Australian Aid

Addressing Indonesia's Infrastructure Deficit:

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SMEC

Local People. Global Experience.

INDONESIA INFRASTRUCTURE INITIATIVE

Introduction to IndII: Key Focus Areas

- Sectoral focus: Watsan (water & sanitation) and Transport
- Watsan program: various initiatives to incentivise and empower local governments (LGs) to expand and improve service delivery
  - Output and performance based grants (e.g. the Water Hibah)
  - Project preparation in wastewater and solid waste for MDBs
  - Private sector development: Business plans for commercial loans; PPP preparation and advisory
  - Governance measures of laggard water utilities
- Transport program: demonstration projects and technical assistance to reform the planning and delivery of transport infrastructure services
  - Comprehensive program to improve policy, planning and delivery of national roads
  - Pilot performance based road maintenance grant program for local government (NTB)
  - Demonstration programs in urban transport (and previously ports)
- Key themes:
  - Use of performance and output based incentives; promotion of competition and the role of the private sector; improved planning and delivery tools.

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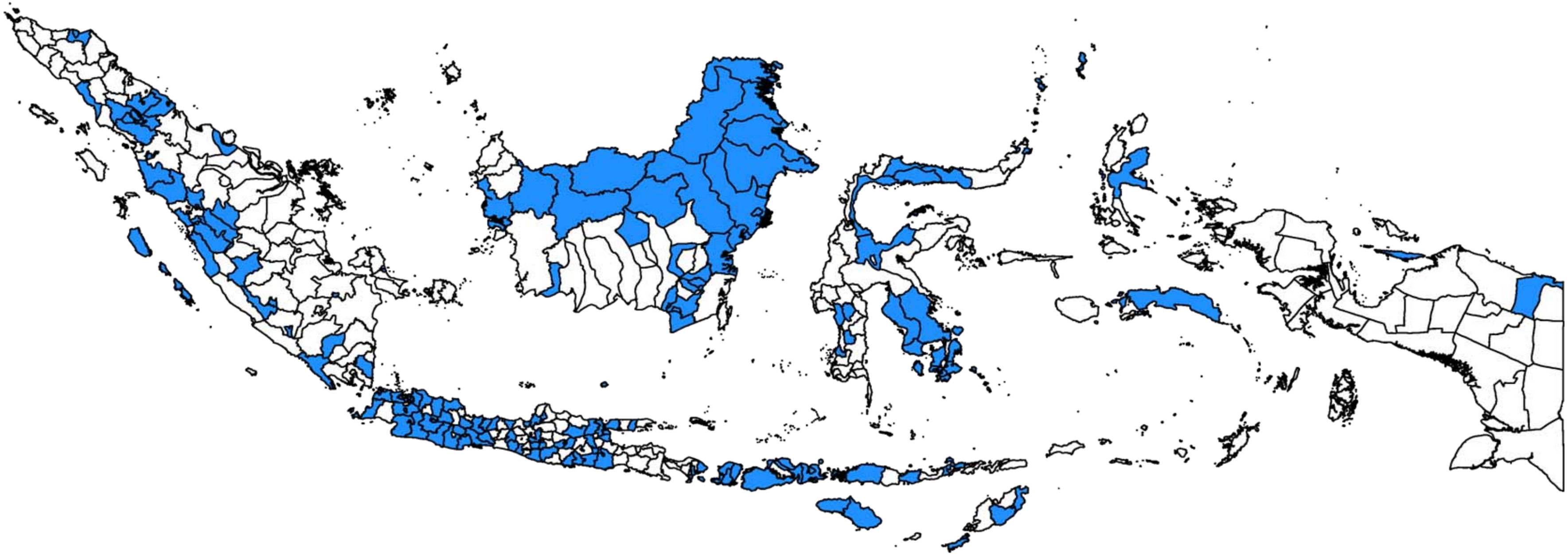
IndII Activities span the archipelago: Over 200 local governments



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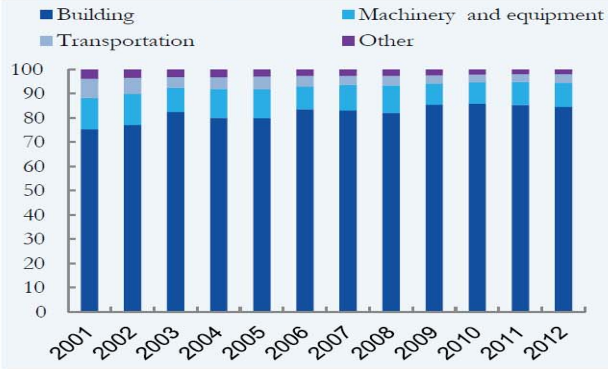
Indonesia's Infrastructure Deficit: The 'noose around our necks'

- Now represents a major constraint to growth – main factor preventing growth at potential rate of 7-8 %
- Infrastructure investment has lagged other forms of investment
- Recent WB estimations: if infrastructure capital stock grew at 5% p.a. (instead of just 3%) then average annual GDP growth over the 2001-2011 period would have been 0.5 % points higher (5.8% instead of 5.3%)
  - 10% p.a. infra investment ➡ potential 7% GDP average annual growth.

