

Urban Agriculture Makes China's Cities More Livable

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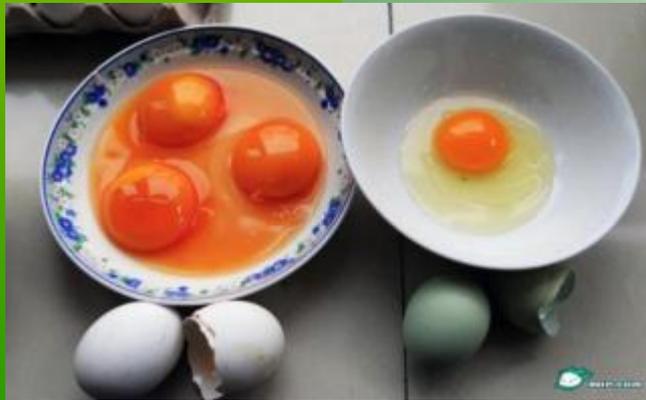
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Seminar: Dawn of Smart Cities

Woodrow Wilson Center, Washington DC. June 23, 2014

Issues & Challenges

- Urban society->New Urbanization Approach
- City vulnerability in facing climate changes
- Food Security: 4 dimensions
 - ☞ Hard-3A: Availability, Accessibility, Affordability
 - ☞ Soft-1Q: Quality



Option and Way out

- Urban Agriculture: One solution?
- Beyond food security:
 - Multifunctional UA->Resilient city
 - Integration urban & rural->Smart growth

UPA Practice in China

China's Miracle: Feeds more than 20% of world population by farming less than 12% of world farmland:

UPA products of 35 largest cities & its percent in China

	Veg.	Fruit	Meat	Eggs	Milk	Aquatic
35 cities	11968	2241	1525	630	1153	1033
% of Country	17.6	15.9	18.2	22.0	30.8	17.5
	Land	Pop.	Land			
% of Country	5.2	18.7	10.6	Unit: in 10,000 Tons		

ECOLOGICAL (Healthy City)

Multi-functional urban agriculture

- Urban Greening
- Recreational services
- Productive Use of Urban Wastes
- Reduction of Urban Ecological Footprint
- Improved Urban Micro-climate
- Management of Landscape and Biodiversity

SOCIAL (Inclusive City)

