

# ENTRANS Investigating the ENvironmental impacts of TRANSformed engineered nanomaterials released from wastewater treatment plants

## Background

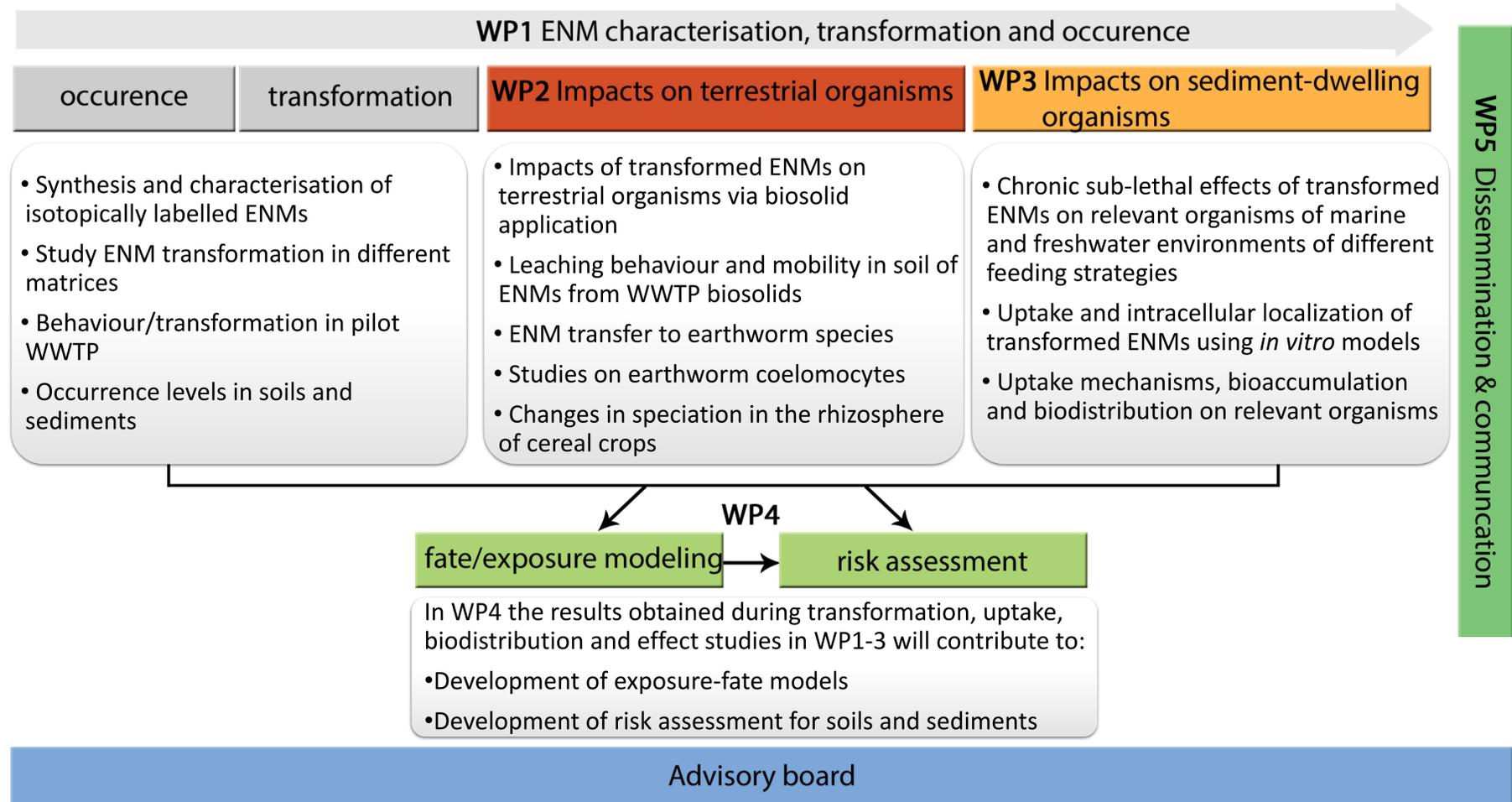
The production, diversity and use of engineered nanomaterials (ENMs) increases globally as the market and number of applications for ENMs expands. Silver (Ag), zinc (Zn) and titanium dioxide (TiO<sub>2</sub>) ENMs are among the most widely used in industrial processes and consumer products leading to increased releases to wastewater treatment plants (WWTP) from domestic and industrial sources. Material flow analyses suggest that landfills or agricultural soils and sediments are the main receiving compartments for ENMs, depending on the application and ENM type.

**ENTRANS aims** to improve the understanding of the behaviour and physicochemical transformation processes impacting ENMs in different environmental media (wastewater, biosolids, soil, sediment) and how this transformation influences ENM bioavailability, bioaccumulation and toxicity in organisms from receiving environments considered to be the final sinks for ENMs, soil and sediments.

## Expected outcomes and impact

- Data generation and better understanding on ENM transformation in WWTPs, soil, sediments
- Advance the methodologies for ENM extraction and characterisation in complex matrices
- ENM detection and occurrence data in environmental samples
- Incorporation of environmental relevance of exposure conditions
- Understanding the interaction and chronic effects of transformed ENMs on terrestrial and aquatic organisms
- Understanding the processes affecting uptake and bioaccumulation
- Provide environmental risk assessment of ENMs released in soils and sediments

## Approach



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