Suvarnabhumi Airport, Bangkok, Thailand
Overview

- Magnitudes and Financing
- Social and Economic Benefits
- Technical Issues and Innovations
- Policy Challenges and Social Problems
Location

- **Samut Prakan Province, Thailand**
- **25 km to the east of downtown Bangkok**
Magnitudes

- 1973 – Land purchased in
- 2002 – construction began
- September 28, 2006 open
- Cost: $3.8 billion
- Approximately 232 hectares
Airport Features

- 2 parallel runways
- 51 air bridges
- 120 parking bays
- Capacity per year of:
  - 76 flights per hour
  - 45 million passengers
  - 3 million tones of cargo
- 5,000 car parking lot
- Tallest control Tower (132.2m)
Further Expansion

- Two additional runways
- It will cater to over 100 million passengers per year
Financing and Management

- 40%: Airports of Thailand PLC. (AOT)
- 58.4%: Japan Bank of International Cooperation (JBIC)
- 1.6%: of other financial institution

Breakdown of budget:

<table>
<thead>
<tr>
<th>Type</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Engineering Cost</td>
<td>63.58</td>
</tr>
<tr>
<td>Management Cost</td>
<td>2.35</td>
</tr>
<tr>
<td>Financing Cost</td>
<td>2.83</td>
</tr>
<tr>
<td>Other Cost</td>
<td>31.24</td>
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</tbody>
</table>
Ground Transportation

1. Suvarnabhumi Airport Express (under construction)
2. Train ($1.27)
3. Express bus ($4.25)
4. City bus ($1)
5. Public taxi ($6-$12) 30-40 min
Uses

- Built to replace the old airport of Don Muang
- The airport is the main hub for
  - Thai Airways International
  - Bangkok Airways
  - Orient Thai Airlines
  - PBair
  - Thai AirAsia
- focus city for China Airlines, Cathay Pacific, Emirates Airline, EVA Air, Indian Airlines, and SriLankan Airlines.
Economic Benefits

- Southeast Asia's regional cargo hub, able to move 6 million tons of freight per year.

### Table 5-8
GPP of Chachoengsao Province During 2005-2535

<table>
<thead>
<tr>
<th>Items</th>
<th>2005</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total GPP</td>
<td>78</td>
<td>114</td>
<td>256</td>
<td>423</td>
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<tr>
<td>Average annual growth rate</td>
<td></td>
<td>8.53</td>
<td>7.80</td>
<td>6.48</td>
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</tbody>
</table>

#### Sectors of GPP

<table>
<thead>
<tr>
<th>Items</th>
<th>2005</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>9.8</td>
<td>18.1</td>
<td>32.2</td>
<td>135.6</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>32.1</td>
<td>59.5</td>
<td>105.9</td>
<td>29.0</td>
</tr>
<tr>
<td>Wholesale-Retail</td>
<td>6.9</td>
<td>12.7</td>
<td>22.7</td>
<td>19.2</td>
</tr>
<tr>
<td>Services</td>
<td>4.5</td>
<td>8.4</td>
<td>15.0</td>
<td>12.9</td>
</tr>
<tr>
<td>Transport</td>
<td>3.1</td>
<td>5.7</td>
<td>10.1</td>
<td>90.6</td>
</tr>
<tr>
<td>Others</td>
<td>21.4</td>
<td>39.7</td>
<td>70.7</td>
<td>135.6</td>
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</tbody>
</table>

**Source:** TEAM-AEC-MSI-SCL, Suvarnabhumi Aerotropolis Development Plan

1 B Baht = $28.3 M
Economic Benefits

- Enhances Thailand as a Southeast Asian air hub
- Employment generated by Suvarnabhumi Airport both direct and indirect will be 340,000 jobs by 2035
- "Aerotropolis" development possibilities
Social benefits

- Improved quality of life and mental health in Don Muang communities by reducing:
  - noise
  - pollution
  - Congestion

- Improved ground transportation
Technical Issues

- Initial Difficulties
  - Computer systems
    - Check in system failed
    - Departure Boards with wrong information
    - Cargo computers failed
Technical Issues: Problems with Tarmac

- Airport is located on a once low-lying marsh caused:
  - Rutting – grooves made by passage of planes
    - 5 of 6 taxi lanes
    - 1 of 6 taxiways
  - Plastic Deformation: observed near takeoff position of runway

- Findings:
  - Plastic Deformation & rutting are common phenomenon
  - Only routine maintenance required
Technical Issues Continued: Problems with Tarmac

- Water Infiltration into base course
  - Disputes over how to handle problem, between Engineering Institute of Thailand (EIT) and Airports of Thailand (AoT)
    - November 2006 – EIT sent a formal warning about urgent need to drain water
    - EIT stated “The situation might not have become this bad if the water had been drained then.“
    - February 2007 – EIT strongly recommended that trapped water should be drained to minimize spread of cracks
Technical Innovations

- Triple Layer Roof to reduce heat transfer (reduce space cooling needs), noise, and increased durability.
  - The outer membrane is of glass fiber with a PTFE-coating, distinguished by high reflectance, high tensile strength, dirt-repellence and durability
Technical Innovations

- The middle layer serves primarily as sound protection: PC sheets throughout the entire roof construction attains a sound reduction index of 35 dB.
- The inner layer is Glass Fiber with low-e-coating. Excellent visual, low-e, and noise absorption properties.
Policy Challenges

- Transport Ministry’s One Airport Policy
  - Should use Suvarnabhumi Airport (SA) with Don Muang Airport
  - March 2009 – SA close to capacity at 45 million passengers annually
  - Don Muang has capacity of 30 million that is unused
Policy Challenges Cont.

- One Airport Policy made it necessary to:
- Move millions of tons of aircraft & equipment in 12 hours
  - Transported via 2,928 trips between the 2 airports, mostly by 10 wheel trucks
  - Phased over 15 weeks
Policy Challenges

• **Series of Delays:**
  – 8000 acre plot purchased in 1973 moved forward in 1996

• **Government Overthrow:**
  – Thaksin Shinawatra government ordered airport open in September 2006
  – Sept. 19 – Thaksin deposed in a bloodless coup
  – Sept. 28 – New military officials forced timely airport opening
Problems with Airport

- Overcrowding and Delays
- Lack of Toilets
  - New: 205 toilets,
    118 urinals, 248 wash basins
- Inadequate and ambiguous signs
- Faulty air conditioning
- Lack of seats in departure area
- Unfinished aesthetically
Social Problem: Staff Relocation

- Survey found following concerns by staff:
  - Changed way of life
  - Increased transportation costs
  - Relocation of children's schools

- One Airport Policy necessitated relocation of staff:
  - New homes
  - Provide staff buses
Social Problem: Fear of Ghosts

- Ghosts
  - Superstitious Construction Workers & airport staff
  - Wat Nhong Prue and its cemetery
  - Airports of Thailand Ceremony: 99 Buddhist Monks chanting prayers to raise morale
  - Poo Ming – “guardian spirit of land” required a proper spirit house at airport
Social Problem: Protests at Airports

November 26 2008 – “Airport Blast Kills Activist”

- At 2 Bangkok airports
- People's Alliance for Democracy (PAD)
- Trying to send a message to the government
- PAD angry about current government as a front for Thaksin
- Closure of main international gateway at SA & cancellation of flights