Biotechnology/Applications, Challenges, and Policy Options for Engineered Microbes for Waste Cleanup: U.S. Government Accountability Office Report

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The United States Government Accountability Office ("GAO") issued a July 2026 Technology Assessment Report titled:

Biotechnology - Applications, Challenges, and Policy Options for Engineered Microbes for Waste Cleanup ("Report").

See GAO-26-108175.

GAO states that it prepared the Report because research has shown that microbes (e.g., bacteria, fungi) can be engineered to break down pollutants/waste chemical contamination in both land and water media effectively. Therefore, it believes that microbes potentially offer assistance in cleaning up multiple sectors, including:

- Defense
- Mining
- Agriculture
- Manufacturing

An assessment of current and emerging engineered microbe technologies for waste cleanup is stated to have been undertaken.

The Report examines:

1. The status, benefits, and risks of engineered microbes for waste cleanup,
2. The challenges of developing or using engineered microbes for waste cleanup, and
3. Options policymakers could consider to achieve various goals related to this biotechnology.

GAO stated that in preparing the Report, it reviewed scientific reports and federal agency documents. GAO also interviewed federal agency officials and 25 other experts from academia, industry, and nonprofit organizations. Two policy goals related to biotechnologies were assessed:

1. Demonstrating safety and effectiveness.

2. Developing a market.

Challenges identified as hindering these two goals were found to include:

- Insufficient testing infrastructure and standards (current testing infrastructure/standards are insufficient to scale experimentation beyond the lab or to assess the safety and effectiveness of engineered microbes).
- Regulatory catch-22 (the Environmental Protection Agency, when authorizing experimental release, requests information that is difficult to obtain without experimental release).
- Unclear regulatory roles and responsibilities (developers lack clarity about the regulatory process for engineered microbes).
- Public concerns (developers may hesitate to invest in research and development of the technology if there is not sufficient public support).

The Report identifies ten options GAO developed that it believes policymakers should consider if they wish to advance the two previously referenced goals, which are discussed in the Report and assessed both in terms of "opportunities" and "considerations."

A copy of the Report can be found here.