Key Success Factors of Smart City Development

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Mizuho Financial Group

Presentation by Mizuho Corporate Bank, Ltd.
Agenda

1. Mizuho’s Initiatives in Asian Smart City Projects

2. Key Success Factors of Successful Smart City Projects

3. Why Smart City Projects in KSA?
## Mizuho’s Initiatives for Smart City Projects in Asia/Pacific

<table>
<thead>
<tr>
<th>Countries</th>
<th>Summary</th>
<th>Consortium</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>India (Chennai)</td>
<td>Development of Industrial Park in Chennai</td>
<td>Ascendas, JGC, Mizuho</td>
<td>MOU is signed, FS budget is allocated by METI</td>
</tr>
<tr>
<td>China (Tianjin)</td>
<td>Energy Saving Businesses in TEDA (Development of Eco-City on Greenfield Site)</td>
<td>TEDA, Toshiba, Mizuho, Itochu, Nihon Sekkei</td>
<td>MOU is signed, FS budget is allocated by METI</td>
</tr>
<tr>
<td>US (Hawaii)</td>
<td>Field Demonstration of a Remote Island Type Smart Grid in Hawaii</td>
<td>Hitachi, Mizuho, Cyber Defense Institute</td>
<td>Commissioned by NEDO</td>
</tr>
<tr>
<td>China (Dalian)</td>
<td>Development of Eco-City in Ganjingzi</td>
<td>Dalian City, Local state-run Companies, Electric Manufacturers, Mizuho</td>
<td></td>
</tr>
<tr>
<td>China (Guangzhou)</td>
<td>Development of Eco-City in Nansha</td>
<td>Guangzhou Nansha Development Zone, Mizuho, Electric Manufacturers, Real Estate Developer</td>
<td></td>
</tr>
</tbody>
</table>
In Asia historically largest infrastructure demand (8 trillion USD) is expected to emerge over the 10 years, especially for energy and roads.

<table>
<thead>
<tr>
<th>Category</th>
<th>New Demand</th>
<th>Renewal Demand</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (electricity)</td>
<td>3,176</td>
<td>912</td>
<td>4,088</td>
</tr>
<tr>
<td>Telecom</td>
<td>325</td>
<td>730</td>
<td>1,055</td>
</tr>
<tr>
<td>Transportation</td>
<td>1,761</td>
<td>704</td>
<td>2,466</td>
</tr>
<tr>
<td>Airports</td>
<td>6</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Ports</td>
<td>50</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>Railroads</td>
<td>2</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>Roads</td>
<td>1,702</td>
<td>638</td>
<td>2,340</td>
</tr>
<tr>
<td>Water &amp; Sewer</td>
<td>155</td>
<td>225</td>
<td>381</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,419</strong></td>
<td><strong>2,572</strong></td>
<td><strong>7,991</strong></td>
</tr>
</tbody>
</table>

(Source) Compiled by MHCB Industry Research Division from ADB “Infrastructure for a Seamless Asia”
1. Mizuho’s Initiatives in Asian Smart City Projects

Ascendas & JGC & Mizuho Case: Chennai Industrial Park Project in India

Money.

Ascendas to build township in India

It ties up with Japanese group to help local companies break into India

By Kwan Wee Kin

TOKYO: Business ties provided Ascendas with an entry point to expand its operations in India. The Singapore-listed property firm signed a memorandum of understanding with JGC Corp, the Japanese contractor, to develop a township in Chennai, India, that will help local companies break into the growing Indian market.

"Our vision is to create a world class integrated township that will be particularly attractive for companies to set up and operate in, with little hassle," JGC Corp vice president Shinichi Takagi said.

The township, which will be developed by the Japanese company but owned by Ascendas, will include a business district, a residential area, and a school. It is expected to be completed by 2013.

"This project will provide local companies with a platform to enter the Indian market," Ascendas managing director and CEO Toh Chee Hsiang said.

The project is part of a larger initiative by the Singapore-based company to develop industrial parks in India.

