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"Circular Approaches in Olive Groves"

Circular economy in olive sector based on Cradle to Cradle approach

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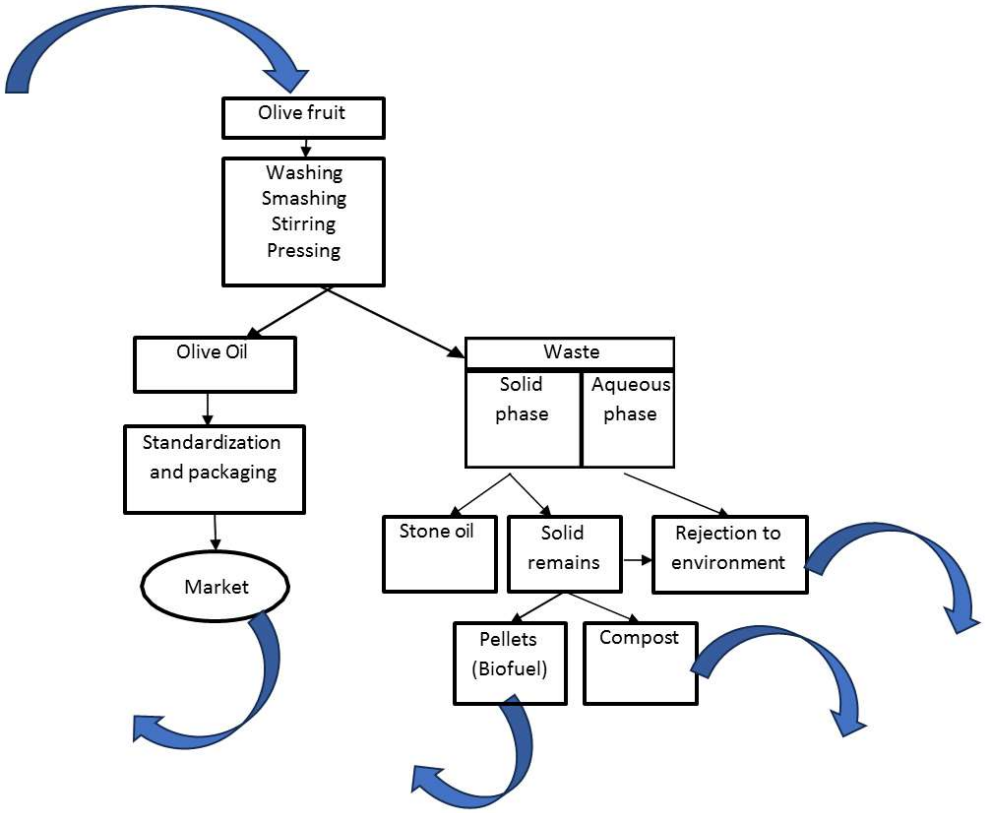
The problem

The olive oil industry continues to be one of the most heavily polluting ones among the food industries. The waste products derived from olive oil extraction are vegetation water (an aqueous colloidal effluent) and a solid residue, mainly comprising of the olive skin, cell content and stone (olive husk).

The direct impact of aqueous phase waste to the environment is the aesthetic degradation due to its very bad smell and dark color. Additionally, it may cause eutrophic phenomena in cases it is ending to areas with low water circulation (sea gulfs, lakes, etc.), because of its high organic load.

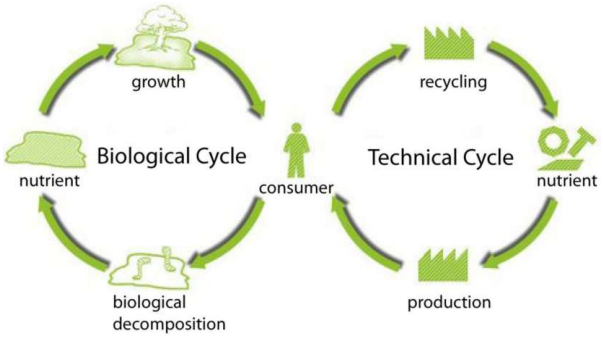
Linear approach for olive oil production



The main environmental impacts are:

- Danger for the aquatic life
- Downgrading-deterioration of the soil quality
- Difficulty of carbon degradation
- Phytotoxicity
- Development of an oily - lipid layer on the water surfaces
- Unpleasant smell
- The management of phenols and the high organic load

