

## **ABSTRACT**

Life Cycle Assessment (LCA) is a tool for the evaluation of environmental impacts of a product, service or activity. It implies taking a life cycle perspective as lead principle, as opposed to traditional environmental legislation that looks at specific environmental impacts or industrial activities.

Firms in many industrial sectors face both regulatory and market pressure to consider and modify resource commitments and environmental impacts of products as well as being forced to consider environmental consequences of product systems outside their direct control. Thus adoption of LCA by industry is an indicator of the importance firms attach to environmental issues. By encouraging lower material and energy intensities and encouraging greater recycling, life cycle approaches provide long term benefits.

The two-year project jointly undertaken by the Pollution Research Group, Mondi Kraft and the Water Research Commission entails a *gate-to-gate* analysis of Mondi Kraft, Richards Bay, based on LCA methodology. The aim being, to depict in as much detail as necessary, the interaction of individual products (Baywhite and Baycel) and activities (cooking, chemical production, energy usage etc.) on the environment, and to supply decision-makers with information on the possibilities for improvement.

The boundary for the LCA study has been set as *gate-to-gate*, thus a Life Cycle Inventory (LCI) of all inputs and outputs into and out off the mill has been compiled. In compilation of the LCI, the guidelines as set out by the Nordic Pulp and Paper Institute have been followed. This has been conducted with a view to maintaining a developed methodology for the collection; processing and reporting of data, in such a way that LCA of forest products can be performed and combined in a more consistent way.

Significant LCA activities are now being conducted in all sectors of South African Industry, which include activities within firms, and between firms and academia. Export regulation in some cases, and market competition in others have driven LCA approaches in industry. LCA has not yet had a marked influence on environmental performance of product systems in South Africa, but with further learning and standardisation of life cycle thinking, significant and radical environmentally based innovations will be generated.