URBAN DEVELOPMENT AND SPATIAL PLANNING OF GREATER JAKARTA

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Forum Komunikasi Pembangunan – 18 March 2013
Objectives

- To provide a comprehensive overview of past and present spatial planning and urban development in the Jakarta Metropolitan Region (JMR)
- To provide summary of spatial planning and urban development activities in the JMR
- To follow the continuing decentralization of population out of DKI into the surrounding suburbs
- To give examples of how urban planning is not followed by its implementation
Methods

- JMR planning: overview of 1965-1990 and 1990-2012 plans → discussion of spatial structure
- Population density analysis by subdistrict, year 2000 and 2010, with maps and gradient
- Employment density analysis, only year 2000 available at subdistrict level
- Urban development 2000-2010, with maps

- Rapidly changing allocation of residences and business, following expected development patterns, 1980s to 1990s
  - High population density: lower density in the core, densification of periphery and urban sprawl in the fringe
  - Urban development hindered by poor land market institutions (weakly defined property rights, lack of active land use planning, low infrastructure investment)

- Manufacturing industrialization on Botabek with low land price and wages
  - Multi-centered development: loss of monocentricity in Jakarta, increased concentration outside Jakarta
  - Hurting small scale industry
  - Spatial mismatch: low income workers’ residences separated from workplaces
## Planning practices in Jakarta

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>- Unilateral effort by certain group of people who don’t gain a lot of supports from major stakeholders</td>
<td>- Continuing inadequacy of governance and planning arrangements</td>
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<td>- Resembles practices that happened during Batavia era</td>
<td>- Advisory non-binding metropolitan planning</td>
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<td></td>
<td>- Increases risks to economic and environmental sustainability</td>
</tr>
</tbody>
</table>
JMR Planning in the Beginning (1965 to 1985): Original, Visionary, Problem-oriented, Not executed

- Master Plan of Jakarta 1965-1985:
  - “planning” region (Jakarta and regions with direct impact) vs “administrative” region (larger than DKI Jakarta, smaller than Jabodetabek) → discussion only
  - On transportation: new rail-based rapid transit system, including subway, to be built by 1980 → never been implemented
  - On proposed land use and density
  - On flood management
Proposed Land Use and Population Density in 1985

Industrial areas on the East and western corridors, residential areas at the center toward the West

High density at center and Northeast, decrease gradually toward the West

Industrial zone on the East (Cakung-Cilincing) is accompanied by high population density (400 pph) in Tj. Priok and Koja, supposedly to house the workers.
Flood zone and flood management plan

West: Tebet, Palmerah, Grogol, Petamburan, Tambora, Penjaringan

East: Kemayoran, Senen, Pulo Gadung, Tj. Priok, Koja

Waduk: Pluit, Melati, Setiabudi, Tebet, Pulomas, Jelambar, Parung Bodoh

Canal: East-West and North-South
JMR Planning in the Later Period (1985 to 1995): Discontinuation, Private sector-driven

- **Spatial General Plan of Jakarta 1985-2005:**
  - East-West development axis, not to the South
  - On transportation: no rail-based transit system, dedicated double-decker bus lane
  - On flood: Depok Dam to anticipate 100-year flood, Cengkareng West Flood Canal, East Flood Canal

- **Presidential Decrees 1989 – 1995:**
  - Management of industrial estates to East (Bekasi) and West (Tangerang)
  - Development of Teluk Naga, Tangerang
  - Reclamation of North Coast of Jakarta (Pantura)

- **Spatial Plan of Jakarta 1995-2010 (1997):**
  - Accommodating reclamation of Pantura
  - “Mass Public Transit System”, no specific modes nor dates
# Urban Development: Population Dispersion

Growing and expanding to all directions

<table>
<thead>
<tr>
<th>City/District</th>
<th>Size (ha)</th>
<th>Population (in thousand)</th>
<th>Density (pop/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKI Jakarta</td>
<td>65,704</td>
<td>8,222.5</td>
<td>8,347.1</td>
</tr>
<tr>
<td>Bogor</td>
<td>11,850</td>
<td>271.3</td>
<td>750.8</td>
</tr>
<tr>
<td>Depok</td>
<td>20,029</td>
<td>-</td>
<td>1,143.4</td>
</tr>
<tr>
<td>Tangerang</td>
<td>16,455</td>
<td>-</td>
<td>1,325.8</td>
</tr>
<tr>
<td>Bekasi</td>
<td>21,049</td>
<td>-</td>
<td>1,663.8</td>
</tr>
<tr>
<td>Kab. Bogor</td>
<td>266,383</td>
<td>3,736.2</td>
<td>3,508.8</td>
</tr>
<tr>
<td>Kab. Tangerang</td>
<td>111,039</td>
<td>2,765.0</td>
<td>2,781.4</td>
</tr>
<tr>
<td>Kab. Bekasi</td>
<td>114,779</td>
<td>2,104.4</td>
<td>1,668.5</td>
</tr>
<tr>
<td>Jabodetabek</td>
<td>627,288</td>
<td>17.099.4</td>
<td>21,191.7</td>
</tr>
</tbody>
</table>
## JMR Core Area Population

