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Unlocking the Power of Resource Conservation, Recycling, and Waste Management Practices

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Editorial

From Trash to Treasure: Unlocking the Power of Resource Conservation, Recycling, and Waste Management Practices

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1. Introduction

"*Trash to Treasure*" refers to transforming discarded or unwanted items, often considered trash or waste, into valuable or desirable products. It involves repurposing, upcycling, or creatively reusing materials typically disposed of in landfills. For instance, repurposing or upcycling trash can create distinctive and valuable products while reducing the demand for new raw materials. Various materials can be involved in the Trash to Treasure initiatives; for example, discarded wood can be transformed into stylish furniture pieces [1], old fabrics can be repurposed into trendy fashion accessories (Figure 1a) [2], pamphlets in the daily newspaper into decorative place mat (Figure 1b) [3] or glass bottles can be turned into decorative vases or lamps [4].

(**a**) (**b**)

Figure 1. (**a**). Jean into a trendy tote bag (Picture Credits: iHanna) [2]; (**b**). Pamphlets in the daily newspaper into decorative placemats (Picture Credits: Dollar Store Crafts) [3].

Like the ones said above and the ones seen in Figure 1, there are many possible options, but all these fall under general examples; nevertheless, when we talk from an advanced scientific angle, we can create much more valuable products, such as food waste to value-added products like biosurfactants [5], plastic waste to activated carbons [6], spent batteries

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into buffer storage units for emergency purposes or stationary energy storage in variety of application [7,8] and others like this. This way, *Trash to Treasure* promotes sustainability, resourcefulness, and environmental consciousness. Additionally, when we look at the Trash to Treasure projects with more profound thought, they promote environmental sustainability and encourage creativity, craftsmanship, and entrepreneurship [2–5]. Overall, Trash to Treasure represents a shift toward embracing sustainability, encouraging resourcefulness, and fostering a culture of various activities that broadly fall under a circular economy. However, for such transformation to become a new normal, we must unlock the power of *resource conservation, recycling, and waste management* practices.

"*Resource Conservation, Recycling, and Waste Management*" are interconnected practices that aim to reduce the consumption of resources by promoting the reuse and recycling of materials and effectively managing waste to minimize environmental impact, enable sustainable development, conserve energy, offer economic benefits, promote climate change adaptation and mitigation techniques, and promote public health and safety. As a result, the importance of *resource conservation, recycling, and waste management* cannot be ignored in today's world. Hence, to understand how the solutions related to *Trash to Treasure* are being proposed and practiced, we opened a Special Issue titled "*Resource conservation, Recycling, and Waste Management*", calling for contributions *(www.mdpi.com/journal/sustainability/special_issues/Resources_Conservation_Recycling_Waste_Management*, accessed 11 August 2023*)*. The response was positive with a wide range of contributions; based on which we (the editors) carried out a discussion (Section 2), paving the way for some actions, that we listed (in Section 3) as a call-to-action for individuals, call-to-action for industries/corporates, and call-to-action for governments and policymakers for better realization and implementation of Trash to Treasure initiatives by unlocking the power of resource conservation, recycling, and waste management.

2. Resource conservation, Recycling and Waste Management

The Special Issue "*Resource conservation, Recycling, and Waste Management*" includes fifteen insightful contributions covering different aspects of sustainable development achieved through efficient approaches, and the gist of all the contributions is summarized categorically in Sections 2.1–2.3 below.

2.1. Resource conservation

Resource conservation refers to the awareness and application of practices to preserve and manage natural resources sustainably. It involves recognizing the finite nature of resources and the need to protect them for the benefit of current and future generations [9]. This Special Issue attracted few studies that fall under these conditions; for instance, the article "*Combined Effects of Biochar and Inhibitors. . .*" (https://www.mdpi.com/2071-1050/15/7/6100, accessed on 10 August 2023) highlights the potential of combined effects of biochar and inhibitors like nitrification inhibitors (methyl 3-(4-hydroxyphenyl) propionate), and urease inhibitors (n-butyl phosphorothioate triamine) on greenhouse gas (GHG) emissions, global warming potential and nitrogen use efficiency in roasted tobacco cropping systems as adequate soil GHG mitigation strategies in agroecosystems. Further, there was a significant increase in the crop yield and nitrogen uptake potential. The study could be a valuable and practical option for improving crop yield and mitigating climate change, thereby boosting sustainable agriculture. There is another article "*Developing a Sustainable Omnichannel Strategic Framework toward Circular Revolution. . .*" (https://www.mdpi.com/2071-1050/14/18/11578, accessed on 10 August 2023) that empirically examined the relationship between the quality of integration (INQ) and brand loyalty (BL), perceived quality (PQ), Brand awareness (BAW), brand association and brand equity (BE) in the context of Omnichannel Marketing (OM). This study brings a conceptual extension to the literature on omnichannel strategies, INQ and OM. In contrast, they presented the necessary reasons for managers to provide INQ in an omnichannel environment to increase brand equity with an empirical application. This

