

# Infrastructure in a Global Economy:

## **Its Role in Australia's National and Regional Development?**

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# ***Infrastructure Attributes: Theory & Practice***

# Basic Theory 'Lost in Translation' in Practice?

- **Economic infrastructure returns:** flaws in measurement on returns to GDP (Serven 2010) & questions of reverse causality?
- Essential service/collective good characteristic (not 'pure public good') & evidence of government rather than market failure.
- Agglomerative economies, specialization & competition: flaws in 'selective' measures of gains to a locality rather than net gain.
- Spatial monopolistic character: raising question of method of pricing regulated assets (price caps or cost of service)?
- Multiple conflicting service objectives – efficiency & equity (pricing subsidising community service obligation).
- Large lumpy investments in networks with lock-in pathways forecasting & regulatory uncertainties over the LR.
- Significant externalities on economic land rent & price of land.
- Escalated uncertainty with mega, complex projects.

***Seductive Power of Infrastructure Projects:  
Mega-Build or Sweat Asset & Improve Management?***

*'Failure to make significant progress towards bridging this infrastructure gap could prove costly in terms of congestion, unreliable supply lines, blunted competitiveness, and growing environmental problems, with clear implications for living standards and quality of life.'* (OECD Policy Brief – Infrastructure to 2030 (January 2008)) (OECD 2008)

# Stakeholder Shared Interests to 'Build' - Asset Management Poor Cousin

- 2005+ Business groups seek State & Commonwealth action to increase in new deal flow & redress declining national productivity.
- Election of Labour & wide electoral support for change: 2020 Summit.
- 2008 Commonwealth establishes IA with election of Labour, stepping into primarily State infrastructure planning & delivery roles.
- GFC reveals shortcomings in strategic planning & institutional innovation to support returns from infrastructure (Ken Henry 2010).
- 2009 IA selection determined by 'readiness' of State proposals to signal action & crowding out funding for projects > returns.
- 2010/11 IAC develops draft national frameworks absent in 2009.
- 2011+ global uncertainty, < C'th govt. \$ surpluses; State divestment (e.g. POB, NSW Electricity) & IA focus on studies (e.g HSR, inter-modals, airports) to 'be ready' for corridor & site reservation etc.
- 2009/11 Largest infrastructure project (NBN \$43B+) determination not referred to IAC or IA; limited disclosure of subsequent appraisal.

# Alignment of Politics & Surplus For Commonwealth Step In

- 2008/09 Labour Govt. - national & state & '\$ surpluses'
- IA small exec. (DITRD) Council advisory (key stakeholders)
- IAC reports to Cth/State COAG
- 2011+ State swing to Liberal & < C'th. \$ surpluses
- 2011+ IAC Imperatives:
  - × *slow rate of regulatory reform*
  - × *limited use demand management-pricing*
  - × *weakness in planning, project development & scoping resulting in > costs.*

	New investment
<b>Roads, rail and ports</b>	<b>\$8,453m</b>
Regional Rail Express (Vic)	\$3,225m
East West Rail Tunnel — preconstruction work (Vic)	\$40m
Gold Coast light rail (Qld)	\$365m
Gawler rail line modernisation (SA)	\$294m
Noarlunga to Seaford rail extension (SA)	\$291m
Northbridge rail link (the Hub) (WA)	\$236m
West Metro — preconstruction work (NSW)	\$91m
Brisbane Inner City Rail feasibility study (Qld)	\$20m
O-Bahn track extension (SA)	\$61m
Hunter Expressway (NSW)	\$1,451m
Pacific Highway — Kempsey Bypass (NSW)	\$618m
Ipswich Motorway — additional works (Qld)	\$884m
Bruce Highway — Cooroy to Curra (Section B) duplication (Qld)	\$488m
Oakajee Port common user facilities (WA)	\$339m
Darwin Port expansion (NT)	\$50m
<b>National Broadband Network</b>	<b>Up to \$43,000m</b>
Initial Government investment	\$4,700m
<b>Clean energy infrastructure</b>	<b>\$3,565m</b>
Clean Energy Initiative	\$3,465m
National Energy Efficiency Initiative	\$100m
<b>Education infrastructure</b>	<b>\$2,585m</b>
Education infrastructure	\$2,585m
<b>Health and hospital infrastructure</b>	<b>\$3,172m</b>
Hospital infrastructure	\$1,465m
Better cancer care	\$1,276m
Translational health research	\$430m

