

2011 ISOCARP Awards for Excellent

Explanatory Report

Wuxi Taihu New City: Managing Ecological and Water Resources in Urbanization – from Eco-City Planning Strategies to Local Governance

Submitted by

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ARUP

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1.Applicant & Project Team Details

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Remarks

This submission is prepared by Arup and is supported by City of Wuxi Taihu New City Construction Headquarters Office and City of Wuxi City Planning Bureau New City Branch. Supporting letter from these two organizations is enclosed in *Appendix 1*.

2. SUMMARY

WUXI Taihu New City: Managing Ecological and Water Resources in Urbanization – from Eco-City Planning Strategies to Local Governance

Making cities livable is a complex global challenge. This issue is well exemplified in China over the recent decades where urbanization has led to serious impacts on living quality and urban sustainability. In May 2007, Lake Tai, which is located adjacent to Wuxi City in Jiangsu Province, had a severe algae bloom attack and has posed tremendous risks to human life and ecological environment.

Arup was commissioned by the City of Wuxi to (1) identify issues in managing ecological and water resources in the planning of livable communities; (2) review the existing Taihu New City Statutory Comprehensive Master Land Use Plan; (3) recommend comprehensive eco-city planning strategies with strong focus on managing water resources both to retrofit existing conditions and guide new development; and (4) propose innovative statutory development mechanisms to enhance effectiveness of local governance.

Arup proposed amendments to the Taihu New City Statutory Comprehensive Master Land Use Plan. Arup's proposal also include pioneering contents in four key areas covering (1) Eco-city Planning Strategies with a strong focus on managing ecological and water resources; (2) Taihu New City Eco-city Key Performance Indicators; (3) Statutory Control Plan (Zoning Plan) and Institutional Mechanisms for implementation; and (4) supporting planning and design guidelines and a participatory local governance approach for effective public consultation purposes.

This pioneering project in China demonstrates how the objective of managing urbanization and associated ecological challenges will be materialized through statutory local planning system and an enhanced approach to local governance. It serves as a fine example on translating eco-city planning principles from strategies to actual implementation.

3. Description of Project

WUXI Taihu New City: Managing Ecological and Water Resources in Urbanization – from Eco-City Planning Strategies to Local Governance

Key Facts

Project: Preparation of Eco-City Plan and Development Control Zoning Codes for Taihu New City

Location: City of Wuxi, Jiangsu Province, China

Planning Area: 150 km²

Planned Population: 1 million

Objectives

1. Identify issues and challenges in managing ecological and water resources in the planning of livable communities in the City of Wuxi;
2. Review the existing Taihu New City Statutory Comprehensive Master Land Use Plan;
3. Recommend comprehensive eco-city planning and development control strategies with strong focus on managing water resources both to retrofit the conditions of existing built up areas and to guide the future new development in the Taihu New City; and
4. Propose innovative statutory development mechanisms to enhance effectiveness of local governance, to ensure the eco-city targets are attainable.

Deliverables

1. Taihu New City Statutory Comprehensive Master Land Use Plan Amendments;
2. Eco-city Planning Strategies;
3. Taihu New City Eco-City Key Performance Indicators (KPIs);
4. Statutory Control (zoning) Plan and Institutional Mechanisms for implementation; and
5. Supporting planning and design guidelines and a participatory local governance approach for effective public consultation purposes.

1. City of Wuxi – Local Urban Livability in the Global Context of Urbanization Challenges

1.1 Global Challenge to Local Livability: Livability is a local issue within the global context of rapidly urbanizing world. Efficient use of ecological resources within cities is a global challenge to city decision makers and urban planners. The UN-Habitat Global Report on Human Settlements, calls for changes to current approaches to urban planning, claiming that *'planning systems in many parts of the world are not up to the task of dealing with the major urban challenges for the 21st century'*.

This issue is well exemplified in China, where the unprecedented scale and speed of urbanization over the recent decades have led to serious impacts on living quality and urban sustainability. Particularly, water resources management (water supply, water quality, sewage treatment, ground water infiltration and conservation) which has previously been neglected in city expansion has now been put forward as key planning objectives by the central government in China.

The issue finally hit international news headlines in May 2007, when Lake Tai (named Taihu in Chinese, which was historically a famous regional landscape district in southern China) was affected by a major algae bloom (eutrophication) and cyanobacteria (*Diagram 2*). The ecological balance of the lake was disrupted by over-urbanization, resulting in poor water quality and accumulation of organic matters degrading marine habitat quality. Social impacts followed with panic hoarding of bottled drinking water by local residents and sharp price increase.

