



Policy Recommendations for Reducing Single-Use Plastics

FEDERAL TEAM POLICY BRIEF

This policy brief summarizes the previous publications and connects it to three relevant policy recommendations: increasing federal funding, creating a national education campaign, and creating national guidelines for plastic alternatives. It explains how these recommendations can close the gaps to effective implementation that have been reflected in previous research.

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Date: May 22, 2026

Published by the Saving the Sea Organization

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I. Executive Summary

This paper proposes three recommendations—targeted funding, public education initiatives, and national standards—to reduce reliance on single-use plastics and support the adoption of sustainable alternatives. The following policy recommendations will aim to reduce the use of single-use plastics and support alternatives, ultimately leading to a cleaner, healthier environment for all citizens.

II. Background

Single-use plastics contribute significantly to environmental pollution, with over 300 million tons produced each year globally (UNEP, 2023). Alternatives such as bamboo, bioplastics, and seaweed offer promising solutions. Bamboo, for example, has the ability to reproduce quickly as the fastest-growing plant in the world. Its quick-growing nature and wide availability give it remarkable potential as an effective plastic alternative. Bioplastics are another popular plastic alternative because of their degradation process. Its process is very similar to that of plastics,

but it degrades in a way that leaves no harmful residue. Seaweed also breaks down in a highly energy-efficient manner, requiring less chemical modification and extraction than traditional plastics. Additionally, seaweed absorbs carbon dioxide and nutrients from water bodies, helping mitigate climate change.

However, there are downsides to address before implementation, such as higher production and harvesting costs. One significant downside is the cost of producing these alternatives, as their production costs would be higher than those of plastics for various reasons. The literature highlights seaweed, for example, as expensive to produce because of its delicate structure. Bamboo is also highlighted as difficult to harvest and cultivate due to its location and delicate structure. Bioplastics require a specific recycling process separate from traditional plastics to prevent harm to the recycling process. Without policy support to address financial and regulatory barriers, these alternatives cannot scale effectively, underscoring the need for targeted federal interventions.

III. Problem Statement

Despite the positive benefits, plastic alternatives have not been widely adopted. The production and harvesting limitations place alternatives at a disadvantage compared to traditional plastics, while limited public awareness and inconsistent regulations further prevent implementation. Case studies demonstrate that without coordinated policy support, these barriers prevent alternatives from scaling effectively.

IV. Policy Analysis

Federal policy intervention can address these challenges by lowering financial risk, increasing public awareness, and establishing clear regulations. Clear and accessible national policies are necessary to support the long-term adoption of alternatives and create a pathway to effective implementation. Policies have been implemented to support recycling and the use of plastic alternatives, but they have left a gap in meeting the goal of replacing traditional plastics.

For example, the EPA has a Reduce, Reuse, and Recycle program that offers detailed information on recycling. This information shows users how to reduce environmental impact by using less traditional plastics and recycling items such as compost and electronics (EPA 2026). However, the program lacks explicit guidance on adopting and managing plastic alternatives, leaving

consumers and municipalities without clear instructions to replace traditional plastics.

Additionally, current federal funding limits the implementation and potential of plastic alternatives. The Department of Energy (DOE) currently lists funding for plastic alternatives, including 13.4 million dollars for select organizations to produce biodegradable options (DOE 2022). While helpful, these funds are relatively small compared to the investment needed to scale alternatives to compete with conventional plastics. Increased and targeted funding would allow plastic alternatives to move from pilot projects to widespread production. The following policy recommendations outline how federal action can bridge the gap between research and practice while supporting environmental sustainability.

V. Policy Recommendations

The following recommendations, funding support, public education, and national guidelines reflect how the government can pursue these alternatives in practice. For federal funding, the cited literature states that the production costs of the referenced alternatives would be higher than those of traditional plastic. For example, the literature indicates that bamboo is more expensive to produce because of transportation and harvesting challenges (Li and Sun, p. 10). Therefore, funding is

needed to support development. The DOE has previously held funding opportunities for environmental causes, such as supporting small businesses that innovate in renewable energy (EERE, 2019). Continuing and expanding this funding would create more opportunities to develop plastic alternatives. Based on previous projects, a 40-million-dollar fund would be a great start to this initiative. This funding would help overcome the previously mentioned financial barriers that prevent alternatives from being effective and provide an incentive for businesses and organizations to pursue them. Without this funding support, the market favors single-use plastics, limiting the potential of plastic alternatives. Having this national funding support for alternatives fosters domestic innovation in environmentally friendly technologies.

