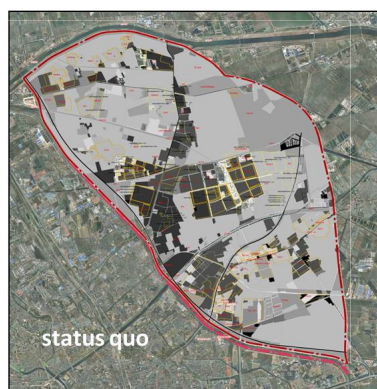




In summary:

The city size and function of construction land is metabolic continually. However, the ecosystem establishments with river, green land, swamp need changeless. Based on the five steps, the plan the urban overspread in Transformation, realize sustainable development, eco-priority is held to lead the economic development and eco-environmental protection. The plan as practical exploration on the ecology first thought in the urban planning. The land fabric is changed in the North New Urban area: The industry land percentage from 52.3% to 7.9%, the public facilities land percentage from 3.8% to 13.1%, the mixed land-use is percentage 8.2%, the ecosystem land is percentage 33.5%. Space control, Spatial agglomeration, Mixed land-use & TOD as three ways thought over sustainable urban regeneration on the urban fringe in transformation.

type of urban land	area (Km ²)	percentage
industry	8.13	7.9%
mixed land-use(CR)	8.45	8.2%
Residential Area	23.87	23.2%
public facilities	13.52	13.1%
scientific research	5.81	5.6%
Roads & squares	10.76	10.4%
green land	21.81	21.2%
urban construction land	90.35	87.7%
waters & miscellaneous	12.65	12.3%



The paper refers some materials of TUPDI (Tianjin Urban Planning and Design of Institute). "

Author: Liu Chengcheng
Work: Urban Planner
Country: China

Endnotes:

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