study could benefit brand owners, managers, and marketers by showing how to set up the omnichannel system toward a circular revolution. Another article, "*A Critical Assessment on Functional Attributes and Degradation Mechanism of Membrane Electrode Assembly...*" (https://www.mdpi.com/2071-1050/13/24/13938, accessed on 10 August 2023), discussed direct methanol fuel cells (DMFC), a subset of polymer electrolyte membrane fuel cells (PEMFC) that possess benefits such as fuel flexibility, reduction in plant balance, and benign operation. The DMFCs have the potential to play an essential role in the future, specifically in replacing lithium-ion batteries (LiBs) for able and military applications. Inadequate reliability can potentially impede the commercialization of DMFCs. Therefore, the present article aims to assess the general degradation mechanism of MEA components of DMFCs with the basic structured procedure while excluding the system modeling and quantitative/qualitative analysis. Another article, "*Increased Digital Resource Consumption in Higher Educational Institutions...*" (https://www.mdpi.com/2071-1050/14/4/2377, accessed on 10 August 2023), is a novel study in a sense that it assesses the role of artificial intelligence (AI) as a booming technology, for understanding student behavior and evaluating their performance. The article discusses an AI-based analytics tool, the Random-Forest-based classification model, which can predict student performance early in their courses by allowing for early intervention. The study has very strong practical implications in forecasting the behavioral elements of teaching and e-learning for students in virtual education systems.

2.2. Recycling

Recycling is collecting, sorting, processing, and transforming used or discarded materials into new products or raw materials. It involves converting waste materials into reusable resources, thereby reducing the need for extracting and manufacturing new materials from virgin sources [10]. It's important to note that the recyclability of materials can vary depending on factors such as local recycling infrastructure, market demand, and the specific composition of the materials [11]. Following local recycling guidelines and practices ensures effective and efficient recycling processes [10,11]. This Special Issue attracted a few studies that fall under these conditions; for instance, the article "*... Clean Energy Vehicles in Japan Considering Copper Recycling*" (https://www.mdpi.com/2071-1050/15/3/2113, accessed on 10 August 2023) deals with the scope of introduction of clean energy vehicles (CEV) in the transportation sector to achieve carbon neutrality. The research highlights the need for strategies and policies that consider metal resources recycling and supply constraints in addition to factors such as carbon dioxide (CO_2) emissions during CEV promotion. The optimization model used in this study provides valuable insights into the sustainable consumption of copper resources through recycling and reducing CO_2 emissions. Another article, "*Development, Critical Evaluation, and Proposed Framework: End-of-Life Vehicle Recycling...*" (https://www.mdpi.com/2071-1050/14/22/15441, accessed on 10 August 2023), deals with end-of-life vehicle (ELV) recycling for sustainable development. This study has been performed through a mixed-method approach: a literature and policy review accompanied by detailed structured interviews with major stakeholders and industrial visits. This investigation reveals that India's ELV recycling system is embryonic and struggling against numerous inherent impediments. This research could be beneficial in assisting the government in implementing regulatory and legal frameworks. Another article, "*Development of a Reverse Logistics Modeling for End-of-Life Lithium-Ion Batteries...*" (https://www.mdpi.com/2071-1050/14/22/15321, accessed on 10 August 2023), discusses spatial modeling framework to quantify the environmental and economic effects of the expansion of the supporting infrastructure network for electric vehicle (EV) end-of-life LiBs management and sustainable recycling in Canada. The reverse logistics study presented in the manuscript integrates the geographic information system, material flow analysis for estimating the availability of spent LiBs stocks, and the life cycle assessment approach to assess the environmental impact. Along similar lines, an insightful article, "*An Assessment of Drivers and Barriers to Implementation of Circular Economy*

