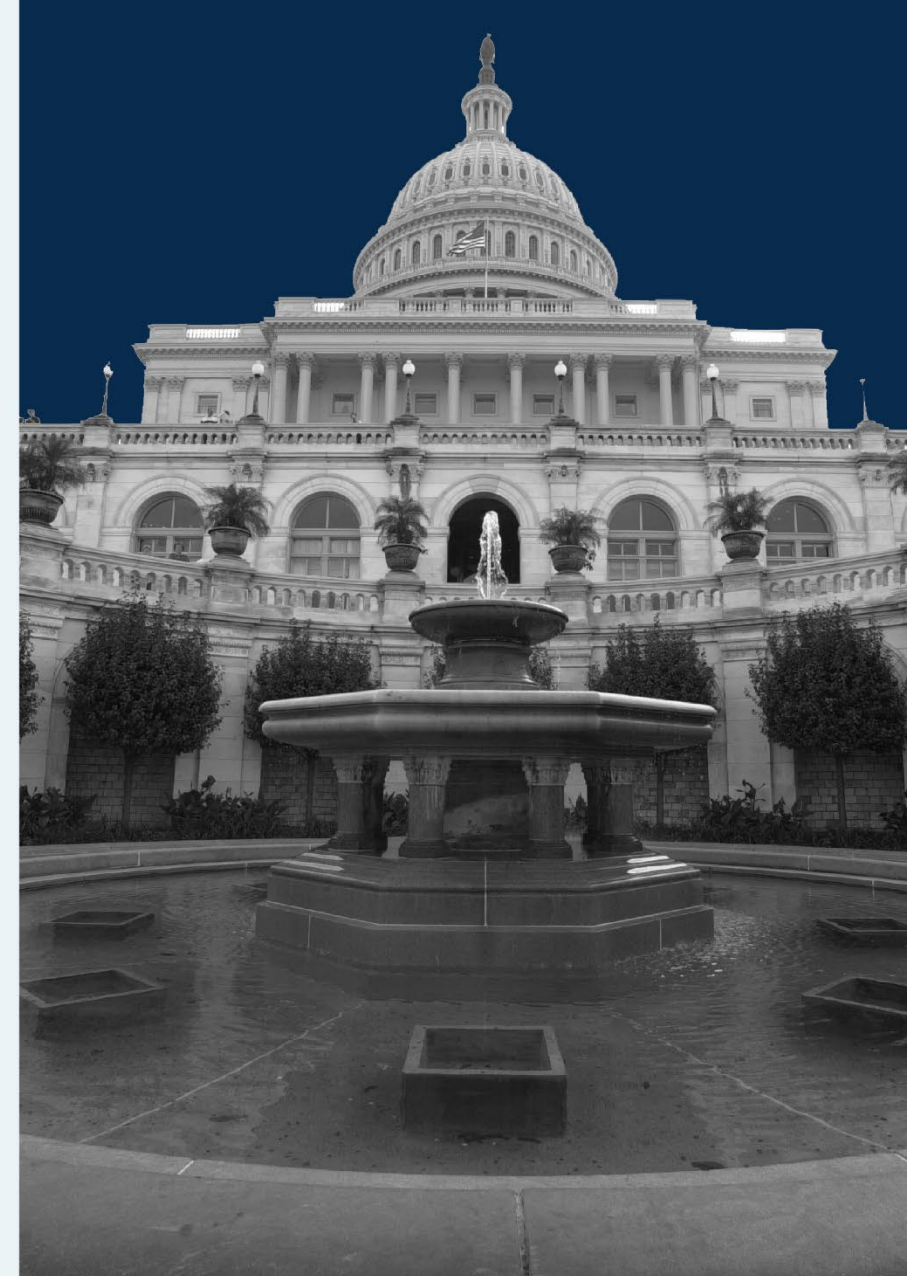



# U.S. Government Accountability Office (GAO)

## Impact of Technology Assessments on Legislation

Sarah Harvey, Assistant Director

HarveyS@gao.gov





GAO is an independent, nonpartisan  
professional services agency  
in the legislative branch.