(Source) public information Compiled by MHCB Industry Research Division
1. Mizuho’s Initiatives in Asian Smart City Projects

**Toshiba & Mizuho Case: Smart Grid/Smart City Project in China: Tianjin**

- **TEDA West**
  - Green Field
- **TEDA East**
  - MSD Area Low Carbon Energy Project
  - Industrial Park
- **Tianjin Eco City**
- **TEDA South**
  - Petrochemical Complex
- **Yujiapu**
  - Financial Centre
- **Tianjin New Bin hai Area**
- **TEDA East**
  - Green Field
- **TEDA West**
  - MSD Area Low Carbon Energy Project
  - Industrial Park
- **City Center In Tianjin**

※TEDA: Tianjin Economic-Technological Development Area
  - State-sponsored development area

**News Article 10/26/2010**

‘MOU between Mizuho and Tianjin-City’

(Source) Google map & public information Compiled by MHCB Industry Research Division
Mizuho Also Supports Post-Earthquake Reconstruction Plan in Tohoku

1. Mizuho’s Initiatives in Asian Smart City Projects

【Public Transportation System】
Railroads, City Round Buses and EV Sharing System

【Integrated Clusters for Medical & Engineering】
Medical Facilities for Foreigners
University Advanced Medical Centers

【Powerful Economic Incentives】
Special Economic Zone for Post-Earthquake Reconstruction and Drastic Deregulation

R&D Centers
Electricity Supply
Wind Power
Airport Access

Railroads
City Round Buses

【Focus on Environmental Concerns】
Leverage Advanced Eco-Friendly Technologies such as Smart Grid and Renewable Energy

【Relocation of the Residential Area】
Mid-to-High-Rise Housing for the Elderly and Disaster Protection Systems

【Business, Commercial and Public Facilities】
Manufacturing Centers
Commercial Facilities
Green Areas

(Source) MHCB Industry Research Division
2. Key Success Factors of Smart City Projects

Position of Smart City Projects

- Infrastructure Exports
- Integrated System Exports

Technology - Equipment - Operation - EPC - Systems

- Nuclear Power
- T&D
- ICT
- Transportation System
- Renewable Energy
- Water
- Waste
- High-Speed Railway Network

Smart Grid

Smart City PJ

- Basic Infrastructure (Roads, Ports, Airports)
- Real Estate Development
- Investment by Foreign Enterprises

(Source) MHCB Industry Research Division
2. Key Success Factors of Smart City Projects

Five Key Words of Smart City Projects

1. **G to G**
2. **Co-Creation / Win-Win**
3. **Industrial Zone? ↔ Knowledge/Eco City?**
4. **Localization**
5. **Finance**
Government to Government Framework + Banding Function

Consortium Model for Smart City Projects

- Both local and Japanese companies achieve sustainable growth through joint operations
- Early realization of the environmental city projects and creation of a model city

Developers

Japan’s Government

ICT

Global Talent Development Platform

Smart City P/J

Coordinator

Grid
Water
Recycle

Japanese Companies
Emerging Country Companies
Third Country Companies

Government and private entities work closely to promote the projects

The coordinator supports Japanese companies involving Japan’s government and the government agencies

Financing

Logistics

Local Government

- Both local and Japanese companies achieve sustainable growth through joint operations
- Early realization of the environmental city projects and creation of a model city

(Source) MHCB Industry Research Division
2. Key Success Factors of Smart City Projects

Co-Creation and Sharing of Return/Risk

Co-Creation and Sharing “Sustainable Growth Model” with Emerging Countries through Smart City Projects

All Japan

- Top Sales between Political Elites
- Domestic Consortiums
- Full Supports by Policy-Based Finance

Japan Initiative

- Global Consortiums
  Japanese Companies Lead Developed / Emerging Companies

Co-Creation

- Global Consortiums
  “Co-Creation” Japan + Developed + Emerging
  “Sharing” Sharing Risks as well as Returns

(Source) MHCB Industry Research Division
What kind of ‘Smart City’ is really needed?

<table>
<thead>
<tr>
<th>Country</th>
<th>Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>1960’s</td>
<td>Keihin Industrial Zone</td>
</tr>
<tr>
<td></td>
<td>1970’s</td>
<td>“Tama”/ “Makuhari” Integrated Industrial Township</td>
</tr>
<tr>
<td></td>
<td>1980’s</td>
<td>“Tsukuba” Academic City Knowledge City</td>
</tr>
<tr>
<td>USA</td>
<td>1990’s</td>
<td>“Minatomirai” Knowledge City</td>
</tr>
</tbody>
</table>

2. Key Success Factors of Smart City Projects

- Basic Infrastructure
- High Performance / High-Priced
- Localization
- Eco-Friendly / Smart

