

## **ROADS TO THE FUTURE**

### **INTRODUCTION**

#### **1. Australia Runs on Roads**

- roads are too often taken for granted
- the full contribution of roads to transforming the Australian way of life is not fully recognized (in terms of the economy and for social change)
- Australia is a large country with a comparatively small population (just larger than Beijing's – spread across a landmass about the size of China)
- but there is inadequate road funding and an opportunity in the level of collaboration between different levels of government and industry players
- meanwhile there are increasing user expectations (a lack of adequate roads in Western Sydney helped cause the loss of the seat of the Rudd Government's most senior minister in the September 2013 federal election)
- need for innovation, such as for addressing greenhouse emissions and improving health and safety performance
- a different way of thinking about the future can help with enhancing the road construction and maintenance industry

### **THE INFRASTRUCTURE CHALLENGE**

#### **2. Infrastructure Neglected**

- infrastructure projects often perceived by politicians as "too hard"
- not newsworthy in a 24/7 media era, with the emphasis on the "immediate" rather than the "important"

#### **3. Obtaining Adequate Road Funding**

- standard revenue measures aren't now always effective
- 1978 California "tax payers revolt": people wanted lower taxes even if it meant that infrastructure is neglected
- Eisenhower era: highest marginal tax rate was 91 per cent; era of the superhighway programme; now at least 8,000 US bridges are structurally deficient
- new ways need to be found to finance infrastructure
- note that in the 2013 federal election tough taxation reform was ducked: eg an increase in GST (or its base being widened) or the reintroduction of death duties

#### **4. "Roads to Recovery"**

- local government maintains 85 per cent of Australian roads (over 680,000 kilometres)
- shortage of local government funding: local rating inadequate
- temporary Howard Government 2000 Roads to Recovery (R2R) legislation; renewed by the Rudd Government in 2008
- not intended to replace local government rate income
- legal challenge: local government not recognized in the Australian Constitution
- proposed referendum to correct this problem, originally scheduled to coincide with the 2013 federal election but later withdrawn, partly through the lack of perceived public support

- direct funding to local government a good idea and should be supported
- referendum should still go eventually ahead, with an improved public education programme, not least emphasizing to voters the importance of national funding to local government for roads

## **5. Value Capture**

- how to “capture” the windfall of infrastructure financial benefits?
- Don Riley: *Taken For a Ride*: story of the beneficial impact of the Jubilee Line Extension (40 years of taxation “refunded” to Riley via extending the Underground to his part of London and so increasing the value of his properties)
- challenge is to recover some or all of the value that public infrastructure generates for private landowners
- not a new issue: Henry George (1839-1897) highlighted the challenge (one of his supporters invented the board game Monopoly to explain it)
- property taxes are a general way of trying to following Georgist thinking
- three ways of government funding for infrastructure:
  - (i) general revenue (eg income tax, GST)
  - (ii) user-pays (eg tolls)
  - (iii) value capture

## **6. Need for a More Explicit Focus on Value Capture**

- value capture as a form of infrastructure finance
- land value taxation (LVT): general increase in the price of land due to improvements (and not just a specific project)
- tax increment funding (TIF): taxes on the future increment value within a development (or redevelopment) project to finance development-related costs, including infrastructure projects

## **7. Refocussed Political Debate**

- political debate should be more focussed on “future value” rather than “present cost”
- when road infrastructure is hindered, then property owners and developers are being denied the opportunity to share in the rising values that could arise if the development were to take place
- road development as a “human rights” issue
- national and state governments should develop, and then stick to, 15-year infrastructure plans

## **INNOVATION**

### **8. Hubbert’s Prediction over Peak Oil**

- the depletionists future scenario is that we have passed peak oil and are therefore faced with a declining resource that will become progressively more expensive to access
- “Hubbert Peak”: oil production reaches a peak where about half of the supply of the find is used, after which production become more difficult and more expensive to get out the other half

- 1956: M King Hubbert (a Shell geologist) predicted that US oil production would peak around 1970 (he was proved right) and global output would peak in 1995 (he got that wrong)
- there is a difference between actually running out of oil – and no longer finding oil at the same rate it is being drilled (like getting apples off a tree – there may be apples right at the top but would you want to make the all effort to get there?)
- on the other hand: the technology of exploration has improved considerably; higher oil prices encourage greater attention to finding new fields; new countries are being opened up eg Central Asia (Azerbaijan, Kazakhstan, Turkmenistan, formerly controlled by the USSR)
- new reserves are being found in Africa: Africa could be the next continent for economic development
- based on current reserves data. unlikely we will run out of oil in the next 50 years or so – therefore bitumen will continue to be a via product for the foreseeable future
- the increased use of RAP (recycled asphalt) and the introduction of bitumen extenders will also help to mitigate the demands on fresh resources in the future