***Infrastructure Returns: Competitiveness,  
Productivity & National Prosperity***

# Does % GDP Focus Form a Sound Basis for Government Spend?

**OECD** - 2.5% global GDP: water, road, rail, telecomms & electricity.

**IA 2011 report** - Australia below OECD trend & Institute of Engineers asset quality.

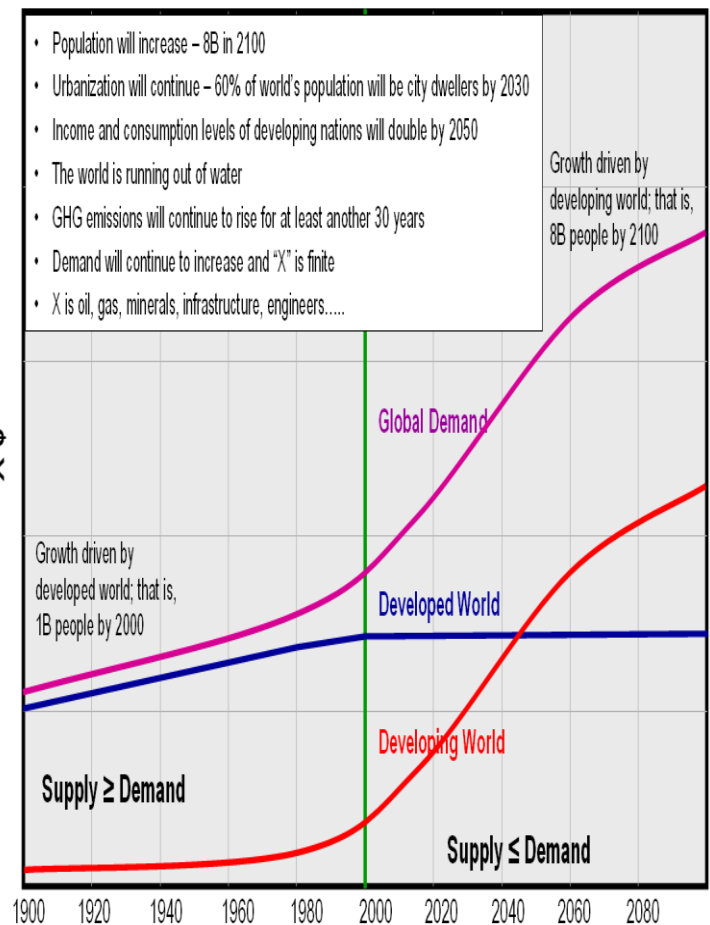
- Infrastructure (economic & social) = 30% public & private I or 6.8% GDP (2009) (Henry 2010).
- Industry lobbies estimate deficit of \$250B to \$700B+ - to bridge doubling spending over 8 years required.
- Tax is single largest source of finance & insufficient to bridge the higher 'gap'.
- Challenge to define a pipeline with sustained returns to stakeholders & minimize regulatory risk.



WorleyParsons

resources & energy

Long-term Prospects





# What is the Evidence on Returns?

Serven (World Bank 2010):

- Significant measurement errors in Aschauer 1989 estimates of returns.
- Weak link between spending and stock of assets & quality of services.
- 10% increase in assets (not spending) increases GDP 0.7-1%.
- Reverse causality - spending & GDP?

Limited empirical ex ante - ex post analysis & monitoring:

- Europe: 'Delusion and deception' in large infrastructure projects (Flyvbjerg 2009); Heightened risk with mega infrastructure projects (H Dimitriou 2011).
- Australia: Engineers Australia assessment of assets; national best practice guidelines based on 'successful projects' excluding consideration of projects subject to criticism by State Auditor-Generals.

***Infrastructure in Two Speed (Patchy) Economies;  
Australia 'A Lucky Country'***

# Resources & Related Infrastructure

## Transform Nation & Regions

- Foreign demand for commodities; falling import prices; improvement of terms of trade & standard of living.
- Commodities drive mining infrastructure (reverse causality) – 2011/12 mining investment (5.3% GDP) > non-mining investment (5%).
- Labour shortages (employing 1.8% of total employment) are reflected in regional/sectoral wage differentials.
- Iron ore, oil and gas prices drive transformation of northern arc of Australia – rural economy, Gladstone, Pilbara etc.
- Third party access to infrastructure contested – BHP/FMG; role of the regulatory critical.
- Proposed mining tax reinforces significance of sovereign risk over the long term life of assets including in particular retrospectivity & the regulator.

