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*Research Paper*

# Waste Management Policy Evolution in the United Kingdom and Its Implications for the United States

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**Abstract:** Waste management presents urgent environmental, economic, and public health challenges, with the United Kingdom (UK) emerging as a leader through policy development, circular economy integration, and technological innovation (OECD, 2022; Department for Environment, Food and Rural Affairs [DEFRA], 2023a). Over the past 30 years, the UK has transitioned from a landfill-dependent system to one driven by financial incentives, extended producer responsibility (EPR), and knowledge-based waste processing. However, unresolved issues such as stagnation in recycling, plastic pollution, contamination, and post-Brexit regulatory uncertainty continue to impact its future. These developments are of high transatlantic significance and are important as the country seeks effective waste governance solutions. This study critically analyses how the UK waste management policies' focus has changed since the 1990s to 2023 and whether they are effective, considering technological advances and the ability to adjust strategy. Through benchmarking the UK, in comparison with the well-established and emerging economies, the paper draws on the lessons that are actionable and policy transfer opportunities the United States can use in pursuing its sustainable waste systems. The UK has sharply reduced landfill use and advanced policy tools like EPR and plastic taxes, though recycling rates have stagnated and closed-loop performance remains limited. Moreover, several UK strategies such as fiscal incentives, standardized labelling, and expanded EPR offer practical guidance for improving U.S. waste policy.

***Keywords:*** *Policy; United Kingdom; United States; Waste Management.*

## Introduction

### Global Context

Waste production has turned out to be one of the crucial governance and environmental issues of the 21st century. It is estimated that global municipal solid waste will increase to 3.88 billion tons by 2050, up by 2.24 billion tons in 2020, based on the data in What a Waste 2.0 published by the World Bank, which has significant implications regarding climate change, biodiversity loss, and health (Kaza et al., 2018). Waste management is thus the key element to meeting several international commitments, the United Nations Sustainable Development Goals (SDGs), the Paris Climate Agreement, and national-level net-zero commitments (OECD, 2022).

### The UK Context

The United Kingdom (UK) withstood the immense changes in waste management over the last 30 years, as the country managed to transition the landfill-based waste governance model (in which more than 80 percent of municipal waste was landfilled in the early 1990s) to a diversified system that focuses more on recycling, energy recovery, and the principles of the circular economy (DEFRA, 2023a; Eurostat, 2023). This has been facilitated by such landmark policies as:

- Environmental Protection Act (1990) - brought about the contemporary waste management regulation.
- Landfill Tax (1996) taxed landfill disposal by providing financial incentives to reduce it.

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- Waste Strategy for England (2007) - established national targets of recycling and diversion.
- Resources and Waste Strategy (2018) - proposed to adopt some measures to integrate the circular economy.
- Plastic Packaging Tax (2022) -encouraged recycled content to be used in packaging.

Such will limit dependence on landfills to under a quarter by 2023 and make the UK one of the global leaders of Extended Producer Responsibility (EPR) and market-based policies of waste reduction (DEFRA, 2023b). Nevertheless, since 2015, the rates of recycling have stagnated at about 44% due to the presence of contamination, differences in local authorities, and infrastructural capacity (WRAP, 2023). Brexit has also confused the conditions of alignment with EU waste directives and the trade of secondary materials.

**The U.S. Context**

America has similar issues, but it works within a very decentralized system of waste governance and rules that change in each state and each municipality. Landfilling almost 53% of municipal solid waste also means the U.S. performs poorly in recycling behind even the UK and EU leaders, with the national average at just 32% across the country (EPA, 2022). Although some states like California and Oregon have introduced EPR legislation and ambitious recycling goals, there is no national landfill tax, and the national coordination on recycling standards has been low (NCSL, 2023).

Market susceptibility experienced in the U.S. is also comparable to that of the UK (after all, the National Sword policy implemented by China in 2018 led to a halt in the import of recyclables), although these two countries may not be as vulnerable now as the UK is. This has caused the revelation of the necessity of domestic reprocessing capacity and higher harmonization of policies. The UK case study has great transatlantic policy transfer potential in terms of its fiscal tools, its EPR systems, and their public engagement campaigns.