Figure 4.4: Composition of investment

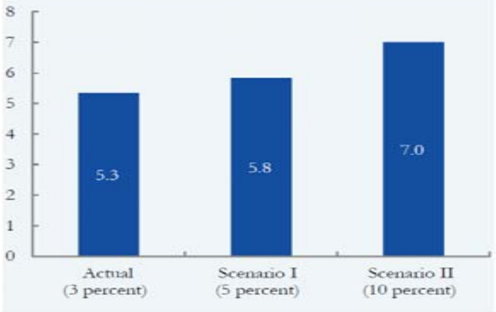


Source: BPS and World Bank staff calculations.

Figure 4.5:Infrastructurecapital stock growth

Source: October 2013 IEQ and World Bank staff calculations.

Figure 4.9: Growth would have been higher with higher investments in infrastructure
(average real GDP growth over 2001-11 under different infrastructure capital stock growth scenarios, percent)



Source: See World Bank IEQ March 2013.

Addressing the Deficit: Key themes and lessons learnt

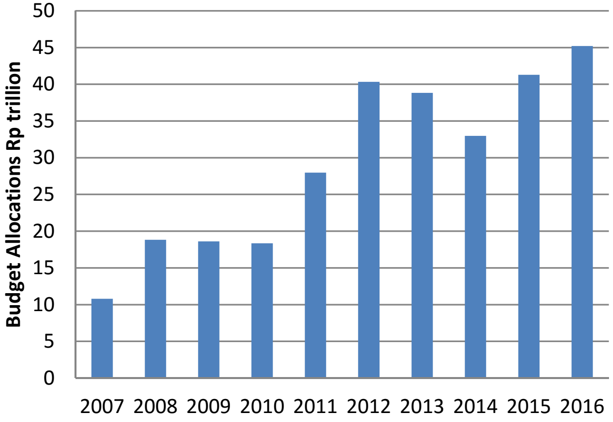
Addressing the infrastructure deficit requires:

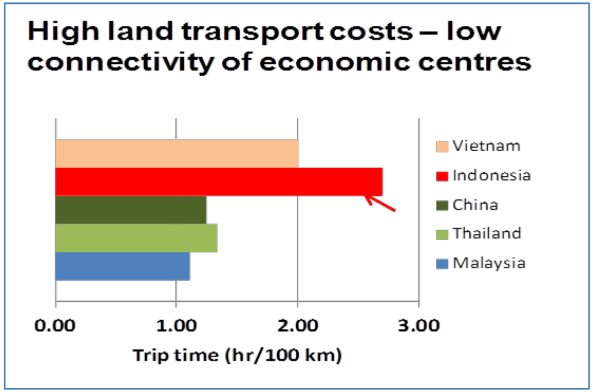
- A fundamental change in current planning and delivery models
  - In particular a move away from short-run, piece-meal high-cost approach (national roads)
- An international, rather than national, response to ensure adequate financing and delivery capacity, given the size and unprecedented nature of the deficit.
- A move away from the current state-led approach in favour of greater private sector delivery, facilitated by more realistic risk models
- Mainstreaming performance based incentives into planning and delivery systems, including inter-govt transfers, to greatly improve efficiency and accountability of public investment in infrastructure.
- A greater commitment to asset management in order to capture better life-cycle economies in infrastructure investment

Indonesia's national road sector faces critical issues

- Poor connectivity
  - Puts at risk Indonesia's future growth and competitiveness
  - Very heavy congestion on key economic corridors
    - Corridor travel times >2x those of competing neighbours
- Large budget increases but poor value for money
  - Network could be replaced every 7 years with current budget
- Poor planning
  - Lack of longer term planning; No pipeline of investment
  - Planning tends to favour preservation, not development
  - Condition is reasonable but deterioration is rapid and repairs frequent
  - Despite focus on preservation, no effective asset management system
  - Focus on high cost incremental widening and frequent rehabilitation
- Poor delivery
  - Fragmentation in delivery. 'Size and length does matter' - too many single year contracts. Inappropriate standards. Poor maintenance.
  - Uncompetitive industry, limited capacity, no focus on quality
  - High transaction costs and poor scale economies.

