Infrastructure Problems in Indonesia:
Key Lessons from Phase I of IndII

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Structure of Presentation

• The infrastructure challenge
• Context
  – Urbanisation pressures
• Expenditure and efficiency
  – The case of roads
• Institutional problems undermining delivery of infrastructure services
  – Policies and planning issues, due to institutional failure/dysfunction
  – Examples in roads and water
• Results based financing to promote institutional reform (output based aid)
  – AusAID’s water *hibah* program (implemented by IndII)
The challenge

“Indonesia has the potential to achieve economic growth of up to 8%. However, so far economic growth has been sub-optimal due to infrastructure constraints”.

“About 6-7 years ago, the number one business hurdle in the real sector...was the rule of law and corruption. Currently the number one obstacle is inadequate infrastructure”.

Fauzi Ichsan, on the launch of the Standard Chartered report ‘Indonesia: Infrastructure Bottlenecks” (Kompas 22 Feb 2011)
The context: increasingly urbanised nation

### Indonesia: Forecast Population Structure 2010 - 2050

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (millions)</th>
<th>% Urban</th>
<th>Urban population (millions)</th>
<th>Population growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>237.6</td>
<td>50%</td>
<td>118.8</td>
<td>1.1%</td>
</tr>
<tr>
<td>2050</td>
<td>327</td>
<td>75%</td>
<td>245.3</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

| Change | 89.4 | 126.5 |
Piped water urban coverage declining

Due to a lack of local govt investment since the late 1990s
Focus on urban transport

• Wealth and motorisation: positive relationship in most cities

Source: STREAM study, EASTS 2008
Indonesian City motorisation rates (car)

- Jakarta well ahead, but motorisation in other cities will increase as incomes grow

Source: Kebijakan Pembangunan Infrastruktur Transportasi Massal Berbasis Jalan, A. Aldian Surabaya 2010
Other infrastructure issues

• Sanitation
  – Only 1% of urban households connected to piped sewerage (only 11 sewerage systems nation-wide).
  – Septic tank seepage to aquifers – that also provide primary water source for 50% of urban population.
  – Only half to two-thirds of solid waste is collected by LGs, and no sanitary land-fills are in operation (despite legal requirement)

• Inter-urban mobility
  – Most major airports (terminals) running at 200-300% capacity.
  – Road speeds between cities, typically as low as 30-40 kmh (100-200% below capacity).
  – Many major national ports have 10-14 days turnaround time.

On the face of it – urgent need for rapid scale up in investment...
Increased expenditure in infrastructure

- Accurately calculating the total public spend on infrastructure is a difficult and tedious exercise requiring access to detailed information from govt agencies and enterprises, at all levels of government.
- Safe to assume that the national commitment has increased in recent years, from around 2% of GDP in 2000, to 4-5% by the end of the decade.

Sources:  Indonesian Government for national and sub-national governments; Annual reports for state-owned enterprises; World Bank PPI database for private investment.
Note: 2009 Energy investment data is estimated
Expenditure efficiency in national roads

Increasing budget commitment does not necessarily mean translate to improved infrastructure outcomes: Consider national highways.

While the budget over the past six years has risen significantly, the actual output has stagnated or fallen over that period and the cost per unit of output has risen dramatically. The efficiency of translating budget into output has thus seriously declined.
Institutional issues in the roads sector

• Range of issues undermining performance
  – Widespread neglect of routine maintenance
    o Well resourced nationally, but performance not incentivised. $5000 per km should be more than enough to maintain national roads.
    o LGs well (over) staffed, but lack budget. Incentive problems with force-account service delivery.
    o Opportunities for performance based contracting
  – Design failures and overloading
    o Most roads designed to fail, with only 8 ton axle limit max (should be at least 16 ton). Coupled with widespread overloading, poor maintenance, roads are only lasting < 8 years (often just 2-4 yrs) instead of 12-20 yrs.
    o Weighbridges are effectively revenue raising instruments for provincial governments, not a tool for regulating axle weights on national roads
  – Problems in setting priorities
    o Default incremental approach to defer expenditure. Roads with poor geometry and weak structure, require longer term renewal and alignment (resulting in higher initial investment, but lower costs overall)
    o ‘Worst first’ approach - incentives to reconstruct/rehabilitate small sections rather than focus on maintaining larger network
Institutional issues ...cont’d