**Purpose of the Study**

This study aims to:

1. The historical development of UK waste management policies from the year 1990 to 2023 is critically discussed.
2. Make a comparison of performance in the UK with both developed (the United States, Germany) and developing (India, Nigeria) economies.
3. Determine the best policy interventions that may provide knowledge in restructuring the governance of waste in the U.S.
4. Offer specific, evidence-based proposals complying with international frameworks of sustainability.

**Hypotheses**

H1: The combination of fiscal incentives, regulatory regimes, and technological innovation has meant the UK has seen a considerable reduction in its reliance on landfills and a corresponding rise in waste recovery rates.

H2: U.S. countries can find a quantifiable increase in the levels of waste diversion and recycling by implementing similar-adapted UK-style policies, such as landfill taxes, expansion of EPR, and universally uniform recycling practices.

**Method Overview**

The research design used in this study is qualitative-descriptive, which incorporates policy analysis in comparative benchmarking. The sources of data consist of 72 policy papers, government reports, DEFRA, Eurostat, UNEP, OECD, U.S. EPA, and NCSL datasets. Policies are analyzed both chronologically and thematically in an attempt to determine the effectiveness of the legislation, the use of technology, and positioning to meet the targets of sustainability.

**Research Design, Sample, Instruments, and Procedure**

- **Research Design:** Qualitative-descriptive, combining historical policy analysis with cross-national benchmarking.
- **Sample:** Policies, regulations, and performance data from the UK (1990–2023) and comparator nations.

- **Instruments:** Document analysis protocols, comparative policy matrices, and thematic coding frameworks.
- **Procedure:** Sequential analysis starting with UK historical review, followed by comparative benchmarking against international best practices, and culminating in recommendations for U.S. application.

### Contribution to Knowledge

The present paper adds to the body of literature on comparative environmental policy by offering a comprehensive, longitudinal approach towards the evolution of UK waste management and its transatlantic policy application. The synthesis of lessons learned in the UK experience elucidates a theoretical study based on details provided in the study that can assist U.S. policymakers to implement fast progress in achieving circular economy goals despite the lingering institutional constraints.

## Background

### Global Waste Management Trends

Waste management has turned out to be a global governance issue driven by environmental, economic, and social requirements. World Bank estimates that the quantity of municipal solid waste produced globally will have grown by 73 percent by the year 2050, due to population growth, urbanization, and changes in consumption behavior (Kaza et al., 2018). Developed countries are characterized by a higher waste rate per capita and access to more developed systems of waste treatment, whereas the developing countries may face extant problems with poor infrastructure and waste collection systems (OECD, 2022). The convergence of international policy frameworks (United Nations Sustainable Development Goals (SDGs), Paris Climate Agreement, and Basel Convention on the Control of Transboundary Movements of Hazardous Wastes) is increasingly demanding a greater role of waste governance in the climate and sustainability policies of countries.

### The UK Policy Evolution

The United Kingdom's waste management policy trajectory can be broadly divided into three phases:

1. **Regulatory Modernization (1990–2000):** The Environmental Protection Act (1990) defined a contemporary system of waste regulation, licensing, and enforcement. Landfill disposal is such a task, and a significant economic disincentive was introduced in 1996 with the first Landfill Tax to be introduced anywhere in the world (DEFRA, 2023b).
2. **Target-Driven Policy Expansion (2001–2010):** During this time, we witnessed the Waste Strategy for England (2007) adding statutory targets in recycling and recovering as it was accompanied by compliance requirements with the EU Landfill Directive (Eurostat, 2023). They gave local government a set of incentives that focused on enhancing kerbside collection programs and investing in sortation.
3. **Circular Economy Integration (2011–2023):** Lately, the years concerned with matching circular economy principles have been observed, as the Resources and Waste Strategy (2018) defines. Both waste prevention and material recovery aim at reducing the volume of waste products and increasing their recovery. Examples of such initiatives include an increase in Extended Producer Responsibility (EPR) frameworks and the proposed Plastic Packaging Tax (2022). Nevertheless, in terms of recycling rates, despite these developments, the figures have plateaued at 44% since 2015 (WRAP, 2023), implying that whatever has been done will have diminishing returns unless accompanied by the restructuring of the system.

