

# WASH LIFE-CYCLE ASSESSMENT

The tool was developed as part of a master’s thesis and is used to assess the effectiveness and viability of completed water and sanitation projects. The framework consist of a matrix, the dimensions of which are defined by five sustainability factors and five project life stages (needs assessment, conceptual design and feasibility, design and action planning, implementation, operation and maintenance). The matrix elements (e.g. environmental needs assessment) represent distinct opportunities to address sustainability factors during each life stage. A series of checklists within each matrix element are used to quantify sustainability. To determine the score of a project the evaluator assigns a rating (0-4) to each matrix element, depending on the number of sustainability recommendations (check boxes) completed. If none of the recommendations are met, the matrix element is 0 (poor evaluation). If all of the recommendations are met, the matrix element is 4 (excellent evaluation). The potential score for each sustainability factor or life stage is 20, while the total possible score is 100. The tool checklist has been adapted beyond the water and sanitation context. The cost of applying the tool is unclear.

## GENERAL DESCRIPTION

**Target:** Project managers (implementing organisation) or knowledgeable stakeholders.

**Objective:** To assess the effectiveness and viability of completed water and sanitation projects, either as a self-assessment or a third party assessment.

**Areas:** Socio-cultural respect, community participation, political cohesion, economic sustainability, environmental sustainability.

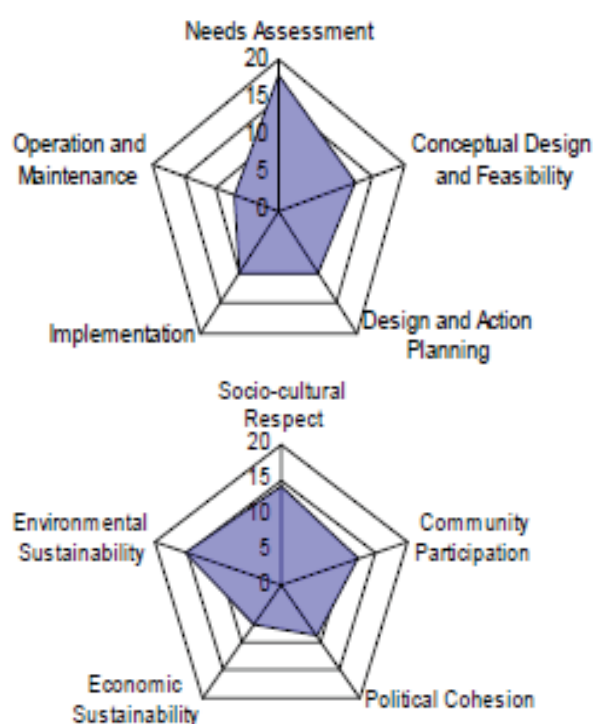
**Indicators:** Checklist of 100 sustainability recommendations guiding questions (4 per matrix element).

**Methodology:** A rating (0-4) for each matrix element, depending on the number of sustainability recommendations (check boxes) that are completed.

**Outputs:** Provides an overall sustainability score on a scale of 0-100 and a score for each project life stage and each sustainability factor (out of possible 20 points) presented on a radar diagram.

**Tool format and language:** PDF; English.

**Resource Link:** McConville, J.R., and J.R. Mihelcic, ‘Adapting Life Cycle Thinking Tools to Evaluate Project Sustainability in International Water and Sanitation Development Work,’ *Environmental Engineering Science*, 24(7):937-948, 2007. (related M.Sc. thesis can be obtained at: <http://cee.eng.usf.edu/peacecorps/5%20%20Resources/Theses/Assessment/2006Mcconville.pdf>)



## IMPACT AND FINDINGS

This tool has been applied to two projects in Mali, West Africa. The framework and checklist were adapted and applied to an improved cook stove project in Honduras, a domestic irrigation project in Benin, and a domestic biogas project in Uganda.

Strengths	Limitations
Easy to use	Unclear how the findings have been utilised to date to improve planning
Stimulates reflection on sustainability factors within the context of the project life-cycle	Scoring is highly dependent on the recommendations or checklist, which may require customization for each application
Framework is based on extensive literature review	The objectivity of the scoring has not been tested
Can be used as a self-assessment or as a tool for third party assessments	The cost of applying the tool is unknown
Most appropriate as a post implementation tool	