Agroecological farming systems for recycling metals from contaminated sites

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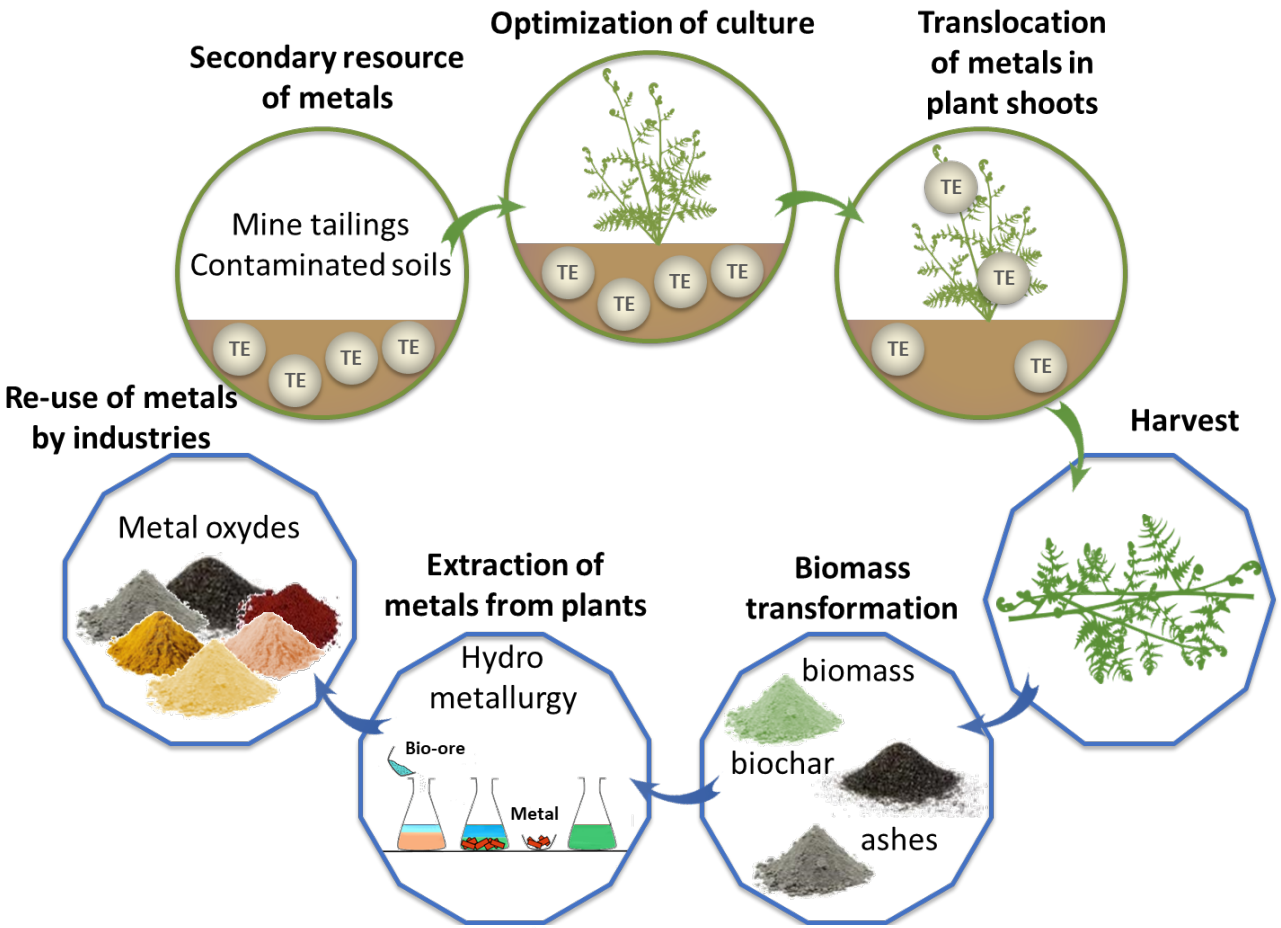
Agromining

Recycling metals with plants



Nature based solution to remediate contaminated soils and recover metals.

