TOWARDS A GREENER AND SMARTER TRANSPORT NETWORK:
Leveraging Seoul's Experiences with the World Bank

Eunhee Roh
Team Leader
Seoul Urban Solutions Agency
Seoul’s Policy Sharing Initiative

- The urban problems experienced by Seoul and the process of coping with them will be benchmarked.
- Experience in efficiently addressing urban issues with constrained resources, encompassing policy formulation, technology application, governance systems, financing and public–private partnership
- Increased demand for knowledge exchange on urban management (104 projects in 40+ countries, as of Oct. 2023)
Seoul Urban Solutions Agency

A dedicated institution for international development cooperation of Seoul

Partner Cities • Governments • Public Institutions

International Organizations

Private Sector

Seoul Metropolitan Government

Seoul Urban Solutions Agency (SUSA)

ROK Govt Organizations

Affiliated SMG Organizations

The Seoul Institute
Seoul Human Resource Development Center
University of Seoul

SMART URBAN SOLUTIONS

TRANSPORTATION
METRO RAPID TRANSIT
WATER MANAGEMENT
SEWAGE TREATMENT
URBAN PLANNING AND HOUSING
ENVIRONMENT
WASTE MANAGEMENT
E-GOVERNMENT
CITIZEN SAFETY
DISASTER PREVENTION AND MANAGEMENT
SUSA as an agent in delivering the integrated solution

CITY’S URBAN DEVELOPMENT NEEDS

PUBLIC SECTOR CAPABILITIES

- POLICY PACKAGE
- HARDWARE SOLUTIONS
- SOFTWARE SOLUTIONS
- EXPERTISE TRANSFER

BUSINESS SOLUTIONS

INTEGRATED SOLUTIONS

- STUDY VISITS
- KNOWLEDGE EXCHANGE
- CAPACITY BUILDING

SERVICES WE PROVIDE

- POLICY ADVISORY / TECHNICAL ASSISTANCE
- PROJECT IDENTIFICATION, PREPARATION, RESOURCE MOBILIZATION & IMPLEMENTATION
- O&M SUPPORT
## SEOUL: Transit-Oriented City

### Public transportations and roads in Seoul

<table>
<thead>
<tr>
<th>Mode</th>
<th>Length</th>
<th>Number</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subway</td>
<td>331.6km</td>
<td>43,500</td>
<td>22.43% of land area for roads</td>
</tr>
<tr>
<td>Buses</td>
<td>7,430</td>
<td>201</td>
<td>9.5% of roads for bike</td>
</tr>
<tr>
<td>Taxis</td>
<td>72,065</td>
<td>72,065</td>
<td>7,430</td>
</tr>
<tr>
<td>Roads</td>
<td></td>
<td>43,500</td>
<td>201</td>
</tr>
<tr>
<td>Bike paths</td>
<td>8,328km</td>
<td>8,328km</td>
<td>201</td>
</tr>
</tbody>
</table>

- Seamless Integration: Transfer Center connects various transportations in one place

### Public Transit Mode Share: 61.4%

- Daily Transit Passengers: 8.5 million
2004 REFORM: INTEGRATING PUBLIC TRANSIT

BUS SERVICE REFORM
- Quasi-Public Management
- Exclusive Median Bus Lanes
- Restructuring Bus Routes

INTEGRATED FARE SYSTEM
- Distance-based transit fare
- Free inter-modal transfer
- Discount for T-Money card

TRANSFER CENTERS
- Integrates different modes of public transport for easy and speedy transfer

IMPACT
- 4.6% ON-TIME ARRIVAL
- 9.4% BUS RIDERSHIP
- 32% SERVICE SATISFACTION
- 680,000 AVERAGE DAILY PASSENGER
TOPIS  Comprehensive Urban Transportation Management Platform

**Integrated Management**: Enables real-time management of Seoul’s transport network operation as a whole.

- **Open Data**: TOPIS information is made 100% open to public, enhancing trust & facilitating innovations.

- **Cost-Effective**: Intelligent and automated modular systems enhances cost/time effectiveness in transport operations and systems maintenance.
DATA-DRIVEN POLICY PLANNING

USING BIG DATA ANALYSIS FOR BUS ROUTE PLANNING & INTERVAL PLANNING

- 85 million traffic card data and 26 million transport operations data generated on a daily basis are leveraged to enable accurate and real-time analysis for transportation planning, such as route rationalization, interval planning, forecasting, and simulation.

- In addition to public data, partnership with a private network operator grants access to billions of anonymized call logs to better understand how citizens move.

IMPACT

**Demand-Responsive**: Big data analysis enables user-centric policy design that is responsive to the real and dynamically changing needs of citizens, as well as providing an effective and economic alternative to traditional methodologies. I.E. Seoul’s 9 Night Owl Bus routes, having served over 10 million cumulative trips, were designed through big data analysis.
## MULTI-DIMENSIONAL INITIATIVES FOR SUSTAINABLE ROAD TRAFFIC

### ELECTRIC VEHICLES
- 1,039 EV buses, FECV 27, 5,565 EV Taxis
- Various subsidies & incentives for EV
- Installing smart EV charging stations

### SHARED MOBILITY
- 2012 'Sharing City, Seoul' declaration
- City-run car-sharing service
- Public share bikes, 'Ttareungyi'

### LESS DRIVING, LESS EMISSION
- Low Emission Zone & Green Transportation Area
- Weekly No-Driving Day & Driving Mileage
- 'Road diet' for more pedestrian-friendly space

### REAL REDUCTION
- 3 million tons of CO2 and 792,000 TOE - 16% reduction in transport energy consumption (2008-2017)

### IMPACT
- **Real Reduction**
- **Catalyst for Change**
- **Intelligent Planning**

**Catalyst for Change**: SMG’s initiatives in EV and shared mobility have led to a rise in private services in sustainable mobility.

