UNDERGRADUATE SEMINAR

INFRASTRUCTURE PROJECT IN INDONESIA

Gunawan Prayitno
D2-Prof. Kobayashi Lab.
Self Introduction

• 1995 – 1999 Undergraduate Student, Department of Agricultural Economic, Bogor Institute of Agriculture, Bogor-Indonesia

• 2002- 2004 Master Course Student, Department of Urban and Regional Planning, Bandung Institute of Technology, Indonesia

• 2007- Now Lecturer of Brawijaya University-Malang, Indonesia

• 2012-Now Doctoral Course Student, Department of Urban Management, Graduate School of Engineering, Kyoto University, Japan
INDONESIA

Capital city : Jakarta

Inhabitants (June 2009)
Total : 230,472,833
Density : 134/km²
The largest archipelagic country in the world:
- covers around 1,919,440 square kilometers,
- consists of five main islands,
- about 17,508 islands,
- with a population of over 234 million people.
## Indonesia at a glance

### POVERTY and SOCIAL

<table>
<thead>
<tr>
<th>Year</th>
<th>Indonesia</th>
<th>East Asia &amp; Pacific</th>
<th>Lower-middle-income</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Population (mid-year (millions))</td>
<td>242.3</td>
<td>1,974</td>
</tr>
<tr>
<td></td>
<td>GNI per capita (Atlas method, US$)</td>
<td>2,940</td>
<td>4,248</td>
</tr>
<tr>
<td></td>
<td>GNI (Atlas method, US$ billions)</td>
<td>712.7</td>
<td>8,387</td>
</tr>
</tbody>
</table>

### Average annual growth, 2005-11

<table>
<thead>
<tr>
<th>Category</th>
<th>Indonesia</th>
<th>East Asia &amp; Pacific</th>
<th>Lower-middle-income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (%)</td>
<td>1.1</td>
<td>0.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Labor force (%)</td>
<td>1.5</td>
<td>1.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

### Most recent estimate (latest year available, 2005-11)

<table>
<thead>
<tr>
<th>Category</th>
<th>Indonesia</th>
<th>East Asia &amp; Pacific</th>
<th>Lower-middle-income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty (% of population below national poverty line)</td>
<td>13</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Urban population (% of total population)</td>
<td>51</td>
<td>49</td>
<td>39</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td>69</td>
<td>72</td>
<td>66</td>
</tr>
<tr>
<td>Infant mortality (per 1,000 live births)</td>
<td>25</td>
<td>17</td>
<td>46</td>
</tr>
<tr>
<td>Child malnutrition (% of children under 5)</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Access to an improved water source (% of population)</td>
<td>82</td>
<td>90</td>
<td>87</td>
</tr>
<tr>
<td>Literacy (% of population age 15+)</td>
<td>93</td>
<td>94</td>
<td>71</td>
</tr>
<tr>
<td>Gross primary enrollment (% of school-age population)</td>
<td>118</td>
<td>111</td>
<td>104</td>
</tr>
<tr>
<td>Male</td>
<td>117</td>
<td>110</td>
<td>106</td>
</tr>
<tr>
<td>Female</td>
<td>119</td>
<td>112</td>
<td>102</td>
</tr>
</tbody>
</table>

### KEY ECONOMIC RATIOS and LONG-TERM TRENDS

<table>
<thead>
<tr>
<th>Year</th>
<th>1991</th>
<th>2001</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (US$ billions)</td>
<td>128.2</td>
<td>160.4</td>
<td>708.0</td>
<td>846.8</td>
</tr>
<tr>
<td>Gross capital formation/GDP</td>
<td>31.6</td>
<td>22.5</td>
<td>32.6</td>
<td>32.8</td>
</tr>
<tr>
<td>Exports of goods and services/GDP</td>
<td>25.8</td>
<td>39.0</td>
<td>24.6</td>
<td>26.3</td>
</tr>
<tr>
<td>Gross domestic savings/GDP</td>
<td>33.2</td>
<td>30.8</td>
<td>34.3</td>
<td>34.2</td>
</tr>
<tr>
<td>Gross national savings/GDP</td>
<td>20.1</td>
<td>21.1</td>
<td>32.1</td>
<td>31.8</td>
</tr>
<tr>
<td>Current account balance/GDP</td>
<td>-3.3</td>
<td>4.3</td>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>Interest payments/GDP</td>
<td>3.6</td>
<td>3.7</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Total debt/GDP</td>
<td>62.0</td>
<td>82.5</td>
<td>27.6</td>
<td>25.2</td>
</tr>
<tr>
<td>Total debt service/exports</td>
<td>34.4</td>
<td>23.9</td>
<td>16.6</td>
<td>13.9</td>
</tr>
<tr>
<td>Present value of debt/GDP</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>21.3</td>
</tr>
<tr>
<td>Present value of debt/exports</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>80.4</td>
</tr>
</tbody>
</table>

