CARBON DIOXIDE REMOVAL WITH TAILOR-MADE ARTIFICIAL SOILS

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February 13th 2026

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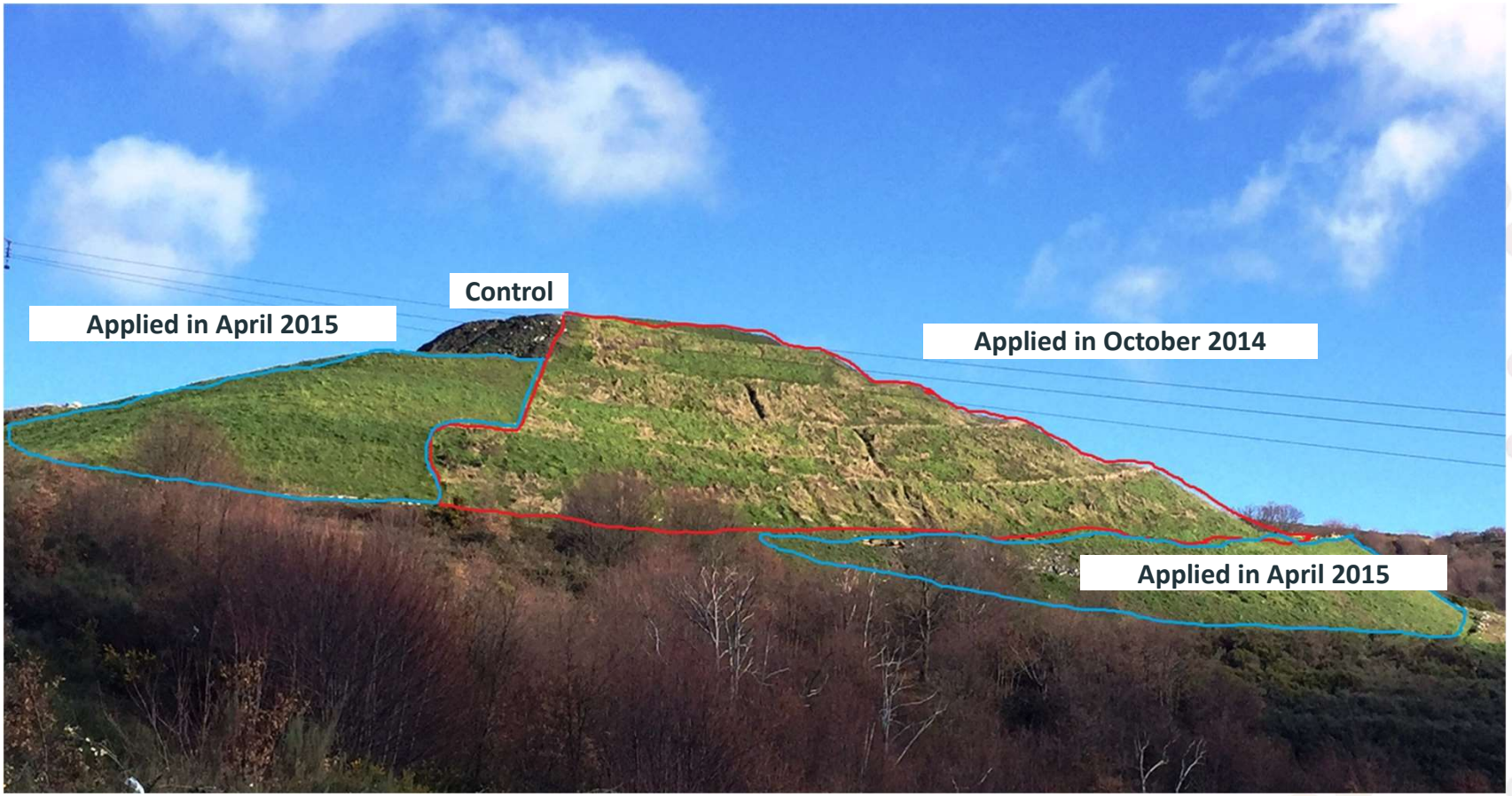
APPLICATION ON SLOPES OF A TUNNEL CONSTRUCTION DEPOSIT IN SPAIN