Growing and densifying, but decreasing proportion of Jakarta Pusat and Jakarta Timur

<table>
<thead>
<tr>
<th>City/District</th>
<th>Size (ha)</th>
<th>Population (000)</th>
<th>Population (%)</th>
<th>Density (pop/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakarta Pusat</td>
<td>4,813</td>
<td>875.5</td>
<td>898.9</td>
<td>10.49</td>
</tr>
<tr>
<td>Jakarta Barat</td>
<td>12,919</td>
<td>1,895.9</td>
<td>2,278.8</td>
<td>22.71</td>
</tr>
<tr>
<td>Jakarta Utara</td>
<td>14,624</td>
<td>1,414.7</td>
<td>1,645.3</td>
<td>16.95</td>
</tr>
<tr>
<td>Jakarta Timur</td>
<td>18,775</td>
<td>2,340.8</td>
<td>2,687.0</td>
<td>28.04</td>
</tr>
<tr>
<td>Jakarta Selatan</td>
<td>14,573</td>
<td>1,784.4</td>
<td>2,057.1</td>
<td>21.38</td>
</tr>
<tr>
<td>Kep. Seribu</td>
<td>870</td>
<td>17.2</td>
<td>22.7</td>
<td>0.21</td>
</tr>
<tr>
<td>DKI Jakarta</td>
<td>65,704</td>
<td>8,347.1</td>
<td>9,588.2</td>
<td></td>
</tr>
</tbody>
</table>
Subdistrict Analysis: Depopulation (Core)

- Depopulation 1990-2000:
  - Jakarta Pusat: Tanah Abang, Menteng, Senen, Cempaka Putih, Kemayoran, Sawah Besar, and Gambir
  - Jakarta Barat: Palmerah, Grogol Petamburan, Tambora, and Taman Sari
  - Jakarta Timur: Jatinegara, Pulo Gadung and Matraman
  - Jakarta Selatan: Kebayoran Lama, Kebayoran Baru, Pancoran, Tebet, and Setia Budi
  - Depopulation of Jakarta Pusat and Selatan, but not Jakarta Barat and Timur

- Depopulation 2000-2010: Menteng, Sawah Besar and Gambir in Jakarta Pusat but increase in total
Subdistrict Analysis: Population increase (Core)

- Major contributors in 2000:
  - Jakarta Barat: Kalideres, Cengkareng, Kebon Jeruk, and Kembangan
  - Jakarta Timur: Cakung, Cipayung and Caracas

- Major contributors in 2010:
  - Jakarta Pusat: Kemayoran and Tanah Abang;
  - Jakarta Barat: Cengkareng, Kalideres, Kembangan, and Kebon Jeruk;
  - Jakarta Utara: Cilincing and Penjaringan;
  - Jakarta Timur: Cipayung and Cakung; and
  - Jakarta Selatan: Jagakarsa
## Subdistrict Analysis: Change in Density Level (Core)

<table>
<thead>
<tr>
<th>Density level</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;400 pph</td>
<td>Johar Baru and Tambora</td>
<td>Johar Baru and Tambora</td>
<td>Johar Baru and Tambora</td>
</tr>
<tr>
<td>300 – 400 pph</td>
<td>Matraman, Kemayoran, Senen</td>
<td>-</td>
<td>Matraman</td>
</tr>
<tr>
<td>200 – 300 pph</td>
<td>Tanah Abang, Sawah Besar, Palmerah, Grogol Petamburan, Jatingeara, Tebet</td>
<td>Senen, Kemayoran, Palmerah, Jatinegara, Matraman, Tebet</td>
<td>Senen, Kemayoran, Palmerah, Grogol Petamburan, Koja, Kramat Jati, Jatinegara, Tebet</td>
</tr>
</tbody>
</table>
Subdistrict Analysis: Densification (Periphery)

<table>
<thead>
<tr>
<th>Density level</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 – 200 pph</td>
<td>-</td>
<td>Bogor Tengah; Ciledug, Batuceper; Bekasi Timur, Bekasi Selatan, Bekasi Utara</td>
<td>Bogor Tengah, Tanah Sereal; Pancoran Mas, Sukmajaya, Beji; Ciledug, Larangan, Karang Tengah, Cipondoh, Karawaci, Cibodas, Periuk, and Benda; Pondok Gede, Bekasi Timur, Rawa Lumbu, Bekasi Selatan, Bekasi Barat, Medan Satria, and Bekasi Utara; Pamulang, Ciputat, Ciputat Timur, and Pondok Aren</td>
</tr>
</tbody>
</table>

In 2000: 46 out of 135 subdistricts (34%) had density >100 pph. In 2010: 69 out of 179 subdistricts (38%) ➔ from 23, 20 are outside Jakarta (Bogor, Depok, Tangerang, Bekasi, and Kab. Tangerang; 3 are inside (Kembangan, Jagakarsa and Cilandak)
Population Density Gradient 2000 and 2010: from slope to flattening, with distance from Monas

Figure 4a JMR Population Density Gradient in 2000

Figure 4b JMR Population Density Gradient in 2010
Subdistrict analysis: Employment Density in 2000