1.2 Local Response through Eco-city Planning: The Taihu New City project site is located along the northern edge of Lake Tai (*Diagrams 1.1 and 1.2*). The Lake Tai basin is one of the most densely populated and economically developed regions in China. The 2300 square-kilometer Lake Tai is the source of drinking water for 40 million people in neighboring Shanghai City, Jiangsu and Zhejiang Provinces. However, the lake, previously renowned as "a pearl of the Yangtze River delta," has been heavily polluted by industrial waste, untreated sewage, pesticide and fertilizer since the 1980s due to rapid urbanization.

Under the immense pressure of public concern over environmental degradation, the City of Wuxi Government has undertaken the policy response to review the existing statutory Comprehensive Master Land Use Plan of the Taihu New City, and to come up with a pioneering Taihu New City Eco-city Plan with the policy objectives of making the new town livable and sustainable, and as a demonstration model for innovative local planning development control mechanisms (*Diagrams 3.1 and 3.2*).

Arup was commissioned in 2009 by the City of Wuxi to (1) identify issues and challenges in managing ecological and water resources in the planning of livable communities in the City of Wuxi; (2) review the existing Taihu New City Statutory Comprehensive Master Land Use Plan; (3) recommend comprehensive eco-city planning and development control strategies with strong focus on managing water resources both to retrofit existing conditions and to guide new development ; (4) propose innovative statutory development control zoning and institutional mechanisms.

2. Innovation in Contents – From Strategies into Implementation Mechanisms, with Strong Focus on Water Resources Management

In the preparation of Eco-City Plan for Taihu New City, Arup has proposed the following 5 key areas of contents covering strategies, planning methodologies, decision making tools, indicators, and institutional mechanisms for development control through regulatory (zoning) plans and site plans to address the above issues (*Diagram 4.1*).

2.1 Comprehensive Eco-city Planning Strategies and Development Control

For a successful the Eco-city plan, it is crucial to adopt a multi-dimensional perspective on planning contents. Instead of adhering only to conventional planning matters such as land uses, density, and urban functions, Arup took a holistic approach for the Eco-city Plan for Taihu New City by including non-conventional planning matters such as mitigating climate change, managing water resources, encouraging energy efficiency, recycling waste and reducing urban heat island effects as the driving criteria for plan making. We proposed an eco-city planning framework integrating all the 27 issues under 4 groups of strategic goals: environmental, natural resources, social and economic aspects (*Diagram 4.3*) for the Comprehensive Master Land use Plan.

Based on these goals, Arup further translated and recommended a set of 21 sustainable development control indicators which would be developed into zoning codes as well as planning conditions on urban design and building (*Diagrams 4.2 and 4.4*) for implementation, planning permit issuance, project monitoring and feedback purposes.

2.2 Ecological Planning with Strong Focus on Integrated Water Resources Management

In response to cumulative detrimental impacts of urbanization on Lake Tai, the eco-city plan has placed a strong emphasis on water resources management to illustrate how urban planning decision making and development control can respond to the challenge.

Current conventional planning practices unwisely put the issues of municipal services as the last stage in the plan making process, assuming that water resources are always available to support any level of city growth. Our team managed to reverse this decision making process and put water resources issues as the early driver for plan making. (Diagram 5.4) We have proposed **a comprehensive water resources management strategy that highlights five major aspects, namely water saving, water supply, sewage treatment, rainwater infiltration and water quality** (Diagram 5.1). The respective planning objectives formulated under this strategy included:

- a. 100% coverage of municipal water/sewage facilities
- b. 100% of all new buildings with installation of water-saving equipments
- c. 100% waste water with sewage treatment
- d. Minimum 40% water usage through supply of recycled or rain water
- e. Zero impact on rainwater infiltration before and after urban development
- f. Water quality control on surface runoff to ensure water bodies in residential areas would attain China national Grade 3 standard (suitable for human contact)

The last two planning objectives were introduced by the Arup team as pioneering practices in China. In China, conventional city master land use plans only address issues of water supply, waste water treatment and sometimes the provision of recycled water. This project has widened the scope of water resources management to mandate **(1) minimum rain water infiltration rate for all development sites and roads to ensure zero impact on underground water regime and the ecological balance of water resources cycle; and (2) minimum Grade 3 water quality standard in public water bodies to provide a safe and livable environment for the residents and children** (Diagram 5.3 and 5.5) (according to China's Six-grade Water Quality Classification System, the conventional water quality standard of City of Wuxi open spaces is Grade 4 – not suitable for human contact). For the first time in statutory urban planning practices in China, these two objectives have been incorporated and implemented by innovative development control mechanism (see Section 4.1 below).

2.3 Quantitative Eco-City Planning Key Performance Indicators for Public Consensus Building

Based on the five recommended eco-city strategies, the team formulated a set of 21 sustainable, site specific development control indicators which would be developed into zoning codes as well as planning conditions on urban design and building.

