

Process of dredging, dewatering and phytoremediation of wastewater sludges polluted with PAHs

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Context

- ❑ In France, wastewater sludge is a **waste managed by local authorities**.
 - ❑ The traditional treatment channels for this kind of waste are **composting** and **agricultural land spreading**.
 - ❑ An important amount of sludge are treated in **expensive ultimate waste channels** (non-hazardous waste storage facility or incineration) because its chemical properties are not in accordance with legislation on agricultural valorisation channels, especially PAHs (**Polycyclic Aromatic Hydrocarbons**).
- VALTERRA has developed a process coupling sludge dredging, dewatering and phytoremediation of PAHs polluted sludge. The objective is to make the sludge compatible with the agricultural valorisation channels.

Method

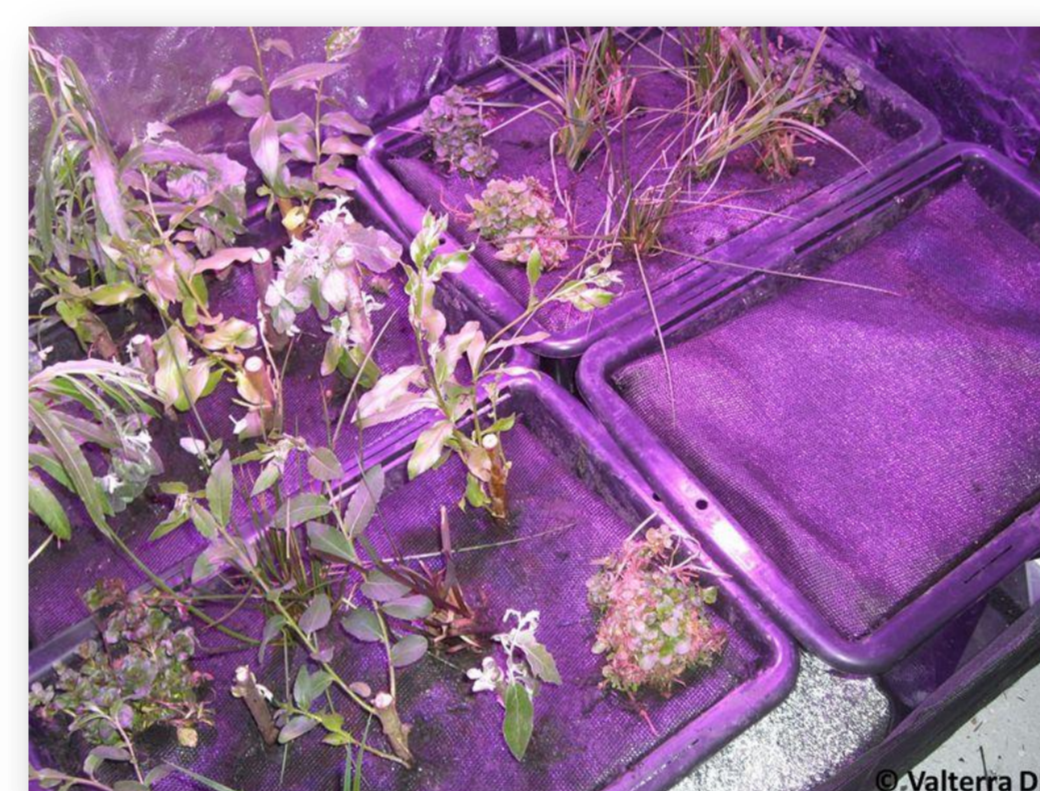
A. Dredging and dewatering

- ❑ The sludge was dredged by an amphibious vehicle, flocculated and dewatered in filtration bag.



B. Experiment in plant-growth chamber

- ❑ The objective was to identify the appropriate plant species for the phytoremediation process. An additive (CaO_2) was mixed to the sludge.



