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Valorising olive waste and by-products in the Mediterranean region: a socio-economic perspective

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COLIVE Project

Collective marketing strategies and circular business models for valorising local food, agro-waste and by-products: example of the olive oil chain



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www.coliveproject.com

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BACKGROUND / CHALLENGES

Mediterranean olive sector: nearly 10 million hectares of plantation and more than 2,5 million tons of olive oil per year in Europe and Africa (Vilar & Pereira, 2018)
= important for revenues and employment, especially in rural areas

Huge amount of olive waste and by-products,
scarcity of natural resources

< estimated 21,4 million tons/year of waste & by-products in the European producer countries alone (Berbel & Posadillo, 2018)

< need to avoid negative externalities on the environment, to produce more with fewer resources

< research: strong focus on chemical or biotechnical aspects of waste and by-product treatment and valorisation (e.g. Galanakis, 2017), while socio-economic perspective on this topic very sparse

Olive oil



Leaves and wood

Olive cake



Olive mill wastewater



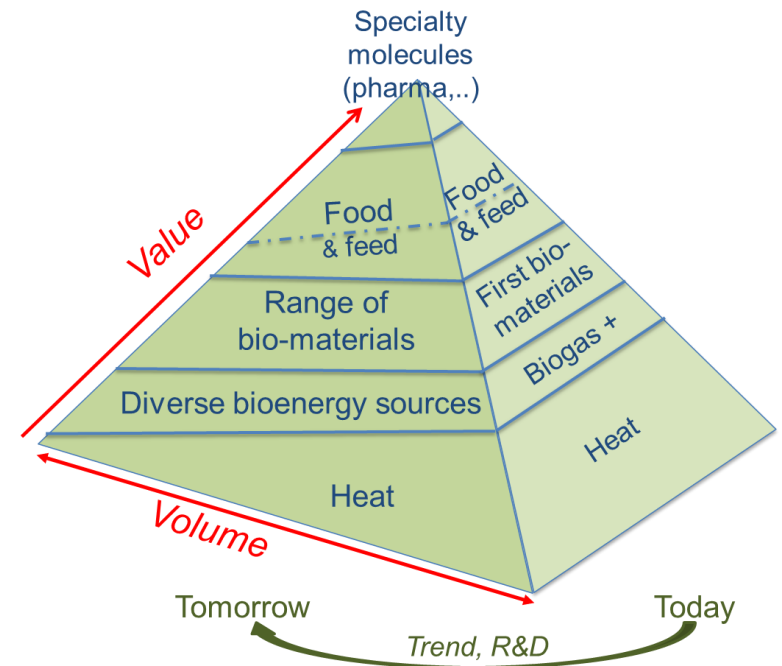
Waste valorization in context of olive oil

Figure: Wastes and by-products generated during olive oil production process



Source: Roselló-Soto et al. (2015)

Figure: Value pyramid for biomass valorisation

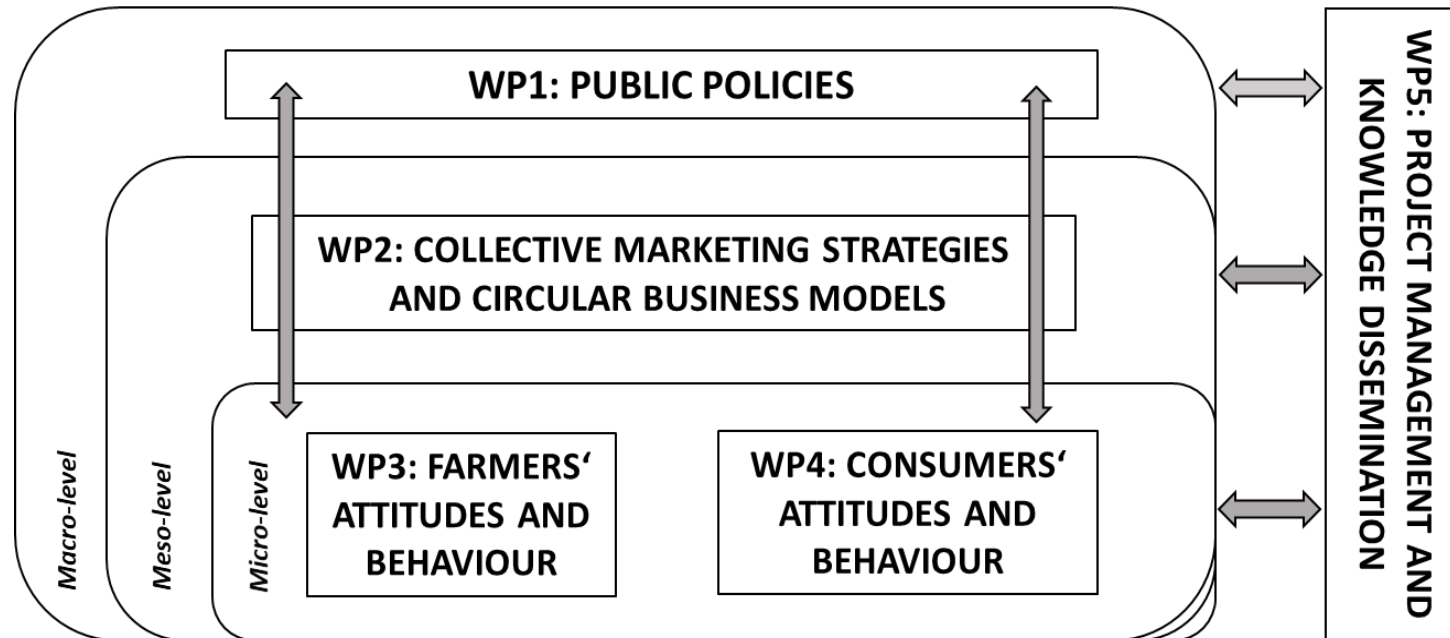


Source: Donner, Gohier, De Vries (2020)