### Economic ratios* (average annual growth)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3.2</td>
<td>5.6</td>
<td>6.2</td>
<td>6.5</td>
<td>6.4</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>1.8</td>
<td>4.4</td>
<td>5.1</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Exports of goods and services</td>
<td>4.3</td>
<td>8.2</td>
<td>15.3</td>
<td>13.6</td>
<td>7.6</td>
</tr>
</tbody>
</table>
Indonesia Ethnic Group
MINERAL POTENCY

![Map of Mineral Potency](image)

<table>
<thead>
<tr>
<th>NO</th>
<th>COMMODITY</th>
<th>RESOURCE (MILLION TON ORE)</th>
<th>RESERVE (MILLION TON ORE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Copper</td>
<td>4.925</td>
<td>4.161</td>
</tr>
<tr>
<td>2</td>
<td>Bauxite</td>
<td>551</td>
<td>180</td>
</tr>
<tr>
<td>3</td>
<td>Nickel</td>
<td>2.633</td>
<td>577</td>
</tr>
<tr>
<td>4</td>
<td>Iron Sand</td>
<td>1.649</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Iron Lateritic</td>
<td>1.462</td>
<td>106</td>
</tr>
<tr>
<td>6</td>
<td>Iron Primary</td>
<td>563</td>
<td>30</td>
</tr>
<tr>
<td>7</td>
<td>Iron Sediment</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Mangan</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Gold Alluvial</td>
<td>1.455</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>Gold Primary</td>
<td>5.386</td>
<td>4.231</td>
</tr>
<tr>
<td>11</td>
<td>Silver</td>
<td>3.406</td>
<td>4.104</td>
</tr>
<tr>
<td>12</td>
<td>Zinc</td>
<td>577</td>
<td>7</td>
</tr>
<tr>
<td>13</td>
<td>Tin</td>
<td>354</td>
<td>0.7</td>
</tr>
<tr>
<td>14</td>
<td>Lead</td>
<td>363</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Ferro and Associates: Fe, Nickel, Cobalt, Chromit, Mangan, Molibdenum, Titanium

Precious Metal: Gold, Silver, Platinum

Base Metal: Zinc, Copper, Tin, Lead, Mercury

Light and Rare metal: Bauxite, Monasit

(Source: Geological Agency, 2011)

Indonesia is a renowned market for resource extraction, seen as even more attractive than for instance, South Africa, Australia and Canada in terms of mineral prospectivity, as per Pricewaterhouse Coopers. The country is home to a biodiversity that is only second to Brazil. Rich with natural reserves, Indonesia has become a commodities powerhouse and a leading commodities exporter in a number of resources.
COAL POTENCY

TOTAL RESOURCES
161.34 Billion Tons

TOTAL RESERVES
28.17 Billion Tons

TOURISM POTENCY
Agriculture:
• Staple Foods (like rice, corn and etc)
• Vegetables
• Tropical Fruits

Forest product:
• Biodiversity
• Wood
Problem:

• Heterogeneity of ethnic
• Corruption
• Transparencies
• Unemployment
• Poverty alleviation
• What about Japan?
Indonesia’s Competitiveness

Indonesia’s Global Competitiveness Index (GCI)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 – 2010</td>
<td>54</td>
</tr>
<tr>
<td>2010 – 2011</td>
<td>44</td>
</tr>
<tr>
<td>2011 – 2012</td>
<td>46</td>
</tr>
<tr>
<td>2012 - 2013</td>
<td>50</td>
</tr>
</tbody>
</table>

The most problematic factors for doing business:

- Inefficient government bureaucracy: 15.4
- Corruption: 14.2
- Inadequate supply of infrastructure: 8.7
- Poor work ethic in national labor force: 7.2
- Restrictive labor regulations: 6.8
- Inflation: 5.6
- Access to financing: 5.4
- Policy instability: 5.4
- Foreign currency regulations: 5.2
- Tax regulations: 5.1
- Government instability/coups: 5.0
- Crime and theft: 4.3
- Inadequately educated workforce: 4.1
- Tax rates: 3.3
- Insufficient capacity to innovate: 2.3
- Poor public health: 2.0

Source: The Global Competitiveness Report 2012-2013 (World Economic Forums)
Government has limited budget compared to the huge requirement of Indonesia’s infrastructure development. Active private participation is absolutely necessary.