National Roads Budget Allocations 2007-16





Conditions on Pantura (Jakarta-Surabaya)

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Key components of IndII's program

National Roads Policy

EXPRESSWAY DELIVERY/ FINANCING STRATEGY

- Legal framework
- Options for private-sector participation
- Policies supporting expressway development
- Institutional options for expressway delivery
- Organizational strengthening and performance
- JAKSTRA 2015-2019 policy framework

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- Agreed funding strategy
- Agreed proposals to introduce performance-based solutions
- Definition & allocation of responsibilities for expressway development & management
- JAKSTRA policy document to guide RENSTRA
- Revisions to Road Law and regulations

National Roads Planning

NETWORK DEVELOPMENT PLANS

- Network/corridor & road renewal planning tools
- Performance indicators & baseline surveys
- Expressway network plan (tools, standards, priorities, financing, PBJT assistance)
- Corridor plans & project pipelines
- RENSTRA 2015-2019 expenditures

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- Planning tools for prioritizing network development & road renewal, together with KPIs & performance monitoring framework
- 5-year and longer-term investment plans for national roads
- Pipeline of corridor & supporting projects for RENSTRA 2015-2019

National Roads Delivery

QUALITY IMPROVE-MENTS & ASSET MANAGEMENT

- Baseline survey of asset performance
- Life-cycle pavement design & standards
- IRMS upgrade for *balai* management
- Implementation of road renewal (one *balai*)
- Improved project procurement & management
- Public/industry participation in raising quality

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- Simplified tools for optimizing asset management at balai level
- Asset management plans in selected *balai*
- Life-cycle pavement design & management standards and training
- Implementation of road renewal program in one balai
- Procurement/cost transparency

Road Safety

SAFETY

- National Road Safety Master Plan (Bappenas)
- Road Safety Corporate Plan (DGH)
- Road Safety Audits (DGH)
- Black-spot Treatments (DGH)
- Speed Control, Crash Investigations (Traffic Police)
- Integrated Urban Road Safety Program (DGLT + selected cities)

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- Updated NRSMP and institutional action plans
- DGH institutional strategy for road safety
- Routine procedures for RSAs and black-spot identification and treatment
- SOPs for speed control & crash investigation, with training
- Pilot of DGLT support for integrated road safety plans in four regional cities

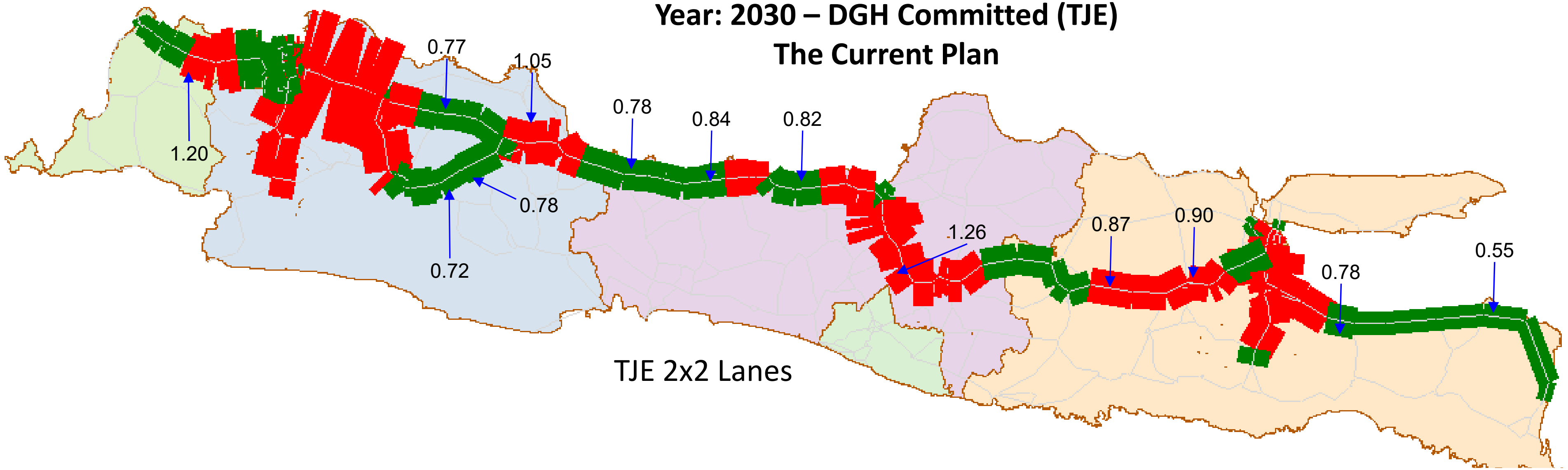
New business model for National Roads is required

- Change is needed:
  - Away from managing a large number of small rehabilitation, preservation and widening projects (using small, single year contracts)
  - to a greater focus on
    - Longer term network development and capacity expansion
    - Improved program delivery, performance and value for money to capture better life-cycle economies of investment
- Road planning, financing and delivery: immensity of task unprecedented, exceeds anything achieved on the network before. Requires:
  - Changes in institutional focus and capability
  - New planning, programming and budgeting tools
  - Better quality
  - Incentives for private sector financing and delivery
  - International resources: capital and expertise

