Assessing the role of microplastics as a disturbance to soil resilience

Hafeez Ur Rehman*†[1], Malcolm Reid , and Rachel Hurley

[1]The Norwegian Institute for Water Research – Økernveien 94 0579 Oslo Norway, Norway

Abstract

Studies have found microplastics (MP) in soil environments and have reported their impacts on soil properties, soil functioning, and microbial communities. In soil management systems, soil resilience is critical for the long-term sustainability of soil resources and the prevention of soil degradation. For the past two decades, soil resilience has been discussed extensively in the wider scientific literature. Agricultural practices, industrial activities, deforestation, overexploitation of the vegetative cover, flooding, and tillage operations have been identified as having an impact on soil. Numerous methods have been discussed to measure soil resilience in relation to the above-mentioned disturbances; however, the impact of MP has not been fully addressed. There is a need for assessment methods on the potential effects of MP on soil resilience. We, therefore, present the results of a literature review aimed at investigating approaches for assessing the impact of MP on soil resilience. This serves as a foundation for developing a paradigm for examining the role of MP as a soil disturbance. In this presentation, we explore the potential methods of assessing the impact of MP on soil resilience. There is a need to measure and define the impact of MP on soil resilience to identify the risks that MP poses for the long-term sustainability of our soils.

Keywords: microplastics, soil resilience, sustainability, soil degradation

*Speaker

†Corresponding author: hafeez.rehman@niva.no