805 infrastructure projects are planned to be developed by the end of 2014

Total Infrastructure Investment of US$ 175 billion
Roads and railways

- Road transport is deteriorating;
- The growth of road network has not kept pace with the growth of the number of motor vehicles

- The railways sector has also deteriorated in recent years
- Many of the rails, bridges, signal and telecommunication system have exceeded their technical age limits
Airports, sea-ports, and inland waterways
Electricity

Indonesia needs to construct 5,000MW worth of new power plant every year until 2020.

Reference: PT. PLN RUPTL 2011-2020
INFRASTRUCTURE FINANCING SCHEME

GOI INFRASTRUCTURE INVESTMENT PLAN

State Budget (APBN)
- External Loans/Grants (PHLN)
- Domestic Sources (Rupiah)
  - Blue Book

Public Private Partnership (PPP)
- Government Support and Guarantee
  - PPP Book

State Own Enterprise (SoE)
- Business to Business
  - Investment

PRIVATE INFRASTRUCTURE
- Private Sector

PPP is the mainstream of infrastructure financing in Indonesia
CASE STUDY : JAKARTA
Jakarta Metropolitan Area (hereafter: JMA)

• Covering an area of approximately 7 500 sq. kilometer, including Jakarta city and its surrounding areas: Bogor, Depok, Tangerang and Bekasi.

• Total population of more than 22 million in 2005, consisting of about 80% urban population and 20% rural population

• The Jakarta city, the core, had 9.6 million people in 2011
Problems:

• Transportation
• Flood
• Settlements
• Poverty and unemployment
• How is about Japan?
TRANSPORTATION CONDITION

- Number of motorized vehicles ± 5.5 million, consist of 98% private vehicles serving 44% trips and 2% public transport vehicles serving 56% trips.
- Average annual growth was about 9.5% in the last 5 years.
- Total road length is 7,650 km with the road area is 40.1 km² (6.2% of total area of the city).
- Annual average growth of road length was about 0.01%.
- Total demand for public transport in DKI Jakarta has reached 17.1 million trips/day.
- The total lost of traffic congestion estimated Rp 12.8 Triliun/year or 125,523 billion Yen (Time value, fuel consumption, health cost).
“PROBLEMS”
DUE TO THE INEFFECTIVE PERFORMANCE OF TRANSPORTATION SYSTEM

- Using Private Cars
- Congestion
- Lower Speed
- Priority
- Lack of Good Service
- Less Income
- Less Trips
- Subsidy
Uncontrolled private vehicles using will cause saturated traffic congestion in Jakarta at 2014.
PORTRAIT OF TRANSPORTATION PROBLEMS IN JAKARTA
Penilaian terhadap Kehidupan dan Keamanan di DKI Jakarta

Persoalan kota apakah yang biasanya membuat Anda stres atau tidak merasa bahagia di Jakarta?

69,47% Kemacetan
13,72% Ekonomi
7,38% Kemanan (Kriminalitas)
1,37% Angkutan umum
2,40% Banjir
3,09% Lainnya
2,57% Tidak tahu/tidak jawab

"Puas atau tidak puaskah Anda terhadap upaya atau kebijakan Pemerintah Provinsi DKI Jakarta dalam":