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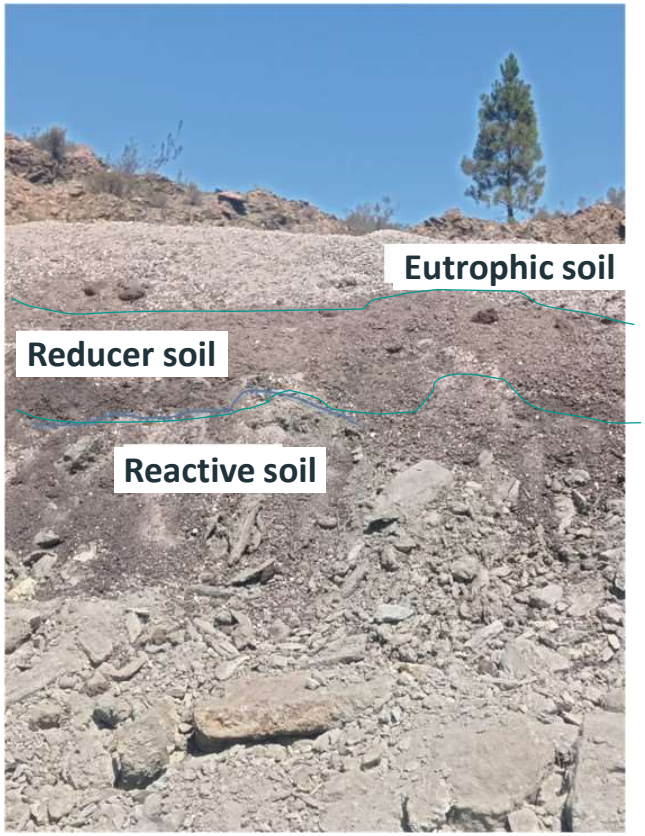
C-SINK

IMPLEMENTATION OF 3-LAYER ARTIFICIAL SOIL IN A METAL MINE IN SPAIN



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IMPLEMENTATION OF 3-LAYER ARTIFICIAL SOIL IN A METAL MINE AT PERU. HIGH SLOPES

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ARTIFICIAL SOIL AS CDR TECHNOLOGY