Use **metal-eating plants**, named hyperaccumulators, able to take up metals from soils and to accumulate them in their shoots.

Biosourced metals can be reused for example for the coloring ot art crystal.

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Field cultivation of Ni-eating crop in Albania: a solution to provide new income to farmers

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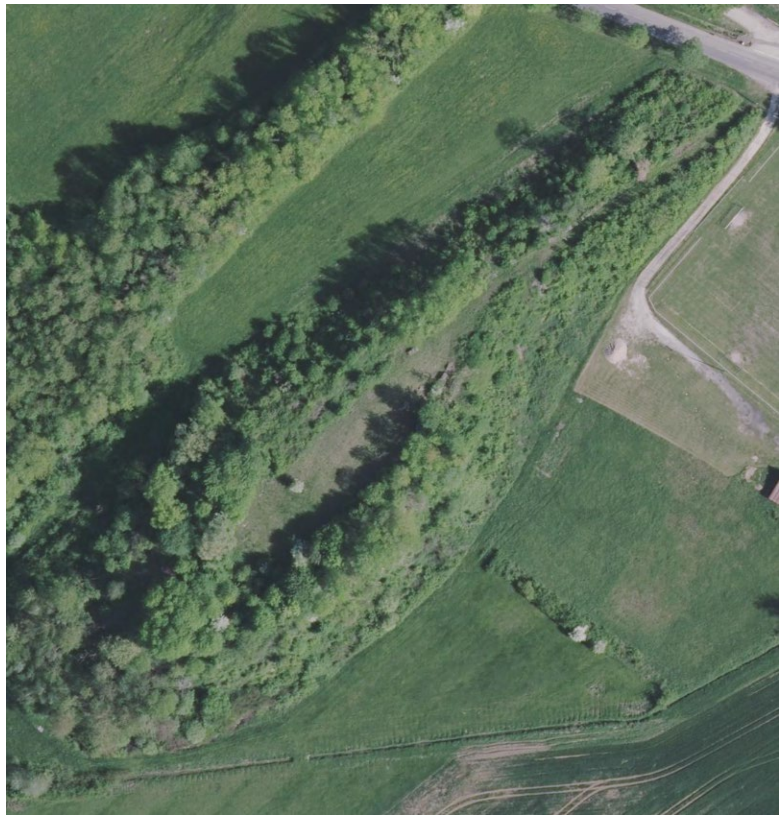
Case study: wasteland of the glass industry



The studied site, with an area of 1200 m², is a slag heap mainly used as a **landfill site for waste** from the art glass industry.

It is contaminated with metals: **lead, zinc and cadmium**.

Soil profiles highlight small thickness of rooting soil and the presence of numerous stones and anthropogenic artefacts.

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Case study: wasteland of the glass industry

Nevertheless, the site supports a **dense vegetation** with a higher than expected biodiversity.