**Intelligent Planning**: Data-based design optimizes infrastructure installation (charging stations, shared bike docks, etc.)
Safe, Inclusive and Sustainable Transportation System

**Better Air Quality (AQ) & Ventilation**
- **SMART AQ Management System**
  - 840 air quality sensors at 277 stations
  - Optimal ventilation based on big data analysis

**Green Transport Zone**
- Access control for Class-5 emission vehicles

**Green Instant Payment System**
- Automatic payment using IoT and automatic license plate recognition: parking, tunnel, congestion charge

**Barrier-Free Transportation**
- Install elevators in all subway stations by 2022
- Replace all intra-city buses with low floor vehicles by 2025

**Low-Floor Bus Reservation Service**
- Available for passengers with special needs to board at the bus stop of their choice.

**Climate Card**
- Unlimited transit for $50 a month

**Connected Public Transport**
- V2V, V2I, V2P, V2X ...
- Traffic Safety Service
- 5G Connected Public Transport
- Safe, Inclusive and Sustainable Transportation System
- SMART AQ Management System
- Low-Floor Bus Reservation Service
- Climate Card
- Green Instant Payment System
- 840 air quality sensors at 277 stations
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Innovative Solutions for Urban Mobility in Almaty and Tashkent (2021-23)

Project to support Almaty and Tashkent by bringing international experience in smart solutions to tackle urban mobility issues mainly congestion and transport emissions.

CHALLENGES & ISSUES

- **Traffic Congestion**
  - Increasing car ownership
  - Old car issues

- **Air Pollution**
  - Air quality decreasing
  - Traffic congestion’s influence

- **Disasters (Flooding, Heavy Snow, Pandemic)**
  - Flooding caused by heavy rains, melting Snow
  - Annual heavy snow issues
  - Abnormal climate situations
  - Response to COVID-19

T/A, CONSULTING

1) Enhancing Public Transport Resilience

2) Smart City Solutions (Mobility Management)

3) Capacity Building

Potential Investment Projects

- Advanced Traffic Management System
- Integrated Data Platform
- Mobility Hub
- Low Emission Zone, etc.
SMART SOLUTIONS FOR ALMATY AND TASHKENT

ALMATY

Enhancing Public Transport Resilience

- Public Transport: Increasing Car ownership, Lack of Public Transport Coverage, ride comport
- Adoption of Green transport: Lack of e-vehicle charging infrastructure
- Congestion: Need for improved traffic signal and road marking
- Illegal parking along the roads
- Disruptions caused by heavy rainfall and flooding

Smart City Solutions

- Traffic Management Zone
- Smart bus priority measure
- Mobility centre
- Incident detection system
- Smart transit hub

“The Eastern Gateway Pilot Project”

Case Studies: Yeouido, Seoul

Functional Outline

Smart Transit Hub Action Plan

• Public Transport: Increasing Car ownership, Lack of Public Transport Coverage, ride comport

TASHKENT

Logical Progression of Pilot Project Development

Services to improve public transport efficiency

“Improvement of BRT connection and customer service”

Bus Priority Signals, BIS, Bus lane violation enforcement, Illegal parking enforcement, Smart Bus Stop, etc.

* Source: The (Draft) Report by the Consulting Team (Seoul Institute consortium and ITP)
# World Bank – Seoul Collaboration

## Past Collaborations in Transport Sector

- **World Bank – Seoul**
- Big Data Solutions for Development Conference
- World Bank-SEOUL KNOWLEDGE EXCHANGE WORKSHOP AND FEASIBILITY STUDY MEETING ON TRANSPORT POLICY AND BIG DATA SOLUTIONS
- Smart City and Traffic Management for Kiev, Ukraine

## Proposed Collaboration Going Forward

<table>
<thead>
<tr>
<th>Knowledge Sharing</th>
<th>Project Identification</th>
<th>Project Preparation</th>
<th>Project Implementation</th>
<th>O&amp;M Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>- City-to-city based knowledge exchange &amp; collaboration</td>
<td>- Facilitating coordination between WBG, Korean Gov’t, client cities for resource mobilization</td>
<td>- Delivery of targeted TA &amp; policy advisory</td>
<td>- Troubleshooting and Just-in-Time TA</td>
<td>- Continued advisory support</td>
</tr>
<tr>
<td>- Joint knowledge events</td>
<td>- Project concept origination (based on C2C cooperation)</td>
<td>- Masterplanning, FS, design support</td>
<td>- Policy &amp; technical expert dispatch</td>
<td>- Facilitate continued knowledge exchange with city networks and SMG</td>
</tr>
<tr>
<td>- Case study documentation</td>
<td>- Pre F/S</td>
<td>- Capacity building &amp; institutional strengthening</td>
<td>- Continued capacity building support</td>
<td></td>
</tr>
</tbody>
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Informing climate-smart and safe traffic management and sustainable transport interventions in Lima, Peru.