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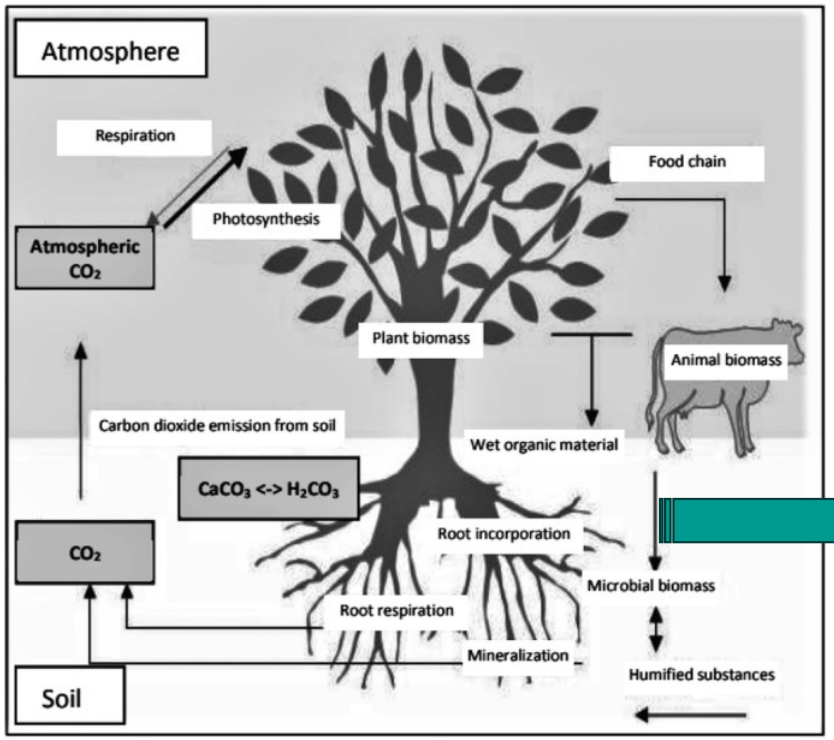
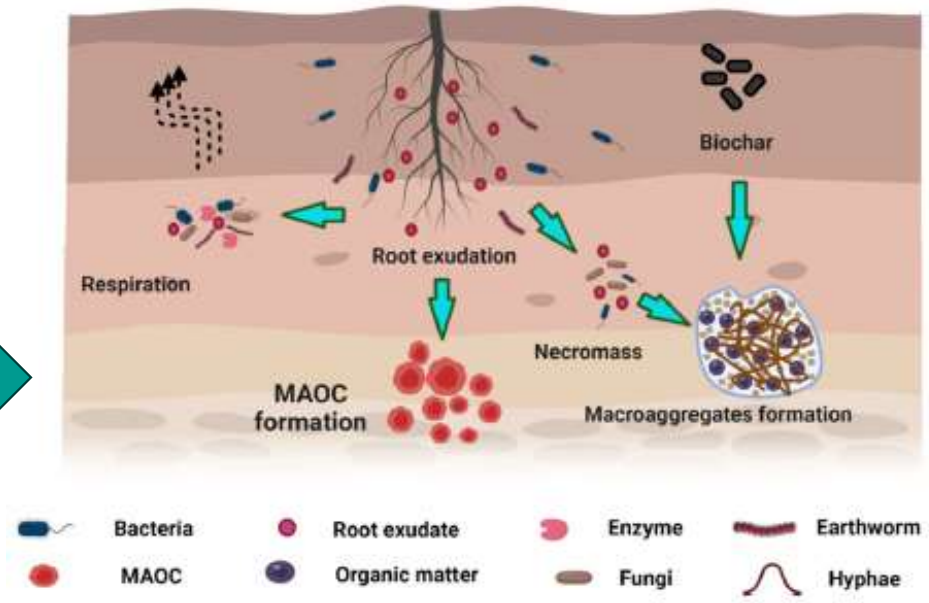
ARTIFICIAL SOIL AS CDR TECHNOLOGY

CO_2 capture and C sequestration process in soils.





Source: Panchal et al. 2022.

MAOC: mineral-associated organic C.