In preparation of these KPIs, the team had carried out (1) a benchmarking exercise on other eco-cities and green building standards to review international and local best practices; and (2) project specific technical assessment of feasibility to arrive at the quantitative criteria and performance indicators. This has provided important implications for the project. It was found that current similar eco-city projects in China seldom undertake site specific assessment on technical feasibility when proposing planning indicators, resulting in implementation issues and the lack of scientific factual information for public participation. **The Taihu New City project eco-city indicators were built upon extensive site analysis and technical assessment of the ecological systems, thus providing convincing information to facilitate the building of consensus with the local community and relevant government bodies** – a local governance approach we considered critical for any successful eco-city plan.

2.4 Future “Solutions Space” for Existing Problems: Guiding Future New Development as a Means to Improve Existing Conditions

The existing built up area of the project site is a major challenge. About 40% of the land of Taihu New City had been developed over the recent years. Most of the existing sites in the built up areas were developed based on conventional development control practices, and are therefore without the benefits of the widened planning scope adopted by the current eco-city plan. Our team fully embraced this challenge and determined to use two approaches: (1) propose to retrofit existing building sites whenever practicable; and (2) use the opportunities to manage future new development sites (the “solution space”) to create opportunities for improving the overall city performance in terms of livability. Future new development projects are regarded as “solution space”, and would be implemented to a relative high standard in terms of performances in energy efficiency, water resources usage, waste management and climate change mitigation in order to help to improve the overall city-wide performance. For example: the level of renewable energy usage in all new buildings has to reach 15% in order to ensure that the whole new city achieving a renewable energy utilization standard of 7% or above. Through this approach, the existing environmental problems in Taihu New City can be effectively improved by the higher standards imposed.

2.5 Emphasis on Cumulative Impact Assessment for Eco-city Plan

The proposed eco-city plan views Wuxi City as a holistic ecological system where negative impacts are cumulative. The preparation of the eco-city planning goals and KPIs are based on a comprehensive technical impact assessment for the new city as a whole, in order to incorporate the concept of cumulative impacts into the statutory planning decision making process. Conventional approach in urban planning usually assesses negative impacts of development sites, separately, at the time of permit applications, and thus only manages to evaluate the site specific impacts. Our pioneering approach is to undertake the technical evaluation based on cumulative impacts for the whole new city during the plan making stage, and assigning performance standards to all individual sites as planning conditions. This has provided an effective planning methodology and tools that enable planning authorities to anticipate, identify, assess and control cumulative impacts on natural and built environment. This approach has enabled the development control mechanism effective and practical in controlling the overall impacts of urbanization on the ecological resources of the site (*Diagrams 6.1 – 6.6*).

3. Process – Participatory Approach for Consensus Building

We acknowledged that for the eco-city plan to become successful and accepted for implementation by various stakeholders, consensus building and communication are crucial elements in the plan. We had undertaken the following tasks to ensure wider participation from stakeholders groups: (a) Specific participatory workshop sessions with the senior leaders of the City Government of Wuxi on the objectives, approaches and proposed institutional changes to achieve “buying-in” at the highest policy level; (2) conducting meetings with our client (Taihu New City Management Committee) and other Wuxi Government department representatives to arrive at a set of agreed technical planning standards for collaborative implementation; and (b) engage local specialists and experts from the industry for feedback and comments to ensure wider acceptance by the learned communities.

The participatory approach also plays a pivotal role in soliciting support from the wider community as a whole. Although the current Taihu New City Comprehensive Master Land

Use Plan had previously undergone a public participation process, Arup recommended that a new round of public participation process be undertaken for the proposed eco-city planning indicators. Subsequently this had been carried out by the City Government prior to adopting the proposals.

4. Innovations in Institutional Changes: Eco-City Plan Implementation Mechanisms and Local Governance

4.1 Zoning Codes as Statutory Mechanism to Implement Eco-cities

As the existing statutory Regulatory Plan (Zoning Plan) in China only focuses on physical spatial development control parameters (land use types, building coverage, building height, plot ratio, green space coverage, vehicular ingress and egress, and parking requirements), this list of mandatory planning parameters do not have the adequate breadth to support the enforcement of eco-city planning goals. *Arup proposed to undertake an innovative approach in the contents of the Regulatory Plan and also the land lease contract by incorporating the list of development control parameters like water resources, renewable energy, waste and building energy efficiency (Diagrams 7.1 – 7.3).* This represents an institutional innovation and change in mindset for the local planning officials, which were considered by the team as fundamental. For example, to achieve zero impact on rainwater infiltration after development, new building sites in residential zones would have a legally enforceable planning condition that no less than 30% of the building roof area shall be for green roof.

