

LIFE12 ENV/IT/000374

PROJECT OBJECTIVES:

The increasing demand for recycled wood to produce particle-board and MDF panels has resulted in the need to improve the cleaning process of post-consumer wood (e.g. pallets/wood packaging material, demolition waste, used furniture), eliminating in a more effective and efficient way plastic impurities. Now MDF panels are mainly obtained from virgin wood and only a small number of producers use post-consumer recycled wood (up to 10%, based on PAL internal studies on the market), because:

- a) the process requires multiple steps of cleaning that are not enough to completely remove impurities
- b) MDF panels are of low quality and not compliant with EN 622-5 and EPF Standard for delivery conditions of recycled wood.
- c) there are not systems in the market capable of achieving a good removal of impurities (see the State of Art paragraph).

LIFE+ PLASTIC KILLER main objective is to set up and demonstrate the viability of an energy efficient pilot plant able to finely separate post-consumer recycled wood from plastics impurities, in order to use it primarily for MDF panels production and secondarily as “purified” biomass.

This project will contribute to:

- pave the way for a new generation of more sustainable and affordable MDF panels produced by up to 60% of post-consumer recycled wood, compliant with EN 622-5 and EPF Standards;
- produce “purified” post-consumer wood that can be also introduced in the EU market as biomass for energy production, reducing the dioxin produced during the combustion;
- limit the use of virgin wood, supporting the non deforestation through the prolonged lifecycle of the recycled wood;
- foster the post-consumer wood recycle approach in the EU, open up new business and jobs opportunities; this also will contribute in the middle perspective to decongesting dumps.
- demonstrate the socio-economic and environmental sustainability, the potentialities of market replication and penetration of the proposed pilot plant.



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OUTPUTS AND RESULTS ACHIEVED:

All the components indicated in the pilot plant have been constructed, and the whole system went through a cycle of tests in order to verify its functioning.

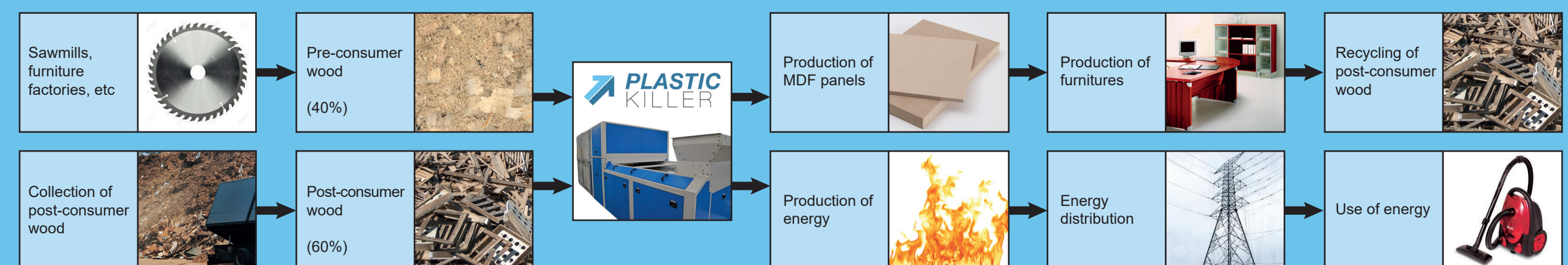
The tests demonstrated that the pilot plant is able to remove up to 95% of plastic impurities from the recycled wood, as expected by the project objectives.

The “purified” wood, output of the pilot plant, has been used as input in the process of MDF panels production: PAL, in collaboration with another company potentially interested in the technology of the prototype, produced many tons of MDF panels, combining the purified wood with some virgin wood. The surface quality of the panels was excellent and their properties have been always compliant with the EN 622-5 standard.

PAL, with the help of some LCA experts, completed the environmental impact analysis of the Plastic Killer scenario, comparing it with the traditional scenario. The aspect that most affects the analysis is the reduced environmental impact of the Plastic Killer scenario, because most of the impacts due by forestry processes can be avoided, thanks to the fact that the supply chain allows the use of 60% post-consumer wood and the consequent reduction of virgin wood.

All these results have been disseminated during some national and international fairs, and aroused great interest among the visitors.

PROJECT FLOW:



This project is funded by the European Community

Total Cost: € 1.874.423
(contribution LIFE+: 49,78%)

Partner



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