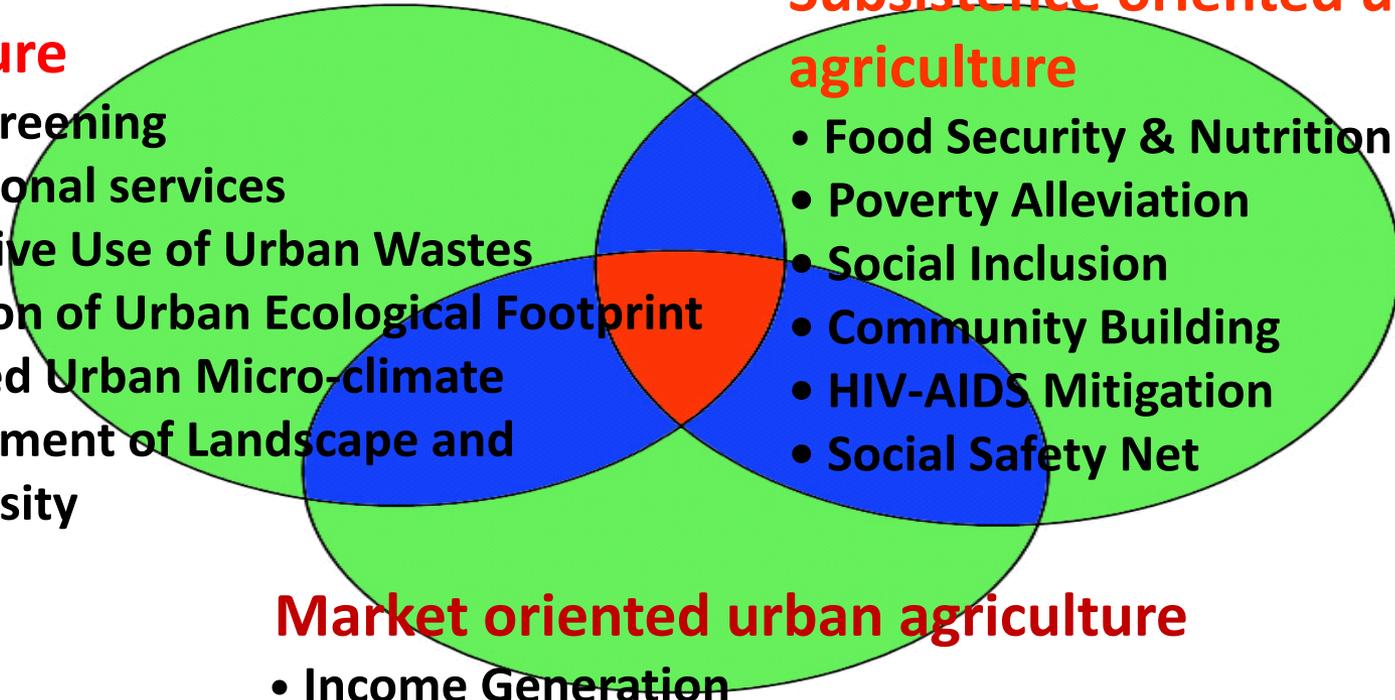
Subsistence oriented urban agriculture

- Food Security & Nutrition
- Poverty Alleviation
- Social Inclusion
- Community Building
- HIV-AIDS Mitigation
- Social Safety Net

Market oriented urban agriculture

- Income Generation
- Employment Generation
- Enterprise Development
- Market chain development

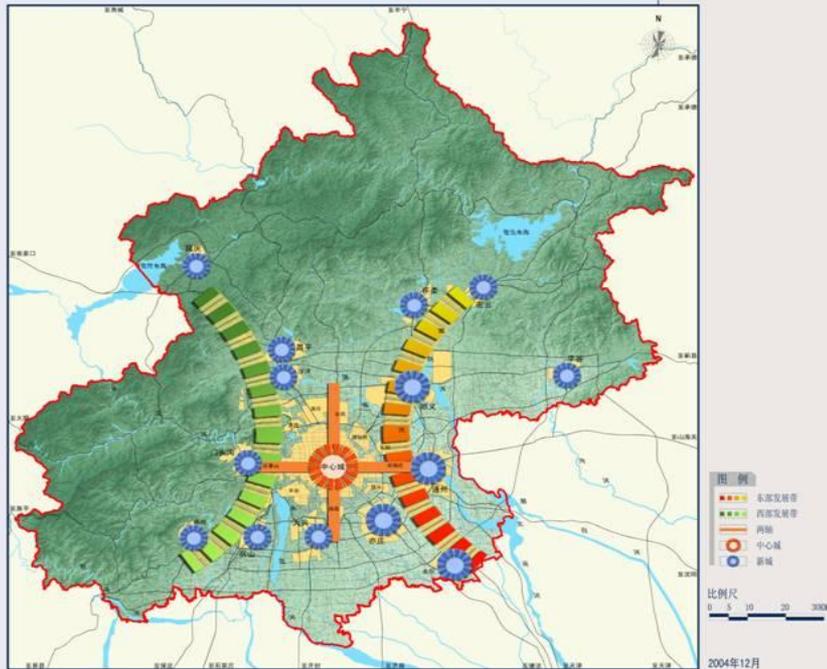
ECONOMIC (Productive City)



Beijing Set Example New Master Plan: World City

北京城市总体规划（2004年-2020年）

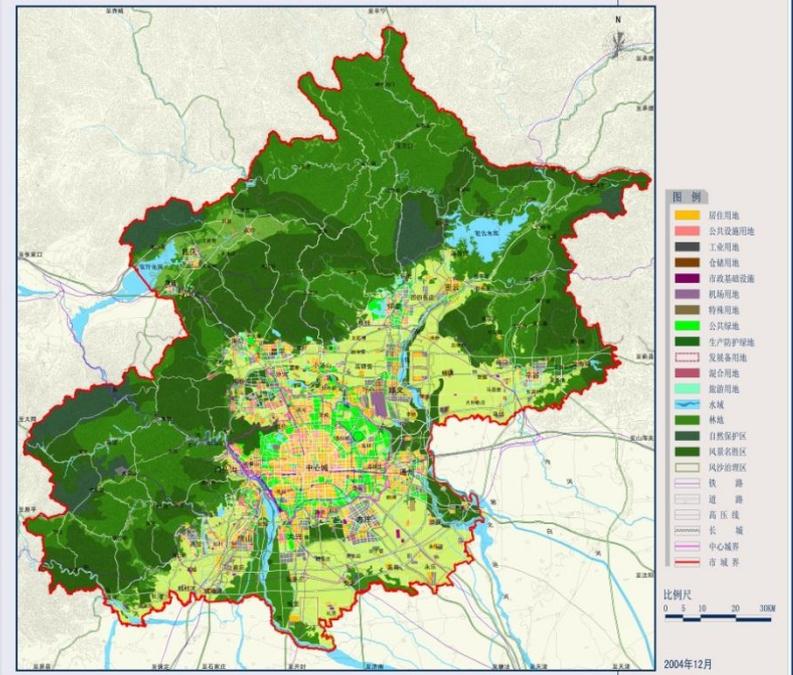
图03 城市空间结构规划图



Spatial structure of City Master Planning of Beijing (2004-2020)