- Fragmentation and ‘high costs’ in procurement
  - Large number of contracts (reportedly up to 7000) to provide 40,000 km of national highways. Contract size: 1-3 km, attracts weak firms.
  - High transaction costs, lack of competition, weak fiduciary controls, poor controls on construction quality.

- Human resource management
  - DG Highways overstaffed: 1 staff per 5 km (versus international comparators: 1 per 100-400 km). Preference for force account work particularly for maintenance.
  - Difficult to promote outsourcing to more efficient private sector providers of maintenance services.

- Budget and planning
  - Difficult to plan over multi-year cycle. Funds often need to be expended in short period (of just a few months), further undermining planning and construction quality.
  - Budget allocation to fund existing arrangements/structures not desired outcomes.
  - Moves to medium term expenditure frameworks (MTEF) and performance based budgeting (PBB).
Improving Asset Performance

**ROAD ASSET DETERIORATION**

- **GOOD**
- **FAIR**
- **POOR**
- **BAD**

**TARGET EXPECTED LIFE**

**EXPECTED LIFE**

**ACTUAL**

**LOW QUALITY, OVERLOADING**

**IMPROVED DESIGN, QUALITY**

**ASSET AGE (yr)**

**EXPECTED LIFE**

**Observations –**
- Low Survival = \( \frac{\text{Actual Life}}{\text{Expected Life}} \) %
- Short Expected Life

**Reform Actions -**
- Improve Quality and Supervision
- Improve design for loading & drainage
- Extend design life, stronger designs
Improving Asset Life: Budget Implications

**Action:**
- Extend design life

**Result:**
- Better road condition
- Less disruption
- Lower life-cycle cost
- Budget savings

**But note:**
- Higher treatment cost, shorter length
- **Political patience!!**
Local water supply

• Range of institutional issues constraining water service delivery at the local level:
  – Traditional top down approach by central government, but little incentive for LGs to maintain assets, or to invest own funds.
  – Since decentralisation, LG investments have not kept pace with urban growth, and have fallen sharply.
    o Evidence of negligible investment by LG in PDAM equity (0.37% of APBD budget funds in 2007).
    o Evidence of substantial and growing reserves in LG Accounts (excess of IDR 90 trillion in 2006).
  – LGs did see themselves responsible for water service delivery, rather this was the mandate of LG owned PDAMs (water utilities). Common view was that:
    o The PDAM is a commercial enterprise and should be self-financing, despite the legislative obligation that LGs have to ensure their constituents have access to acceptable water services.
Local water supply...cont’d

- LGs regulate water prices, and commonly lack the political will to allow their PDAMs to raise tariffs to allow, or go in the direction of cost-recovery (approx Rp 3000 per m3).
  - Circular problem: LGs unwilling to raise tariffs due to poor service standards, PDAMs cannot raise standards due to lack of funds.
  - Clear lack of mutual trust between PDAMs and their owners. PDAMs complain of LGs don’t understand their problems, and LG complain that PDAMs are not responding to LG needs. Hence any funds invested in water supply at local level often channelled through LG public works agency, creating further ‘ownership’ issues.