OBJECTIVE and METHODOLOGY

The overall aim of this project is to understand the socio-economic conditions and processes of olive waste and by-product valorisation.





Results 1: Review of policies

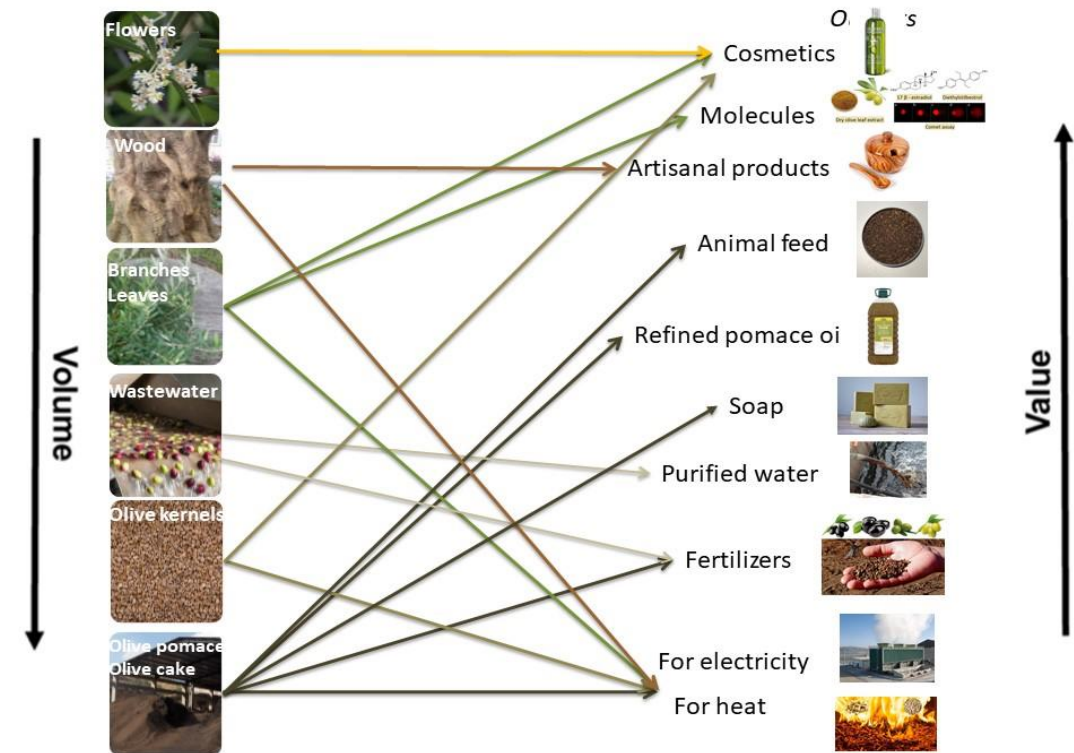
- Some policies and regulations for the protection of the environment and waste treatment exist in the four studied countries, but a common regulatory basis for olive by-product management is lacking and the treatment of olive waste (leaves, branches) is not regulated at all.
- It also seems that real political incentives and financial measures to actively support olive waste and by-product valorisation are insufficient.



Results 2: Review of Circular Business Models

- High amounts of unused and partly environmentally harmful residues as main driver for business development.
- All resources of the olive tree and olive oil production process can be valorised, however, value-adding business activities are currently often limited to one or several resources (principally by-products), and rather converted into low added-value (bioenergy or fertilisers).
- Communication on waste valorising activities and products is still weak, often non-existent.

Figure: Waste & by-products valorisation pathways by businesses



Source: Donner & Radic, 2021



Results 3: Farmers attitudes and behaviour

- Study among 60 small-scale olive farmers conducted in Catalonia.
 - Small-scale olive farmers tend to apply some kind of circular economy strategies, mainly for pruning waste (branches, leaves, as organic matter on the soil) and olive pomace (to oil refineries).
 - However, mostly with the aim to get rid of their waste problem, rather than participating in cohesive circular production models.
- Waste management rather than waste valorisation.



Results 4: Consumers attitudes and behaviour

- Explorative study with 30 consumer interviews in Tunisia.
- Consumers are aware of the olive waste and by-product problem and even know about their valorisation opportunities, but rarely use e.g. soap and cosmetics issued from olive residues.



Conclusion

- Continuous exchange and cooperation between different actors at various action levels seem crucial for co-creating value out of olive waste and by-products.
- Based on the project's final results, some recommendations will be developed and shared with olive oil farmers, processors, and policymakers, with the aim to contribute to improving policies and practices for sustainable usage of all olive resources in the Mediterranean area.



Thank you very much for your attention!

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