***Hazard of Re-bundling & Selection Based on  
'Readiness' to Fast Track Spending***

# Variability in State Submissions – Dependent on Quality of Governance

***Differences in quality of governance, a process of selection based on 'readiness' & mega-seductive projects arguably pre-empt funding projects with greater infrastructure returns in successive rounds?***

## Victoria (Vic.)

- Co-ordinator General of Infrastructure & Victoria Partnerships: Transport Strategy for Melbourne (Eddington) & the Cross-Rail submission to IAC (Chair Eddington).
- In IA submissions VIC had the advantage of the Eddington Report to offer support to a new metropolitan rail projects.

## Queensland (Qld.)

- Co-ordinator General & holistic approach to strategic planning and infrastructure programs - SEQ.
- IA submissions (projects) were developed holistically as part of regional strategies & related infrastructure programs & projects.

# Variability in State Submissions – Dependent on Quality of Governance

## Western Australia (WA)

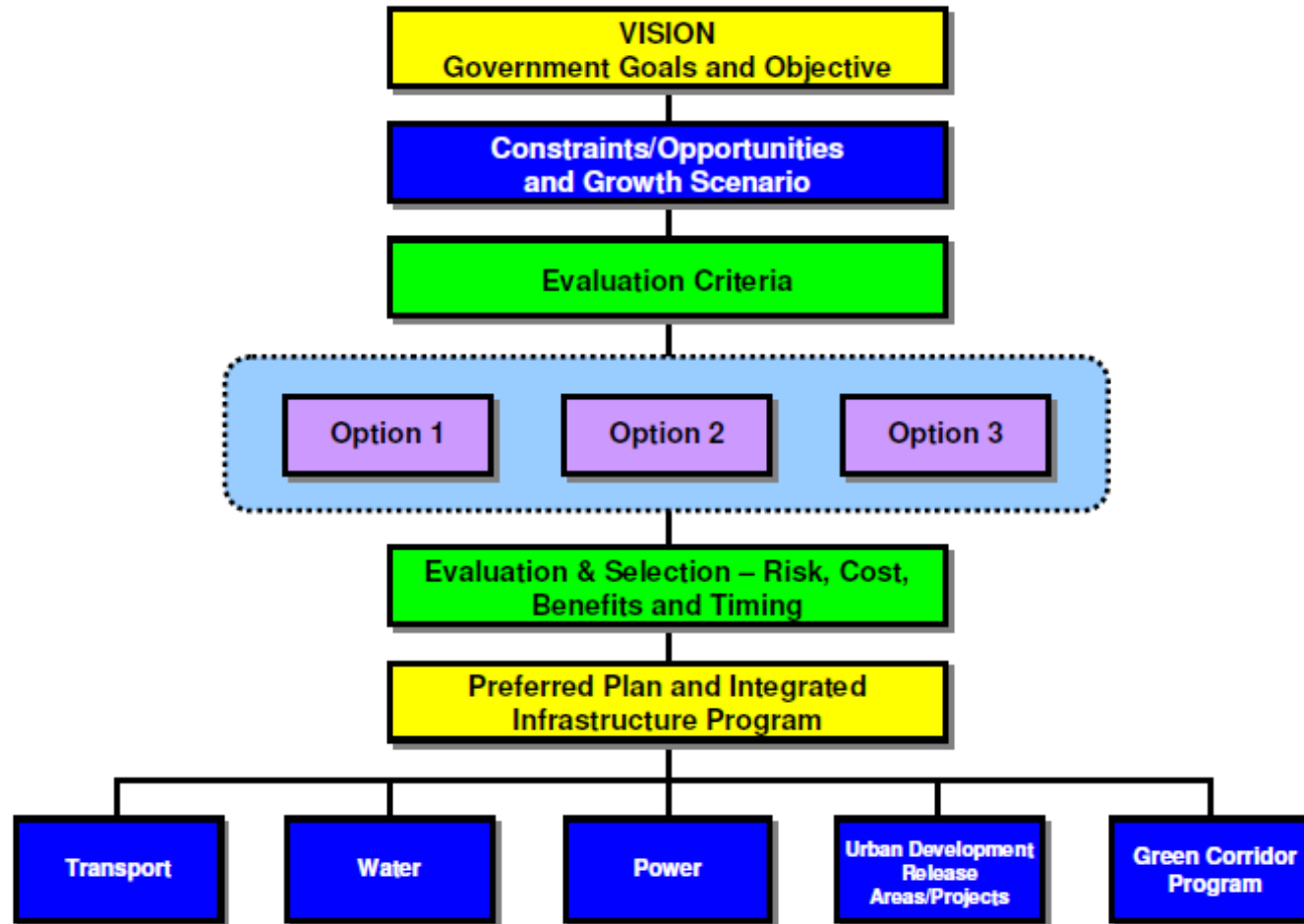
- WA infrastructure investment related to resources boom with detailed design development & evaluation.
- Okajee Port submission to IA – private investment (foreign ownership) & govt. contribution to redress shortfall.

