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Food waste policy in the United States

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An analysis of state-level food waste policy data shows that a shift away from food waste recycling towards prevention, rescue and repurposing is needed to support targets to halve food waste in the United States by 2030.

Food waste prevention accounts for 8–10% of global greenhouse gas emissions and incurs an annual cost of US$1 trillion[1], and is frequently cited as 'low-hanging fruit' for climate action. Yet, food waste is not merely an environmental issue — it is a symptom of a dysfunctional system. Current policies reinforce overproduction, wasteful consumption and markets that prioritize aesthetic appeal over practicality, including nutritional value, natural diversity and the acceptance of natural variations in produce, such as the shape of green beans or the size of apples.

Now, writing in *Nature Food*, Kakadellis et al.[2] explore how state-level policies in the United States align with the US Food Loss and Waste Reduction Goal, which seeks to reduce national food waste by 50% by 2030. To do this, Kakadellis et al. estimate the food waste diversion potential across prevention (date labelling), rescue (liability protection and tax incentives), repurposing (animal feed) and recycling (organic waste bans and waste recycling laws) policy categories. Although these approaches contribute towards reductions in food waste, they argue that the United States is likely to miss its federal food waste reduction target owing to an overreliance on recycling.

The food loss and waste field has typically focused on baseline measurements and best practices within specific segments of the food supply chain, particularly retail and households, with few studies evaluating the impact of policy measures through validated, quantitative methods[3,4]. Addressing this gap, Kakadellis et al. highlight a disconnect between the ambitions of US federal and state governments and the tangible real-world impact of their interventions. While recycling plays an essential role in waste management, it fails to address the underlying causes of food waste, such as overproduction and overconsumption. This focus on recycling contrasts sharply with federal priorities, which emphasize prevention, recovery and reuse. The 2021 revision of the US Environmental Protection Agency's definition of food waste, which excluded recycling as a viable contribution to diversion, further underscores this disconnect.

When recycling is excluded from calculations of food waste diversion potential, no state meets the 2030 targets, suggesting that a strong focus on recycling does not necessarily correlate with robust policies on prevention, recovery and reuse. For example, states with well-established recycling programmes, such as Vermont, score significantly lower when recycling is excluded, owing to the underdevelopment of policies targeting food waste prevention and recovery. The preference for recycling probably stems from its alignment with existing economic paradigms, as recycling does not challenge the status quo of production and consumption patterns[2].

Waste bins await collection, a reminder that current food waste policies address symptoms rather than preventing waste at its source.

The overreliance on recycling as a solution to food waste is a global issue. Recycling strategies align with existing waste management systems and economic models, making them politically easier to implement. However, this approach fails to address the root causes of food waste — inefficiencies in supply chains, consumer behaviour and overproduction. Solutions such as prevention, recovery and reuse require deeper structural changes and stronger political will, making them more challenging to scale[5].

Many countries face misaligned national and regional priorities, resulting in fragmented policies. This lack of coordination, combined with insufficient data on the effectiveness of interventions, can create a false sense of progress. Metrics that include recycling in food waste reduction calculations overstate achievements and obscure the need for upstream solutions. This issue mirrors the US situation: a focus on downstream solutions without addressing prevention undermines global efforts to reduce food waste[6].

While Kakadellis et al. provide valuable insights into the current status of US food waste policy, advocating for a shift away from recycling and towards prevention, recovery and reuse, specific interventions within the broad policy categories remain to be quantified. The study relies on policy scores derived from expert assessments, which lack empirical validation. Kakadellis et al. acknowledge this and, therefore, call for further research to develop a more detailed, nuanced policy scoring system. The study also considers only 14 of the 42 solutions in the ReFED Solutions Database[2] (which uses a top-down, mass-balance approach), estimating a 23% reduction in surplus food, suggesting that unmodelled solutions could have a substantial impact — particularly when interactions between policies are synergistic or antagonistic.

Future research must adopt more comprehensive methodologies, integrating real-world data from implemented policies and moving beyond expert estimates. Comparative case studies could offer insights

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into context-specific successes and challenges. Expanding the scope of modelled solutions is critical: databases like ReFED[7] are useful, but new or hybrid approaches should be explored to uncover untapped potential. Data accuracy and granularity must improve, transitioning from top-down estimates to bottom-up data collection methods such as waste audits and household studies. Incorporating social and behavioural research methodologies would further illuminate how individuals and organizations respond to specific policies.

Cost-effectiveness evaluations are necessary to ensure policies maximize impact relative to resource investment. Stratified analyses across populations and regions can tailor policies to local contexts, enhancing their efficacy. Life-cycle assessments should measure the environmental benefits of food waste interventions, aligning them with the United Nations Sustainable Development Goal 12.3 target and related national and regional ambitions. Collaborative research involving policymakers, businesses and stakeholders will ensure findings are both scientifically rigorous and practically relevant.

The window for achieving the Sustainable Development Goal 12.3 target as well as the US federal goals is rapidly closing, and political pressures may lead to the reshaping of the timeline, possibly extending it or lowering the ambition of the goals. This shift is not hypothetical; the European Union, for instance, revised its initial food waste reduction targets, underscoring the political complexities of setting and achieving ambitious environmental goals[8].

Academic research serves as the foundation for evidence-based decision making, offering both theoretical insights and practical strategies. Scholars are uniquely positioned to bridge the gap between policy goals and actionable, context-specific interventions. As food loss and waste research continues to evolve, we must ensure that these findings translate into tangible, large-scale action to tackle food waste.

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