Similar to population density

Manufacture toward West

Trade concentration at the core

Services in most part of core
Built-up Area Growth 1983-2005

- Built-up areas in Jabodetabek in 2005 doubled the size in 1992
- 28% of land is built-up
- Largest conversion in Kab. Bogor, Tangerang, Bekasi
- 22 new town projects in land between 500 and 6,000 ha in 1996; 8 industrial estates in land between 100 and 540 ha in 1994, in Kab. Bogor, Tangerang and Bekasi
Jakarta metropolitan area growth between 2000-2010; (Schneider, A. et al., forthcoming)

<table>
<thead>
<tr>
<th>Area</th>
<th>Map area extent (km²)</th>
<th>Urban land c 2000 (km²)</th>
<th>Urban land c 2010 (km²)</th>
<th>Average annual rate of change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakarta administrative area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jakarta Pusat</td>
<td>52.5</td>
<td>52.5</td>
<td>52.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Jakarta Utara</td>
<td>151.4</td>
<td>111.5</td>
<td>120.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Jakarta Timur</td>
<td>188.9</td>
<td>147.0</td>
<td>157.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Jakarta Selatan</td>
<td>153.2</td>
<td>140.3</td>
<td>144.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Jakarta Barat</td>
<td>123.0</td>
<td>109.4</td>
<td>118.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Outside Jakarta administrative area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kota Bekasi</td>
<td>235.7</td>
<td>121.9</td>
<td>151.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Bekasi</td>
<td>1,005.7</td>
<td>91.2</td>
<td>147.9</td>
<td>5.0</td>
</tr>
<tr>
<td>Karawang</td>
<td>1,894.8</td>
<td>29.5</td>
<td>56.7</td>
<td>6.8</td>
</tr>
<tr>
<td>Bogor</td>
<td>1,681.2</td>
<td>43.1</td>
<td>79.5</td>
<td>6.3</td>
</tr>
<tr>
<td>Depok</td>
<td>163.8</td>
<td>47.9</td>
<td>65.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Tangerang</td>
<td>1,001.8</td>
<td>105.3</td>
<td>214.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Kota Tangerang</td>
<td>167.3</td>
<td>105.3</td>
<td>134.1</td>
<td>2.4</td>
</tr>
</tbody>
</table>
From 1105 km$^2$ in 2000 to 1444 km$^2$ in 2010

Urban expansion in the capital territory of Jakarta, Indonesia 2000 - 2010
Recent Planning – RTRW Jabodetabekpunjur

- 9 radial PKN centered in DKI Jakarta: Bekasi, Tambun, Setu, Cileungsi, Cimanggis, Depok, Cinere, Serpong, Tangerang, plus Bogor: what activities and investments?

- On public transportation: rail-based mass transit system and mass rapid transit system integrated with prioritized bus, monorail, and other modes: what routes and stations

- On flood: Limo Dam (Pd. Cabe ➔ Pesanggrahan), Genteng Dam (South Bogor ➔ Cisadane), Narogong Dam (Jonggol ➔ Cikarang): what about for Ciliwung?
Spatial Pattern Plan of Jabodetabekpunjur (Perpres 54/2008)
Recent Planning – RTRW DKI Jakarta 2030

- For 12.5 million population: 9.2% Central, 18.6% North, 24.1% East, 22.6% South, 25.3% West, and 0.2% Kep. Seribu

- Reclamation of Jakarta North Coast (Pantura)

- On public transportation:
  - Mass Rapid Transit (Lb. Bulus-Dukuh Atas-Kota) & East-West line
  - Light Rail Transit, Inner ring rail, commuter rail, airport rail
  - 15 busway corridors, elevated BRT (Setia Budi-Tn Abang)

- On flood: Cengkareng Drain II, connecting West Flood Canal to East Flood Canal, sea wall at minimum -8 m under sea level
Spatial Pattern Plan of DKI Jakarta (Perda 1/2012)
Flood zone and flood management: leaving out population in the South and the poor?

Flood zone and flooded area on Jan 18, 2013

Existing and proposed polders
Sea wall, 57 dams, 17 ponds
Summary on Urban Development

- Depopulation remains in Menteng, Sawah Besar, Gambir
- Gentrification in other subdistricts, especially Matraman, Palmerah, Grogol Petamburan and Kebayoran Lama
- Densely populated subdistricts remain the same but other subdistricts have been more populated, including those at the center of Bogor, Tangerang, Bekasi, Depok, as well as in Kab. Tangerang
- Other PKNs are not as developed as other subdistricts
- Employment density follows population, but manufacturing employment concentration is to the West, while trade and services at the center
- Rapid urban development on Botabek has extended towards Karawang
Conclusions

- Planning practice not supported by stakeholders:
  - Implementation: financial, technical, political, etc
  - Discontinuation: new leaders have different ideas
  - Coordination: central vs regional government

- Disconnect between plan and reality?
  - Plan couldn’t keep up with organic development: urban development going to different direction not as planned, driven by private interests
  - Plan doesn’t anticipate natural hazard and disasters: urban development on disaster prone areas