

ABSTRACT

This study investigates and compares the environmental burdens of two different methods for producing potable water by using the environmental life cycle assessment (LCA). The first method, for the production of potable water, is used by Umgeni Water at their Wiggins Waterworks and it involves conventional processes. The second method is based on a South African membrane technology and currently it is used in three pilot plants around the country.

The life cycle concept gives the means to understand the environmental impacts associated with a product, process or activity by considering all life-cycle stages, from *cradle-to-grave*. Formal methodologies for conducting such studies have been developed and in this project the methodological framework endorsed by the International Organisation for Standardisation (ISO) 14040 series of standards has been used.

By using this methodology and by tracing all processes involved in the production of potable water, it was found that the main contribution towards the environmental burdens of potable water is due to electricity generation. This conclusion is valid for both methods investigated, and as a result the recommendations focus on increasing the energy efficiency of waterworks in order to increase their overall environmental performance.