4.2 Definitive Roles and Responsibilities to Strengthen Local Governance

With the quantitative KPI system and the proposed consensus building programme as part of the planning process, the institutional aspects of plan implementation included innovations in two areas: *(1) the various respective roles of different government departments in achieving the performance standards as stipulated in the KPI have been well and clearly defined during the planning process (not afterwards); and (2) the responsibilities for real estate developers to fulfill the set of eco-city planning parameters* (which were translated into zoning codes and planning conditions in the land lease contracts) are legally defined and are enforceable. Regulatory Zoning Plan, urban design and building design guidelines have incorporated the ecological planning principles and are implemented through the statutory planning systems. This is an important component in strengthening local governance and ensuring higher institutional efficiency in working toward the sustainable targets.

5. Conclusions

At present in China, and also in other fast urbanizing regions in the world, there is a general lack of seamless integration of planning, design and implementation for the actual implementation of eco-city objectives and targets. Arup's proposed eco-city plan and strategies for the Taihu New City have contributed significantly to improving the city's sustainable and livable future. The innovative approaches both in the planning contents and the institutional mechanisms have served as a pioneering example for other cities in China and other parts of the world. Moreover, the project has emphasized the importance of consensus building amongst all the stakeholders as part of the planning process - an aspect that has always been neglected but is critical to the subsequent successful implementation of any eco-city plan.

4. Assessment Criteria & Innovation

WUXI Taihu New City:

Managing Ecological and Water Resources in Urbanization – from Eco-City Planning Strategies to Local Governance

Arup proposed an Eco-city Plan for Wuxi that reflects a high priority on ecological value and integrity and sustainable targets during the course of urbanization. It aims at enhancing the livability of Wuxi and social and economic competitiveness of the city.

Arup's **proposed contents are original, practical and innovative** containing: (a) Eco-city planning strategies and development controls that **incorporates non-conventional planning matters** such as water resources management and energy efficiency; (b) Strong focus on water resources management which made water resources issues as the key driver for the plan preparation. It further introduced **pioneering indicators on rainwater infiltration rate and water quality to achieve higher standard (Grade 3) to regulatory planning control level**; (c) The proposed KPIs are comprehensive covering environmental, natural resources, social and economic aspects which laid solid foundation for developing into zoning codes and planning conditions on urban design and building design. The KPIs system also serves as an effective planning tool for facilitating participation of city leaders and local communities; (d) Create **future 'solution spaces' from new urban development** by imposing higher sustainability targets to alleviate environmental problems resulting from existing built up areas and to enhance performance and efficiency of the city as a whole; and (e) Undertook **technical evaluation based on cumulative impact approach** during plan preparation for better management and control of urbanization.

Arup's proposed **participatory approach in the planning process and focus on local governance issues** had successfully engaged city leaders and government departments to communicate through to arrive at agreed eco-city development objectives, approaches and institutional changes. Communities had also been given opportunities to be heard through additional public consultation exercise before implementation.

Arup has brought **innovations to the institutional and local governance aspect of eco-city planning** through: (a) incorporation of sustainable development control parameters into Regulatory Plan and land lease agreement, e.g. water resources, renewable energy, waste recycling and building energy efficiency; and (b) clearly defined roles and responsibilities for various government departments and the development industry. Innovative zoning codes and planning conditions were listed out in land lease contracts for fulfilling all the eco-city parameters.

5. Project Images

WUXI Taihu New City: Managing Ecological and Water Resources in Urbanization – from Eco-City Planning Strategies to Local Governance

Project Background

The project site (150sq.km) is located in Wuxi, Jiangsu Province of China. The government's vision is to develop Wuxi into a livable city with emphasis to enhance its ecological values and environmental integrity. Arup was commissioned to review its existing planning and to recommend an eco-city plan with effective and innovative planning methodologies, tools and implementation mechanism for addressing the city's natural resource degradation problems in response to rapid urbanization and industrialization.



Diagram 1.1



Diagram 1.2

A. Challenges

Major algae bloom outbreak in Lake Tai made international headlines in 2007. It reflects the fragile condition of Wuxi's aquatic ecosystem and poses tremendous risks to human health.



Diagram 2.1



B. Integrated Strategy



Diagram 3.1



Diagram 3.2

C. Eco-City Planning Framework and Key Performance Indicator System

Statutory Planning System in China

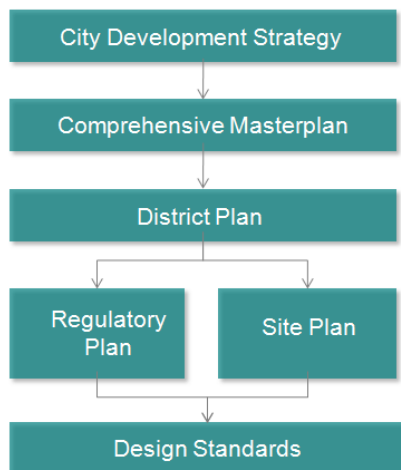


Diagram 4.1



Diagram 4.2



Diagram 4.3

Sustainable Development Control Indicators

Indicators		Targets
1	Public Transportation	Accessibility to public transport station
2	Accessibility to Open Space	100% residential area within 500m distance to public transport station
3	Accessibility to Educational Facilities	100% residential area within 500m distance to public green open space
4	Coverage of Municipal Facilities	Accessibility to primary school
5	Affordable Housing	≥80% residential area within 500m to primary school
6	Barrier-free Facilities	Accessibility to nursery centre
7	Water Quality	≥97% residential area within 500m distance to nursery centre
8	Enhance Carbon Sink Capacity	Coverage of municipal facilities
9	Biodiversity	100%
10	Green space per capita	Proportion of affordable housing
11	Waste Classification	Achieve required percentage of affordable housing as per national and Wuxi targets