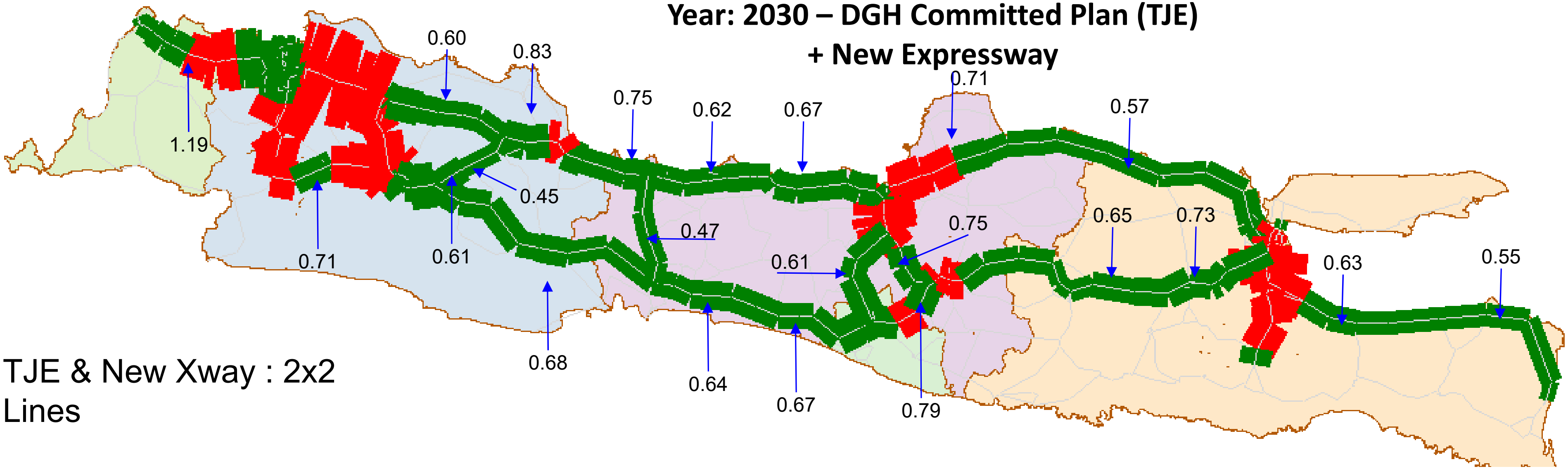
Preliminary results from CUBE Transport Model (Java Island)

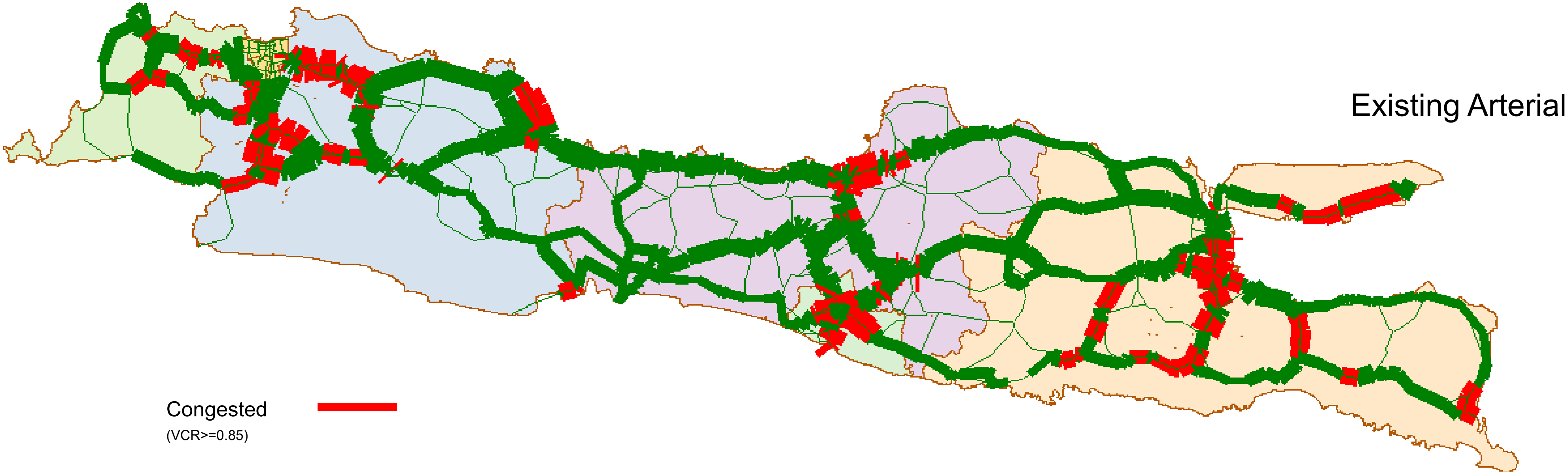
- Forecast traffic demand assignment given assumptions about:
  - Demand side: Economic activity/growth, motorisation rates etc
  - Supply side: given DGH plans/commitments and other recommended network plans
- Uses JARNS updated with latest count data from surveys and other sources
- Representing 6975 km of inter-urban national roads and 2300 km of secondary roads (strategic provincial)

