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Application of phytomanagement strategies in contaminated areas of the SUDOE space

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Phytomanagement is a set of phytotechnologies combining (1) phytoremediation options based on the use of plants (trees, shrubs, and herbaceous) and associated microorganisms to control the pollutant linkages due to contaminant excess in soils at degraded sites, (2) the production of valuable biomass that can be locally processed to supply e.g., wood, resin, essential oils, bioenergy, ecomaterials, biosourced chemicals, ecocatalysts, etc., and (3) the remediation / supply of ecological functions to enhance ecosystem services (e.g., C sequestration, erosion control, creation of habitats, and biodiversity conservation). The Phy2SUDOE project aims to value sites contaminated by-metal(loid)s and organic compounds in the Southwest European region (SUDOE) through the phytomanagement use. This project aims also to preserve the endemic biodiversity typical of some contaminated sites (e.g., metallophytes, plant growth-promoting bacteria, mesofauna, etc.) due to their intrinsic and utilitarian value (e.g., biotechnological applications) and role in the ecosystem life cycle. The PhytoSUDOE network (<https://www.phytosudoe.eu/en/>) has been extended to 15 contaminated sites distributed over Southwest France, Portugal and Spain, with the addition of new case studies, phytomanagement strategies, partners and stakeholders. The human capital of the network has been expanded with various partners (site managers, universities, R&D centers, companies, and administrations) to stimulate the creation of solutions and management strategies and the result transfer. Each site has its own action plan and management: i.e. conceptual model, feasibility of options, remediation strategies, protocols, monitoring, etc., while following harmonized practice guidelines. The 15 sites total an area of 350,000 m² where the various phytomanagement strategies are applied. The diversity of the site properties, as well as the surface area treated, makes it possible to improve the ecological quality of these SUDOE areas, but also to develop protocols, tools and management models that can be implemented in many contaminated sites that exist today in the SUDOE zone and in the world. This presentation will highlight examples of phytomanaged sites in Nouvelle-Aquitaine, Occitanie, Basque Country, Galicia, and Northern Portugal.