



BBioNets

Boosting the adoption  
of Bio-Based Technologies

## Cross-fertilisation Meeting

### 1<sup>st</sup> Mediterranean ETR Meeting

*Interconnection between the Greek & Italian FANs*

17 December 2024

## Key Takeaways

### Cross-Fertilisation and Collaboration:

#### Identifying types of biomass and financing mechanisms, while exploring the social dimension of new technologies uptake

The meeting centred on the current state of the bioeconomy in Italy and Greece, emphasising biomass availability, currently identified Bio-Based Technologies (BBTs), and financial support mechanisms for the implementation of BBTs. Additionally, the participants debated the social implications of adopting new BBTs and their impact on local communities.

Watch the meeting recording: <https://www.youtube.com/watch?v=sGHSsP8u32g&t=13s>

#### Social dimension of introducing Bio-Based Technologies and their impact on local communities

*\*This part of the event was conducted using the [Mentimeter software](#), which facilitated moderating the discussion while actively engaging participants.*

#### Similarities and/or differences between Italy and Greece regarding BBTs

- The two countries share similar climatic conditions, resulting in comparable agricultural crops and, consequently, similar availability of biomass types for transformation into BBTs.
- Even though there are similarities in cultural aspects and attitudes toward new technologies, Italy, benefiting from a more mature economy, also has a population more open to innovation and with a higher level of acceptance for the introduction of new technologies.
- Differences in the regulatory and funding framework are evident, with greater availability of funds in Italy.

#### Ranking of potential positive impacts of BBTs

- Biomass residues could represent an income increase for farmers if the right incentives are provided to manage these residues collectively. This approach could foster cohesion among farmers, positively impacting the social dimension. However, if the individualistic model continues to prevail, it will be challenging to valorise biomass, as current practices involve high transportation and logistical costs.
- The low ranking of welfare improvement and social cohesion is likely because these aspects are observed in the medium to long-term following the introduction of an innovation.

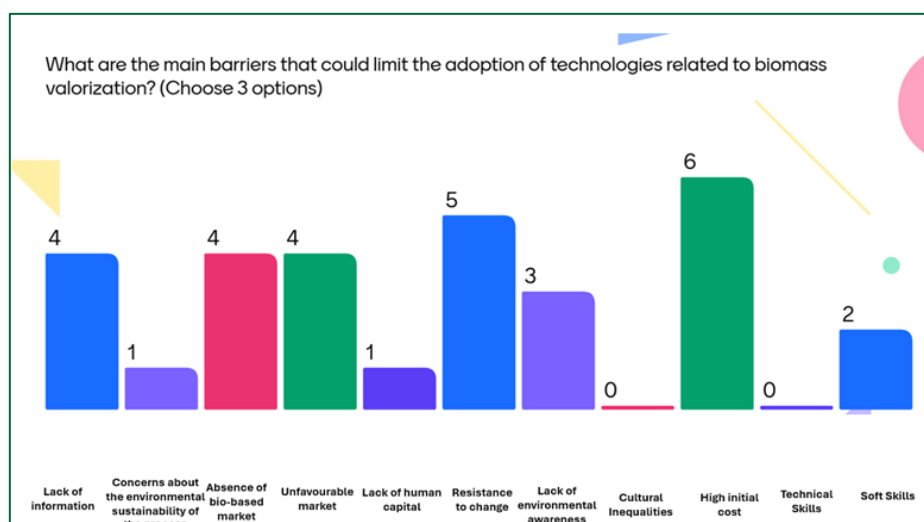


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### Main barriers to adopting BBTs

- Primarily technical-economic aspects, such as high initial costs (mobilising biomass to transport it to transformation plants involves significant expenses).
- Cultural barriers also exist, with resistance to change being a key factor.
- Market maturity (or existence) influences the acceptability of innovation.



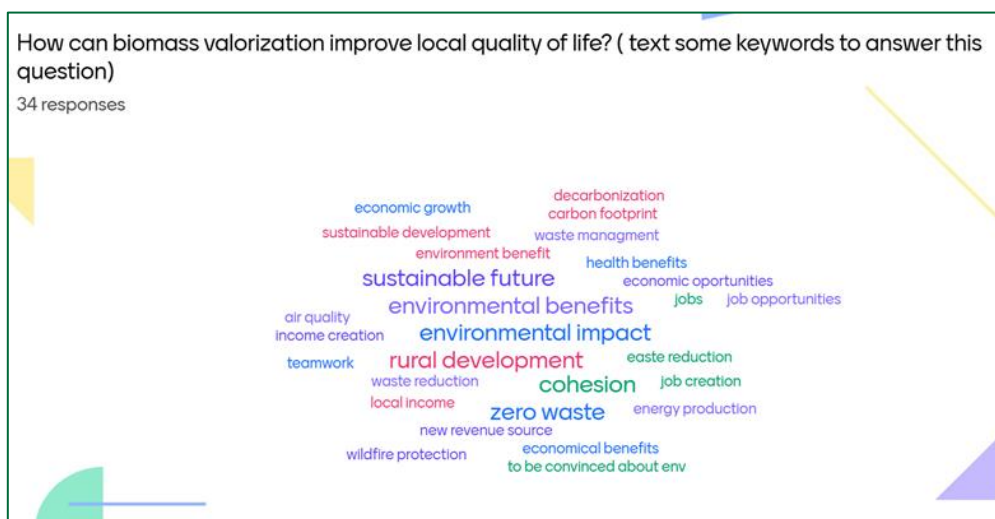
### Most effective tools for engaging communities

- "Shared infrastructure" helps reduce the significant initial cost for biomass valorisation while also involving the community.
- Citizen engagement in the decision-making process is also a highly appreciated 'tool', as it provides a sense of operational involvement and genuine engagement.