Year: 2030 – DGH Committed (TJE)
The Current Plan

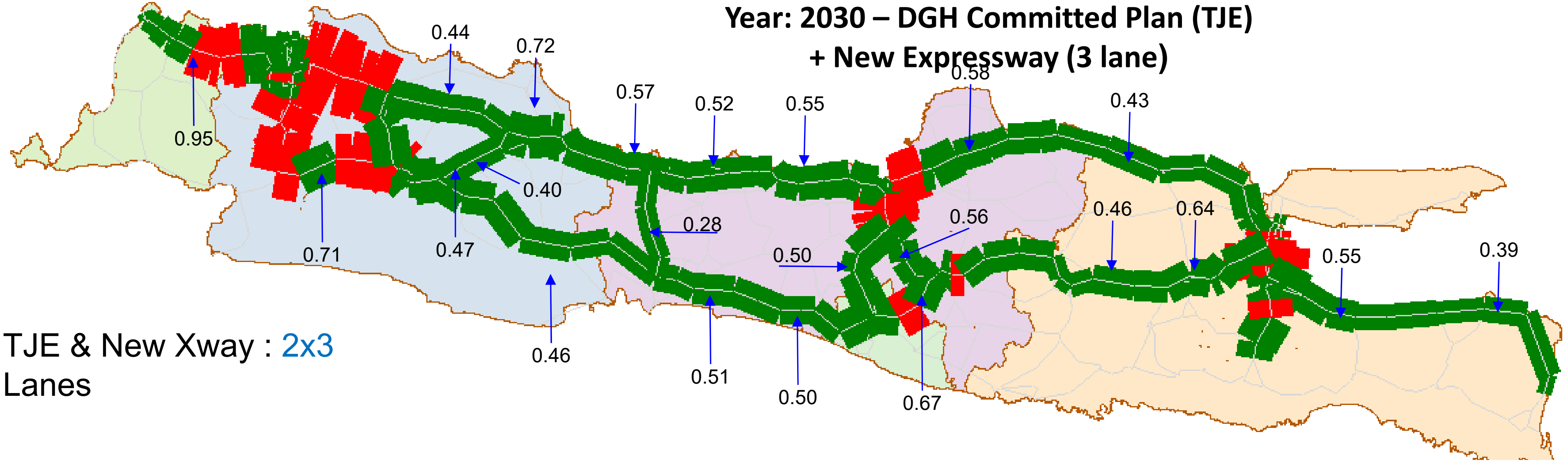


Year: 2030 – DGH Committed Plan (TJE) + New Expressway

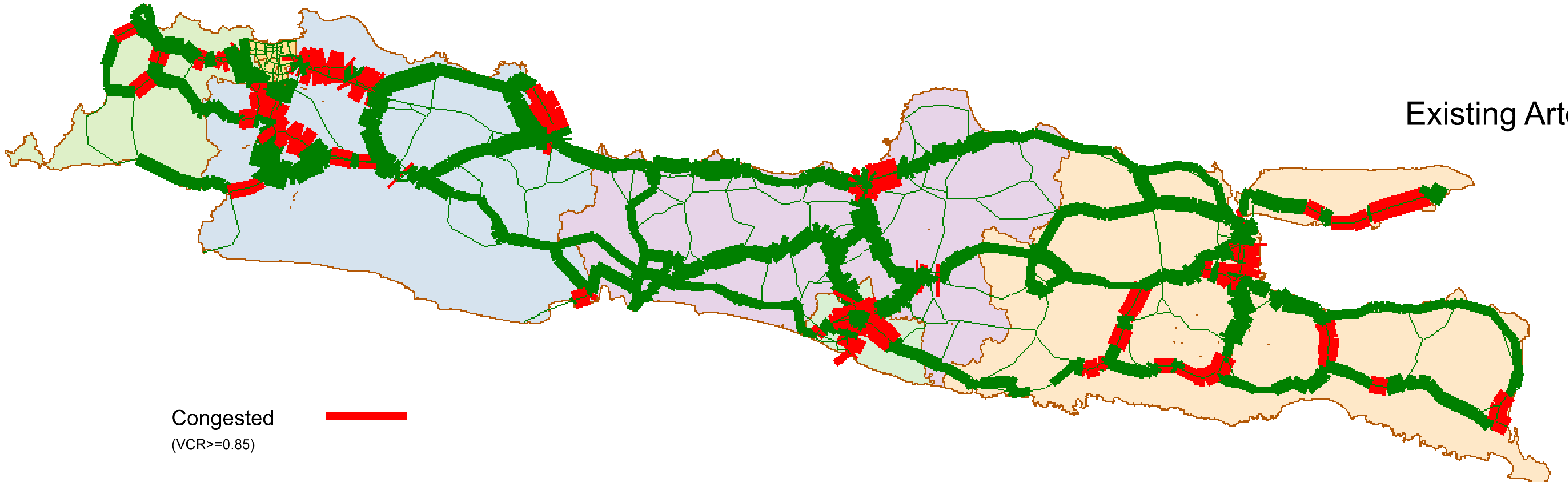




Year: 2030 – DGH Committed Plan (TJE) + New Expressway (3 lane)