- Mengatasi kemacetan lalu lintas: 7,5% Puas, 90,4% Tidak puas, 2,1% Tidak tahu/tidak jawab
- Penyediaan jumlah kendaraan umum: 16,8% Puas, 70,8% Tidak puas, 1,4% Tidak tahu/tidak jawab
- Perbaikan kualitas kendaraan umum: 16,8% Puas, 80,6% Tidak puas, 2,6% Tidak tahu/tidak jawab
- Menjaga kestabilan harga kebutuhan pokok: 16,8% Puas, 70,8% Tidak puas, 2,6% Tidak tahu/tidak jawab
- Menjamin rasa aman masyarakat: 16,8% Puas, 90,6% Tidak puas, 0% Tidak tahu/tidak jawab
- Mengatasi banjir/genangan di jalan: 16,8% Puas, 80,6% Tidak puas, 2,6% Tidak tahu/tidak jawab
- Mengatasi kemiskinan: 16,8% Puas, 90,6% Tidak puas, 1,4% Tidak tahu/tidak jawab
- Penyediaan lapangan kerja: 16,8% Puas, 87,8% Tidak puas, 2,8% Tidak tahu/tidak jawab

"Menurut Anda, secara umum mengkhawatirkan atau tidakkah tindak kejahatan di Jakarta saat ini?"

- Mengkhawatirkan: 84%
- Tidak mengkhawatirkan: 13,6%
- Tidak tahu/tidak jawab: 2,3%

Metode Jajak Pendapat:
Jajak pendapat melalui telepon dilakukan pada 15 Januari 2011 terhadap 583 warga DKI Jakarta yang berusia 17 tahun ke atas atau sudah/pernah menikah. Responden dipilih secara acak sistematis.

Sumber: Litbang Kompas
THREE STRATEGIES IN JAKARTA TRANSPORTATION MASTERPLAN

JAKARTA TRANSPORTATION MASTERPLAN

PUBLIC TRANSPORT DEVELOPMENT

- MRT / Subway
- LRT / Monorail
- BRT / Busway
- Waterways

TRAFFIC RESTRAINT

- 3 in 1
- Road Pricing
- Parking Restraint

NETWORK CAPACITY IMPROVEMENT

- Park and Ride
- Road Network
- Pedestrianisasi/NMV
- ATCS / ITS
FIRST STRATEGY : Public Transport Development - Development of 4 Modes of Transportation

1. Mass Rapid Transit (Subway)
2. Light Rail Transit (Monorail)
3. Bus Rapid Transit (Busway)
4. Waterways
FIRST STRATEGY IMPLEMENTATION : BUS RAPID TRANSIT DEVELOPMENT (BUSWAY)
SECOND STRATEGY : TRAFFIC RESTRAINT

1. Traffic Restraint Zone (3 in 1)
2. Electronic Road Pricing (ERP)
3. Parking Control and Pricing
4. Park & Ride Development
THIRD STRATEGY: NETWORK CAPACITY IMPROVEMENT

1. Area Traffic Control System (ATCS) Development
2. Road Maintenance and Improvement
3. Flyover and Underpass Development
4. Toll Road Development
5. Pedestrian Facility Improvement
PROJECT
**JICA INITIATED PROJECT**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Finance scheme</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRT North-South &amp; East-West</td>
<td>Yen Loan</td>
<td>North-West: Tender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>East-West: F/S ongoing</td>
</tr>
<tr>
<td>Cilamaya new port</td>
<td>PPP (Incl.: Yen Loan)</td>
<td>F/S ongoing</td>
</tr>
<tr>
<td>Karawan New airport</td>
<td>PPP (Incl.: Yen Loan)</td>
<td>Plan to be decided after 2013</td>
</tr>
<tr>
<td>Indramayu Coal fired power plant</td>
<td>Yen Loan</td>
<td>E/S consultant under tender</td>
</tr>
<tr>
<td>Central Java Coal fired power plant</td>
<td>PPP</td>
<td>PPA signed</td>
</tr>
</tbody>
</table>
The Development of MRT

- Estimated cost: varies from Rp 15.5 trillion (around US$ 1.7 billion) to Rp 23 trillion (around US$ 2.3 billion)
- The Jakarta Mass Rapid Transit Project mainly consists of the planned construction of a series (three phases) of MRT rail links across Jakarta.
  - Jakarta MRT North-South Line Phase I (Lebak Bulus – Bundaran HI, Operational 2016)
  - Jakarta MRT North-South Line Phase II (Bundaran HI – Kp. Bandan, Operational 2018)
    - Feasibility Study under Japanese grant has been completed. At present, finalization of EIA is being processed. Funding commitment from JICA is targeted to be obtained in 2011. Basic Design Works to start one year after funding commitment.
  - Jakarta MRT East-West Line (Alternative Route: Balaraja – Cikarang)
The Development of MRT

