

Triple Life Cycle Assessment

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As sustainable development becomes more important in the face of growing environmental, economic and social challenges, so too, will the need for tools, methods and resources for assessing the sustainability of various policies, investment decisions and development strategies. Public and private organizations are increasingly recognizing the three major domains of sustainable development as economic/fiscal, environmental and social. These domains are also referred to as:

- the three E's -- ecology, economy and equity
- the three P's -- people, planet, profits, or
- the triple bottom line

Sustainable activities and solutions are often considered those which concurrently address the values and perspectives of these three domains.

Though the Global Reporting Initiative and other model for triple bottom reporting are gaining ground, these are primarily reporting, rather than assessment tools. A universal, transparent, verifiable method for assessing the degree that various courses of action are optimizing performance across the economic/fiscal, environmental, and social domains remains elusive to date.

Life Cycle Cost Assessment (LCCA) now serves as a broadly applicable and reliable tool for understanding cradle to grave production costs in manufacturing and/or the total cost of ownership for asset developers. Though usually requiring a more intensive data collection effort, Life Cycle Impact Assessment methods are providing useful environmental accounting information for a range of audiences who want to understand how various products, services or development actions vary in their total environmental impacts.

Though these mature assessment frameworks exist for the fiscal and environmental domains, those interested in a sustainable development perspective still lack a shared approach for assessing impacts and benefits to society across temporal and spatial scales. Sustainable development requires interdisciplinary teams with interoperable methods for assessment across fiscal, environmental and social dimensions. We have yet to see LCCA and LCIA brought together with a viable transparent social assessment framework. To address this growing need, the authors assert that Life Cycle Cost Assessment should be brought together with Life Cycle Impact Assessment and a new field of Life Cycle Social Benefit Assessment.

These three life cycle tools, wielded concurrently, will provide the most comprehensive assessment framework for helping steer (especially public) development toward sustainable approaches. The authors propose a flexible and auditable method for carrying out life cycle social benefit assessment and discuss the opportunities, benefits and challenges related to carrying out this triple lifecycle assessment method on a simple trail hardening project in a local park in Seattle.