Gone Yi Thaw Maung

Myanmar

Seeing environmental AMR: evidence, surveillance & research



Tracing Microplastics as Hidden Vectors of Environmental AMR

Gone Yi Thaw Maung, MSc Candidate, Low-Carbon Technologies & Sustainable Chemistry, University of Bologna

Introduction

Microplastics are an overlooked reservoir and transport route for antibiotic-resistant bacteria and resistance genes in cities. My research maps where these particles come from and how they travel through urban stormwater.

Materials & Methods

Land-use based sampling and source apportionment of microplastics in Thai stormwater runoff, alongside green cellulose-based encapsulation research.



Sampling + green materials, together

Results: How the Pathway Works

Urban Land Use

Roads, industry, waste sites shed particles

Stormwater Runoff

Microplastics enter drains & rivers

AMR Hitchhiking

Antibiotic residues & resistant bacteria bind to particle surfaces

Environmental Spread

Carried into soils, rivers & human exposure

CONCRETE EXAMPLE

Key finding: microplastic type and concentration vary predictably by land use, so AMR-carrying hotspots can be mapped, not just guessed.

Conclusions

The same land-use sampling built for microplastic pollution can double as a low-cost environmental AMR surveillance tool, turning an invisible risk into a mappable one.

Turning risk into a map

Next Step

Pair this surveillance approach with biodegradable, cellulose-based material alternatives to cut plastic-borne AMR pathways at the source.



Greener materials at the source