- **Sumitomo Mitsui Construction Co. (1821)** and a group of companies won a 3.6 trillion-rupiah ($370 million).
- The 5.9 kilometer (3.7 miles) tunnel will be built by Sumitomo Mitsui and a partner as well as a consortium of [PT Wijaya Karya (WIKA)](https://www.wika.co.id), [PT Jaya Konstruksi](https://www.pjks.co.id), [Shimizu Corp. (1803)](https://www.shimizu.co.jp), and [Obayashi Corp. (1802)](https://www.obayashi.co.jp).
SUMMARY OF PPP PROGRESS IN INDONESIA

- PPP Project in operation
  - 15 water supply project with capacity of 21,460 litre/second
  - 31 toll road with total 774.06 km in length
  - 24 Independent Power Producer (IPP) with total capacity 4,761 MW
- PPP Project under construction and contract signed
  - 3 toll road projects with total 126.83 km in length
  - 1 power plant project with capacity 2,000 MW
  - Total investment of USD 4,192.77 million
- PPP Project in tendering process
  - 17 PPP projects consist of 8 toll road, 3 water supply, 2 solid waste treatment, 2 transportation and 2 power plant projects
  - Total Investment of USD 9,772.19 million
- PPP Project under preparation for transaction
  - 13 PPP projects consist of 5 water supply, 4 transportation, 2 solid waste treatment, 1 waste water treatment and 1 power plant projects
  - Total investment of USD 5,749.42 million
We have high expectations for Japanese Investors’ active participation. Your skills and know-how will be of high value.

- Opportunities are widely open for Japanese business entity and Indonesian partner in infrastructure development in Indonesia, i.e. consultancy, EPC (Engineering, Procurement and Construction), supplier, investment, etc.
- The involvement of Japanese business entities and Indonesian partners could be in the area of:
  - Projects financed by Japanese ODA Loans and Grants.
  - Projects financed by multilateral donor such as World Bank (WB), Asian Development Bank (ADB), European Union (EU), etc.
- Bring in high quality technical skills for infrastructure O&M:
  - Safety and life cycle cost management in the railway sector
  - Non-revenue water reduction in the water sector
  - Clean, reliable and efficient technology in the energy sector
- Bring in intellectual know-how:
  - Transit-oriented development (TOD) including railway station and surrounding development
  - MRT operation control center
  - Vehicle traffic management ITS
  - Exploratory risk management in geothermal
  - Project finance skills transferred to Indonesian local banks
My Research:

- Topic: Social Capital and Migration
- Why migration??
- Why social capital??
- What is the impact of social capital and migration in rural development??
Migration

- Indonesia’s rural regions characterized are: wide-spread poverty, underemployment, and surplus of low-skilled labor.
- Rural households use migration strategies to allocate their labor resources for increasing their income and reducing the risks.
- Migration is commonly used by rural inhabitants for ensuring their survival, pursuing economic mobility, and supporting household resources.
<table>
<thead>
<tr>
<th>Contributors</th>
<th>Essence of ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adger (2003)</td>
<td>Growing collective action; creating collective good or welfare; coping with extreme weather and other hazards and other impact.</td>
</tr>
<tr>
<td>Kolowkiewicz (1996)</td>
<td>Aiding in conversion of assets or capital.</td>
</tr>
<tr>
<td>World Bank</td>
<td>Increasing economic prosperity; sustaining development.</td>
</tr>
<tr>
<td>Grootaert (1977)</td>
<td>Accumulating and access to credit; higher household expenditure per capita; more assets; better access to credit; increase saving; children less likely not attend school; increasing household welfare.</td>
</tr>
<tr>
<td>Requena (2003)</td>
<td>Greater levels of satisfaction and quality of life at work.</td>
</tr>
<tr>
<td>Umar (2004/2005)</td>
<td>Eradicating social problems including crime; giving benefit to kingdom sector; increasing community empowerment.</td>
</tr>
</tbody>
</table>
Hypothesis

• Social capital will increases the number of migration and have negative impact to rural development.
My message:

"The young people with big dreams should not spend the time with unimportant things."

"Do not avoid the communication to others, because mate and fortune comes from communication."

THANK YOU FOR YOUR ATTENTION!!