3. Industrial Zone ⇔ Knowledge/Eco City

(Source) MHCB Industry Research Division
Best Mix of Quality and Price

Ⅰ. Life Cycle Management

Ⅱ. Value Chain Targeting

Ⅲ. Strategic Alliance with Emerging Country Companies

Emerging Countries
- Low Price
- Moderate Spec
- Sales Channel

Japan/Developed Countries
- Environment-related Technology
- High Spec
- Operational Track Record

Hyflux Growth Model
Ⅰ. Life Cycle Management

Ⅲ. Alliance by Value Chain

GEGrowth Model
Ⅱ. Value Chain Targeting
Financing Study is Necessary from the Very Early Stage

Because smart city project risk is complicated, it is necessary to study and share financial issues from the very early stages of the discussion.

Concept of Smart City Project Promotion
- Formation of Global Consortium
- Participation of Several Nationalities, Companies and Various Industrial Sectors
- Support from the Financial Perspective

Creation of a Framework
- Local Government/Authorities
- Local Electric/General Contractor/Systems Companies
- Japan’s Government/Co-creation
- Study project F/S

Complicated Risks of the Project

Project Creation

Financing Arrangement at the Project Execution Stage can be Hardly Achieved

Financial Institutions support formulating “Financing Structure”
- Providing structure for sharing and mitigating risks
- Arranging risk takers (equity investors/funds, others)
- Creating sustainable and bankable project feasibility

(13) Source: MHCB Industry Research Division
Co-Creation and Sharing in Financing Structure

Realize Co-creation/Sharing in Finance

- Many projects are long-term, high risk, and not commercially feasible. They require sharing of risks and responsibilities between the host country and Japan as well as between public and private sectors.

**Smart City Project**

- Credit Risk
- Capital Outflow Risk
- Interest Rate and Forex Risk
- Cash Flow Risk
- Country Risk
- System, Approval Risk
- Project Risk
- Market Risk

**Host Country**
- Local Banks
- Mezzanine
- Equity
- GOB/GOE and others
- Government / Sovereign Funds
- Countries’ ECA
- JBIC/NEXI

**Japan**
- Regional Banks
- Postal Capital
- Banks
- Funds
- Public/Private Equity
- GOB/GOE and others
- INCJ

**Finance**
- Realize Co-creation/Sharing in Finance

**Source**
MHCB Industry Research Division
1. Co-Creation with KSA economy

We would like to contribute to economic growth of Kingdom of Saudi Arabia through establishing win-win relationship between KSA, Japan and the third countries.

2. Creating New Business Frontier for Japanese Corporations

We would like to find out the pathway to new business field for Japanese corporations by supporting them reach out from machinery sales business model to solution business such as EPC, and platform business which positions further upper.

3. Promotion of Industrial Structure Change in KSA and Japan

We’re trying to encourage structure change of both KSA & Japanese economy through establishing the business model of ‘selling quality products from Japan to KSA at moderate price’.
Mizuho is Expected to Work as Gateway to Smart City Projects

3. Why Smart City Project in KSA?

Japanese Companies

- Infrastructure Exports
- Direct Investment

Global Network

- Local Government
- Japan’s Government

Finance

Industry Knowledge

Customers Base

Third Country Companies

Consortium

Support

Co-Creation

Local companies

(Source) MHCB Industry Research Division
3. Why Smart City Project in KSA?

Structure of the Drivers of Smart City Projects in KSA

<table>
<thead>
<tr>
<th>Japan</th>
<th>Saudi Arabia</th>
</tr>
</thead>
</table>

**Industrial Cooperation Task Force**
- New Growth Strategy 2010
- National Industrial Clusters Development Program

**Catalyst/Organizer**
- JCCME
- MODON/RC

**Developer/Coordinator**
- Ex. Private / Public Companies or Financial Institutions
- Ex. Private / Public Companies or Financial Institutions

**Master SPV**
- R&D Education
- Logistics Public Transportation
- ICT
- Agricultural City
- Alternative Energy
- Environmental Control Water Treatment
- Industrial Clusters

**Discussion Purpose Only**

- G to G Framework
- Rentier State with Natural Resources
- Inter-Enterprise Alliance
- Complex City Plans
- Industrial City Plans
- Knowledge City Plans

(Source) MHCB Industry Research Division
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