Managing Urban Expansion in Mongolia
Best Practices in Scenario-Based Urban Planning
- Approaches, Findings and Dissemination -

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The World Bank
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Expansion of Ulaanbaatar City

- Population Growth: 600,000 (1989) to 1.03 million (2007)
- Spatial Expansion: from 130 km² to 4,700 km²
“Ger” Areas in Ulaanbaatar City

- 60% of total population of Ulaanbaatar City
- Over 90% of administrative space of the city

“Ger”: Traditional nomadic felt tents in Mongolia
Urban Service Issues of Ger Areas

- No central heating
  - 85% of residents use wood/coal-burning stoves
  - High share of energy cost in disposable income of households
  - Source of air pollution and respiratory disease in long winter

- Poor sanitation
  - dug-hole toilets without lining
  - infrequent and ineffective garbage collection
  - high incidents of hepatitis

- Poor access to public transport
  - long walk to main roads
  - insufficient public transport – bus and mini-bus

- Limited water supply services
  - residents purchase drinking water at kiosks - 10-30 minute walk
  - residents are relatively satisfied - one kiosk per 900 residents
Policy Issues of Ger Area Development

- Guiding principles
  - 2009 “Ulaanbaatar Urban Development Mater Plan 2030”
  - Control spatial expansion & promote high-density development

- Limited success on policy implementation
  - Inconsistent implementation
    - Land ownership entitlement, environment protection
  - Proper supporting mechanisms not in place
    - land valuation, zoning regulations, housing finance
  - Lack of understanding of the public and policy makers
    - Susceptible to ad-hoc behaviors
    - Premium on short-term private gain over long-term value creation in public goods
## Purpose and Approaches

- **Purpose:** Help policy makers and citizens improve understanding of implications of choice of policies and practices

- **By clarifying costs and benefits of three development paths**

1. **City Center Ger** - Conversion of ger areas into apartment complexes (proxy – Naran ger area)

2. **Mid-tier Ger** - Gradual improvement of urban services for existing ger area (proxy – Bayankhoshuu ger area)

3. **Fringe Ger** - Further expansion of ger area at fringe of city (proxy – Sharhad ger area)

- **Analysis on seven sectors**
  - Housing & land, water, transport, heating, electricity, solid waste, and health and education

- **Not comprehensive sector review report**
Three Proxy Ger Areas

Bayankhoshuu ger - 8th Kholoo (sub-district)  
“Mid-Tier Ger”

Naran ger - 11th Kholoo (sub-district)  
“City Center Ger”

Sharhad ger - 9th Kholoo (sub-district)  
“Fringe Ger”
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Housing

Ger residents are generally satisfied with their housing conditions: except the fringe ger area

<table>
<thead>
<tr>
<th>Area</th>
<th>Very dissatisfied</th>
<th>Moderately dissatisfied</th>
<th>Moderately satisfied</th>
<th>Very satisfied</th>
<th>Unit: % of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apartment area</td>
<td>5.5</td>
<td>6.8</td>
<td>32.1</td>
<td>53.2</td>
<td></td>
</tr>
<tr>
<td>City center ger</td>
<td>1.2</td>
<td>5.3</td>
<td>20.2</td>
<td>63.2</td>
<td></td>
</tr>
<tr>
<td>Mid-tier ger</td>
<td>4.4</td>
<td>8.3</td>
<td>37.3</td>
<td>46.8</td>
<td></td>
</tr>
<tr>
<td>Fringe ger</td>
<td>4.4</td>
<td>8.3</td>
<td>37.3</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>
Housing

Ger residents prefer small low-rise, multi-family apartment

<table>
<thead>
<tr>
<th>Location</th>
<th>Low-rise Apartments</th>
<th>Newly built detached houses</th>
<th>High-rise apartments</th>
<th>Others (ger, dormitory, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Center Ger</td>
<td>69.3</td>
<td>15.8</td>
<td>0</td>
<td>14.9</td>
</tr>
<tr>
<td>Mid-tier Ger</td>
<td>79.3</td>
<td>13.8</td>
<td>6.9</td>
<td>14.9</td>
</tr>
<tr>
<td>Fringe Ger</td>
<td>47.4</td>
<td>15.5</td>
<td>37.1</td>
<td>15.8</td>
</tr>
</tbody>
</table>

