Urban Agriculture Makes China’s Cities More Livable

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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

<table>
<thead>
<tr>
<th></th>
<th>Veg.</th>
<th>Fruit</th>
<th>Meat</th>
<th>Eggs</th>
<th>Milk</th>
<th>Aquatic</th>
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<tbody>
<tr>
<td><strong>35 cities</strong></td>
<td>11968</td>
<td>2241</td>
<td>1525</td>
<td>630</td>
<td>1153</td>
<td>1033</td>
</tr>
<tr>
<td><strong>% of Country</strong></td>
<td>17.6</td>
<td>15.9</td>
<td>18.2</td>
<td>22.0</td>
<td>30.8</td>
<td>17.5</td>
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<table>
<thead>
<tr>
<th></th>
<th>Land</th>
<th>Pop.</th>
<th>Land</th>
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<tbody>
<tr>
<td><strong>% of Country</strong></td>
<td>5.2</td>
<td>18.7</td>
<td>10.6</td>
</tr>
</tbody>
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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

ECONOMIC
(Productive City)

Market oriented urban agriculture
- Income Generation
- Employment Generation
- Enterprise Development
- Market chain development
Beijing Set Example
New Master Plan: World City

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

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

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

Hi-tech agriculture complexes: 375

Agro-products processing enterprises: over 940
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
‘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 horses- 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
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!