MarginUp! | Growing value on marginal lands

GREEK USE CASE

Mine-Land Biomass to MDF Panels & AMP Value Chains

Restoring land. Creating bio-based materials. Enabling new opportunities.

OBJECTIVE

Demonstrate a circular bioeconomy model in Western Macedonia Region by converting rehabilitated post-lignite mine-land biomass into industrial MDF panels, while assessing complementary aromatic and medicinal plant (AMP) valorization pathways, supporting Just-Transition outcomes.

THE VALUE CHAIN

MINE-LAND REHABILITATION
Reclaimed post-lignite land in Western Macedonia planted with *Robinia pseudoacacia* and lavender

→

BIOMASS RECOVERY & PRE-TREATMENT
Harvesting and conditioning of mine-land biomass (*Robinia pseudoacacia*)

→

MDF PRODUCTION
Integration of *Robinia* fibers as alternative fiber source (5–10%) into industrial MDF production line

→

AMP VALUE CHAINS (exploratory)
Cultivation of lavender and assessment of processing pathways

→

CIRCULAR USE & REGIONAL VALUE
Sustainable materials, knowledge generation and new bio-based opportunities

KEY FIGURES (2023–2026)

~40 t/harvest
Biomass recovered (Vevi area)

~1,000 m³/year
MDF with 5–10% Robinia fibres

~450 €/m³
MDF price (2026 indicative)

2 ha
Experimental Robinia & lavender cultivation

~90
Participants in 3 capacity-building events

KEY GOALS & ACTIVITIES

1. **Rehabilitate post-lignite lands & recover biomass**
   - Identify suitable mine-land biomass sources
   - Harvest and pre-treat Robinia/mine-land biomass
2. **Integrate mine-land biomass into MDF production**
   - Condition and blend fibres into MDF line
   - Industrial production with partial fibre substitution
3. **Demonstrate technical & economic feasibility**
   - Optimise fibre/resin ratio and energy parameters
   - Document industrial CAPEX/OPEX context
4. **Explore AMP value chains & SME cooperation**
   - Cultivate selected aromatic plants (lavender)
   - Assess processing requirements
   - Engage with AMP SMEs for exploratory data collection
5. **Build capacity & local cooperation**
   - Capacity-building, dissemination and cluster facilitation
   - Strengthen regional multi-actor cooperation

TRL PROGRESSION

TRL 5 → TRL 7
MDF production with Robinia fibre integration

TRL 2 → TRL 5
Logistics & cooperation system (biomass recovery)

LOCATION

Western Macedonia region, Greece

GEOGRAPHICAL SCOPE

Regional & national markets with niche international potential

LEAD BENEFICIARY

CluBE – Cluster of Bioeconomy & Environment of Western Macedonia

KEY PARTNERS

DIADYMA, Alfa Wood Group, University of Thessaly (UTH); AMP-related SMEs (exploratory)

MAIN RESULTS & STATUS

- Biomass harvesting – Operational (~40 t/harvest)
- MDF production – 5–10% fibres (~1,000 m³/year)
- Economic assessment – **Completed**
- AMP cultivation – Implemented (processing not demonstrated)
- Capacity-building / dissemination events – **Completed** (3 events, ~90 participants)

ENVIRONMENTAL IMPACT & BIODIVERSITY

Feeding habitat for birds
Chloris chloris, Falco naumanni, Pica pica, Parus major, Erithacus rubecula, Turdus merula.
Higher habitat value on Robinia and lavender compared with abandonment and mining areas.

Pollination service
Supports pollinators such as the common carder bee (*Bombus pascuorum*). Higher activity on lavender and black locust compared with mining areas.

Carbon sequestration
Increased soil organic carbon and root biomass on *Robinia* and lavender compared with abandonment and mining areas, contributing to climate change mitigation.

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Project partners (Greece use case)

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