The Congress uses our work extensively  
to identify legislative solutions to  
emerging problems, achieve cost  
savings, and enhance efficiencies in  
federal agencies and programs.

Since its establishment in 2019, our Science, Technology, Assessment, and Analytics (STAA) team has become a key resource for the Congress.

Our growing portfolio of work includes technology assessments on regenerative medicine and performance audits on many aspects of research.

While scientists in a lab study a particular topic or problem, scientists at GAO look at a broad range of science and technology issues, as well as the policies governing them.

They then provide briefings, reports, and testimony for the Members of Congress and their staff about the effects of these topics, as well as key policy questions lawmakers should consider.

For example, our scientists—many of whom hold a PhD in their field—study the literature, interview industry leaders, and review how science and technology are being utilized.

“If you publish a report at GAO, you can get that research on a congressional desk and, potentially, affect what bills get passed, and your work has a real impact.” said Eliot, PhD, biological sciences



# Case Presentation:

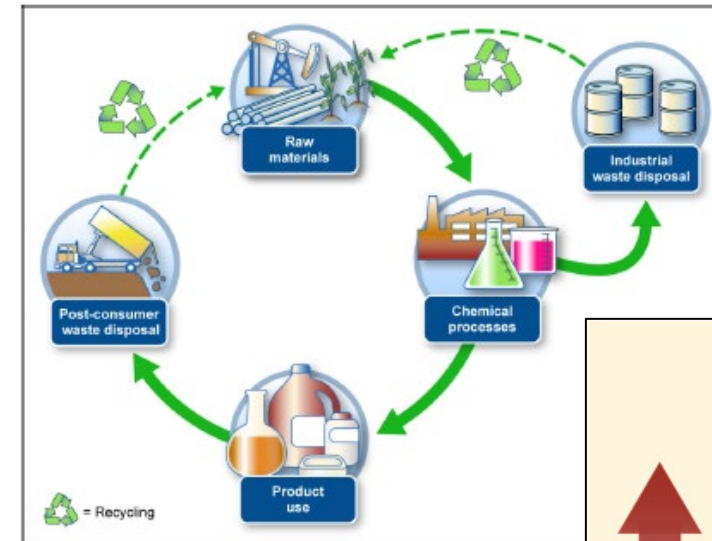
# Sustainable Chemistry Technology Assessment



## Chemical Innovation: Technologies to Make Processes and Products More Sustainable

- We found that the stakeholders do not agree on how to define, measure, or assess sustainable chemistry.
- We also found that companies weigh various environmental and health factors differently when assessing sustainability.
- These differences in the definition hinder technological development and adoption.

