



## 'Real options' for adapting to coastal climate change

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### misconceived adaptation

- do nothing
- insurance (a financial option)
  - but correlated risk, slow-onset non-fortuitous?
- disaster relief (but 'charity hazard')
- composite 'vulnerability' indexes
- traditional 'risk management' (GosPlan)
  - assumes known risk
  - but no decision criteria on extent or timing
- 'climate proofing' (the 'bigger hammer')

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### some provocative propositions

1. deterministic planning in the face of significant uncertainty is plain wrong!
2. premature implementation of adaptation measures is likely to be socially costly, as would undue procrastination
3. only flexible strategies are appropriate under conditions of uncertainty
4. avoid one-eyed enthusiasts. Adaptation is only one of many competing social priorities. Cost-benefit analysis is essential.

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### macro-micro: two perspectives

#### 'macro' perspective

- CC is just another "shock" to the economy
  - result will be structural adjustment over time
  - just like tariff reductions, global financial crisis
- macroeconomic "resilience" requires flexibility
  - minimise distortions like regulations, price control
- so comprehensive microeconomic reform is needed

#### 'micro' perspective

- cost-benefit analysis essential
- 'real options' approach needed for flexibility

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### a "real option" example



Assume a newly-married couple. If they are certain of the future, they know how many children they will have, whether they need a home office, the number of cars, etc. They can purchase a large house.



If the future is markedly uncertain, the couple can defer buying a large home. A small home with room to extend offers an expansion option. The flexibility allows better use of information that becomes available in the future.

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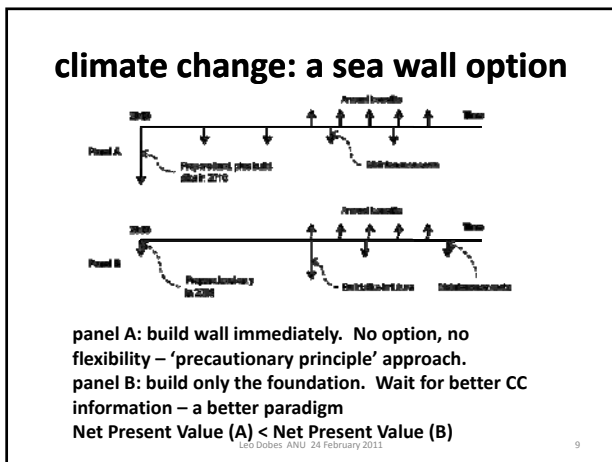
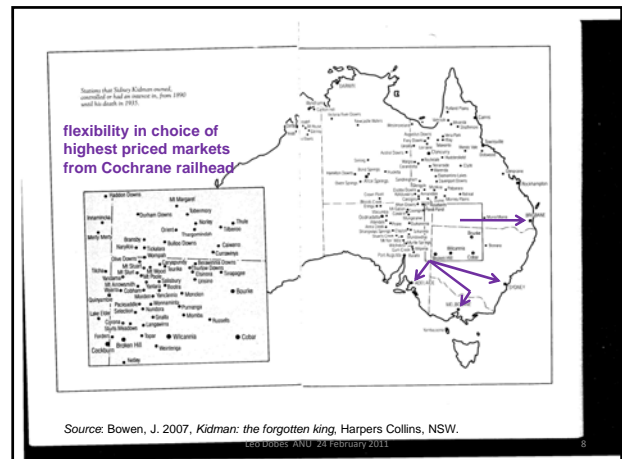
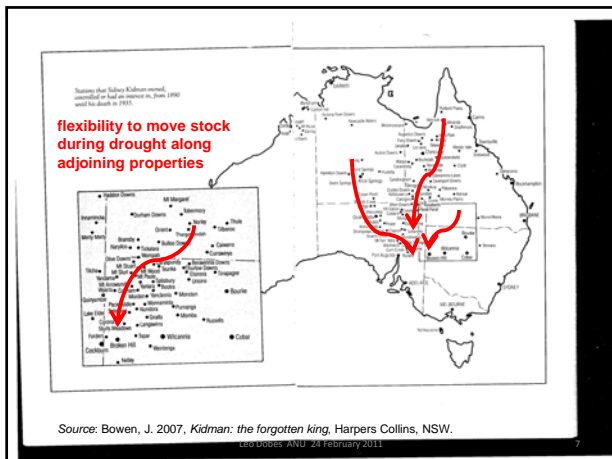
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### other examples of real options

- "fitted for but not with": a military approach
- historic QLD bridges (low), railways (gabions)
- a short runway, or a long one?
  -
- Sir Sidney Kidman, climate options pioneer
  - a potential MBA school failure
  - continental scale transformation
  - no government assistance

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- ### cyclonic flooding in Cairns
- February 2009:
    - coastal highway flooded due to cyclone
    - no fresh meat or vegetables in supermarkets
  - traditional linear response (letters to editor) :
    - raise the Bruce Highway (again!), or
    - build alternative inland route
  - possible 'real option' :
    - preposition refrigerated containers on coast
    - supply Cairns by sea, as is the case with beer
  - current ANU-CSIRO project on valuing preferences in Cairns for aspects of emergency services
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- ### what is to be done?
- acknowledge uncertainty, the hallmark of CC
    - but requires creative approach (∴ harder)
  - embed flexibility in adaptation projects
    - allow abandonment and expansion options
    - requires interdisciplinary cooperation in program management: cultural change
    - requires new financials for program management
  - cost-benefit analysis (CBA) to ensure best use of scarce social resources
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## background reading

- Dobes, L. 2008, 'Getting real about adapting to climate change: using "real options" to address the uncertainties, *Agenda*, 15(3)  
<http://epress.anu.edu.au/agenda/015/03/pdf/15-3-AR-1.pdf>
- See chapter 5 of Howes, S. & Dobes, L. 2010, report for World Bank on fiscal aspects of climate change [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/02/01/000333038\\_20110201000150/Rendered/PDF/565630REV0ESW010Policy01Jan13112011.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/02/01/000333038_20110201000150/Rendered/PDF/565630REV0ESW010Policy01Jan13112011.pdf)