

Decision-Support Tool: Water Sustainability Opportunity Tool

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

Summary

Mott MacDonald has developed a tool that allows planners and designers to review design options for water and wastewater infrastructure projects and identify relevant opportunities to maximise the sustainability credentials of every aspect. The Water Sustainability Opportunity Tool gives a practical definition of sustainability at project level, and highlights the principal sustainability opportunity areas to address. It facilitates project improvement by highlighting the project's unutilised potential for sustainability and provides practical design guidelines to minimise this.

Developer: Mott MacDonald

Applicable sectors				Function			
All Infrastructure	Water	Energy	Organisations	Design Guide	Option Appraisal	Construction Guide	Op&M Guide
Countries	UK			Process summary	<p>The software-based tool provides Sustainability Reference Sheets to guide sustainable design. During design or option appraisal, the user begins by determining project priorities and assigning weightings to each sub-theme category.</p> <p>The user proceeds to answer each question within each sub-theme by assigning a performance score to project design or each design option (on a scale of 0-10). The software aggregates weightings and scores (as percentages) and produces a sustainability opportunity summary.</p> <p>Finally, the sustainability achieved for each theme and for the option as a whole, as a percentage of the maximum sustainability that could be achieved, is presented. This highlights areas of missed opportunity where design could potentially improve sustainability performance.</p>		
Deployment & developments	The tool is not yet commercially available, rather it is used internally as part of Mott MacDonald's sustainability services.						
Guidelines for sustainable design	The tool is accompanied by a series of Sustainability Reference Sheets, which provide technical design guidelines for different aspects of water pumping and treatment. This is particularly useful for guiding less experienced users in sustainable design.						
Use with other tools	The tool is compatible and can be used in conjunction with other Mott MacDonald tools including the LifeCYCLE and CapIT calculators and the infrastructure decision-support tool INDUS.						
Level of support services	The Water Sustainability Tool is offered as part of Mott Macdonald's consulting services which guide in its use, tailoring, interpretation and action on results.						
Sustainability criteria	<p>The Water Sustainability Tool assessment wheel comprises of 9 segments (themes), dedicated to:</p> <ul style="list-style-type: none"> - Resource efficiency; - Carbon management; - Economic prosperity; - Operation & resilience; - Ecological integration; - Sustainable Lifestyles; - Waste minimisation and resource recovery; - Sustainability incentivisation for supply chain & procurement; - Technology & innovation. <p>Each theme consists of several sub-themes, each of which contains a series of questions to be answered during the assessment.</p>			Design option appraisal functions	<p>The software allows for consideration and assessment of several design options in parallel to determine the most sustainable option. The same questions are prompted for each design option and the user assigns a score from 0-10 or Not Applicable, depending on their perception of performance.</p> <p>The user is also prompted to provide supporting information (as a narrative) to justify their score. Multi-criteria analysis is used to aggregate the scores and provide percentage scores on the design option's performance on specific sub-themes or on sustainability as a whole.</p> <p>This enables comparison between options and identification of areas where each option can be improved.</p>		
Fee	Fee is dependent on the consultancy services provided to the client.			Level of materiality (tailoring)	<p>As the tool is already tailored to the water sector, tailoring of the assessment to the project takes place mainly through the allocation of weights to sub-themes depending on the priorities of the client.</p> <p>Multi-criteria analysis methods are used to aggregate sub-theme weightings and determine the overall theme weightings, applying these to the assigned scores.</p>		

Project examples

The Water Sustainability Tool has been used on selective water and wastewater infrastructure projects in the UK as part of Mott MacDonald's UK water and wastewater capital delivery frameworks. Clients include, Northumbrian Water, Thames Water, Yorkshire Water, Scottish Water and Severn Trent.