ISS Waste Bioreactor (Conceptual)  
  
[NASA Achieves Water Recovery Milestone on International Space Station - NASA](https://www.nasa.gov/missions/station/iss-research/nasa-achieves-water-recovery-milestone-on-international-space-station/)  
NASA Achieves Water Recovery Milestone on International Space Station  
  
[Recycling in Space: Waste Handling in a Microgravity Environment Challenge - NASA](https://www.nasa.gov/missions/station/recycling-in-space-waste-handling-in-a-microgravity-environment-challenge/)  
**Recycling in Space: Waste Handling in a Microgravity Environment Challenge**  
summary :   
or other microbes) to break down and convert organic wastes (human waste, uneaten food, plant residues) into useful products: for example, methane gas for energy, compost or plant growth substrate, or to produce reusable materials.

In space context, if a waste bioreactor were deployed, it would offer advantages: reducing resupply mass, less outbound waste, improved closed-loop sustainability. Challenges include biohazards, odor control, maintaining environmental parameters (temperature, moisture, microgravity), containment, and cost of implementation and maintenance.  
  
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