TJE & New Xway : 2x3 Lanes



Existing Arterial

Transjava expressway modelling scenarios

Completing the current Transjava expressway is not enough. Planning needs to now focus on greater capacity to accommodate vehicle growth

Impact on Expressway Network		**Java Expressway Road Length (km) by Speed Group**								**Expressway**	
Scenarios		< 40 Kmh		40 - 60 Kmh		60 - 80 Kmh		> 80 Kmh		Length	Avg. Speed
1	Complete the TJ Expressway (2 lane)	832	51%	517	32%	210	13%	82	5%	1,641	40.8
2	Plus additional expressway (2 lane)	682	27%	979	38%	700	27%	184	7%	2,545	46.7
3	Plus additional expressway (3 lane)	422	17%	530	21%	680	27%	913	36%	2,545	54.5
Impact on Arterial Network		**Java Arterial Road Length (km) by Speed Group**								**Arterial Network**	
Scenarios		< 40 Kmh		40 - 60 Kmh		60 - 80 Kmh		> 80 Kmh		Length	Avg. Speed
1	Complete the TJ Expressway (2 lane)	2,808	52%	2,188	40%	416	8%	0	0%	5,412	36.2
2	Plus additional expressway (2 lane)	1,810	33%	2,146	40%	1,455	27%	0	0%	5,412	42.7
3	Plus additional expressway (3 lane)	1,622	30%	2,015	37%	1,775	33%	0	0%	5,412	44.9

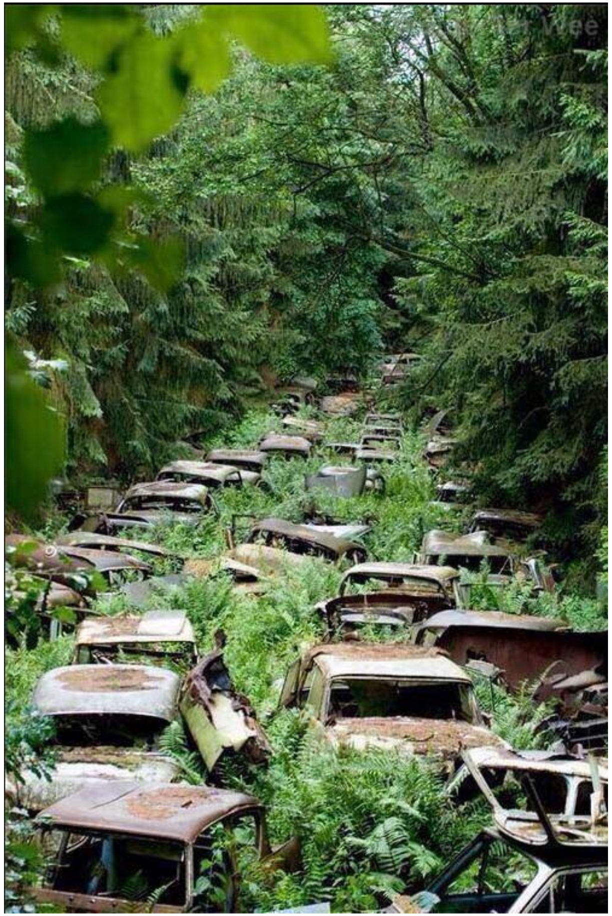
Indonesia’s Comparative Delivery Performance in Roads

Country	Institution	Length of network (km)	Number of employees	Employees per kilometre	Number of contracts	Average Speeds km/h[6]	Budget Allocations (mill. USD)	Allocations per network km (USD)
Indonesia	Bina Marga	38,570[1]	7,372[2]	0.190	3266[4]	46	3,593[7]	79,317
South Africa	SANRAL	21,403[3]	295[3]	0.014	175[5]	98	1,011 [8]	47,246