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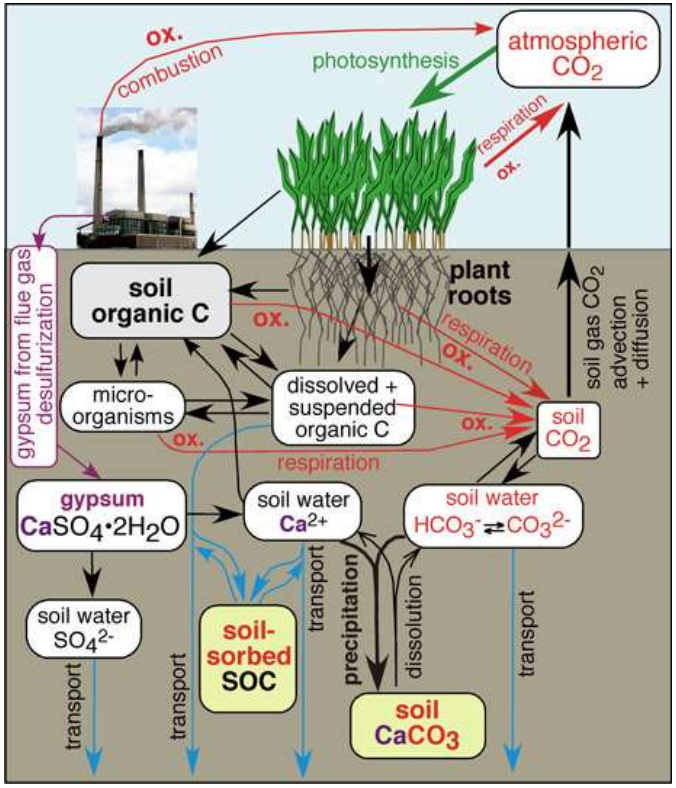
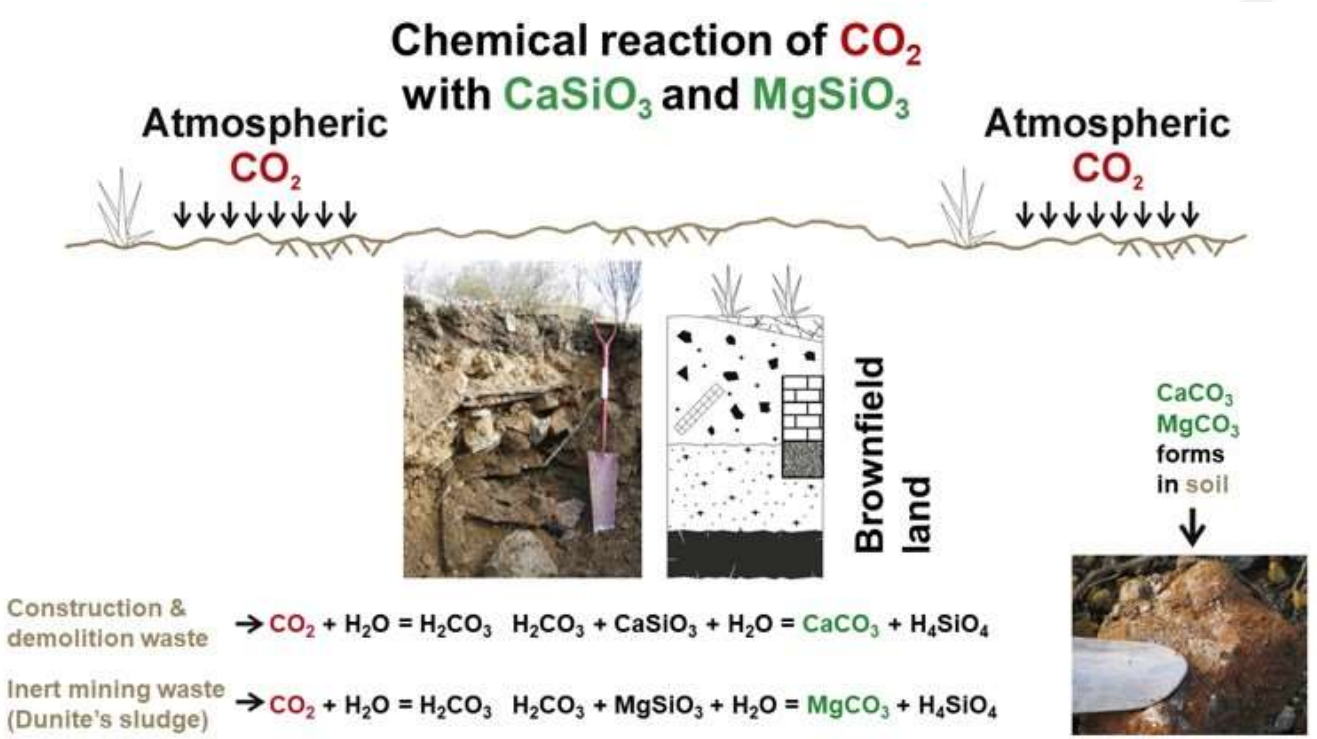
ARTIFICIAL SOIL AS CDR TECHNOLOGY

Inorganic C needs to be taken into account in artificial soils.



Source: Tokunaga et al. 2011.



