



Prof. Dr. Issam A. Al-Khatib

Title: Prof. Dr.

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Speaker Biography:



Prof. Al-Khatib is a distinguished faculty member at the Institute of Water and Environment Studies, Birzeit University, Palestine. Prof. Al-Khatib was honored in 2015 by the President of Birzeit University for being among the top five researchers at the university over the past five years. Prof. Al-Khatib has made significant contributions to various fields, including solid and hazardous waste management, water resources management and quality, renewable and sustainable energy, climate change, environmental assessment, and wastewater management. His most recent project, "Plastic Waste Separate Collection in the Palestinian territories (PlaSePal)," reflects his ongoing commitment to innovative environmental solutions. Prof. Al-Khatib has also played a crucial role in the scientific community, serving as a member of the scientific or organizing committees for eight conferences in 2025 and four conferences in 2024.

Presentation Title:



Innovations in Plastic Waste Reduction and Recycling: Challenges and Emerging Solutions in the West Bank, Palestine

Abstract:



The recycling of plastic waste in developing countries encounters significant challenges, but innovative solutions are emerging from recyclers' perspectives. This study examines these challenges and strategies, drawing on data from 40 recycling companies in the West Bank, Palestine. Company sizes vary from owner-operated (5%) to those with over 100 employees (5%), with the majority employing 1-10 workers (47.5%). Annual turnovers also vary widely, with 28% of companies earning between NIS 3,000,000-4,000,000. Key activities include plastic product fabrication (85%), waste sorting (25%), and waste collection (22.5%), processing mainly PO-flexible (77.5%) and HDPE (65%) polymers. Input materials are predominantly imported (85%) or sourced from local collectors (47.5%).

Major obstacles include the low value of materials (55%), supply uncertainty (80%), and administrative constraints (40%). However, recyclers are adopting effective strategies such as robust quality assurance practices, with 72.5% conducting pre-manufacturing tests and 95% conducting post-incorporation tests. Energy is sourced entirely from the local power grid (100%), with some companies utilizing solar panels (27.5%). Recyclers highlight the need for increased government support, improved collection infrastructure, and advanced production technology to overcome these barriers.

Key recommendations include enacting supportive legislation, enhancing collection systems, acquiring modern technology, and establishing centralized recycling factories. Additionally, expanding the workforce, involving the private sector in landfill management, reducing raw material imports, and strategic investments are vital. Streamlining bureaucratic processes, boosting public awareness, supporting advanced technology purchases, and lowering the prices of recycled products are also essential. Ensuring a steady supply of raw materials, promoting free waste sorting, allocating dedicated plastic landfills, and licensing specialized collection companies are crucial for sustainable development. These emerging solutions offer a promising outlook for plastic waste management, contributing to environmental sustainability and economic growth in developing countries.