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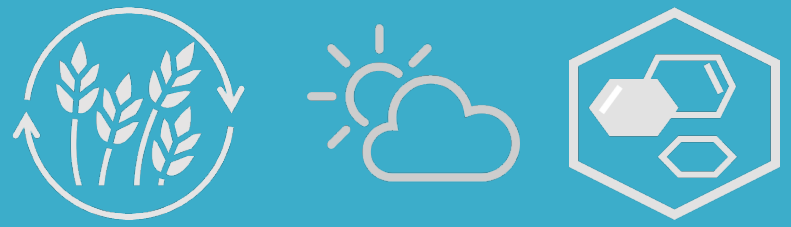
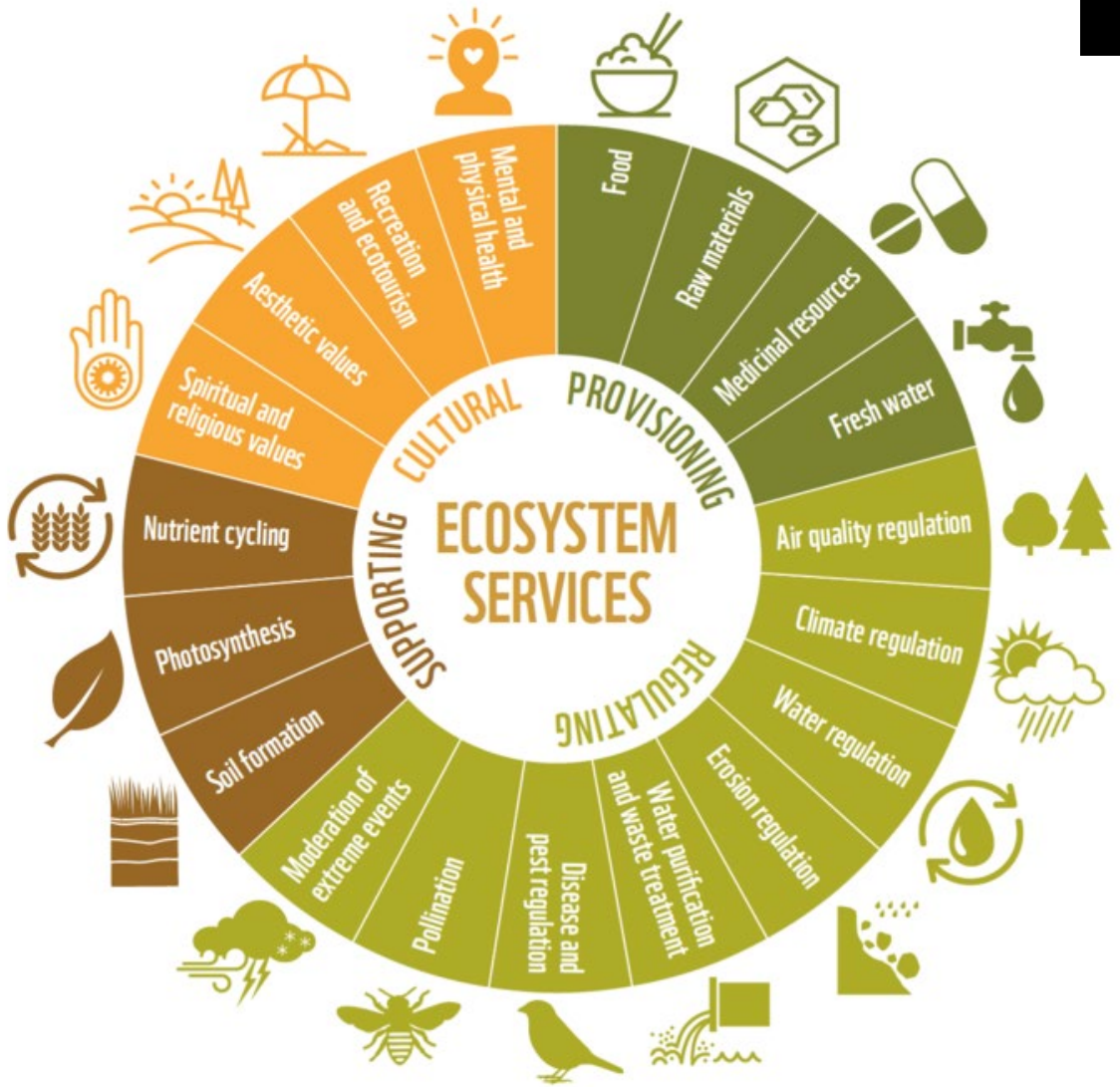
Objectives

Developping an agromining sytem

- To create **new ecosystem services**



- While **maintaining** those existing



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Developping agroecological agromining systems

01 **Supply of compost** to promote crop establishment, increase soil fertility (chemical, physical and biological) and store carbon.

02 **Use of biodegradable mulching fabric** to avoid use of pesticides and reduce hand weedind.

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Developping agroecological agromining systems

03 **Implementation of multispecies cultivation system** to reduce pest attack, increase soil fertility, drought resistance, biomass yield and metal extraction, and promote entomofauna biodiversity.

04 **Maintenance of trees and spontaneous vegetation** around the plots with mowing in winter to preserve fauna biodiversity.

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Take home messages

Contaminated sites are able to provide multiple ecosystem services

Their management enforces us to integrate Nature Based Solutions

Agromining is a low-tech solution that combine biological and chemical engineering

Agromining provides multiple ecosystem services and contribute to the mitigation of pollution

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