



No Waste

#9

June 2020

Newsletter of Project LIFE No_Waste

LIFE14 ENV/PT/000369 - MANAGEMENT OF BIOMASS ASH AND ORGANIC WASTE IN THE RECOVERY OF DEGRADED SOILS: A PILOT PROJECT SET IN PORTUGAL

>>> In the Spotlight: Second Pilot Project will start at Mina de S. Domingos in November 2020!!!!!!!



This second field application trial is to include the application of the new soil additives that presented positive and suitable scientific and technical results in the "Pilot Project I" (ash granules) at a larger scale in Mina de S. Domingos (1250 m²).

It will be coordinated by the associated beneficiary EDM, in the scope of the rehabilitation plan of Mina de São Domingos ("Recuperação Ambiental da Área Mineira de São Domingos - Fase 2"), to allow the actual solution to be demonstrated in an operational environment and, thus, reinforcing the demonstration character and replication potential of the project.

>>> Project Updates: Project Extension until 31/03/2021 due to COVID-19 impact

Due to the significant impacts of COVID-19 situation in the completion of project activities, a second request for the additional 6-month extension of LIFE No_Waste project duration until 31/03/2021 was submitted and accepted by the EASME (Amendment n° 5).

COVID-19 caused significant impacts in project activities in March-June 2020 due to: Time schedule disturbed /delays; Premises/project land inaccessible (laboratory close); Staff missing; Travelling and commuting restrictions.

Action B.1: all sampling campaigns and monitoring activities of the Pilot Project at Mina de S. Domingos were suspended at beginning of March and until June 2020. All laboratory and analytical activities were suspended between March and May 2020, due to laboratory close. The second field trial at real scale scheduled to start at Mina de S. Domingos in March 2020 was postponed to October-November 2020

>>> Main Project Technical Achievements

MAJOR ACHIEVEMENTS

Granulation and stabilization: improved control over the materials neutralizing capacity and elemental leaching, reduced soluble salts and chloride

Soil amendment:

- Corrected soil acidic pH
- Increased plant nutrient pool
- Increased water holding capacity
- Increased soil organic matter
- Improved soil habitat function
- Decreased bioavailability of potential toxic elements

Ash granules + Compost

- Recovering of mining soils functioning was achieved with all new soil improvers tested
- Ash granules + compost showed to be best balance between benefits and potential risks

Technical Achievements:

- ✓ **Neutralisation of soil acidity:** increase in pH from 3.0-3.5 to 5.5-8.0
- ✓ **100-300% increase** in the available pool of plant nutrients (Ca, Mg, and K)
- ✓ **90-100% decrease** in plant and organisms bioavailable pools of potentially toxic elements
- ✓ **300-400% increase** in soil organic carbon pools
- ✓ **40-70% increase** in soil water holding capacity
- ✓ **Up to 100% increase** in plant biomass production, soil microbial biomass, and in soil enzymatic activity
- ✓ **Up to 100% reduction** of soil erosion rates
- ✓ **Up to 100% reduction** in the use of mineral soil ameliorants (e.g. fertilisers, lime)
- ✓ **Up to 100% reduction** in diffuse pollution from the mining soil (e.g. Zn, Cu and Pb)

A **Technical Guide** for future preparation and application of the tested soil improvers to other degraded soils was provided.

A **Multi-Criteria decision making plan** and a **Decision Support Tool** for the application of biomass ash, including a risk assessment protocol and a description of European areas where the new soil additives can be applied to recover degraded soils are being developed

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