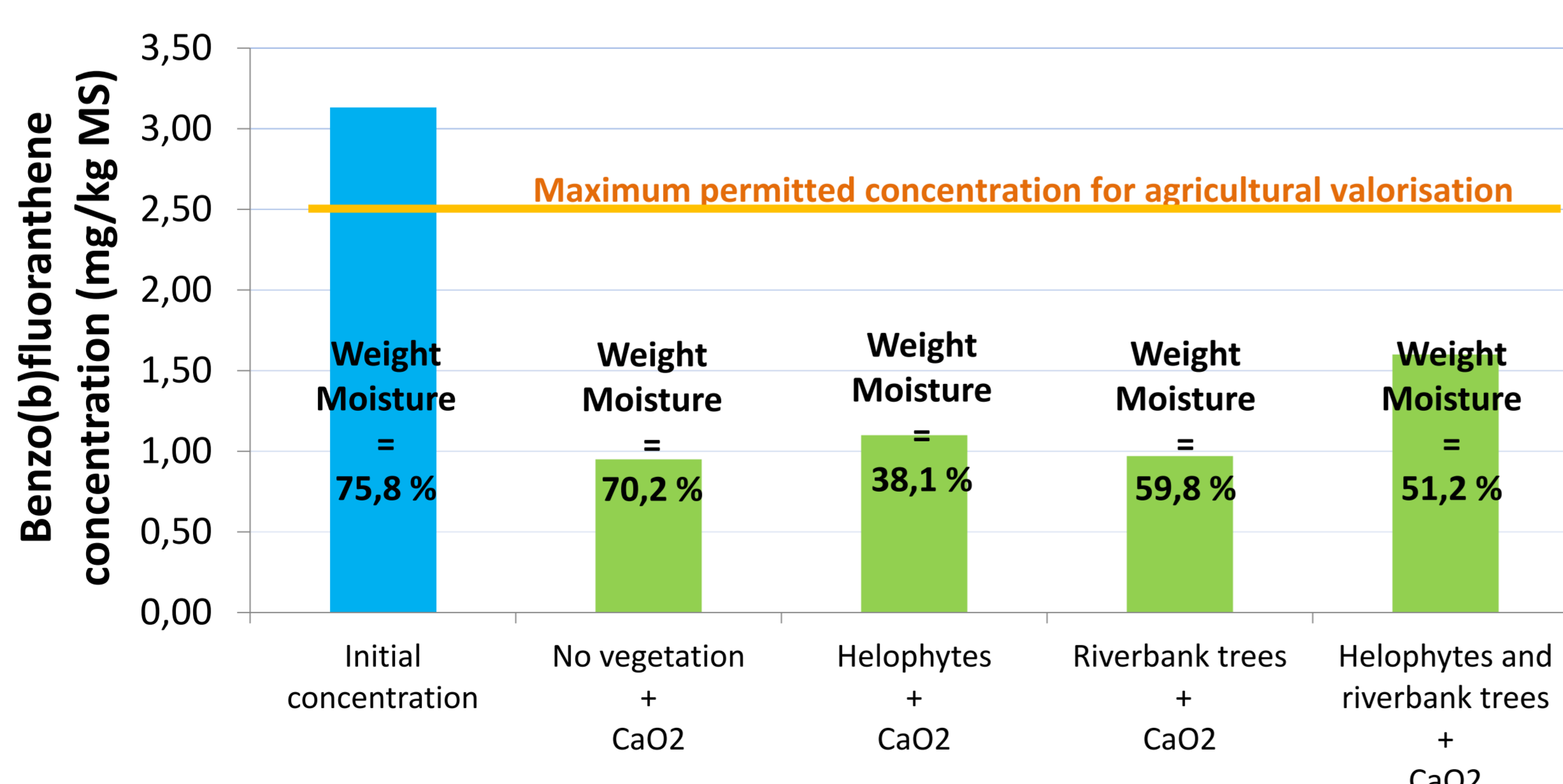
C. Real scale experiment

- ❑ The filtration bag was planted with the selected species and amended with CaO_2 . After a season of growth, the sludge was analyzed.