- Urgent need to improve the external governance environment for PDAMs, by improving LG commitment to, and investment in PDAMs:
  - AusAID water hibah program using ‘results based financing.’
Results-based financing

• Links payment to performance:
  – “Results based financing is an umbrella term that includes output-based aid, provider payment incentives, performance-based interfiscal transfers, and conditional cash transfers. What these mechanisms have in common is that a principal entity provides a financial or in-kind reward, conditional on the recipient of that reward undertaking a set of predetermined actions or achieving a predetermined development goal. The ultimate goal is to increase the effectiveness of scarce public resources for the provision of basic services.” (World Bank 2010)
  – Output based option used to (re) stimulate new LG equity investment in PDAMs, using new GOI fiscal transfer mechanism known as Hibah.
  – Minimises fiduciary risks of using partner government systems:
    o funds released only after outputs are verified.
AusAID water hibah

• Output based subsidy for water connections for 76,000 poor households:
  – Designed to stimulate LG equity investment in PDAMs and to expand PDAM business into low-income segment.
  – Uses GOI fiscal transfer systems and is part of broader GOI policy initiative to stimulate water sector.
  – Consistent with ‘Jakarta Commitment’ to better use GOI systems and align donor programs with GOI policies and priorities.
  – New mechanism, no precedents. Pioneering qualities.

• Key design features
  – Grant is 35-45%, roughly Rp 2-3 million, of connection cost.
  – Paid to LG once connection is verified:
    o 3 months working/billable connection,
    o LG equity investment in PDAM.
Water Hibah: Overall progress

Status: 31 March 2011
Water Hibah: Cumulative progress

Status: 31 March 2011
Lessons learned

• Effective grant program design features:
  – Outcome, not just output related:
    o Ultimate objective should be governance related; i.e. Mainstreaming and promoting stronger LG commitment to road safety, sanitation etc; improving external governance of water utilities.
    o Outputs will give us the photo ops, but it is the outcome (such as stronger institutional commitment to sanitation) that will have the long term development impact.
  – Additionality, not redundancy:
    o Grants should have transformational / catalytic qualities
  – Pioneering:
    o Paving the way for others to follow (e.g. Donors, GOI).
Effective grant programming...cont’d

• 5 “Cs” of effective grant program design
  o Conditionality: To ensure maximum impact from investment, grants should have entry requirements that are aligned with developmental, institutional, and governance policy objectives
  o Consolidation: Working with less not more LGs
  o Contestability: LGs competing for grants by demonstrating capacity, commitment and fitness to execute the grant programs
  o Consistency: multi-period grants to ensure longer run incentives
  o Communications: building constituency for improved service delivery

| WSI water connections as a % of annual average, select PDAMs |
|------------------------|--------|--------|--------|--------|--------|
| 0%                     | 200%   | 400%   | 600%   | 800%   | 1000%  |
| Kab. Serang            |        |        |        |        |        |
| Kab. Wonosobo          |        |        |        |        |        |
| Kab. Klaten            |        |        |        |        |        |
| Kab. Kuningan          |        |        |        |        |        |
| Kab. Wonogiri          |        |        |        |        |        |
| Kab. Karawang          |        |        |        |        |        |
| Kab. Garut             |        |        |        |        |        |
| Kota Malang            |        |        |        |        |        |
| Average over 22 LGs   |        |        |        |        |        |
Abstract

Infrastructure Problems in Indonesia: Key Lessons from Phase I of the Indonesia Infrastructure Initiative (IndII)

David Ray is the Director of the Indonesia Infrastructure Initiative (IndII), an AusAID-funded facility to promote economic growth through improvements in both the quality and quantity of Infrastructure in Indonesia, particularly in urban areas. To date, IndII has focussed on the water/sanitation sector and the roads/transport sector as well as a number of cross-sectoral issues, such as infrastructure finance. This presentation will outline key lessons learned from the first phase of IndII, highlighting the main infrastructure problems and constraints; and their potential remedies, from both a policy and donor-action perspective.

Central to the presentation, is the argument that institutional problems, rather than resource constraints, is the primary reason for infrastructure failures. Various examples will be drawn from the watsan and transport sectors to show how poor institutional coordination, capacity and commitment have undermined infrastructure delivery and outcomes. Time permitting; the discussion will also consider a new, innovative and promising mechanism for donors in the infrastructure sector known as results-based financing, covering output and performance based aid. The first phase of IndII is scheduled for completion in June 2011. It is expected that IndII will be extended beyond this date for a period of four years.