## **9. Risk of Complacency**

- time of greatest danger comes at the time of greatest success: risk of complacency over the mining boom; profits could be squandered by politicians
- lack of long-term infrastructure thinking in Australian politics eg contrast with the 1903 construction of the world's longest freshwater pipeline (530 kilometres) that takes water from the coast near Perth out to the Gold Fields in central WA
- lack of investment in research and development; talented Australian scientists go overseas to work; 98 per cent of the technology used by Australian businesses comes from overseas (Intel spends more on R&D than all of Australia)
- lack of public recognition of the value of education and research: sportspeople have a much higher profile; we should make as much fuss of scientists as we do of sportspeople

## **10. Innovation Historically and Looking Ahead**

- Shell opened its first bitumen plant in 1919
- with the recovery from the Depression of the 1930s, the boom in bitumen brought the double benefit of better roads and more jobs
- from those early days when bitumen was used to coat roadstone to manufactured asphalt there have been many product innovations globally including: polymer modified bitumen, emulsion technology, warm mix systems, pavement design, multigrade bitumen, hard binders for structural asphalt, and thin surfacings
- there have also been innovations in the supply and delivery areas including recently “in line” blending where bitumen grades are blended while they are loaded into bitumen tankers; this creates significant flexibility in terms of the grades offered at a supply

- out of such global innovations, only a few have been realized in Australia; there is a need to encourage Australian innovation

### **11. Need for a National Approval Scheme for Innovative Products**

- to implement innovation there needs to be a framework to assess the performance and suitability of new and different products
- French experience with the Avis Technique and the UK experience with HAPAS have delivered benefits to industry, client and customers.
- 1995 creation to develop a nationally recognized approval and certification scheme for innovative products and systems used in highway works
- run by BBA: British Board of Agreement: a similar system should be developed for Australia
- a challenge for Australia is to consider whether these assessment models provide the basis of a workable framework in this country

## **SCENARIO PLANNING**

### **12. Three Ways of Thinking About the Future**

- (i) **prediction** (“Moore’s Law” and the doubling power of computers eg use of remote steering on mining vehicles, creation of driverless cars)
- (ii) **preferred futures**: creating a vision of a better future eg 1956 Eisenhower Inter State Highway System
- (iii) **possible**: scenario planning: importance of paradigms/ worldviews (role of paradigms: Nokia and texting)

### **13. The Evolution of Scenario Planning as a Management Tool**

- Shell has been the pioneer in scenario planning
- Pierre Wack at Shell: 1973 OPEC oil increase
- Clem Sunter: early 1980s: South Africa: encouraging white South Africans to “think about the unthinkable”
- a new national vision emerged of a post-apartheid South Africa

### **14. South African Model as a Model for Australian Road Infrastructure**

- scenario planning could be used as a way of developing political will towards creating a national vision on funding transport infrastructure
- debate could be focussed on following questions:
  - . “how could Australia’s road infrastructure be financed?”
  - . “what could happen if Australia continues to maintain the current level of funding?”
  - . “how might road safety issues change in the future?”
  - . “what impact could climate change have on road infrastructure?”
  - . “what are the implications for road infrastructure arising from the creation of driverless vehicles (such as the Google experiment)?”

### **15. The Value of a Scenario Planning Process**

- it is so not much about getting the future right as to avoid getting it wrong
- encourages us to look at current events with different eyes
- encourages us to “see” trends that are currently “invisible” (they are there all right – it is just that we are not noticing them)
- scenario planning encourages people to be alive to possibilities

## **16. Need for an Innovative Communications Campaign**

- “facts” alone don’t win arguments
- Randy Olson: *Don’t Be Such a Scientist: Talking Substance in an Age of Style*
- four layers of communication: head (thinking), heart (love, nostalgia), gut (fear), reproductive system
- therefore go for the heart and gut – and not just the head
- *The Archers* (BBC) as a form of social advertising; example of nurse Georgia Saddler in California communicating women’s health issues
- you don’t think your way through to a new way of living: you live through way through to a new way of thinking: be ready with plans once the broader social, political and economic conditions start to change

## **CONCLUSION**

- roads are important
- there are big challenges in infrastructure
- there is also a strong need to encourage more innovation
- scenario planning (as pioneered by Shell) is a useful tool to help address and overcome these issues

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