

ABSTRACT

The Water Footprint Assessment is a tool that evaluates the direct and indirect uses of water, and the potential impacts over human health and ecosystems; it represents a wider approach in relation to traditional water management in industry, where indicators are limited to direct water quality and quantity discharged.

The objective of this study was to assess water footprint of producing 1 kWh in “Central Termoeléctrica de Aguaytía” – CTA during 2013, proving that water footprint is an efficient tool for environmental management, especially because of its holistic perspective.

The type of the study is applied, with an evaluative level. Technics applied were observation and primary/secondary sources recompilation of direct and indirect uses of water. Instruments were inventory sheets, excel calculations and LCA/water footprint data bases, to access to transformational factors, according to ISO 14046. Sensitivity analysis scenarios where also applied to test results.

The results of the CTA water footprint inventory show that higher consumption of water (and impacts) are related to the supply chain, specifically to the use of natural gas, elementary input for the production of electric energy in the CTA. In addition, the sensitivity analysis showed that when using different processes of transformation gas-energy (other options or technologies within electric generation industry) the evaluation in CTA does not vary substantially.

The impact evaluation of mid and final point in CTA determine that the management of direct use of water is also important, because when analyzing the WIIX (Water Impact Index) indicator and the impacts of quality in ecosystems, the direct use of water in CTA is significant. If only the inventory and water consumption were taken into account, the impact of direct water use would have been insignificant against Natural Gas. The latter reinforces the importance of direct and indirect use water management and the need for instruments to measure and control the quantity and quality of incoming and outgoing water within CTA,

both for domestic and industrial uses, to ensure an adequate environmental water management.