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Cashew Processing
Policy Brief

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McGill UNIVERSITY

ENVIRONMENTAL FOOTPRINT OF CASHEW PROCESSING IN HONDURAS

Life Cycle Assessment and Life Cycle-based indicators for supporting policies for small-scale processing of cashew for export to the US and Europe

Headlines

- **Environmental Footprinting** allows managers and stakeholders to assess the environmental impacts of the cashew processing by considering 18 impact indicators.
- **The packaging, cooking, and kernel extraction** processes have emerged as the main drivers of environmental impacts on human health, natural resources, and the ecosystem.
- Through focus **groups and engagement with stakeholders** the impact of these processes can be offset through alternative and circular pathways.

Policy context

As part of the Government of Canada's initiative to improve sustainability and promote efficiency in small-scale industries in developing countries, a sustainability assessment was conducted to evaluate the environmental and economic performance of a cashew processing company, Cooperative CREPAIMASUL. The Life Cycle Assessment (LCA) framework adopted allowed the LCA practitioners to assess the processing impact on 1kg of whole and 0.57 kg of broken cashew sold by the company.

Through the LCA, the different stages of the cashew processing can be better aligned in the context of achieving the Sustainable Development Goal on **Responsible Consumption and Production** (SDG 12) and **Sustainable Economic Growth** (SDG 8) adopted in the 2030 Agenda for Sustainable Development and contributing to other SDGs. Also, the LCA indicators help to transition towards a circular economy by identifying environmental hotspots, better policy options, and continuous monitoring of progress over time.

Compared to other methodologies, LCA has the advantage of accounting for potential burdens shifting between life cycle stages, regions, generations, and environmental impacts, allowing a comprehensive assessment, thereby unveiling trade-offs

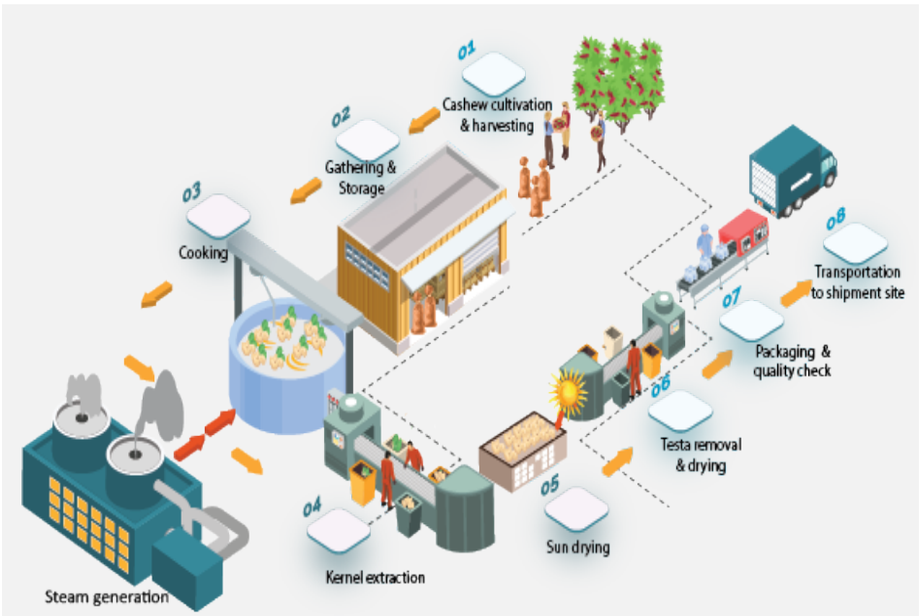


Fig 1. Steps involved in Cashew processing by Cooperative CREPAIMASUL for export to the USA and Europe

The LCA conducted on cashew processing adopted by Cooperative CREPAIMASUL, will allow the stakeholders and policymakers to:

