



Life Cycle Costing /CBA

Life Cycle Costing Cost Benefit Assessment

	Planet	People	Profit/Prosperity
Externalities (costs or benefits)			
Private costs or benefits			

- Conventional LCC: assessment of private costs and benefits, internal to the organization
- LCC: additional assessment of external relevant costs and benefits anticipated to be privatized
- Societal LCC: additional assessment of further external costs

Grouping + Descriptors -Useful?

Aspect	CLCCA	LCA	ELCCA	CBA and SLCCA	SEA
Evaluates required criteria?	If combined with environmental analysis	If combined with economic analysis	Yes	Yes	Yes
Values quantified	Internal costs	Environmental effects (e.g., emissions, material/energy use, toxicity)	Internal costs and certain external costs that may be internalized	Societal value-added internal costs and externalities (i.e., transfer payments excluded)	Societal value-added internal costs and externalities using monetary or ranking/ weighting scale
Result	Single cost	Multiple emissions, impact categories, and/or single weighted value	Single cost plus separate, non-monetized LCA results	Single cost plus enumeration of non-monetized costs	Results presented separately to clarify tradeoffs for audience
Perspective	One main actor (either manufacturer, user, or consumer)	One or more actors (e.g., manufacturer, supplier, consumer)	One or more actors	Society, including governments	Society, including governments
Life cycle	Incomplete (phases ignored if costs not borne by main actor, e.g., use phase)	Complete, unless contribution of phase is insignificant (e.g., design phase)	Complete	Complete (not necessarily implemented)	Complete
Analysis model	Generally quasi-dynamic model	Steady-state model	Steady-state model	Generally quasi-dynamic model	Generally quasi-dynamic model
Reference unit	Item, product	Functional unit	Functional unit	Functional Unit or System	System
Discount cash flows	Recommended	NA	Recommended	Recommended	Recommended
Discount final result	Recommended (not necessarily applied)	NA	Not recommended, some results unmonetized	Recommended	Recommended for monetized values
Difference from CBA?	Excludes external opportunity costs and credits	Economic costs ignored; environmental effects quantified but not monetized	Simultaneous, consistent product LCA & sustainability assessment; environmental effects quantified but not monetized	--	Opportunity costs or credits considered; May be based on ranking rather than costs; results itemized so tradeoffs can be evaluated

Note: NA = Not applicable

Tools/Methods (partial list here)

Tool Name	Organization	Analyzes:	Geographic Focus	Description
Cost-Benefit Analysis Guidelines				
Circular A-4: Regulatory Analysis	OMB	Regulations	U.S.	General guidance/ background for CBAs
Circular A-94: Guidelines and Discount Rates for BCA...	OMB	Regulations	U.S.	Discount rate guidance is applicable to broader CBAs
Environmental Impact Assessment for SEA of Chemicals	ECETOC	Chemical Products	Europe	Includes questionnaire about possible chemical substitutes and case studies
Life-cycle Cost Accounting Guidelines				
Life-cycle Cost Analysis Primer	U.S. DOT	Infrastructure systems	U.S.	Provides general guidance for conventional LCCA
Code of Practice of Life-cycle Costing	NATO	Military systems	U.S./ Europe	Describes conventional LCCA; includes guide for presenting results
Environmental Valuation Data Sources				
National Center for Environmental Economics	EPA	Varies	U.S.	Portal for environmental valuation research.
Valuing the Protection of Ecological Systems and Services	EPA	Ecological valuation	U.S.	Discusses creating a model ecosystem services and associated valuation