## New South Wales

- Prior to 2010 change of government, NSW 'lacked a centre' with line agencies determining separate strategies & projects.
- First round of submissions to IA were rebundled 'start stop' politically directed projects.
- 2009/10 submissions were coupled with partial evaluations but without strategic planning as to how best to achieve returns.
- 2011 Infrastructure NSW established with detailed provisions as to content of long term strategy plans, 5 year implementation plans & sector strategies.

***Imperative: Strategic/Holistic Approach Before  
Project Selection AND Ex Post Monitoring/Feedback***

# A Suggested Holistic Approach





# Evaluation & Ex Post Audits to Improve Accountability

## **Network & Systems Models**

Systems, micro-economic & spatial GE Models (e.g. MEP , Streams).

Models linking macro-economic (trade) and spatial GE models.

Agent based behavioural models (Argon; SMART Infrastructure Centre).

## **Project Evaluation**

Feasibility & risk analysis (resources & privatisation).

CBA & Wider CBA.

Disaggregated CBA: Incidence Analysis (Initial, Spatial and Final Redistribution).

Discursive, multivariate & risk analysis (UCL Omega Centre).

## **Assumptions & Valuations – Ex Ante Ex Post Monitoring**

Forecasts/Elasticities: demand (patronage), supply (cost – initial/WOL) & price.

Discount rates & regulatory risks/changes (tax et al).

## **Sources of Bias/Error**

Double counting/weighting; agglomerative economies (net returns); other

***Limited Evaluation in Mega Projects Coupled with  
Heightened LR Risk & Returns  
[As Opposed to Valuing & Sweating Existing Assets]***

# IA 'Build' Focus Based on Readiness

## Albeit Mixed BCR's

### Ready To Proceed

- A. National Managed Motorways
- B. Melbourne Route 86 Integrated Transit Corridor Development
- C. Melb. Metro 1
- D. Adelaide Rail Freight
- E. Federal Highway link to Monaro (Canberra)
- F. Pacific Highway Upgrade

### Additional 2011 IA Project List (>\$3B)

- Qld. Cross River Rail \$7.70B
- Qld Abbott Port \$3.30B
- WA Oakajee Port & Rail \$4.50B
- NSW Freight M5 East to Port B \$4.50B
- NSW Freight M4 to PB/KSA \$\$9.10B
- Vic. Freight to POM \$5.00B

Project	Cost	BCR
A	\$4.00B	3.3-10.0
B	\$0.03B (Sect.B)	4.0
C	\$4.90B	1.3
D	\$0.42B	1.3
E	\$0.29B	3.3
F	\$7.60B	1.5
NBN	Not referred to IAC	Limited disclosure

# Quality of Evaluation & Lessons Learnt In Mega Projects (>\$3B)

- Announcement in 2009 by Albanese focus 'spend'.
- \$6B rail spend over 6 years (2009/15) dwarfed by 43B NBN.
- *'Project evaluation only as good as the governments for which it is done; it is only sustained if governments see value in it.'* Ergas 2010.
- NBN announced April 2009 with roll-out start 2010.
- NBN Costs & returns questioned - opposition, academics.
- Dec 2011 selective disclosure no full CBA or Incidence Analysis – winners & losers & final return to taxpayer.

## 'Lessons Learnt'

### Airports Sydney

Major Airport Needs for Sydney (MANS) – rigorous CBA & Incidence Analysis.

