Track 1

Limitless cities and urban futures

Multi-scale Spatial System
Experiences of Shanghai Mega-city Spatial Planning

William Zuo
Tongji Planning and Design Institute

Adriano Bisello, PhD
Eurac Research (Italy)

Jingbai Wang, PhD
Tongji Planning and Design Institute
Shanghai is one of the most important megacities in China for the last decade. Despite of emerging megacity challenges, it is prepared to be one of the most sustainable megacities for the next decade.

Spatial Planning is the key

Identify the effectiveness of Multi-scale Spatial Planning System in terms of overpopulation
Megacity Regions are facing Challenges:

1) Poverty
2) Pollution
3) Overpopulation
4) Energy Consumption
5) Food and Water Shortage
6) ...

Source: World Urbanization Prospects The 2018 Revision
## Overpopulation

<table>
<thead>
<tr>
<th>Year</th>
<th>Registered Population</th>
<th>Resident Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952</td>
<td>5.72 million</td>
<td>N/A</td>
</tr>
<tr>
<td>1978</td>
<td>10.9 million</td>
<td>11.0 million</td>
</tr>
<tr>
<td>1992</td>
<td>12.9 million</td>
<td>13.6 million</td>
</tr>
<tr>
<td>2012</td>
<td>23.8 million</td>
<td>14.3 million</td>
</tr>
<tr>
<td>2017</td>
<td>24.2 million</td>
<td>14.6 million</td>
</tr>
</tbody>
</table>

Source: Shanghai Statistical Yearbook
Shanghai Master Plan 2017-2035

De-centralization Spatial Planning System

Step 1: Strictly population management policies and regulations

Step 2: Improving public transportation between Shanghai and its new towns

Step 3: Affordable housing, Reasonable cost of living and education provided by surrounding cities

Step 4: Improved infrastructures and services for cities within the Yangtze River City Cluster

Step 5: Population Redistribution
Shanghai Master Plan 2017-2035

Mission & Vision

Mission:
Leading the urban development transformation based on Planning Integration / "Integration of various plans into one Master Plan”

Vision:
Pursuing the vision of an innovative, humanistic and sustainable development as a high-density megacity and national hub.

Urban Planning

Spatial Planning

Land Use Planning

Innovative: Supporting the growth of innovations and technological advances

Humanistic: Providing a pleasant and beautiful environment for both its residents and visitors

Sustainable: Satisfying the needs for present development while safeguarding its resources and environment for future generations.
## Shanghai Master Plan 2017-2035

**Bottom-line Control**

<table>
<thead>
<tr>
<th>Category</th>
<th>2020</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Population (million)</td>
<td>≤25</td>
<td>Approx. 25</td>
</tr>
<tr>
<td>Total development land (km²)</td>
<td>3185</td>
<td>3200</td>
</tr>
<tr>
<td>Arable land inventory (hectares)</td>
<td>188000</td>
<td>120000</td>
</tr>
<tr>
<td>Permanent basic cropland protection (hectares)</td>
<td>166000</td>
<td>100000</td>
</tr>
<tr>
<td>Development land area per unit of GDP (hectares/100 million yuan)</td>
<td>≤ 9.1</td>
<td>≤ 4.2</td>
</tr>
</tbody>
</table>

**5 key objectives**

Secure bottom line of Shanghai Master Plan
WHY SPATIAL PLANNING?

Spatial Planning establishes a system to classify and control various spaces within the city.

Three main types of spaces define priorities and specific land uses

- Ecological Spaces: e.g., forest, critical wetland
- Agricultural Spaces: e.g., permanent farm land
- Urban Spaces: e.g., public open spaces, historical sites

Specific land uses plans and implementation-oriented planning system avoid inefficient land uses
Shanghai Municipal Government has introduced a multi-scale spatial system to manage the overall development of the Yangtze River Delta as a whole.

*Shanghai Master Plan 2017-2035*

A networked spatial system:

1. Centre Activities Zones
2. Sub Center/Centre of New Cities
3. Local Center/New Towns
4. Villages
5. Yangtze River Delta Region
Spatial Planning System

4 city-wide spatial layout: Main City-New City-Local Centre-Villages

- **Main City**: Core bearer of global urban functions such as highly integrated finance, commerce, business, culture, leisure, tourism services and linkages between global network and the entire municipality.

- **New City**: Includes public activity center and public open spaces around the Main City. Five new cities located next to the boundary of Shanghai’s urban footprint.

- **Local Centre**: Represents public activities centers or new towns which provide public services to the local community.

- **Villages**: Facilitating integrated urban-rural developments among the five districts create interconnections between Shanghai and its town clusters.

Source: Shanghai Master Plan 2017-2035
1 regional spatial layout: Yangtze River Delta Megacity Region, a polycentric mega-city region (PMR). Shanghai and twenty-five well developed cities are included in this zone. Three of them are capital of nearby provinces known as Hefei, Nanjing and Hangzhou.

It is approved by state council as the most important city cluster in China and part of “The Belt and Road Initiative”

- Coastal Development Belt
- Hefei Metropolitan Area
- Riverside Development Belt
- Shanghai Hangzhou Jinhua Development Belt
- Hangzhou-Ningbo Development Belt

Source: Shanghai Master Plan 2017-2035
Strengthening Integrated Transportation

Regional transportation system will be improved through a three-level rail transit network comprising intercity lines, metro lines and local lines.

Source: Shanghai Master Plan 2017-2035
Planning Implementation Process:

1) Define development goals and timing sequences
2) Support the master plan by Unit plan and Detailed plan
3) Review development strategies and regulations based on development goals and public opinions.
Unit plan for new town and policy specific zone. These plans will be prepared by districts in the new town to support for implementation of key projects.

The detailed plan for village plans and regulatory plans as statutory basis for guiding project construction.
Conclusions

It is critical to manage the scale of megacities and reduce negative effects of overpopulation by

- Establishing a spatial planning system
- Providing affordable housing and livable regional centers
- Introducing a coordinated development plan combined with transit-oriented development
- Implementing a series of detailed planning implementation processes
Thanks for all your attention