Recall the methodology

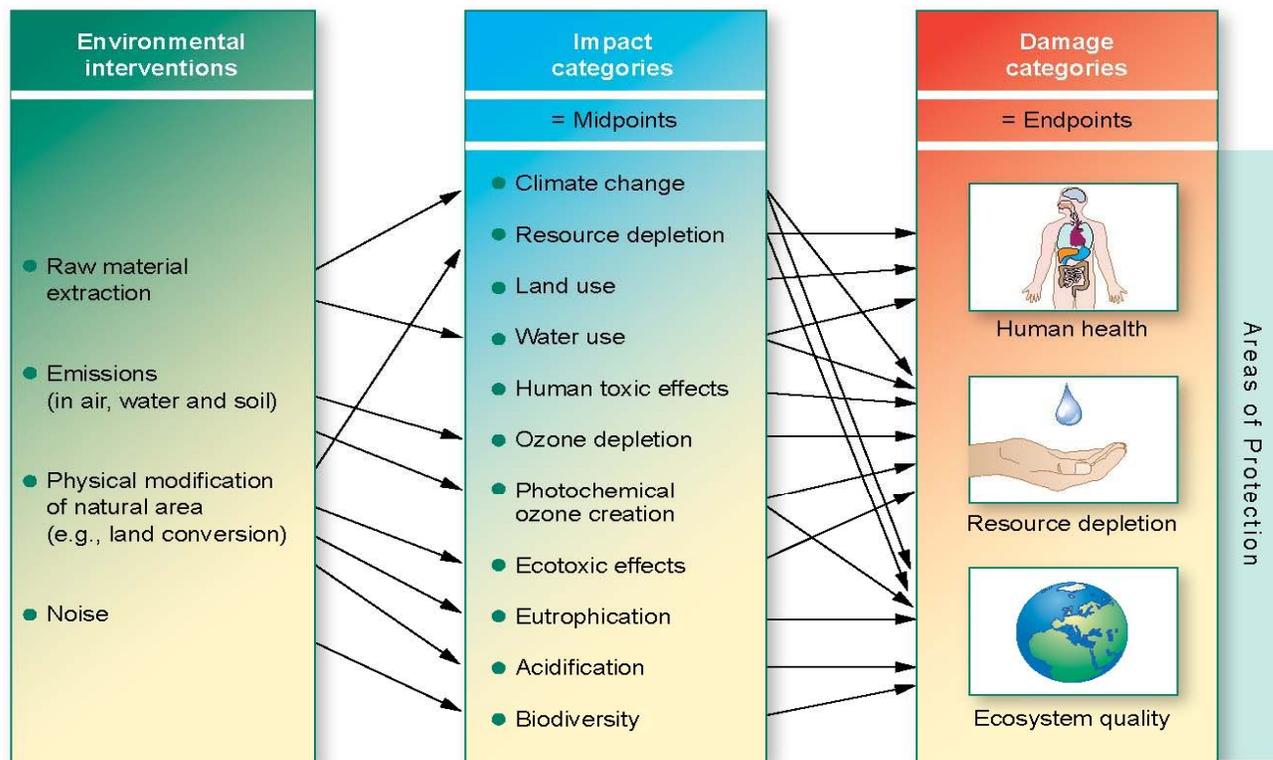


Figure 2. Overall UNEP/SETAC scheme of the environmental LCIA framework, linking LCI results via the midpoint categories to damage categories (adapted from Jolliet et al., 2003a).

4 See the definition in the Glossary.

5 Reference is chosen by the practitioner. A common reference is the impact caused by a citizen in one year.
6 This can be done by dividing indicator values by a reference quantity.