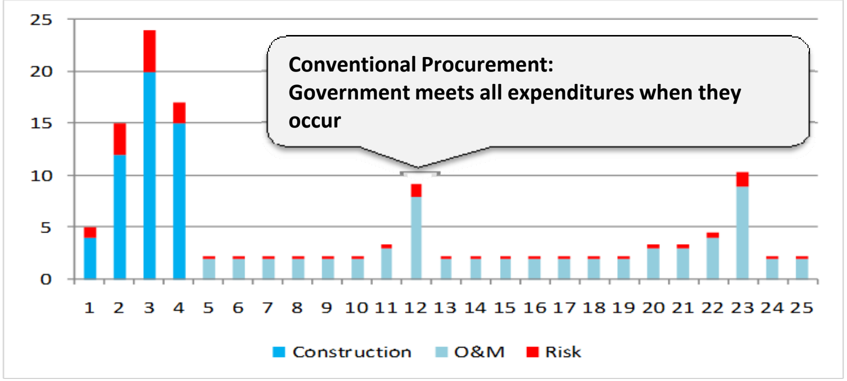
Sources: (1) BPS webpage, (2) MPW&H webpage, (3) SANRAL webpage, (4) Active/open Bina Marga contracts as of Aug 2013 covering almost all the Bina Marga budget allocation for 2015 – only 7% were new/ongoing multi-year contracts, (5) SANRAL Annual Report 2014 – number of new contracts issued in 2014 (over the previous 5 years SANRAL issued on average 180 contracts a year), (6) Calculated using Googlemaps, based on main national network routes in Indonesia (across main routes in Java, Sumatra, Kalimantan, Sulawesi: totalling 7650 km) and South Africa (entire N1-N8 routes : totalling 7500 km), departing origin at 5 pm, (7) 2015 budget allocation for Bina Marga - Rp 41.5 trillion, (8) 2014/15 budget allocations for SANRAL – ZAR 10.96 billion, does not include loans or toll concession funds.

What does this all mean for national roads?

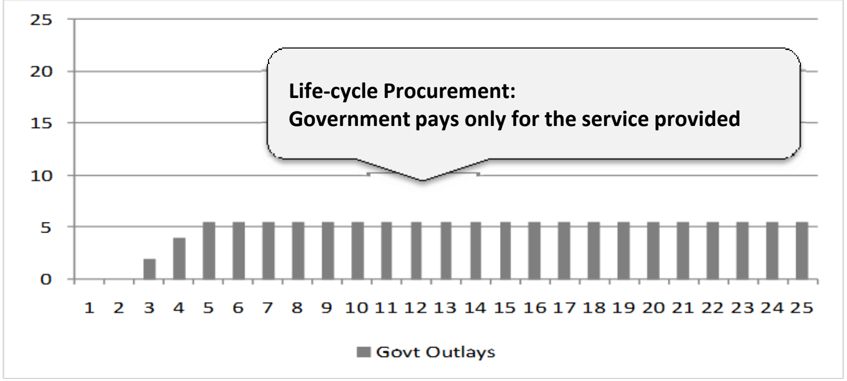
- Significant changes are required if national roads are to play a supportive, not constraining role in Indonesia's economic growth
- Even with a significant upgrade in capacity, requiring major new investments, there is unlikely to be a major improvement in congestion/travel times, due to 2-3 fold increase in demand by 2030
- ….hence, a huge effort is required just to keep things as they are.
- A business as usual approach (in terms of planning and delivery) will lead to a major constraint on future growth and development
- To remain competitive, even more ambitious planning required now.
- Enormous opportunities for both domestic and foreign investment



Conventional v Availability based PPP Procurement



Conventional Procurement:
- Government pays for inputs, not outputs
- Separate D/C/O/M contracts – no life-cycle optimization
- No performance standards over project life
- Contractors have incentive to expand their workload
- Risk of time/cost over-runs borne by Government
- Significant fluctuations in Government expenditure



Life-cycle Procurement:
- Concessionaire provides a service over project's life
- Concessionaire manages D/C/O/M risk through sub-contracts – over-runs don't impact on Government
- Life-cycle optimization
- Government pays only for what it gets
- Concessionaire incentivized by payment mechanism to maintain high performance standards
- Predicable Government expenditure pushed into the future

A Better Value-for-Money Alternative: Aligns Incentives across Govt, Private Sector and Users

- Pass to the private sector only those risks they can manage
  - Private sector can manage financing, design, construction, materials, O&M and (insurable) force majeure risks
    - But not all interface risks (eg, an existing poorly-constructed pavement)
- Pay the private sector a fixed Unitary Charge for providing a road service (once open to traffic) over the life of the agreement
  - Deductions for failure to meet KPIs
  - Pressure from equity-holders and lenders also encourages optimum life-cycle performance
- Experience elsewhere shows that this solution is cheaper than conventional procurement
  - Demonstrated by a VfM comparison
  - The extra costs of private finance are outweighed by life-cycle economies
  - Competition in the procurement process is critical to ensuring value-for-money
- Applicable to performance based contracting: O&M, management arrangements
- Essentially privatise the delivery of the public infrastructure