### **Beneficial effects on local quality of life**

"Rural development" and "environmental benefits" dominated the responses.



### **Highlights**

- Greece and Italy share the same climate and biomass offerings.
- Italy has a higher level of acceptability and greater financial support.
- Initial costs and resistance to change are significant barriers.
- BBTs promote waste management and increase farmers' income.
- BBTs would support rural development and increase environmental benefits.



## Biomass availability, currently identified BBTs, and financial support mechanisms for the implementation of BBTs

### Needs for Bioeconomy Development

Both Greece and Italy rely heavily on agriculture and forestry, positioning them as key players in the bioeconomy. Greece, with its diverse agricultural products like olive oil, fruits, and vegetables, and Italy, famous for its wine, olive oil, and food production, face similar challenges and opportunities in adopting bioeconomic principles. The bioeconomy provides a pathway to boost sustainability, create new value chains, and decrease dependency on non-renewable resources.

In Italy, the "Green New Deal" drives investments in green technologies, renewable energy, and sustainable agriculture. Greece is leveraging its Mediterranean position to create eco-friendly products and reduce carbon footprints. For both countries, financial support, especially through EU programmes, is vital to encourage farmers to adopt sustainable practices. In addition, enhancing entrepreneurship and skills training is crucial to foster innovation. While Italy has a strong network of agricultural cooperatives, Greece is promoting collaboration among farmers and researchers to strengthen such initiatives. Prioritising research in soil health and waste management is essential, as is raising awareness and educating farmers, businesses, and communities about sustainable practices.

Empowering cooperatives and fostering collaboration will facilitate a transition to circular economies in both Greece and Italy, reducing waste and generating new economic opportunities.

### Biomass Sources

Both countries have abundant biomass resources, key for advancing bioeconomy through energy generation and sustainable agriculture. Greece's agricultural sector, particularly olive cultivation, generates significant biomass. With 2.6 million tonnes of olives harvested annually, by-products like olive pomace, prunings, and leaves are often underutilised. Olive pomace can be converted into biofuels, bio-based chemicals, or organic fertiliser, improving energy production and soil health. Yet, much of this biomass is discarded or poorly managed, missing opportunities to fully tap its potential.

Italy's vast agricultural landscape, including vineyards, olive groves, and livestock, produces a wide range of biomass such as prunings, grape pomace, and animal waste. Much of this biomass is left unused or inefficiently processed. Regions with significant olive oil and wine production could harness agricultural waste for biogas production or to create fertilisers and organic matter, advancing a circular economy.

Leveraging biomass for waste management and reducing fossil fuel dependence supports energy transition goals. Using biomass as fertilisers and organic amendments can improve soil quality, reducing the need for synthetic chemicals. Both Greece and Italy have opportunities to enhance sustainability, improve local economies, and drive innovation by better utilising their agricultural biomass.

### Biomass Processing Technologies

To unlock the full potential of biomass, both Greece and Italy must adopt modern processing technologies. Biochemical methods like anaerobic digestion and composting convert organic waste into valuable products such as biogas and compost, reducing methane emissions and generating renewable energy. Implementing anaerobic digesters in rural Greece could offer decentralised solutions for waste management and energy production.





Mechanical technologies like pellet production make biomass residues, such as olive stones and prunings, more user-friendly for energy applications. By compressing these residues into pellets, they become easier to store, transport, and use for heating or power generation.

Thermal methods such as gasification and pyrolysis convert biomass into energy, biofuels, and valuable by-products. Gasification transforms biomass into a gas for electricity or biofuels, while pyrolysis produces biochar, bio-oil, and syngas, which have diverse applications. Regions that produce large amounts of agricultural residues could benefit from these technologies to produce both energy and high-value chemicals.

Investing in modern biomass processing technologies will create an efficient biomass value chain, reduce environmental impacts, and support a sustainable and circular economy in both countries. These technologies will also reduce landfill pressure, encourage waste valorisation, and create local jobs in bioenergy and bio-based industries.

### **Legislative Developments and Funding**

The EU has implemented strategies for bioeconomy development, promoting sustainable resource management and innovation. The new Common Agricultural Policy (CAP) and Horizon Europe programmes support research and local bioeconomy development. Additionally, European Structural and Investment Funds and the LIFE program provide significant funding for sustainable initiatives.

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