

## **Introduction to LCA, interests and opportunities for the rubber supply chain**

Cécile Bessou\*, Thierry Tran, Régis Lacote, Rattanawan Mungkung, Frédéric Gay

\*corresponding author: [cecile.bessou@cirad.fr](mailto:cecile.bessou@cirad.fr)

Life Cycle Assessment (LCA) is a product-oriented method to assess the environmental impacts of a product while accounting for its whole life cycle, “from the cradle to the grave”. It is standardised by international norms (ISO, 2006). It was first mostly used for eco-conception in industrial productions, but has been widely spread in the agricultural sector in the last twenty years. By its holistic nature, LCA is a unique method to assess several environmental impacts while avoiding pollution trade-offs between production stages or impact categories. The most renowned impact categories are climate change or energy use, but several other impact categories can also be assessed such as eutrophication or human toxicity.

With the growing awareness of the risks associated with climate change and the need to protect the environment, the design of eco-friendly production modes has become critical. Throughout the world, initiatives from both the private and public sectors promote the development of sustainable supply chains including the development of communication tools using LCA indicators. In France, a law was recently promulgated (Grenelle 1, 2009) that makes the eco-labelling based on LCA compulsory for a wide range of products such as food and pet food, automobile, clothes, electronics etc.

Application of LCA to agricultural products or bio-sourced materials is not straightforward due to the variability in agricultural production systems. This variability is particularly important in the Tropics, where both pedo-climatic and socio-cultural conditions greatly vary. To account for the influence of these conditions on the field emissions and the final impacts within LCA, methodological developments are being carried out by the scientific community. Researchers at CIRAD especially focus on how to better account for tropical specificities and perennial crops within LCA (Bessou et al., 2012). They work together with several partners in France ([www.elsa-lca.org](http://www.elsa-lca.org)) and abroad, and CIRAD is notably member of the LCA AgriFood ASIA Network (<http://lca-agrifood-asia.org>).

Undoubtedly, there is a good opportunity for the actors in the rubber supply chain to benefit from the researches at CIRAD and the dynamism of the LCA AgriFood ASIA Network. Environmental impacts of rubber products will necessarily need to be assessed in a short to medium term, for instance because of buyers requests, and LCA has become the most commonly used method in order to compare products. As a perennial crop, not used for food products, it is crucial to assess the assets and drawbacks of rubber production in order to define best management practices and supply chain strategies to limit environmental impacts.

### **References**

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