Australian Government
Department of the Environment

Cost benefit analysis in the development of policy – Australia

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Overview

- Australia's regulatory policy requirements
- Some elements and requirements for cost benefit analysis
- Example of persistent chemicals and associated challenges

Regulatory Policy Requirements

10 principles

- Regulation should not be the default option for policy makers
- The policy option offering the greatest net benefit should always be the recommended option
- Regulation should be only imposed when it can be shown to offer an overall net benefit

Regulatory Policy Requirements

7 RIS questions

- What is the problem you are trying to solve?
- Why is government action needed?
- What policy options are you considering?
- What is the likely net benefit of each option?
- Who will you consult about these options and how will you consult them?
- What is the best option from those you have considered?
- How will you implement and evaluate your chosen option?

Regulatory Policy Requirements

7 RIS questions

- What is the problem you are trying to solve?
- Why is government action needed?
- What policy options are you considering? eg
  - No regulation
  - Self regulation
  - Co-regulation
  - Alternative instruments – information and education, taxes, subsidies, standards, etc

Regulatory Policy Requirements

9 Steps in preparing a CBA

Step	Action
1	Specify the set of options.
2	Decide whose costs and benefits count.
3	Identify the impacts and select measurement indicators.
4	Predict the impacts over the life of the proposed regulation.
5	Monetise (attach dollar values to) impacts.
6	Discount future costs and benefits to obtain present values.
7	Compute the net present value of each option.
8	Perform sensitivity analysis. (includes real discount rate of 7 per cent and sensitivity analysis at 3 and 10 per cent)
9	Reach a conclusion.

Cost Benefit Analysis

- We must consider at least three options, one of which must be non-regulatory.
- A ‘do nothing’ or ‘business as usual’ option will usually provide the *base case* against which the incremental costs and benefits of each alternative are determined.
- Only costs and benefits that would not have occurred in the base case should be included in the CBA.

Cost Benefit Analysis

A few observations on costs

- Standard matters - such as cost of alternatives or switching production; costs to meet proposed waste disposal requirements; costs to monitor, etc. Includes govt and community and private sector.
- ‘regulatory burden measurement’ – here is where we must quantify only private sector in order to offset
  - Includes administrative compliance costs (eg having to report)
  - Substantive compliance costs – eg operational costs, new staff training
  - delay costs - eg to prepare an application

Cost Benefit Analysis

Environmental considerations

- Describing environmental assets, how they benefit the community and how they these benefits are likely to change under different policy options
- Categories of ‘Ecosystem services’
  a. Provisioning services
  b. Regulating services
  c. Cultural services
  d. Supporting services

Cost Benefit Analysis

Quantifying and then valuing endpoints

- Value (not just price)
- Direct and indirect use values (eg crops and ecosystem services)
- Non use (eg existence value, bequest value)
    - Revealed preference (eg real estate prices)
    - Stated preference (eg choice modelling)
    - Value transfer/benefit transfer (using studies from other locations)

Cost Benefit Analysis

Provisioning services

- Case study: HBCD
- Direct dose response relationship not possible
- Approach: estimating possible benefits/avoided costs of reducing HBCD emissions under different scenarios
- Assumptions:
  a. Water [HBCD] and fish embryo survival rates based on Australian data for HBCD concentration in sediment
  b. Assumed linear relationship between embryo loss rate and HBCD concentrations
  c. Loss rate applied to HBCD estimated emissions to derive estimated loss rate per kg of HBCD

Cost Benefit Analysis

- Difficulty in quantifying and in establishing dose response, hence fall back to qualitative discussion.
- Often purely scientific regarding potential risks, but can also consider within the frame of known health costs eg - if a chemical affects liver or reproductive hormones – what are the costs to society of reproductive problems? What are the costs to society of liver disease?
- eg $60 million a year. If only a tiny fraction, say 0.001% could be avoided due to reduced exposure, then benefits may be positive.
- Could assist in ranking options.

Cost Benefit Analysis

Decision making under uncertainty

- Sources of uncertainty (lack of data or knowledge)
- The nature of uncertainty
  a. Resilient strategy
  b. Adaptive strategy
  c. Threshold analysis

Cost Benefit Analysis

Threshold analysis

- The value to society of an improvement in environmental quality is worth its associated opportunity costs.
  - Minimum value the associated environmental benefit would need to have to justify choice
- Applicability:
  - Used when concerns about the reliability of valuation estimates
- Limitations: Subjective decision making

Cost Benefit Analysis

- Costs of inaction
- How to take into account multiple chemicals/efficiencies from considering several at once
- Precautionary principle
- Risk communication and risk appetite