Unit: % frequency
## Housing

- Apartments are not affordable to most of *ger* residents

<table>
<thead>
<tr>
<th></th>
<th>Current Housing Price, million Tg (USD)</th>
<th>Average Monthly Saving, Tg (USD)</th>
<th>Total Assets, million Tg (USD)</th>
<th>Average Monthly Income, Tg (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Apartment area</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City Center Ger</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartment</td>
<td>43.11 (30,781)</td>
<td>29,400 (21)</td>
<td>38.93 (27,796)</td>
<td>446,600 (319)</td>
</tr>
<tr>
<td>Dethatched house</td>
<td>61.23 (43,718)</td>
<td>204,400 (146)</td>
<td>80.62 (57,563)</td>
<td>488,600 (349)</td>
</tr>
<tr>
<td>Ger</td>
<td>28.97 (20,685)</td>
<td>93,800 (67)</td>
<td>53.57 (38,249)</td>
<td>376,000 (268)</td>
</tr>
<tr>
<td></td>
<td>1.91 (1,364)</td>
<td>92,400 (66)</td>
<td>22.69 (16,201)</td>
<td>257,600 (184)</td>
</tr>
<tr>
<td><strong>Mid-tier Ger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detached house</td>
<td>17.59 (12,559)</td>
<td>26,600 (19)</td>
<td>24.83 (17,729)</td>
<td>225,400 (161)</td>
</tr>
<tr>
<td>Ger</td>
<td>-</td>
<td>4,200 (3)</td>
<td>8.74 (6,240)</td>
<td>190,400 (136)</td>
</tr>
<tr>
<td><strong>Fringe Ger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detached house</td>
<td>18.69 (13,345)</td>
<td>16,800 (12)</td>
<td>21.37 (15,258)</td>
<td>225,400 (161)</td>
</tr>
<tr>
<td>Ger</td>
<td>1 (714)</td>
<td>-</td>
<td>6.96 (4,969)</td>
<td>232,400 (166)</td>
</tr>
</tbody>
</table>
Water Supply

- Mid-tier Ger
  - No private connection of water service is available in UB, but some pilots are underway under World Bank-financed project
  - Insulation against freeze will be a challenge
  - If no wastewater network serves the area, alternative solution such as mini-treatment plants will have to be pursued.
  - **Costs: Tg 5.6-16.1 mil ($4,000-11,500)/ household, excluding in-house materials like sinks and faucets**
    - Affordability and willingness-to-pay would be major issues
    - Cost-sharing and public contribution can be considered.
Water Supply

Composition of initial capital costs for household connection

![Cost Per House (million Tg)](chart)
Roads in Ger Areas

- Paved road is rarely available in ger areas, especially in mid-tier and fringe ger areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Earthen Roads</th>
<th>Paved Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Center Ger</td>
<td>73%</td>
<td>27%</td>
</tr>
<tr>
<td>Mid-tier Ger</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>Fringe Ger</td>
<td>97%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Leading to many problems

- Longer commuting time to work and schools
- Traffic safety hazards
- Drainage problems
- Source of dusts
- Lack of street light contributing to higher crime rates
## Roads - Mid-tier Ger

### Capital cost for road upgrading

<table>
<thead>
<tr>
<th>Option</th>
<th>Capital Cost</th>
<th>Cost per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TG (Million)</td>
<td>USD</td>
</tr>
<tr>
<td>Upgrade and extend gully road</td>
<td>324.94</td>
<td>232,000</td>
</tr>
</tbody>
</table>

### Maintenance cost per year

<table>
<thead>
<tr>
<th>Option</th>
<th>TG/ year</th>
<th>USD/ year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>1.2 mil</td>
<td>840</td>
</tr>
<tr>
<td>Street lights</td>
<td>1.26 mil</td>
<td>925</td>
</tr>
</tbody>
</table>
Solid Waste

Ger residents cite solid waste management as one of the worst public services

• Collection: solely by vehicles, unreliable and infrequent
• Low operation efficiency
  o 100 households a day by one vehicle in summer, less in winter
  o While waste quantity varies significantly:
    ❖ 1 - 0.9 kg per household in winter
    ❖ 0.2 – 0.3 kg per household in summer
Solid Waste