Diagram 4.4

Indicators		Targets
12	Waste Recycling	Domestic waste collection
13	Heat Island Effect in Residential Area	Safe treatment of hazardous, toxic and domestic waste
14	Building Energy Saving	Construction waste reuse
15	Renewable Energy	F & B waste reuse
16	Water Conservation	100%
17	Sewage Treatment	Residential area outdoor average heat island effect
18	Non-conventional Water Sources Usage	Building Energy Saving
19	Rainwater Collection	Percentage of renewable energy in total building energy consumption
20	Construction Land per Capita	Pipe breakage rate
21	Acoustic Environment Quality	Use of water-saving equipments in new Buildings

D. Strong Emphasis on Sustainable Water Resource Management

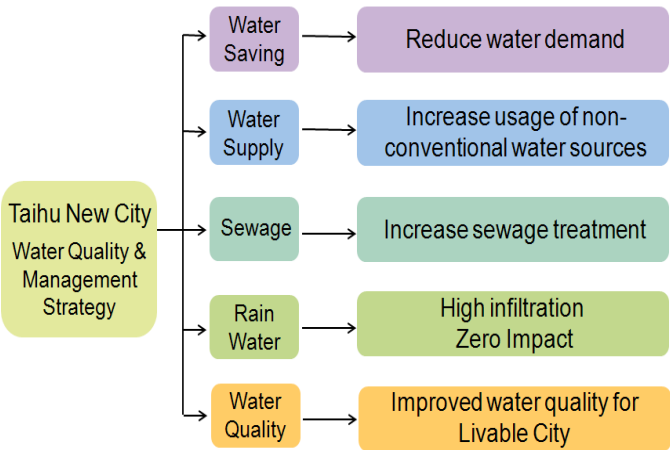
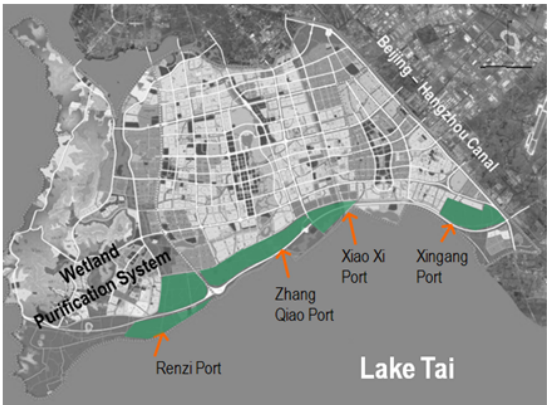


Diagram 5.1

Sustainability Indicators	
Coverage of Municipal Facilities	Municipal facilities coverage 100%
Water Quality	Water quality of public space in residential zones not lower than Grade III standard
Water Saving	Pipe breakage≤5% New building with water saving equipments 100%
Sewage Treatment	Centralised sewage treatment 100%
Non-conventional Water Sources	Usage of non-conventional water sources ≥27%
Rainwater Collection / Reuse	Zero impact on infiltration before/after development

Diagram 5.2

Water Quality Improvement
Achieve National Grade III Standard



Wetland design (not less than 20-30ha) adjacent to water control gates to purify incoming water from Lake Tai.

Diagram 5.3

Water Cycle Analysis
Achieve 41% Use of Recycled Water

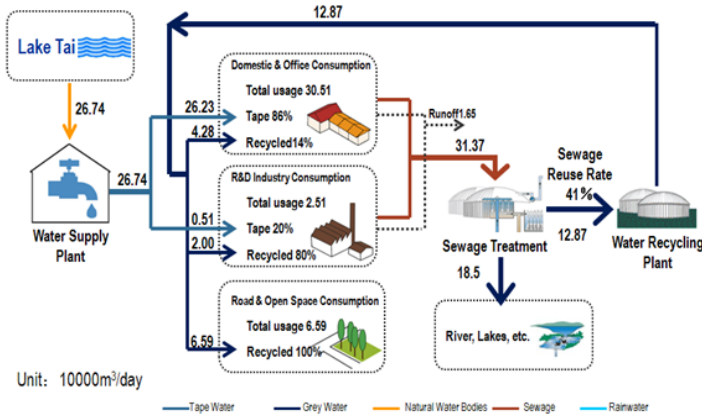


Diagram 5.4

Zero Impact in Infiltration
Before and After Development

1. Green Roof Design
2. Porous Paving Design
3. Detention Basin Design



Planting on rooftop of building or structures. Green roof design consists of: water-proof layer, protective layer, drainage layer, purification layer and planting layer.