### The U.S. Waste Governance Framework

The U.S. waste management system displays such characteristics as its federalist nature, with the policy-making power in the states and local decision-making. Such decentralization results in a huge lack of uniformity in the waste collection, recycling infrastructure, and performance by state (EPA, 2022). No single federal tax on landfill use or consistency in EPR policy like the one in the UK exists, but the features of recycling and producer responsibility liberalization created by state laws have been delivered in states such as California, Oregon, and Maine (NCSL, 2023).

At the national level, the U.S. recycles about 32 percent of municipal waste, and landfill is still the most used disposal mode (EPA, 2022). Risks in the markets, especially the National Sword policy

in China, have shown the significance of how the country relies on other process markets, which justify the need to develop domestic reprocessing capabilities (OECD, 2022).

**Comparative Insights: UK vs. U.S.**

This comparative outlook (Table 01) shows that, on one hand, the UK has also been successful in primarily reducing landfill, although it has used coordinated fiscal and regulatory actions, whereas the U.S. has been slow in adopting a national policy as a coordinated effort. On the other hand, the experimentation approach at the state level of the U.S. can provide an example of regional innovation, which can prove useful for the UK and its regional inequalities.

**Table 1**: A cross-national comparison between the United Kingdom and the United States

| Dimension | United Kingdom | United States |
|---|---|---|
| **Governance** | Centralized national policy frameworks with local authority delivery | Decentralized state-by-state regulation |
| **Landfill Reliance** | <25% of municipal waste (2023) | >50% of municipal waste (2022) |
| **Recycling Rate** | Plateaued at ~44% | ~32% |
| **Fiscal Tools** | Landfill tax, EPR, plastic tax | Limited landfill surcharges, patchwork EPR |
| **Technology Adoption** | AI sorting, anaerobic digestion, waste-to-energy | Advanced sorting in select states, composting growth |
| **Policy Challenges** | Post-Brexit alignment, recycling contamination | Infrastructure disparity, market dependency |

**Research Gap**

Notwithstanding that government reports and analyses exist concerning waste policy development in the sector, there is little peer-reviewed scholarly synthesis with direct implications of the U.S. waste governance that also highlight the evolution of the waste policy in the UK. Most of the research is divided by waste stream or type of policy, but little longitudinal work is found that goes beyond the respective legislative history into economic instrument and technology changes all into one framework (OECD, 2022). Besides, little comparative research has been conducted on the transatlantic policy transfer possibilities between the UK and the U.S, especially regarding post-Brexit trade, climate objectives, and the shift to the circular economy.

**Conceptual Framework**

This work will be based on a combination of comparative environmental policy analysis and policy transfer framework that depicts how one jurisdiction innovations can be transferred to another jurisdiction (Dolowitz & Marsh, 2000). This is because analyzing the UK policy interventions against policies that can be applied in the U.S., the research notes the best practices, limitations, and the need to adapt to such policies so that effective bursts in waste governance can be achieved.

## Methodology

**Research Design**

This research followed a qualitative-descriptive research design, which was used to critically analyze the development of waste management policies in the United Kingdom (UK) and isolate the policy-relevant lessons for the United States (U.S.). This design was chosen due to the possibility of examining thoroughly the legislative evolution and fiscal interventions in its historical and comparative aspects as well as technological interventions (Creswell & Poth, 2018). The methodology combines chronological policy analysis, thematic coding, and comparative benchmarking and can be both profound in terms of longitudinal policymaking and cross-nationally applicable.