- Option for Service Improvement
  - City Center Ger: If City Center Ger is turned into apartment area, existing equipments are sufficient to manage garbage collection and transportation
Solid Waste

- Option for Service Improvement – Most Desired Option
  - Mid-tier Ger and Fringe Ger
    - Option 1: Collection Service by Sanitation Workers
## Solid Waste

### Initial investment and operation cost

<table>
<thead>
<tr>
<th></th>
<th>Option 1 Sanitary workers/handcarts</th>
<th>Option 2 Small transfer stations</th>
<th>Option 3 Improved status quo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial investment</td>
<td>Operation /year</td>
<td>Initial investment</td>
</tr>
<tr>
<td><strong>Mid-tier Ger</strong></td>
<td>Mil Tg</td>
<td>13.2</td>
<td>16.6</td>
</tr>
<tr>
<td></td>
<td>USD</td>
<td>9,425</td>
<td>11,852</td>
</tr>
<tr>
<td><strong>Fringe Ger</strong></td>
<td>Mil Tg</td>
<td>19.8</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>USD</td>
<td>14,137</td>
<td>25,489</td>
</tr>
</tbody>
</table>

Lowest Initial investment cost and reasonable operating cost
Synthesis – Implications for Ger areas

- City Center Ger: Conversion to apartments will take time

- Mid-tire Ger: Retrofitting urban service is exorbitantly expensive

- Fringe Ger: Room for relocating fringe ger residents
Synthesis – Planning and Development

- **Priority Areas for Service Improvement**
  - Access roads within ger areas
  - Better heating systems to improve efficiency and reduce air pollution
  - Solid waste management and community infrastructure
  - Affordable collective housing in mid-tier gers

- **Other Planning Issues**
  - Utility capacity expansion and reforms
  - Further research in related sectors – banking, social integration of new immigrants
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Dissemination

- “Town Meetings” with ger area residents
  - Fourteen town meetings were organized
  - Reached out to some 1,000 ger residents
  - 1,500 copies of report in Mongolian language distributed
  - Interactive Question and Answer sessions
  - Questionnaires to measure participants’ understanding*

- Policy makers, donors, NGOs, academia
  - High-level meetings with Government
  - Meetings with donors, NGOs, academia, professional associations

- Strong Interest of Media

*: 568 responses from first ten town meetings, among which 489 were valid for statistical analysis
Town Meetings
Meetings Appreciated by Ger Residents

- Over 90% of participants are satisfied with meetings, report and presentation
- Over 80% of participants intend to use information in report and presentation in planning discussion for improvement of their community

Was meeting useful?

<table>
<thead>
<tr>
<th>The Levels of satisfaction</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not useful</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less useful</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Useful</td>
<td>48%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very useful</td>
<td>46%</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

How much information do you intend to use?

<table>
<thead>
<tr>
<th>Intention to use the information</th>
<th>0%</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
<th>30%</th>
<th>35%</th>
<th>40%</th>
<th>45%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>never use</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hardly</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Somehow</td>
<td>14%</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Well enough</td>
<td>45%</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Very much</td>
<td>39%</td>
<td></td>
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</tr>
</tbody>
</table>
Cost and benefit are well understood

- Over 80% of participants said they understood cost and benefit implications for each sector
  - Sample Question: Do you now understand it would cost TG 5.1-16.1 million per household if piped water supply is to be connected to a house? ....

**Levels of understanding**

**:** Option 1, 2 and 3 refer to various solid waste collection methods
Strong Interest of Media

- **Newspapers**
  - Coverage - 10 local daily newspapers and English weekly newspapers
  - Examples of article heading
    - “For converting ger area into apartment will take about 15 – 20 years”
    - “The World Bank reminds “felt district” has no economic efficiency”
    - “To connect ger area into the central system will cost about 5.6 million to 16.6 million Tg for each household”
    - “Is there opportunity to develop ger area without apartment complex?”
    - “UB little more than one big ger area: ger area development challenges city”

- **Broadcasting Media**
  - Mongolia National TV, UB TV, TV9, TV5, Mongol TV, Channel 25, C1 TV, Eagle TV, SBN, NTV, and BTV
Closing

- Participation and understanding by community residents is key for improving policies and practices of urban development.

- Cost benefit analysis is one of tools to facilitate community participation in urban development planning.

- Political visibility matters for urban development of low-income areas.