Installation of paving with suitable water permeability features. Top layer infiltration rate > 1X10-4m/s.



Designed for temporary or permanent detention of water to manage water quality. Depth of detention basin should be H=10cm.

Diagram 5.5

E. Eco-city Strategies to Enhance Livable City Qualities

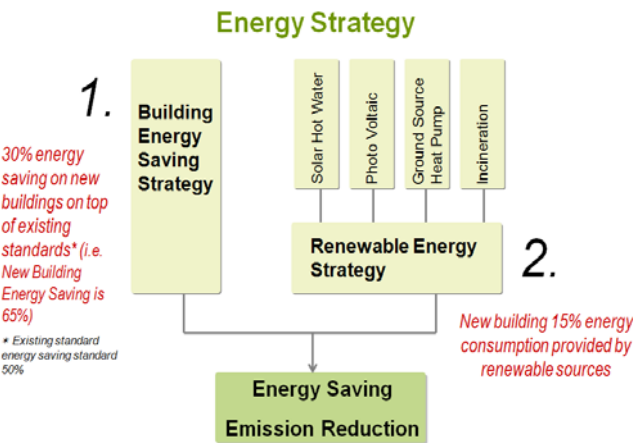


Diagram 6.1

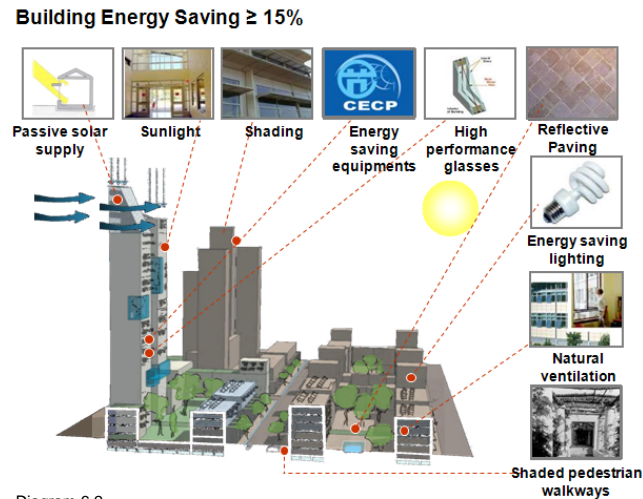


Diagram 6.2

Domestic Waste Classification & Collection 100%



Diagram 6.3

Annual Carbon Sink Capacity Increased 114.5%

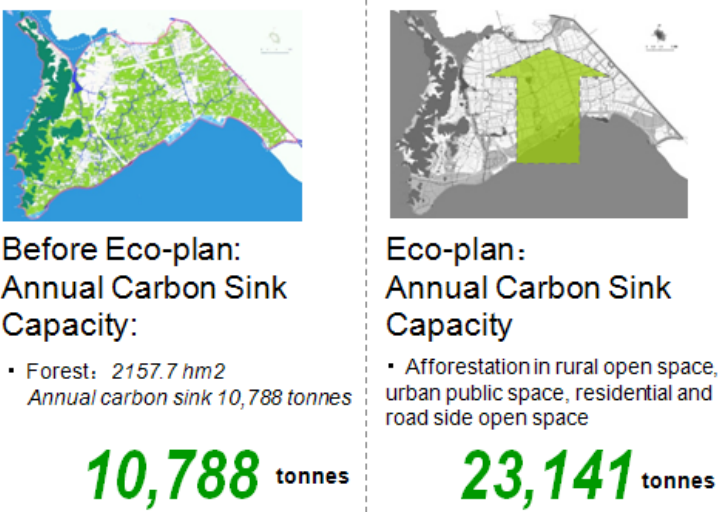


Diagram 6.4

High Accessibility

- (a) public open space and educational facilities within 500m distance from residential areas
- (b) residential and commercial zones within 500m of rail transit system

