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## Background

Per and polyfluoroalkyl substances (PFAS) are highly fluorinated organic chemicals used in a wide range of products. PFAS contains mobile, persistent and toxic compounds, which can migrate into groundwater at contaminated sites and spread the contamination far from the source. It is therefore important to develop cost efficient and sustainable methods to treat groundwater contaminated with PFAS.

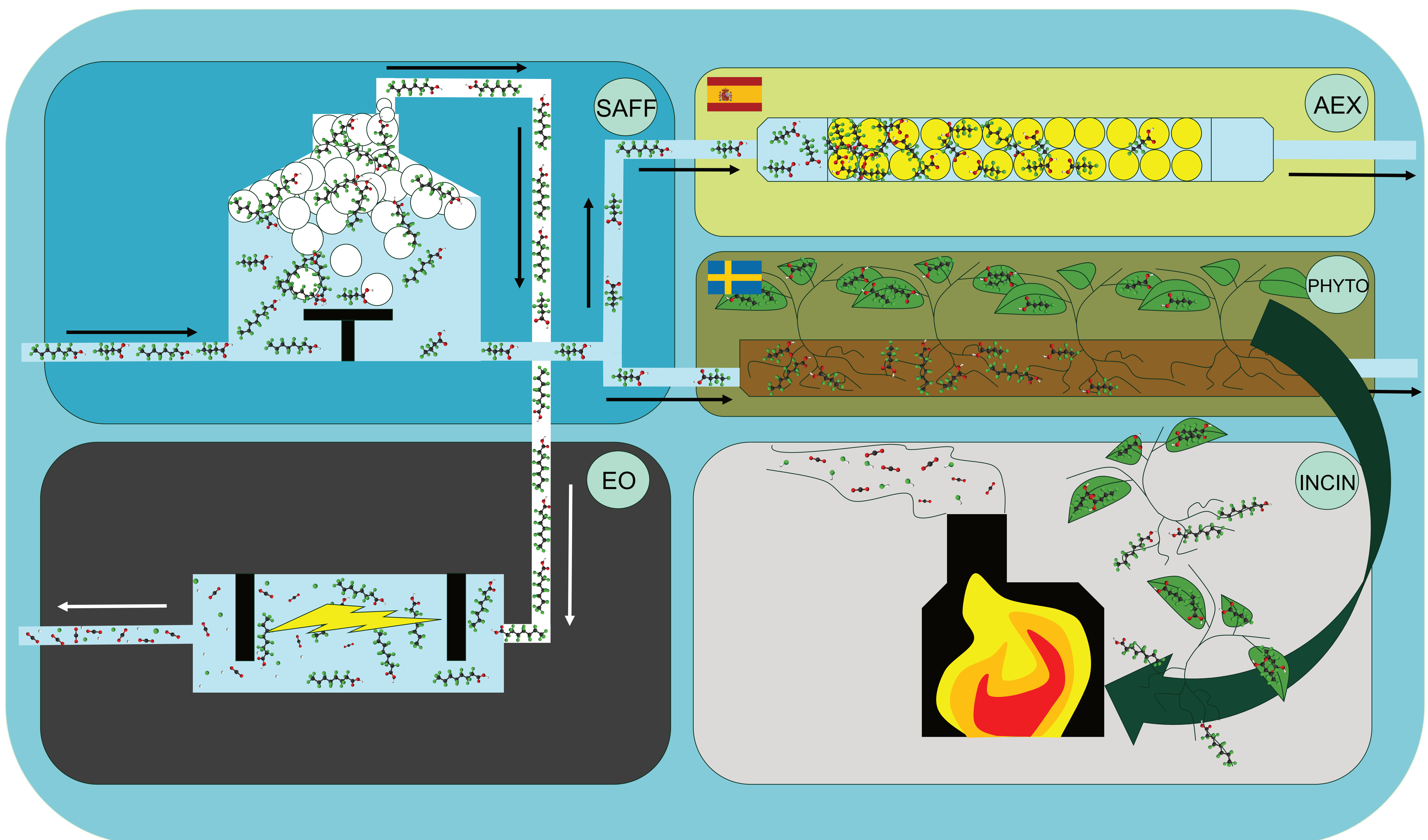
The LIFE SOuRCE project aims to demonstrate and evaluate sustainable on-site remediation technologies for PFAS contaminated groundwater and uses two demo sites: a landfill in Sweden and a site in Spain where PFAS-containing fire-fighting foams have been used.

## Separation techniques

**SAFF:** Surface active foam fractionation. This unit utilizes the surface active properties of PFAS. A highly concentrated PFAS foam is created as air is sparged through the contaminated water. This separates primarily longer chained PFAS from the stream.

**AEX:** Anion exchange chromatography. A separation technique that will be used as the polishing step at the Spanish demo. It utilizes the negative charge of PFAS, and can be used to remove remaining PFAS after SAFF, i.e. primarily the shorter chained compounds.

**PHYTO:** Phytoremediation. A separation technique that will be used as the polishing step at the Swedish demo. This unit consists of growing plants in a peat/biochar matrix. Compounds remaining after the SAFF are taken up and accumulated in the plant tissue as well as sorbed to the peat/biochar matrix.



## Destruction techniques

**EO:** Electrochemical oxidation. This unit will be used to process the foam from the SAFF. Boron doped diamond electrodes, creates a high voltage capable of complete organic mineralization of PFAS.

**INCIN:** Incineration. The PFAS contaminated biomass harvested from the PHYTO unit as well as the peat/biochar mix will be incinerated at conditions where PFAS will be decomposed.

## Summary

The LIFE SOuRCE project combines surface active foam fractionation, anion exchange chromatography, phytoremediation, electrochemical oxidation and incineration to provide a sustainable and cost efficient on-site solution to remove PFAS from groundwater.