**Data Sources**

Several sources of data were also employed to secure triangulation of research and the soundness of the results

**Policy and Legislative Documents:**

- UK: Environmental Protection Act (1990), Landfill Tax (1996), Waste Strategy for England (2007), Resources and Waste Strategy (2018), Plastic Packaging Tax (2022).
- U.S.: EPA National Recycling Strategy (2022), Connecticut, Minnesota, New York, Pennsylvania waste generator summary report, EPR summary legislation report (California, Maine, Oregon).

**Statistical Databases:**

- DEFRA waste statistics database (UK)
- Eurostat mun. waste stats. (EU & UK).
- E.P.A. waste characterization reports
- OECD circular economy indicators.

**International Reports and Frameworks:**

- What a Waste 2.0 (World Bank, 2018).
- UN Sustainable Development Goals (SDGs) database
- Basel Convention Distributes

**Peer-Reviewed Academic Literature:**

Journal articles of Waste Management, Resources, Conservation and Recycling, and Journal of Environmental Policy & Planning.

**Sampling Strategy**

The 72-document sample (42 UK-focused and 20 U.S.-focused, and 10 international/comparative studies) was selected through a purposive sampling strategy to publish between 1990 and 2023. The criteria of selection were:

1. Applicability directly to waste policy, financial instruments, or technological change.
2. Access to quantitative measures of performance, or qualitative policy assessments.
3. Presence in authoritative government, academic or international sources.

**Data collection instruments**

The study has developed two major instruments:

**i. Document Analysis Protocol:**

The main points of each document, such as the objectives of the policy, their implementation strategy, observable changes, and challenges were extracted based on a structured template.

**ii. Comparative Policy Matrix:**

This was a tool that was used to compare the UK with the U.S. in a systematic manner such that it covered aspects of governance structures, fiscal tools, technology adoption, and its engagement with the population as well as its performance measures.

**Analytical Procedure**

The analysis was borne out through three steps:

**1. Chronological Mapping:**

The UK waste policy expanse was divided into three such phases (19902000, 20012010, 20112023) to encapsulate the identified stages of modernization of regulation, growth focused on the development of the targets, and integration of the circular economy aspects.

**2. Thematic Coding:**

With the NVivo software, the policies were coded within thematic categories, which included the following: legislative drivers, economic instruments, technological innovations, institutional capacity, and mechanisms of behavioral change.

**3. Comparative Benchmarking:**

The performance of the UK (e.g., landfill diversion rates, recycling rates, EPR coverage) was benchmarked against the U.S national and leading state performance, against EU leaders (e.g., Germany), and emerging economy case studies (e.g., India, Nigeria).

**Validity and Reliability Measures**

As a measure of validity, several sources of data were cross-validated, and the government statistics, being official, were given their preference over the secondary interpretation of data. Reliability was ensured using a detailed audit trace of coding decisions and data transformations, as well as policy classifications. Based on the sample of 15% of the documents, the inter-coder reliability has been achieved with a 0.87 rate of agreement, which testifies to high consistency.

### 3.7 Ethical Considerations

Since the study made use of publicly available secondary data only, there were no human subjects involved in the research, and no official ethical permission was necessary. However, the sources are all acknowledged and information analysis is performed with a pledge to loyalty and clarity.

## Results

**UK, Policy Outcome Trends (1990 2023)**

To examine the evolution of the UK's performance in waste management in the last three decades, it can be noted that the UK has already shown significant improvement in the diversion of landfills, modest progress in recycling rates, and continuous investment in waste-to-energy (WtE) and circular economy technologies.

Some of the key achievements could be considered as follows:

- **Landfill diversion:** More than 80 per cent of municipal waste went to landfill in 1990; this fell to less than 25 per cent in 2023(DEFRA, 2023b).
- **Recycling:** Between 2000 and 2015, recycling grew (until the number stabilized by 44 percent, starting at an insignificant percentage point above 10 percent (WRAP, 2023).
- **EPR and taxation:** The establishment of EPR systems, the introduction of the Plastic Packaging Tax (2022) has encouraged manufacturers to use recycled content.
- **Technological adoption:** Implementation of AI-based sorting mechanisms and practices, anaerobic digestion of food waste, and blockchain-based leg checks of the waste.