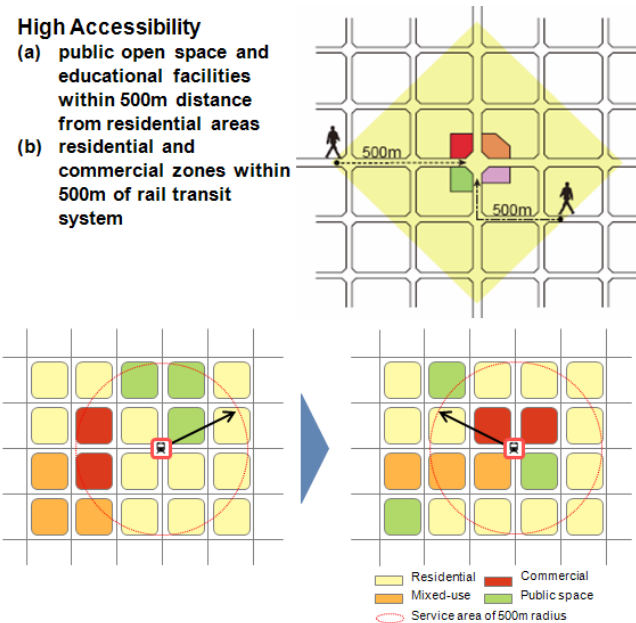


Diagram 6.5

Heat Island Effect

Residential Areas' Outdoor Daily Average $\leq 1.5^\circ\text{C}$

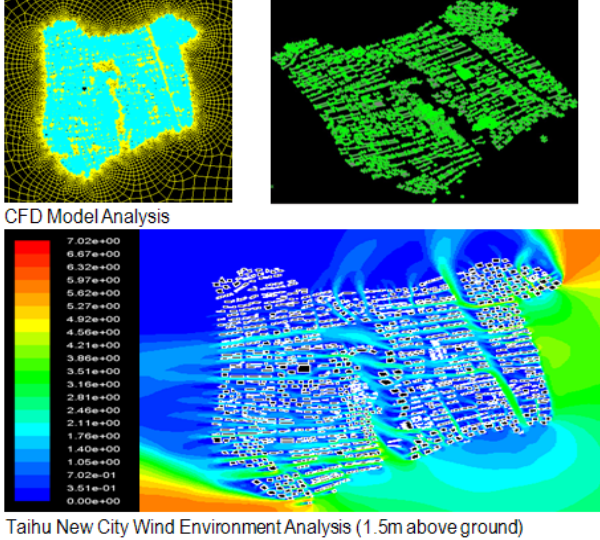


Diagram 6.6

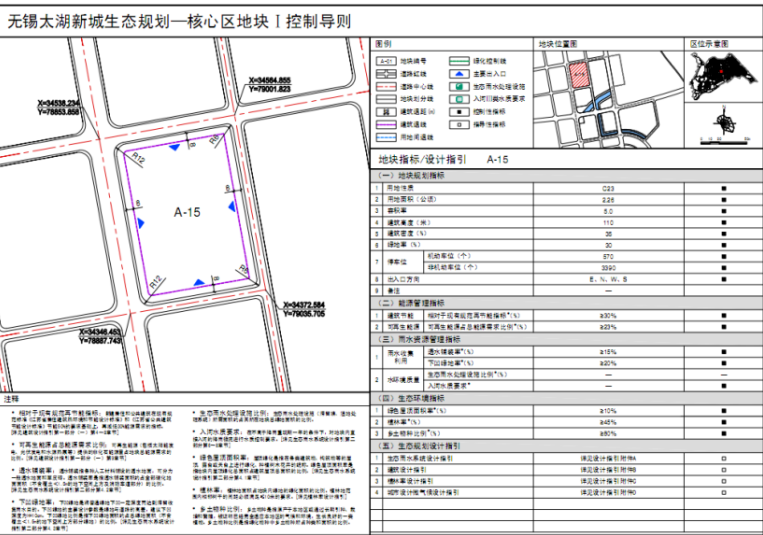
F. Pilot Project Incorporating Eco-planning Zoning Codes into Statutory Planning

Diagram 7.1 Wuxi Taihu New City Regulatory Control Plan



Conventional planning approach: Regulatory Control Plan (Zoning Plan) stipulates plot number, land use, plot ratio, site coverage, green coverage, parking and access points, of development parcel.

Diagram 7.2Wuxi Taihu New City Eco-city Plan – Regulatory Zoning Plan (Core Area Parcel I)



Wuxi Eco-plan incorporates eco-planning indicators/targets into the Control Plan. A set of design and implementation guideline supporting the Control Plan facilitates Government departments and real estate developers in the design and development process.