Adapted from Jorat et al. 2020

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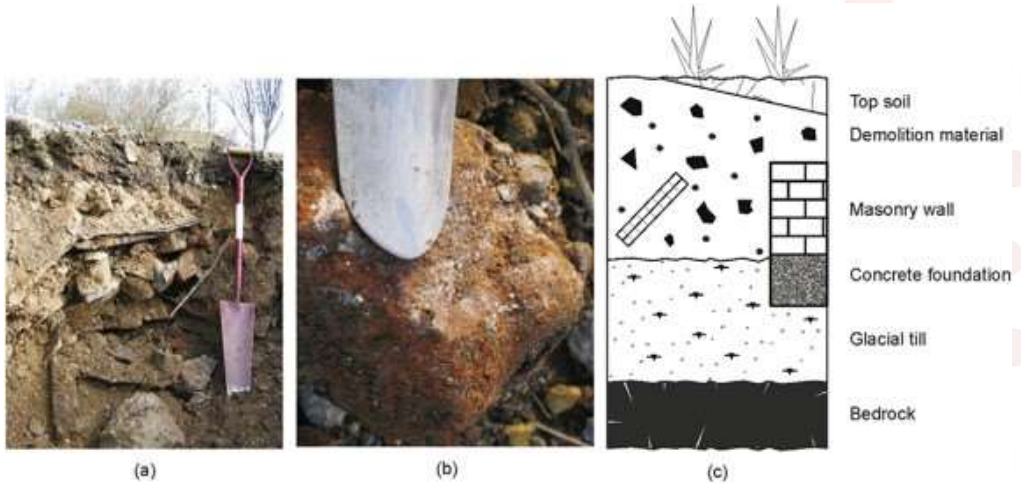
ARTIFICIAL SOIL AS CDR TECHNOLOGY

- Jorat et al. 2020 calculated that the studied Technosols sequestered **4–59 t CO_2 ha^{-1} yr^{-1}** on average, with the highest rate in the first 15 years after demolition of the applied construction wastes.
- Washbourne et al. 2015 calculated that Technosols made of CDW sequestered **85 t CO_2 ha^{-1} yr^{-1}** in a field experiment of 18 months.
- Rees et al., 2019 conducted a field experiment over 12 years and they demonstrated that C stocks with artificial soils after 3 years had a rate of about **3 t CO_2 ha^{-1} yr^{-1}**.

Source: Jorat et al. 2020.

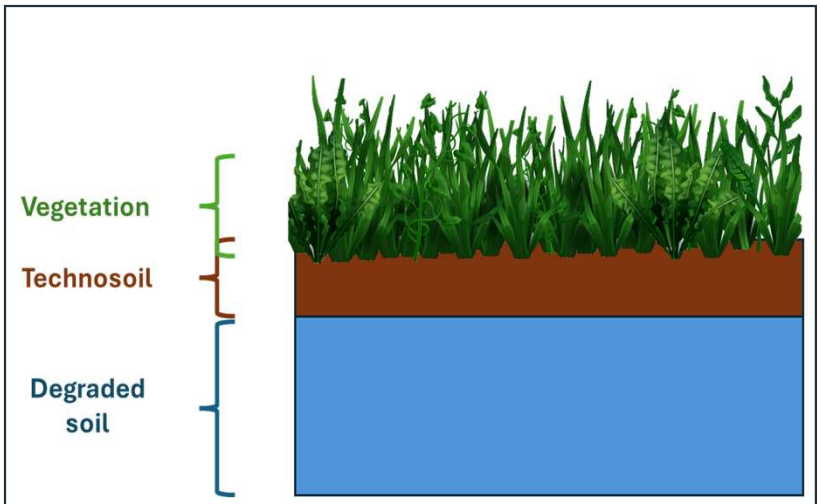
Calcite precipitation.



Experimental design of the field experiment in Pasek mine

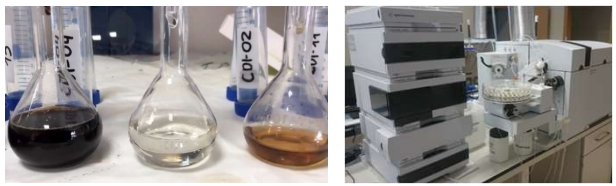
CO_2 removal and soil health monitoring during 24 months:
12 months of wide list of variables + 12 months of selected variables (MRV demonstrative testing)

Scheme



Field campaigns

Lab measurements



THANKS FOR LISTENING!

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