**Comparative UK–U.S. Performance**

Benchmarking indicates that the UK is ahead in some of the policy instruments and landfill disposal, but the U.S. still experiences more variability since some of the instruments are left to the states, and there are no appropriate federal instruments at the fiscal level, as shown in Figure 02.

**Table 2. UK–U.S. Comparative Waste Management Indicators (2022–2023)**

| Indicator | United Kingdom | United States | Leading EU Comparator (Germany) |
|---|---|---|---|
| **Landfill Reliance** | 24% | 50%+ | 0.5% |
| **Recycling Rate** | 44% | 32% | 67% |
| **Waste-to-Energy Share** | ~20% | ~12% | ~31% |
| **EPR Coverage** | Comprehensive (packaging, WEEE, batteries) | Limited (few states) | Comprehensive |
| **Plastic Packaging Tax** | Yes (from 2022) | No (state initiatives only) | No EU-wide tax, but strong producer obligations |
| **Circular Economy Strategy** | Nationally integrated | Fragmented (state-led) | Nationally integrated |

**Trends in Fiscal and Regulatory Tools**

The Landfill Tax in the UK (now 102.10 (2023) per tonne of active waste) has been highly successful in inducing dependence on landfill, as well as in statutory recycling and producer requirements. In comparison, the U.S. does not have a national landfill levy, and the most common interface is given on a state or local level that has resulted in a somewhat haphazard development (EPA, 2022).

**Technological Innovations**

Efficiency has been at an important level because of technological interventions:

- **UK:** AI-enabled optical sorting (Biffa, Viridor), anaerobic digestion on >700 new facilities, and blockchain-enabled recycling credit trading pilots.
- **U.S.:** AMP Robotics has gone fully robotics-assisted sorting, Californian composting infrastructure expansion, and chemical recycling pilot-scale factories.

There are, however, limits to the scalability of the two countries in terms of cost of capital, acceptability among the populace and market fluctuations of secondary materials.

**Comparative Barriers to Progress**

Analysis indicates that despite progress, both countries face persistent barriers, as shown in Table 3.

**Table 3**: Comparative Barriers to Progress in the United Kingdom and the United States

| Barrier | UK | U.S. |
|---|---|---|
| **Recycling Contamination** | High, particularly in mixed-stream systems | High in single-stream systems |
| **Infrastructure Disparity** | Between rural and urban authorities | Between states and regions |
| **Policy Uncertainty** | Post-Brexit regulatory divergence | Lack of federal coordination |
| **Market Dependence** | Reliance on export markets for certain recyclables | Reliance on international markets pre-*National Sword* |

**Summary of Key Findings**

The UK has shown that centralized policy frameworks coupled with fiscal disincentives can provide massive reductions in landfills.

Recycling has stagnated in both countries, which suggests that a structural change is required in terms of contamination management systems, investments in infrastructure, and awareness of the general population.

There can be a two-way learning course between the US waste governance with the UK style of fiscal instruments, and the UK government can learn with the localized innovation models of the states in the US.

## Discussion

**Overview**

The findings of this analysis indicate that although the United Kingdom has achieved significant success in the governance of waste, especially concerning landfill diversion, EPR implementation, and integration of the fiscal policies, the country experiences continued issues concerning recycling performance, control of waste contaminants, and post-Brexit regulatory coherence. In the United States, localized innovation in some states is present, yet it lacks a coherent national strategy and, in turn, brings about vast performance disparities.

The results substantiate the main idea of the research:

**H1:** The UK has been able to divert volumes more onto landfill than the U. S. through its incorporated policy framework and fiscal measures, but both countries have not been able to maximize recycling results provided by systemic and behavioral obstacles.

