To develop a greener recycled paper production by determining potential environmental impacts through life cycle perspective

ABSTRACT

A huge number of available Life Cycle Assessment (LCA) studies have shown that data availability for paper products is enormous regionally. In Malaysia, LCA practices are considered uncommon attributed to the lack of data availability and LCA practitioner itself. Therefore, a cradle to cradle study has been carried out to determine the potential impacts arise from the recycled paper production in Malaysia. LCA methodology used in this study including goal and scope definition, inventory analysis (LCI), impact assessment (LCIA) and interpretation is based on ISO 14040 and ISO 14044 framework. A series of input-output data collection has been carried out and the collected data was calculated by using Simapro software followed by data evaluation using Eco-indicator 99 method. The results showed that the most significant impacts generated throughout the system were fossil fuel and resources at the midpoint and endpoint level respectively. This can be attributed to a high consumption of chemicals and energy in the pulp and paper manufacturing process. As a consequence, a comprehensive practice in mill specifically on chemicals and resources include water and energy consumption, as well as the waste management and recycling system needs to be addressed explicitly to mitigate the relevant impacts.

Keyword: Fossil fuel; Life cycle assessment (LCA); Life cycle impact assessment (LCIA); Life cycle inventory (LCI); Recycled paper