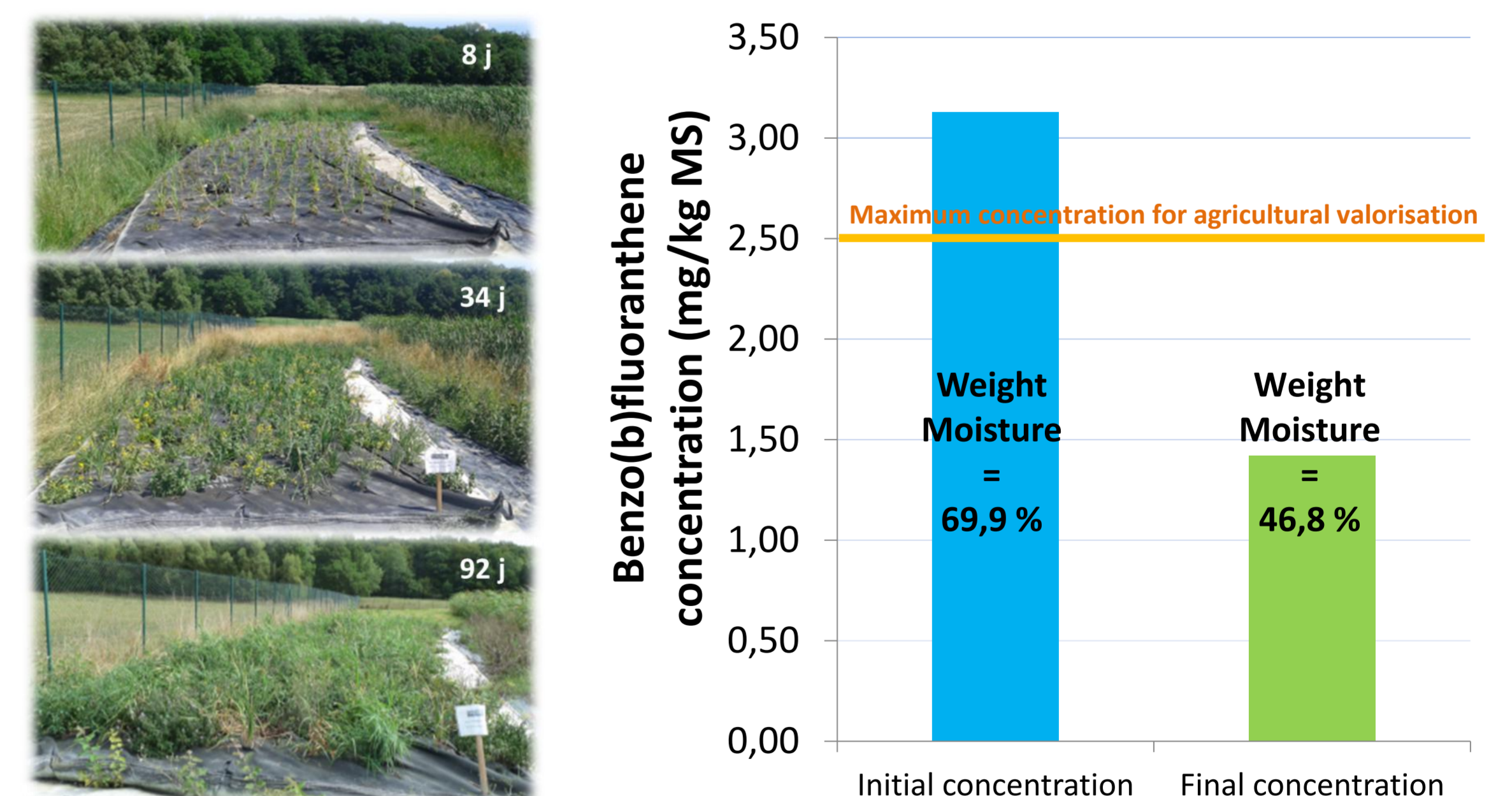
Results and Discussion

A. Experiment in plant-growth chamber (49 days)



→« Helophyte + CaO_2 » was chosen for the next step

B. Real scale experiment (4 months)



→The sludge became compatible with an agricultural reuse

Conclusion and Perspectives

- ❑ VALTERRA has developed a process to treat wastewater sludges polluted with PAHs to make it compatible with agricultural reuse. A real scale experiment led to an operational success and significant savings (€).
- ❑ The ambition is now to translate this process to polluted freshwater sediments and other industrial sludges.