**Interpretation of Key Comparative Insights**

***Governance Structures***

The UK has had a centralized policy-making system, which has enabled a national approach to be taken on the determination of its national targets and fiscal instruments, including the Landfill Tax. It has worked well in decreasing the amount of landfill put into landfills but has not been as successful in achieving high recycling rates because of downstream behavioral and infrastructure insufficiency. States such as California and Oregon in the U.S. have embraced decentralized governance, which fosters innovation and development of waste diversion policy. Other states are not so lucky to have such high policy levels and adopt or emulate California and Oregon, and hence, there is a divided success rate among the countries.

***Fiscal and Regulatory Tools***

The Landfill Tax has become one of the most renowned practices globally since it has achieved a high degree of disposal to landfill through the establishment of solid financial counterincentives (DEFRA, 2023b; OECD, 2022). In the U.S., the lack of a federal landfill tax undermines the motivation to divert, but the result has been success at the state level with deposit returns and EPR measures (NCSL, 2023).

***Technological Innovation***

These two countries are also adopting sophisticated waste sorting and treatment systems, although it would only take time since UK is integrating AI sorting, anaerobic digestion, and blockchain tracking, which indicates better coordination at a national level than the U.S. system that is carried out mainly by the private sector. Nevertheless, American chemical recycling pilots and increased composting give evidence of where the UK needs to learn lessons of the American innovation ecosystems.

**Policy Transfer Opportunities**

***From UK to U.S.:***

1. **National Fiscal Instruments:** Introduce a federal landfill levy to bring about similarities in diversion incentives.
2. **EPR Frameworks:** Implement new broad producer responsibility laws on packaging, WEEE and batteries.
3. **Plastic Packaging Tax:** Place a recycled content tax to encourage demand of recycled materials.

***From U.S. to UK:***

1. **Locality-Daxtic Model of Innovation**: Adopt locality-sensitive experiments to deal with local differences in waste streams.
2. **Public-Private Partnerships (PPPs):** PPPs should be expanded as a channel to finance infrastructure based on U.S. municipal-corporate approaches.
3. **Community:** Level Composting The scale up of localized organic waste efforts, such as those developed in California or Vermont.

**Implications for the Circular Economy**

The stagnation of recycling rates in both nations will indicate that optimization of the collection systems, minimizing contamination, and engaging the population need to become the main policy priorities. Unless both countries invest more heavily in domestic reprocessing and secondary material markets, both will fail to realize the full potential of the UN SDGs, the targets of the Paris Climate Agreement, and the Net Zero 2050 promises.

**Limitations**

Although such research is built upon policy and performance overview, the basis of such research is secondary data that can differ in their measurement understanding and presentation, and under-reporting. Additionally, there are no primary stakeholder interviews, which might bring more light into the aspects of political feasibility, reaction of the industry, and attitudes of the people. Studies in the future need to incorporate mixed methods to capture the above dimensions.

## Conclusion & Policy Recommendations

**Conclusion**

This paper has demonstrated that the development of the waste management policy in the United Kingdom has been done through attempts to turn its formerly landfill-based system into a diversified model that involves recycling, waste-to-energy, and the circular economy approaches represents a source of ideas that the United States should pay attention to. Centralized policy regime, fiscal inducements, such as the Landfill Tax and good Extended Producer Responsibility (EPR) coverage, have seen the UK significantly decrease its dependence on landfill to below a quarter of the municipal solid waste.

Yet, systemic issues such as stagnating recycling rates, very high contamination rates, and relatively low investment across the board in infrastructure can hamper the progress toward the Net Zero 2050 and the UN SDG goals in both countries. U.S. decentralized governance allows creating local innovation, but there is a lack of unity in the national approach, compared to a centralization providing the UK with strategic clarity, but the danger of regional discrepancy in performance.

In summary, the above-presented policy exchange model between the two transatlantic nations shows that to achieve success in waste governance, it is important to embrace a hybrid model: a mixture of the UK policy, where a national strategy is used, and the U.S. approach, where community-based initiatives are adopted in the governance of issues.

