

Calculator: LifeCYCLE

<http://www.mottmac.com/corporateresponsibility/sustainability/sustainabilitytools/>

Summary

LifeCYCLE is a cost and carbon modelling tool that quantifies the costs and carbon emissions associated with building, upgrading and operating assets, throughout the development's lifetime and helps planners and designers to substantially reduce them. LifeCYCLE uses data from Mott MacDonald's UK Building Blackbook and the ICE's CESMM3 Carbon and Price Book – the first ever construction price books to also contain estimated carbon emissions values for construction activities.

Developers: Mott MacDonald

Applicable sectors*							Themes		
All Infrastructure	Buildings	Roads	Water	Energy	Transport	Construction	Materials	Ecology	Wastewater
							Potable Water	Carbon/GHG	Other
Countries	60 International locations. Currently hold databases for the UK, Hong Kong and Russia					Access	Commercially available from Mott MacDonald		
Compatibility with other tools	INDUS; Sustainable Water Engineering Opportunity Tool					Guidance for Users	LifeCYCLE support comes in the form of Mott MacDonald consulting services.		
Inputs & Outputs	<p>The calculator draws from the in-built database of construction material cost and embodied carbon derived from the <i>UK Building Blackbook</i>, but users can also input their own data.</p> <p>Users can derive financial costs and embodied carbon for new components based on information about their production, transport to site and on-site processing.</p> <p>The tool outputs reports of annual expenditure, summaries, cost and carbon distribution profiles, quantities of resources required and waste. Reports can be produced for capital costs, life cycle costs and Carbon emissions at the same time. Users can also run a comparison report to compare their options.</p> <p>Users are able to export/ download a full list of available assets to excel format. Use that spreadsheet to edit the quantities and then upload the revised spreadsheet back to perform a merge of the assets into their project</p>					Methodology	<p>LifeCYCLE produces auditable Whole life costing and carbon footprinting for buildings and other types of infrastructure.</p> <p>It produces information to ISO and best practice standards on:</p> <ul style="list-style-type: none"> - Capital cost; - Life cycle cost; - Embodied & operational carbon; - Resource requirements; - Waste minimisation; - Building life span; - Specification optimisation based on whole-life performance; - Material transportation impact. <p>It considers construction, refurbishment, maintenance, operation and demolition. The resulting reports produced can accompany design options for option appraisal (for example using INDUS) and design optimisation.</p>		
Database library	Similar to CapIT, LifeCYCLE contains an in-built database derived from the <i>UK Building Blackbook</i> and CESMM3 price book which contain information on cost and embodied carbon of construction materials and elements.					Data intensity & flexibility	Data intensity is high due to the all-encompassing nature and complexity of the calculation, but this is made easier by the accompanying database and consultancy services. Data flexibility is high in that the user can use pre-assigned values or can choose to insert their own carbon and cost data.		

* The tool has been predominantly designed for the Buildings Sector but it can be made applicable to other types of infrastructure.