Social Life Cycle Assessment

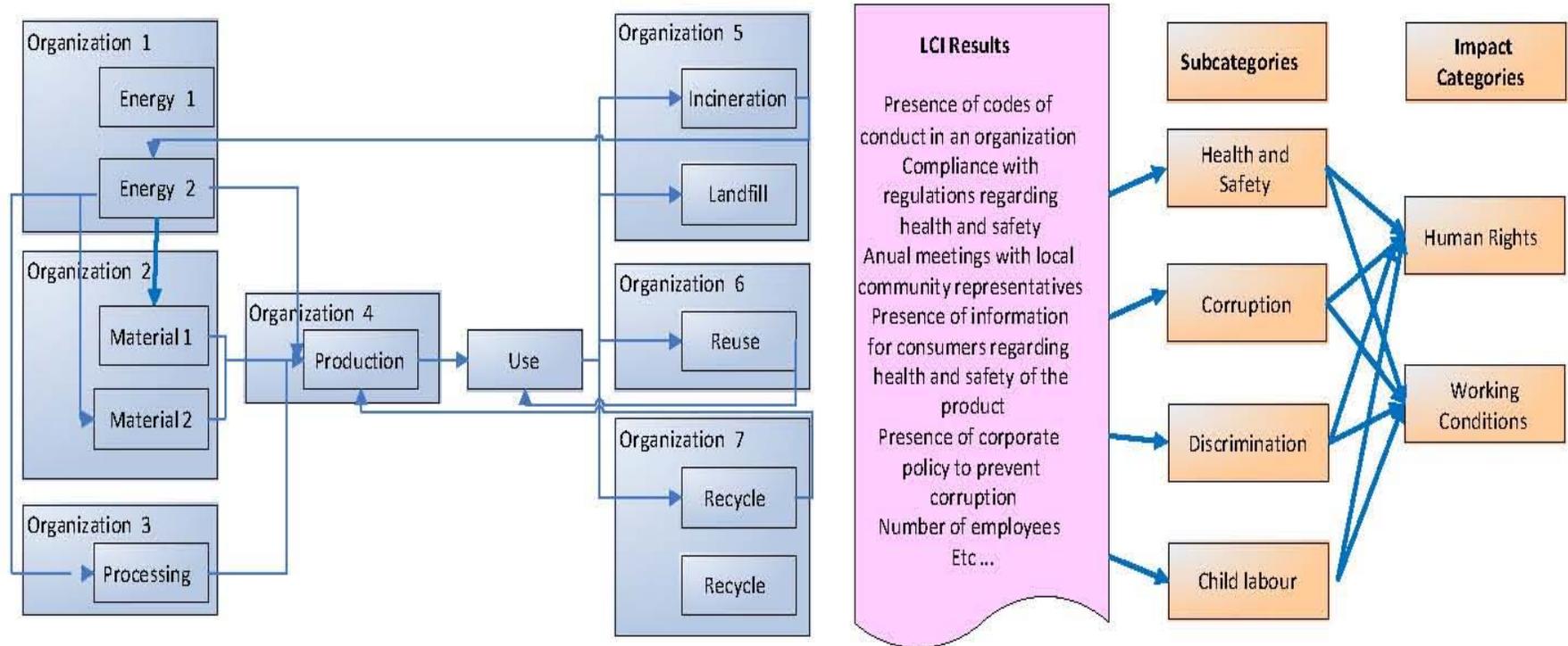


Figure 9. Examples of a social life cycle inventory (S-LCI) and interrelationships to subcategories and impact categories.

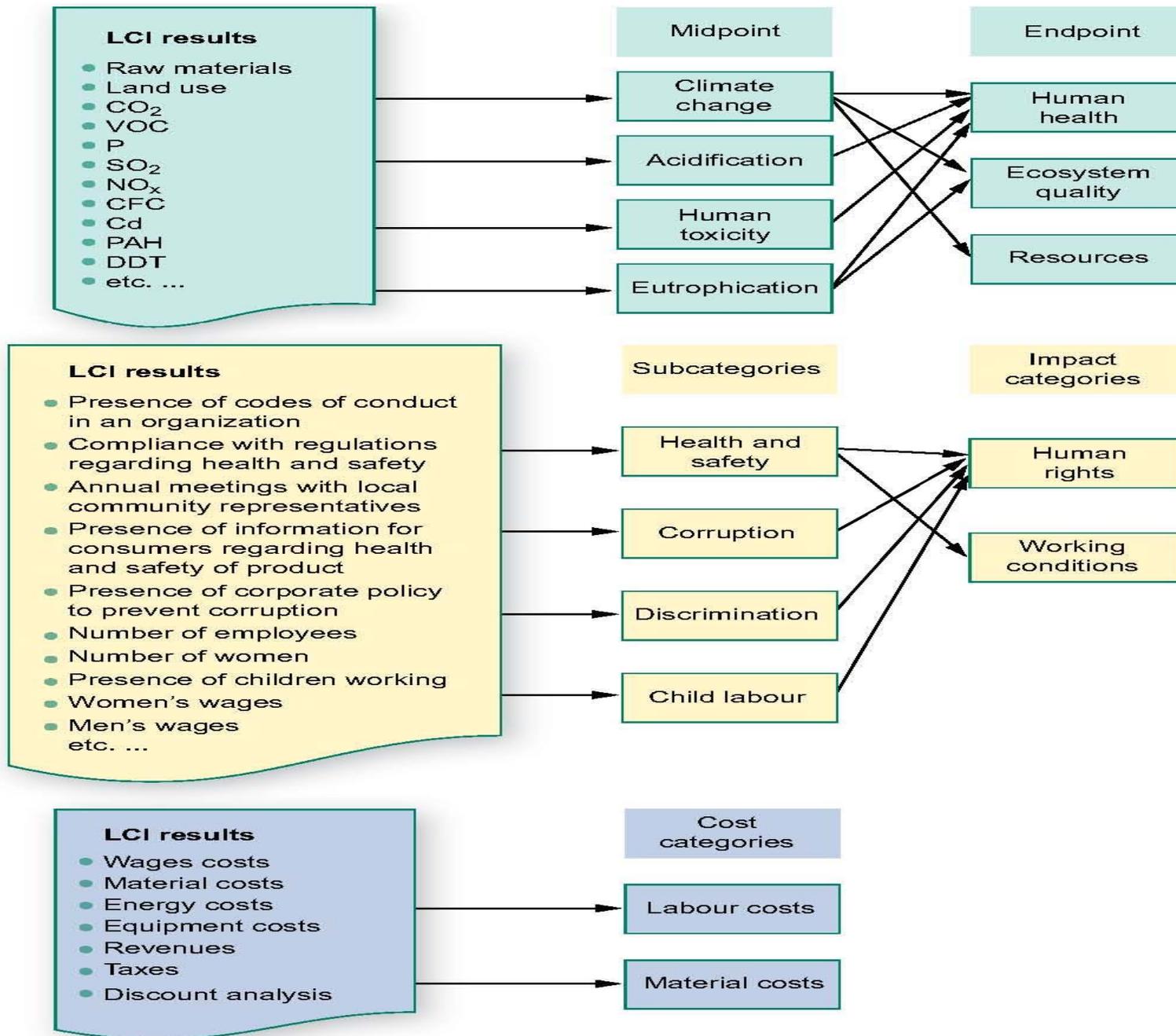


Figure 16. Examples of midpoint and endpoint categories, subcategories of stakeholders and cost categories when starting a life cycle sustainability assessment (LCSA).



Additional thoughts or questions