The next policy recommendation is to launch a public education campaign on the importance of plastic alternatives, with the goal of increasing awareness of alternatives and encouraging more people to use them instead of plastic. The previous publication highlighted additional countries that have seen success with positive incentives for alternatives, and Jamaica has seen success in its campaign to reduce single-use plastics. Matthew Samuda of the Ministry of Economic Growth and Job

Creation (MEGJC) stated that the country has seen positive changes in public plastic use among Jamaican citizens (Jamaica Observer, 2025).

Congress could approve and fund a national public education initiative, administered by the EPA, to promote awareness and adoption of plastic alternatives. The EPA could use standardized public messaging across digital platforms, such as social media, to raise awareness of plastic alternatives and ensure effective dissemination. The EPA currently has a reduce, reuse, recycle campaign (EPA, 2026). Expanding that campaign to emphasize the importance of plastic alternatives and explaining alternatives would be a great addition. Embodying this campaign within federal policy would ensure strong national information, long-term funding stability, and accountability.

The third policy recommendation would be to set national standards and guidelines for alternatives. The case studies from the previous publication emphasize the lack of structure and guidelines in other countries and the resulting barriers. Having the federal government set clear guidelines would enable the implementation of alternatives to be efficient. Additionally, stronger guidelines could encourage stakeholders, such as government

organizations and local businesses, to support these alternatives.

These guidelines could be implemented by establishing consistent national production standards for companies that produce alternatives and by providing documents to post in manufacturing facilities and recycling centers. For example, the literature explains the importance of separating bioplastics from traditional plastics to prevent harm in the recycling process. The EPA suggests that compostable plastics have a separate recycling process from traditional plastics and recommends that citizens drop off compostable plastics at a drop-off center or have them picked up if available (EPA, 2025). Creating a stronger guideline requiring city governments and manufacturers to separate bioplastics for recycling could significantly improve recycling efficiency. The EPA could coordinate with local and state waste management authorities to ensure implementation while allowing necessary flexibility in local infrastructure. Following this recommendation would also ensure that there is an accessible option for all to recycle bioplastics. Over time, these standards could be updated as infrastructure and material technology improve. Having a clear guideline for recycling companies to separate bioplastics from single-use plastics would reduce confusion, improve

production efficiency, and support the recycling process. Without this structure, external support of plastic alternatives may not be possible, so the implementation is a crucial step to ensuring the development process runs smoothly.

VI. Implementation Plan

The first portion of the plan would involve securing funding through Congress to fund the DOE for this purpose. If approved, the DOE would create two grant programs: one to fund public education on plastic alternatives and one to fund businesses that would manufacture and support their use. These two streams would enable the production of alternatives while informing the public of their performance.

Next, the government could determine effective strategies to inform the public about plastic consumption. As mentioned, a national public education initiative would greatly influence the public on these issues by effectively spreading information and awareness of plastic alternatives. Then, advertising plastic alternatives in public spaces could greatly increase their visibility. Holding councils or town hall meetings on the topic and broadcasting them could contribute to the information that the public receives. Finally, once the

rollout of the process begins, Congress could listen to the needs and requirements of the production process. By doing so, they can set clear rules and guidelines for companies to follow to ensure the production process runs smoothly. This process would ensure that the alternatives would be implemented as efficiently as possible. Additionally, this order of sequence would ensure that production capacity, public knowledge, and regulatory efficiency work simultaneously and uniformly.

VII. Conclusion

The listed policy solutions would address the challenges that come from the use of plastic alternatives. By following the listed plan, a clear and accessible timeline would be used to incorporate these changes. Implementing these recommendations would accelerate the reduction of single-use plastics and foster the long-term domestic use of plastic alternatives, helping achieve the goal of a more sustainable environment.

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