北京城市总体规划（2004年-2020年）

图06 市域用地规划图



Land use planning of Beijing (2004-2020)

Beijing UA Plan & 221 project



Beijing UPA Spatial Plan (5 Zones):

- ◆ Inner urban core
- ◆ Inner suburban plain
- ◆ Outer suburban plain
- ◆ Mountainous
- ◆ Regional cooperation

- ◆ 2-Understanding Resources & Market demand;
- ◆ 2- Providing Technology & Finance support;
- ◆ 1-Building one integrated Information Platform

Beijing UA typologies



Household farming: dominated by migrant farmers and women



Hi-tech agriculture complexes: 375

Agro-tourism and recreational Parks/Gardens: over 1,940



Agro-products processing enterprises: over 940

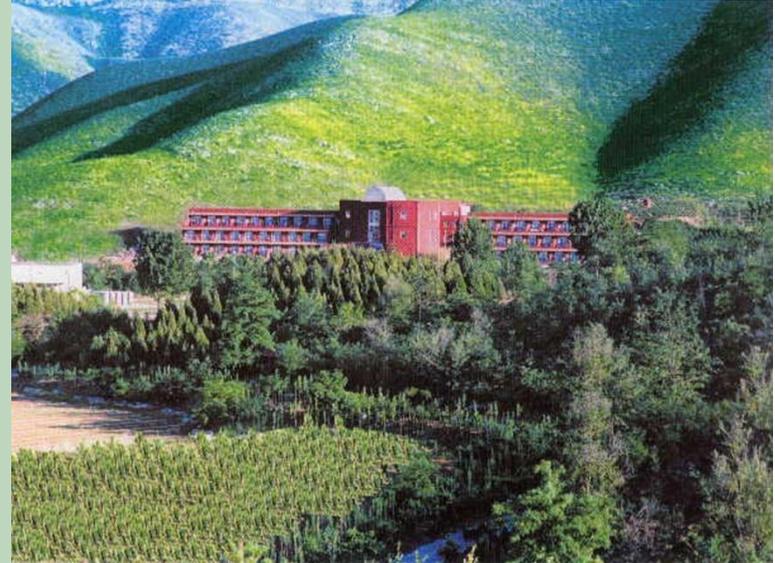


UA
Types

Sub-Type 1: sightseeing and tourism (Shi du)



**Sub-Type 2: leisure and vacation
(Eco-agriculture holiday resort at An li long)**



**Sub-Type 3: participation and experience
(Cherry-picking plantation at Si ji qing)**



**Sub-Type 4: exhibition and demonstration
(Agriculture demonstration garden at Jin xiu da di)**



UA Experiences in Beijing



New Movements: Comprehensive upgrading

- New Technologies adoption & applications
 - ◆ Rain Harvest for capturing seasonal concentrated rainfall both in greenhouse & rooftops
 - ◆ Dripping irrigation, etc. for effective water use
 - ◆ IOT for promoting agro-logistics & more
 - ◆ Greenhouse for off-seasonal vegetables & high production



Dripping & Spraying Irrigation

Different types of vertical farming



Restore rice farming in West Beijing via water saving irrigation & multifunctional use



New Movements: Comprehensive upgrading

- Green food production: green fertilizer, pesticide etc.
- Spatial restructuring
 - ◆ Man-planted plain forest (6,000 ha) to combat air pollution
 - ◆ Agro-parks assessment & improvement (1,300 various agro-parks)
- Organizational reform
 - ◆ cooperatives for catching scale of economy & more
- Institutional reform
 - ◆ Top-down integrating with bottom-up
 - ☞ E.g. “One River Ten Agro-parks” Commission in Sijiqing Town, Hardian District



一河十园

'One River Ten Agro-parks' in Sijiqing Town, Haidian District



Conclusion

How China manages the next wave of urbanization will be an important test for a country *whose food, water, and other natural resources are already strained to the breaking point.*

Urban agriculture addresses each of these problems and **deserves a prominent place** in urban planning.

