

Copenhagen Consensus



What is cost-benefit analysis?



We do cost benefit analysis everyday

- Every day decisions involve some form of cost-benefit analysis
 - What do I eat for breakfast?
 - Should I buy those new shoes, or a phone?
 - How do I get to work in the morning?
 - What should I study, or where should I send my kids to school?
- Weigh up what we like (benefits) vs the sacrifice that we need to get there (costs)

Copenhagen Consensus cost benefit analysis expands that idea

- Formalization
 - Being explicit and clear about what are costs and benefits as well as assumptions
- Quantification
 - Measuring the costs and benefits in a comparable manner
- Society wide view
 - Not just personal view, but what happens to society as a whole

There are three steps in cost-benefit analysis

1. Identify all the costs and benefits
 - **Social, environmental and economic**
2. Quantify costs and benefits in dollars (or taka)
 - **How much and when**
3. Calculate costs and benefits in today's dollars
 - **Discounting for time value of money i.e. a dollar today is worth more than a dollar tomorrow**

Identify costs and benefits: water and sanitation example

Currently there are 750m people without access to safe drinking water and 2.5bn without access to a basic latrine.

What would happen if we provided clean drinking water and toilets for everyone?

Identify benefits: water and sanitation example

- Social benefits
 - Fewer deaths, less diarrhoeal disease, malnutrition and worms, time savings, less dehydration, fewer flood related problems, better attendance and learning outcomes at school, privacy and dignity, improved water security
- Environmental benefits
 - Less contamination of water, use of waste and wastewater in agriculture
- Economic benefits
 - Lower health care costs, more wages from not being sick (or dead), use of waste for energy

Identify costs: water and sanitation example

- Costs
 - Installation costs usually derived from program experience – raw materials, labor, program overhead
 - Unintended (or intended) consequences?
- For water and sanitation it is the cost of:
 - Dug well, boreholes, tube wells, latrines and toilets, septic tank

Quantify the benefits and costs

Benefit example - Annual time savings for water access:

= Time saved per trip in hours x no. of trips per day x 365 x value of an hour (30% GDP per capita per hour)

= 0.5 hours x 2 x 365 x (30% x \$1)

= \$110 per person per year

Cost example:

Experience suggests \$10,000 per borehole and handpump with \$600 per year maintenance

Discounting costs and benefits

- A dollar today is worth more than a dollar tomorrow
- Simple example, at 3% p.a. discount rate:
 - **\$100 today = \$103 in one year's time**
- The higher the discount rate the more you value immediacy – it is different for everyone
- Choice of discount rate is important because investments today may not provide benefits for years or decades
- Copenhagen Consensus uses 3% and 5% discount rates

Answer

| Water and Sanitation | | | |
|--|-----------------|--------------------|--------------------------------|
| Target | Annual Cost \$b | Annual Benefit \$b | Benefit for every dollar spent |
| Eliminate open defecation (rural only) | \$13 | \$84 | \$6 |
| Universal access to basic drinking water at home | \$14 | \$52 | \$4 |
| Universal access to basic sanitation at home | \$31 | \$92 | \$3 |