**Policy Recommendations**

***For the United Kingdom***

1. **Consolidate Recycling Infrastructure and Contamination Exclusion**
   - Invest in national, uniform collection and sorting.
   - Broaden the civic consciousness activities geared towards contamination prevention.
2. **Increase the scope of EPR to Emerging Waste Streams**
   - Add some textiles, construction waste, and emerging electronic waste.
3. **Step up Low-Carbon Waste Technologies**
   - Offer subsidies to scaled innovation projects, including enhanced anaerobic digestion, chemical recycling, and AI-material recovery.
4. **Capitalize on Regional Models of Innovation**
   - Pilots developed and implemented in a locally contextualized manner, which were inspired by experimentation within U.S. states.

***For the United States***

1. **Embrace a Federal Landfill Levy**
   - An equal financial penalty against landfilling of waste is to be implemented after the Landfill Tax of the UK.
2. **Introducing the Nationwide EPR law**
   - Uniform the producer responsibility on packaging, electronics, and hazardous waste to mitigate disparities among the states.
3. **Imposing a Plastic Packaging Tax**
   - Foster the use of recycled material and spur home secondary material markets.
4. **Massive Community Composting Programs**
   - Train up, build out small-scale organic waste management systems like in successful California/Vermont models.

***For Both Nations***

1. **Build Secondary Material Markets**
   - Foster recycling by retailing materials to markets through government procurement and other incentives to the private sector.
2. **Bring Waste Management into Climate Policy**
   - Consider waste policy a direct means by which carbon reduction targets can be met, as such, climate action plans.
3. **Improve the Transatlantic Policy Collaboration**
   - Institute a working group on waste governance between the U.K. and the U.S. to exchange innovations, review together pilot projects, and align research on resource-revolution changes.

The findings of the study are evidence that waste management is not a simple technical issue but an adjustment and administrative change process. With the rate of waste generation increasing rapidly all around the world, the UK and the U.S. now have a big choice in front of them: By taking the gradual progress path or adopting a paradigm shift that integrates fiscal legislation, technological advancements, and community involvement. Sharing failures and successes, the two countries can become examples to the other nations to provide sustainable waste governance.

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**References**

Anaerobic Digestion and Bioresources Association. (2023). *UK anaerobic digestion market report*. https://adbioresources.org

Biffa. (2022). *Artificial intelligence in UK waste sorting*. https://www.biffa.co.uk

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE.

Department for Environment, Food and Rural Affairs. (2022). *Extended Producer Responsibility consultation summary*. UK Government. https://www.gov.uk

Department for Environment, Food and Rural Affairs. (2023a). *Resources and waste strategy progress report*. UK Government. https://www.gov.uk/government/publications

Department for Environment, Food and Rural Affairs. (2023b). *UK waste statistics*. UK Government. https://www.gov.uk/government/statistics

Dolowitz, D. P., & Marsh, D. (2000). Learning from abroad: The role of policy transfer in contemporary policy-making. *Governance, 13*(1), 5–23. https://doi.org/10.1111/0952-1895.00121

Eurostat. (2023). *Municipal waste statistics*. European Commission. https://ec.europa.eu/eurostat

Kaza, S., Yao, L., Bhada-Tata, P., & Van Woerden, F. (2018). *What a waste 2.0: A global snapshot of solid waste management to 2050*. World Bank. https://doi.org/10.1596/978-1-4648-1329-0

National Conference of State Legislatures. (2023). *Extended producer responsibility laws by state*. https://www.ncsl.org

Organisation for Economic Co-operation and Development. (2022). *Waste management and the circular economy in the United Kingdom*. OECD Publishing. https://www.oecd.org

U.S. Environmental Protection Agency. (2022). *National recycling strategy: Part one*. https://www.epa.gov/recyclingstrategy

Viridor. (2023). *Advancing waste-to-energy and recycling through innovation*. https://www.viridor.co.uk

Waste and Resources Action Programme. (2023). *Recycling tracker survey 2023*. https://wrap.org.uk

World Bank. (2018). *What a waste 2.0: A global snapshot of solid waste management to 2050*. World Bank. https://doi.org/10.1596/978-1-4648-1329-0