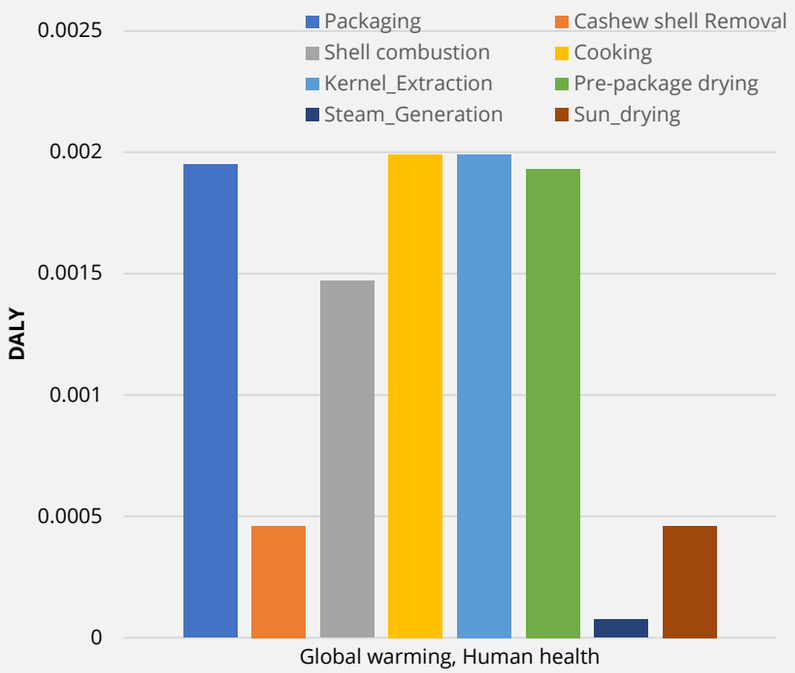
Better regulate and develop policy options against a baseline considering life cycle-related implications of these options.

Assess circular economy options, unveil possible trade-offs and assess to a macroscale level the impacts of implementing such options.

Assess and improve cashew products (Broken nut, whole nut, Testa, cashew apple) and identify hotspots of environmental impacts in terms of life cycle stage or main pressures from the current system.

What is the environmental impact of these processing steps?

Of the different LCA indicators used to assess the impact of the Processing steps, packaging, cooking, and kernel extraction were found to have had the highest impact on all indicators.



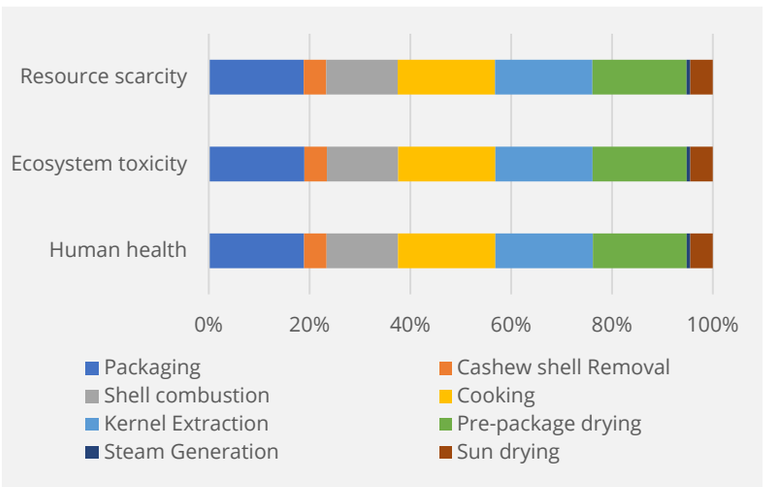
Environmental impact considering global warming indicator

The associated impact relating to the packaging process is due to aluminum foil and card boxes. Also, the cooking process is done using steam generated from burning wood to heat water.

Aluminum foil used for packaging Cashew nuts for export

How do the impacts affect human health, Ecosystem and Natural resources?

The overall impact caused by the process streams on three endpoint areas of protection is presented below. Once again, kernel extraction, packaging, and cooking have the most decisive influence on human health, the ecosystem, and natural resources. This is because the kernel extraction is human-intensive, while the steam used for cooking is resource (wood) intensive. Owing to this, stakeholders can identify alternative routes for improvements.



What should policymakers do?

- Identify alternative routes to minimize the human-intensiveness of the kernel extraction process.
- Identify and invest in alternative resources for wood used in steam generation.
- Identify alternative packaging materials for the aluminum foil.

Sources

Li, C., et al., Environmental impact evaluation of distributed renewable energy system based on life cycle assessment and fuzzy rough sets. Energies, 2019. 12(21): p. 4214.