Diagram 7.3 Wuxi Taihu New City Eco-city Plan – Design & Implementation Guideline

5. 太湖新城水质控制目标分析

太湖新城污染物入河总量控制目标即外排量限制计划如表 5-1 所示。

表 5-1 太湖新城污染物入河总量控制目标分析

汇水面积 (ha)	目标径流量 (m³)	年均降雨 量 (mm)	年径流量 量 (m³)	三类水体 COD 限 值 (mg/L)	外排量限 值 (kg)
15000	0.26	1061.4	41394600	20	827,892

6. 太湖新城一级开发水质总量控制方案

太湖新城一级开发水质总量控制采取源头分散式削减，末端采用湿地系统进行污染物去除的方案，主要雨水处理措施去除效果如表 6-1 所示。湿地系统由微塘及湿地两部分共同组成。计算去除率 COD 去除率 40%，湿地 COD 去除率 60%。

表 6-1 各种雨水处理措施对典型污染物的处理效率 (%)

项目	湿地系统		雨水花园	城市绿地
	微塘	湿地		
COD	30~70	60 以上	35~91.4	28.5~50.9
TN	30~60	21	22~45.4	18.0~30.2
TP	30~60	~4~90	~66.3~76	26.1~41.1
TSS	50~90	40~94	>90	—

雨水处理系统位于雨水管入口，是水水质保障性措施。如前图分析，假设微塘进水 COD 浓度为 200mg/L，微塘 COD 去除率 40%，则微塘出水即湿地进水 COD 浓度为 120mg/L，湿地 COD 去除率 60%，则整个湿地系统出水 COD 浓度即入河 COD 浓度为 48mg/L。

综上所述，为达到污染物入河总量的控制目标，太湖新城一级开发雨水处理系统处理水量不得高于 827892kg/48mg/L=17247750m³，雨水规划后区域年径流量为 0.28 时，区域（雨水）年径流量为 31061216m³，因此仍需净蓄的雨水量不得少于 31061216m³-17247750m³=13813466m³，此部分水量可由末端调蓄设施进行消纳。

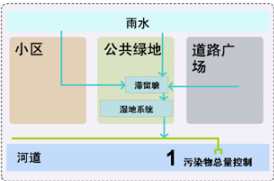


图 6-1 太湖新城污染物入河总量控制方案

7. 太湖新城一级开发生态雨水水质控制设施

7.1 调蓄塘

调蓄塘：调蓄塘为具有调蓄和净化雨水功能的设施（防冲塘），一般位于雨水管入口的末端，雨水处理设施前。

调蓄塘需进行防渗处理，主要由以下五个部分组成：进口设施、前置塘、处理塘、出口设施和护坡及堤岸。塘的长宽比一般不小于 3:1，其形状应随塘的扩张从进口到出口，呈不规则的形状，创造一个自然的景观。考虑到塘的景观效果、自身要求及调蓄功能，取塘平均水深 0.8m。

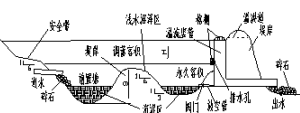


图 7-1 调蓄塘设计示意图

7.2 湿地处理系统

湿地处理系统：湿地处理系统是位于调蓄后的雨水净化处理系统。

湿地处理系统一般呈不规则形状，最小长宽比 1:1，主要由：进出口、微塘单元、湿地单元、调蓄区、泄洪道和堤岸及边坡组成，如图 1-6 所示。湿地一般设计为防冲型以便维持湿地植物所需要的水量。

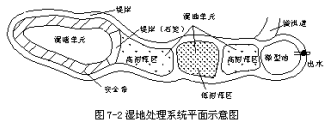


图 7-2 湿地处理系统平面示意图



图 7-3 湿地处理系统剖面图

太湖新城一级开发生态雨水处理设施如下表所示：

地块	湿地处理系统		合计 (m²)	适用地 块	占相应 地块内 绿地 面积 比例
	调蓄塘面 积 (m²)	湿地面 积 (m²)			
核心区 地块 I A	137	341	478	A-22-01	20%

6. Appendix 1

Supporting Letter from City of Wuxi

有关以“太湖新城生态规划”项目 参与国际城市与区域规划师学会 2011 年规划大奖申请证明信

致：国际城市与区域规划师学会

我方作为“太湖新城生态规划”项目（下称：本项目）的主办方，联同无锡市规划局新城分局，同意参与我方委托的规划咨询服务单位-奥雅纳工程咨询（上海）有限公司组织有关以本项目参与国际城市与区域规划师学会 2011 年规划大奖申请，并给予全力支持。

谨以此函盖上单位公章以兹证明。

Certified Letter for the Submission of ‘Wuxi Taihu New City Eco-city Planning Consultancy Services’ for the 2011 ISOCARP Awards for Excellence

To ISOCARP Award Organizing Committee,

We, Wuxi Taihu New City Construction Headquarters, are the key organizer of ‘Wuxi Taihu New City Eco-city Planning Consultancy Services’ project. Together with Wuxi City Planning Bureau New City Branch, we are pleased to give consent and support our appointed planning services consultant Arup International Consultants (Shanghai) Co. Ltd. to submit an award entry using the aforesaid project for the 2011 ISOCARP Awards for Excellence.

太湖新城规划指挥部办公室

Wuxi Taihu New City Construction Headquarters

2011 年 7 月 20 日

无锡市规划局新城分局

Wuxi City Planning Bureau New City Branch

2011 年 7 月 20 日