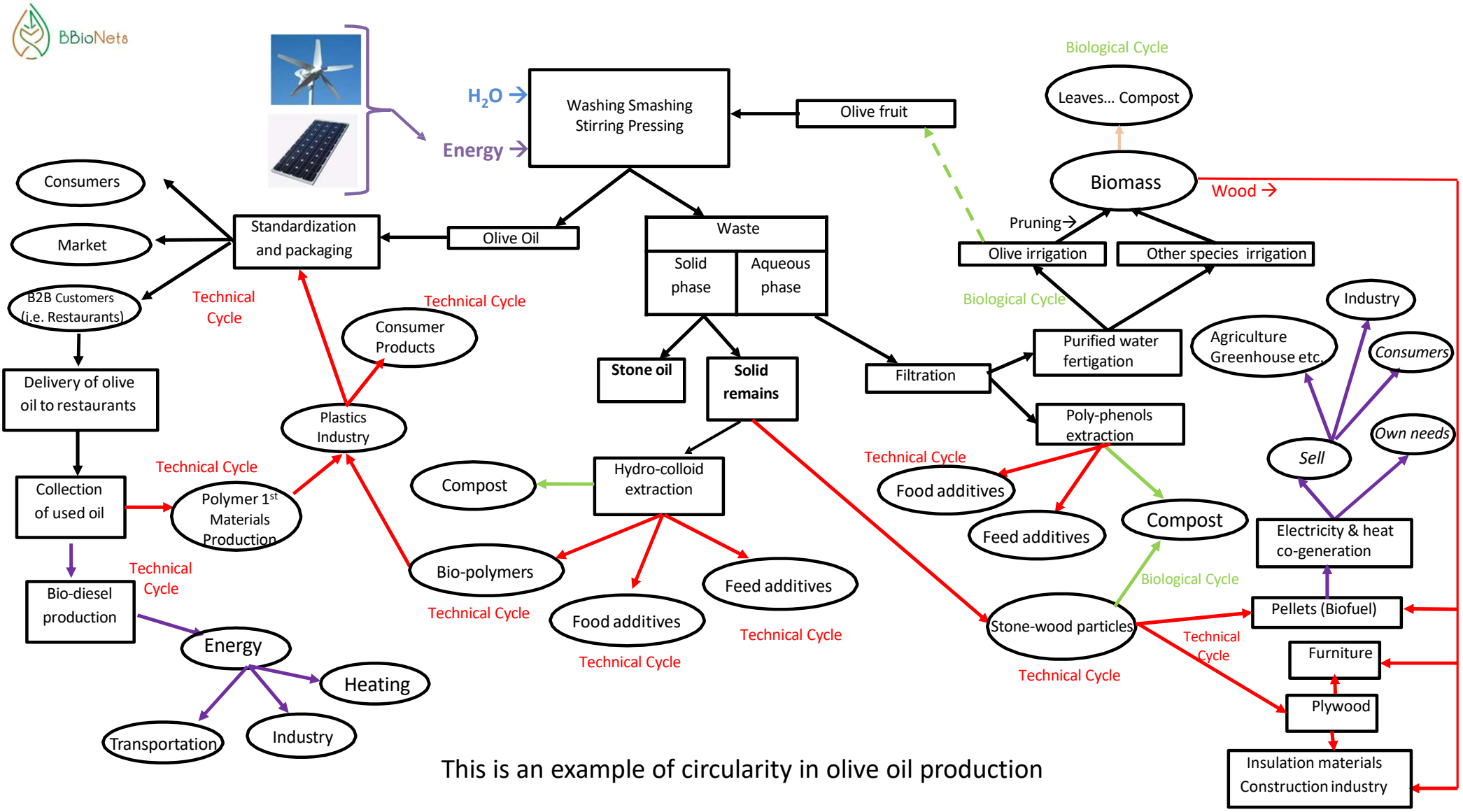
Cradle to Cradle approach



Systemic approach using two main flow streams: Technical and Biological

Main characteristic: The design using circular economy principles

Main advantage: Knowledge of what is happening to the system after the useful life of its components.



This is an example of circularity in olive oil production

Proposed operational model advantages

- Utilize renewable energy sources
- Solid waste can be further treated
- Aqueous phase can be further treated
- Energy and nutrients reclaim
- Minimum environmental impact (practically no waste created)

Thank you!

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