Life cycle of chemical processes and products



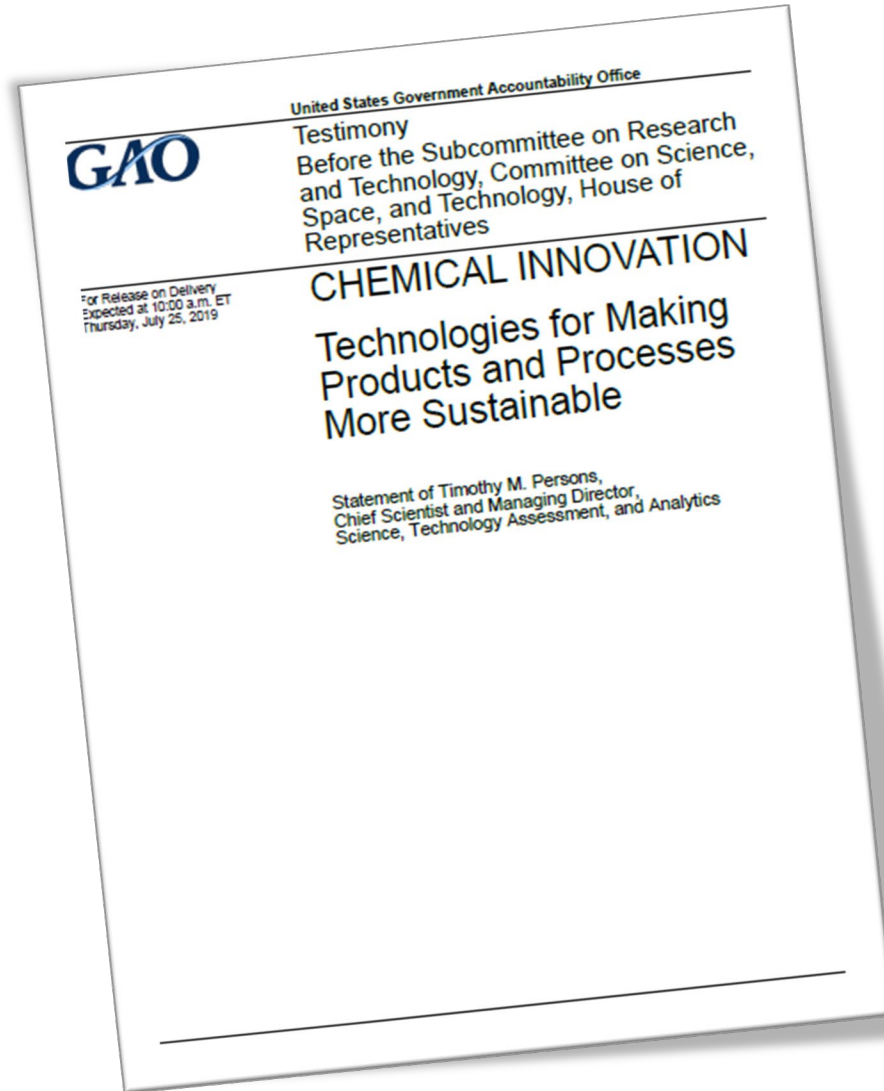
Environmental or health factor	Total score (points)
Toxicity of the product	133
Toxicity of required materials	124
Toxicity of process waste	109
Greenhouse gas emissions	90
Amount of materials required	88
Energy use	85
Volume of process waste generated	85
Other air emissions	69
Water use	69
Recyclability of (or other uses for) process waste	64
Recyclability of the product	42
Percentage of renewable or biobased content	32
Land use/physical footprint	30

↑ Relatively more important to the responding companies

↓ Relatively less important to the responding companies

Source: GAO analysis of survey data from GAO-18-307. | GAO-18-307  
 Note: Partial scores (e.g., 84.5) were rounded up to the next whole number.

## Testifying before Congress



We provided a range of specific steps that would be needed to realize the full promise of this technology.

- The establishment of an organized constituency that includes both industry and government, to help make sustainable chemistry a priority, to lead an effective national initiative and strategy, and create momentum in the field.
- Federal attention to the development of a robust definition and standard tools for assessment.
- A research agenda that links research to policy making.
- New training to upgrade the chemistry and manufacturing workforces.

WILLIAM M. (MAC) THORNBERRY  
NATIONAL DEFENSE AUTHORIZATION ACT  
FOR FISCAL YEAR 2021

CONFERENCE REPORT

TO ACCOMPANY

H.R. 6395



DECEMBER --, 2020.—Ordered to be printed

16 **Subtitle E—Sustainable Chemistry**

17 **SEC. 261. NATIONAL COORDINATING ENTITY FOR SUSTAIN-**  
18 **ABLE CHEMISTRY.**

19 (a) ESTABLISHMENT.—Not later than 180 days after  
20 the date of enactment of this title, the Director of the Of-  
21 fice of Science and Technology Policy shall convene an  
22 interagency entity (referred to in this subtitle as the “En-  
23 tity”) under the National Science and Technology Council  
24 with the responsibility to coordinate Federal programs and

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20 (10:06 a.m.)

21VCASCR21.XML

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- 1 activities in support of sustainable chemistry, including
- 2 those described in sections 263 and 264.

**The Act directs the Director of the Office of Science and Technology Policy to convene an interagency entity to:**

- Develop elements of a strategic plan
- Developing a consensus definition and framework for assessing sustainable chemistry
- Ensure agencies
  - ✓ incorporate sustainable chemistry into existing research and development programs,
  - ✓ collect and disseminate relevant information, and
  - ✓ provide education and training





**THANK YOU!**