Performance-Based Payment

Output Requirements	Link to Payment
Safety	Deductions when annual Crash Reduction Strategy target is not met
Availability	Deductions when any lane is closed
Responsiveness	Deductions when Company fails to meet specified response times (eg emergency) and rectification times (eg debris removal)
Road quality & upkeep	Deductions for failing to meet minimum quality/safety standards for pavement, structures (e.g. smoothness of road pavement) etc
Hand-over	Deductions for failing to meet standards for quality and residual life on hand-over at the end of the concession period

Asset Management (AM)

- AM is the systematic process to guide the planning, acquisition, operation and maintenance, renewal and disposal of assets.
  - Primary objectives: maximise service delivery potential and manage related risks and costs over the economic life of an asset
- Crucial missing ingredient in the public/policy discourse on Indonesia's infrastructure problems
  - Despite source of considerable public frustration
- Little awareness/understanding of economic benefits of whole of life management of assets
  - Some regulatory framework, but no real commitment/strategy.
  - For many: AM = records keeping (asset registry)
- Effective AM reduces need for new investment
  - Efforts to increase existing capital stock undermined by rapid depreciation and premature failure
  - Infrastructure frustrations often relate to inadequate AM not a lack of new investment

Asset Management

- Poor AM ⟶ high costs for government and users
- Local roads: poor maintenance leads to rapid decay
  - Pavements last 2-3 yrs not 10-15 before reconstruction
  - Eventual reconstruction 3-5 times higher if poorly maintained
  - Much higher road user costs (travel times; vehicle damage etc): 10 times the cost if repair delayed from 2 to 12 months
- A broad range of contributing factors:
  - Incentive structures (how infrastructure is built, maintained and funded) to capture better life-cycle economies of investment
    - Opportunity for better use of performance-based incentives
  - Lack of accountability and responsibility for asset condition & performance.
    - Regulations, incentive-based options and possible transparency based measures to improve accountability of asset managers.
    - Clearer lines of responsibility both vertically and horizontally within government

Private Sector Participation (PSP)

- ***Risk-transfer problem***
  - Important advantage of PPPs – they allow the transfer of a number of key risks to the private party (e.g. life-cycle performance risk).
    - Key factor differentiating the various PPP models is the level and nature of risk shifted to the private sector
  - Golden rule: Risk transferred to those best placed to handle them
  - Common problem (Indonesia): contracting agencies placing so many restrictions, conditions as well as expectations of risk transfer on the private sector
    - Financially feasible deal becomes impossible to structure
- **Key problem causing risk overload: PPPs = financing tool to cover the ‘funding gap’ (the ‘delta’)**
  - Adds to the erroneous perception that PPPs = ‘free money’
  - Focus tends to be on the transaction, whilst there is a general reluctance to take a life-cycle view of investment or to perceive it in terms of outcomes (services provided) rather than inputs.
  - Primary role of private finance is to incentivise efficient private-sector delivery and performance (value for money)

PSP…..cont'd

- **Greater emphasis on Value for Money (VfM)**
  - Whilst the focus is on financing aspects, there tends to be little consideration of value for money aspects that can be realised over the full life cycle of PPP projects.
  - Various VfM benefits that can be realised through PPPs:
    - Greater chance of on-time and on-budget delivery
    - Transferring design, construction, operation and maintenance risks to the private sector should work to reduce overall life cycle costs
    - Opportunities to harness the dynamism and innovative capacity of private sector to improve service delivery
- **Recommendations:**
  - Less ambitious approach required: begin with service and management contracts (not with full concession models). PBC, delivering O&M, availability schemes
  - Objective should be to engage private sector for improved delivery and better life cycle performance

Performance based incentives

- Results/performance based financing arrangements - crucial for improving the efficiency of public and private investment
- Public sector: Key lessons from the water hibah
  - Need to inject better (less perverse) incentives in inter-governmental fiscal arrangements
  - Conditionality of payment is an effective tool for ensuring performance/outputs are met. Risks are minimized. Greater transparency in implementation
  - Powerful device for pursuing national objectives at the local level and to incentivize LGs to improve service delivery
    - Greater LG commitment to sanitation and road maintenance – moves now underway to develop a APBN-funded local roads hibah and a sanitation hibah
- Useful policy tool for implementation of subsidies
  - Move away from current input based approach, in favour of competitively awarded performance based contracts

Performance based incentives…cont'd

- Private: Key promise of Performance based Life-Cycle Delivery
  - Transition from old-fashioned, input-based planning/program delivery to a life-cycle, output-based approach
  - Transfer risks (including corruption) to parties best able to manage them
  - Bundle financing, design, construction, operations and maintenance under performance-based, multi-year contracts
- Contractors
  - Role expands from execution of works to include operation and maintenance
  - Key difference: private sector no longer just providing an asset; rather delivery of service
  - It is the performance of that service which is the basis of payment – e.g. travel speeds, water availability etc