Subsequent studies reserved site & overturned by electoral pressure.

### High Speed Rail

1980/90s partial evaluation.

No corridor reservation.

IPA lobby & Consultant propose HSR benefits et al.

Authors to IPA lobby appointed; completed Stage 1 & undertaking Stage 2.

# Transformational Effects of Nationally Significant Infrastructure?

- Limited systematic & comprehensive evidence of positive causality between public infrastructure spending, assets, services & GDP.
- Agglomerative economies – essential to measure redistribution & 'net gain' rather than gross gain or gain in say a destination area (e.g.HSR).
- NBN \$43B - transformational project limited disclosure of CBA & net productivity gains (Ergas 2010).
- Analysis of mega-airport, port et al projects fails to recognise cumulative network & incidence effects (stakeholders; localities & income).

***Challenge - Slow Regulatory Reform:  
Institutions to Support Operation of Infrastructure  
Markets & Pricing***

# Government, PPP's and/or Progressive Privatization?

- Government failure - are distortions caused by competing objectives (efficiency, CSO, political).
- Criticism by IAC of government slowness in regulatory reform & demand management using pricing signals to develop infrastructure markets.
- Labour union & political rigidities in developing rail market & restructuring asset management eg NSW.
- Pricing by regulators – cost basis or price caps?
- PPP's or Privatisation in specified sectors – next step progressive privatization & evaluation in selected 'regions'?

## ***Institutional Innovation:***

### ***Alignment of Legislative Intent & Electoral Priorities***

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*Are are these mutually exclusive or have we failed to develop evaluation methods to assess flow through consequences to stakeholders?*



# Institutional Innovation to Strengthen Governance

## **Commonwealth Government**

- Introduction in 2008 of Infrastructure Australia Act and IA Council.
- Harmonizing PPP Guidelines;
- Adopting reform and investment framework (Principles);
- Preparing national frameworks for State Governments to specify: Draft National Port Strategy (Framework), National Freight Discussion Paper, Energy Market, Water Security & Cities;
- Crowding out of projects by lock-in of first round developed by State Government line agencies within 6 months of IA establishment.
- NBN \$43B+ omitted from IA evaluation & selection process by IA.

## **State Governments** – NSW Infrastructure; Victoria Partnerships et al

- Commonwealth-State budget allocation complexities with States responsible for delivery (except for Defence, Airports & ARTC).

# Legislative Objects & Electoral Priorities: Role of Evaluation?

## **Pre Election Commitments Preceding INSW 2011:**

- NW & SW Rail rebundled projects; Electricity privatisation (retention of transmission lines based on pre-election promise).

## **INSW (Advisory Body) & Legislative Terms.**

- **20 year State Infrastructure Strategy** must assess current state of assets, needs & strategic priorities; may include -objectives; assessment of deficiencies; options to redress deficiencies & costs (demand management; pricing & regulatory reforms). Adoption by Premier
- **5 year Infrastructure Plan** must have regard to the adopted strategy and may include (rationale for selection; estimated costs, recommended funding and delivery arrangements and estimated time frames). Adoption by Premier.
- **Sectoral State infrastructure Strategy Statements.** Act silent as to whether these precede, form part of or take precedence over 20 year State Strategy. Adoption by Premier.
- **Project Implementation Plans** must be more than one project and more than one agency. Consultation with Treasurer.

***Government & Private Sector: Earlier Engagement?***

# Encouraging Private Sector Competition to Enhance Returns

- Use rigorous strategic planning & project evaluation to underpin project pipeline ('build' & asset improvement & management).
- Develop mechanisms for non-conforming bids & retention of private sector IP where where non-conforming bids achieve greater productivity gains.
- Reduce bid costs & complexity & avoid retrospective regulations/taxes.
- Encourage competition & funding innovation with 'Fit for Purpose Models':
  - Embedded PMC teams and systems
  - Outsourcing – D&C & Asset Management Contracts
  - PPP's including PFI's, Alliances (incl. integrated supply chain)
  - Local enterprise partnerships
  - Privatisation of assets to fund public services
- Sweat existing assets including cost efficiencies whilst retaining/enhancing services & improved demand management (smart technologies) & pricing.
- Develop contract forms with clear performance/service outcomes, clear financial targets & risk:reward sharing.