Microbes & Planetary Health Paper

SCIENTISTS' CALL TO ACTION

Microbes, planetary health, and the Sustainable Development Goals

Summary

Microorganisms, including bacteria, archaea, viruses, fungi, and protists, are essential to life on Earth and the functioning of the biosphere. Here, we discuss the key roles of microorganisms in achieving the United Nations Sustainable Development Goals (SDGs), highlighting recent and emerging advances in microbial research and technology that can facilitate our transition toward a sustainable future. Given the central role of microorganisms in the biochemical processing of elements, synthesizing new materials, supporting human health, and facilitating life in managed and natural landscapes, microbial research and technologies are directly or indirectly relevant for achieving each of the SDGs. More importantly, the ubiquitous and global role of microbes means that they present new opportunities for synergistically accelerating progress toward multiple sustainability goals. By effectively managing microbial health, we can achieve solutions that address multiple sustainability targets ranging from climate and human health to food and energy production. Emerging international policy frameworks should reflect the vital importance of microorganisms in achieving a sustainable future.

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