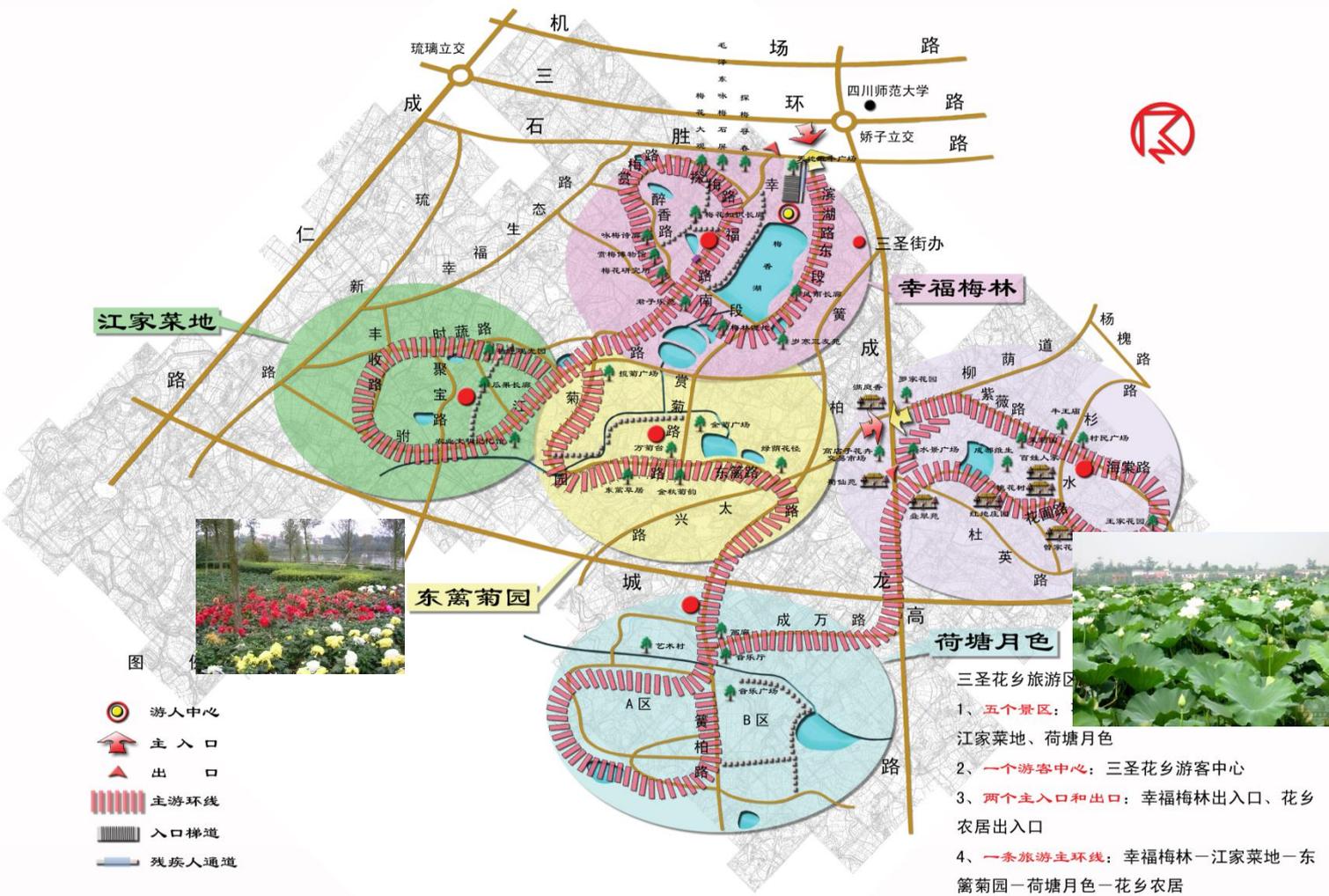
Up-scaling in China's Cities

- **Beijing is not lonely, UA has become a national strategy**
- **Each city has its own innovative approach & practices:**
 - ◆ Shanghai Sunqiao hi-tech agro-park and seeds production for Southern China
 - ◆ Chengdu leisure agro-tourism based on farmer's hours- e.g. 'Five Flowers'
 - ◆ Nanjing Agriculture Carnival (agro-products expo in downtown park)
 - ◆ Shaoxing top roof practices

Sunqiao Hi-tech Agro-development Zone in Shanghai-education for kids



Tour Line in Five Flowers agro-park in Chengdu



三圣花乡旅游区旅游发展总体规划

- 三圣花乡旅游区
- 1、五个景区：
江家菜地、荷塘月色
 - 2、一个游客中心：三圣花乡游客中心
 - 3、两个主入口和出口：幸福梅林出入口、花乡农居出入口
 - 4、一条旅游主环线：幸福梅林—江家菜地—东篱菊园—荷塘月色—花乡农居

Nanjing Agro-carnival bird view 2008



Rooftop Agro-practice in Shaoxing City of Zhejiang Province

Yield for rice per mu (1/15 ha) can reach to 619 kilo in 2008 based on test, higher than in the paddy rice farmland.



The technology received the Golden Price in Shanghai World Expo in 2010.





Thanks for your attention!