in the ELV Recycling. . ." (https://www.mdpi.com/2071-1050/14/20/13084, accessed on 10 August 2023), highlighted the impediments and drivers regarding implementing circular economy in India's ELV recycling sector in India. According to the research, economic viability, environmental degradation, and global agenda are the three leading primary drivers. In contrast, limited technology, financial constraints, and lack of knowledge and expertise are significant barriers that thwart circular economy implementation in India's ELV recycling sector. This study could be constructive in assisting the Indian authorities in devising appropriate policies and strategies for developing a regulatory and legal framework conducive to both circular economy and sustainability. In another article, "*Recent studies and technologies in the separation of polyvinyl chloride for resources recycling. . .*" (https://www.mdpi.com/2071-1050/15/18/13842, accessed on 13 August 2023), researchers try to manage the plastic waste containing polyvinyl chloride (PVC), which is often destined for landfills as it poses particular difficulties for thermal treatment because of its additives, such as chloride (Cl–), which can negatively impact the refractory materials used in boilers. However, recognizing the value of PVC in PVC-bearing mixed plastics as a valuable resource, the authors focused on understanding the technologies for separating the PVC. Their systematic review stressed various technologies such as selective comminution, gravity separation, magnetic separation, electrical separation, flotation, and other advanced technologies such as sorting and density-surface-based separation. They also mentioned that, out of all these, flotation seems to be a widely used method for PVC separation from mixed plastic, thus promoting mixed plastic waste recycling.

2.3. Waste Management

Waste management strategies refer to the approaches and practices used to handle and manage waste in an environmentally responsible and sustainable manner. These strategies aim to minimize waste generation, maximize resource recovery, and reduce the negative impacts of waste on human health and the environment [12]. This Special Issue attracted few studies that fall under these conditions, for instance the article "*Adsorption of Fatty Acid on Beta-Cyclodextrin. . .*" (https://www.mdpi.com/2071-1050/15/2/1559, accessed on 10 August 2023), focuses on the role of β-cyclodextrin (β-CD) functionalized cellulose nanofiber (CNF) to adsorb the long chain fatty acids (LCFA), palmitic acid. The adsorption kinetics and isotherms were also elucidated to describe the adsorption behavior precisely. The study has practical implications in wastewater treatment for removing LCFAs from the wastewater. Another article on "*COVID-19 Biomedical Plastics Wastes. . .*" (https://www.mdpi.com/2071-1050/14/11/6466, accessed 10 August 2023) discussed the steep rise in plastic waste and management of biomedical plastic waste generated because of COVID-19 outbreak. The article elaborates on the issues of safe biomedical plastic waste disposal strategies. The article explicitly highlights the measurement of environmental issues in terms of plastic waste footprint and the strategy for safe disposal. The article also discusses sustainable techniques to reduce plastic waste and the need for incorporating Personal protective equipment (PPE) management policies into fiscal policies, to encourage green technology and find and implement safer practices. Another article, "*Heavy Metal, Waste, COVID-19, and Rapid Industrialization in This Modern Era. . .*" (https://www.mdpi.com/2071-1050/14/8/4746, accessed on 10 August 2023), presents a comparative valuation of the COVID-19 pandemic, heavy metal, waste and their effect on the atmosphere, humans, and economy. The review article highlights poor waste management practices and environmental and health disasters due to COVID-19-generated waste. Further, the article emphasizes the need for future studies on new policies for waste management, pollution monitoring, and waste recycling. Another article, "*Exploring Industry-Specific Research Themes on E-Waste. . .*" (https://www.mdpi.com/2071-1050/15/16/12244, accessed on 10 August 2023), did a thorough literature search on e-waste literature contributions in MDPI *Sustainability* journal to identify the prominent research themes, publication trends, research evolution, research clusters, and industries related to e-waste through descriptive analysis. The study gave four major research themes and clusters: closed-

loops supply chains, e-waste, sustainable development, and waste electrical and electronic equipment. Overall, this review can be a foundation for subsequent scholarly pursuits toward e-waste management and fresh lines of inquiry for the journal to focus further scientific collection in this field. In another article, "*A Bibliometric Analysis of Sustainable Product Design Methods from 1999 to 2022*. . ." (accessed 10 August 2023), researchers explored the importance of effective product design strategies in promoting sustainable production, consumption, and disposal practices. They mainly highlighted the challenges of determining the most effective design approaches from a sustainability point of view to identify the current research trends, progress, and disparities between China and the rest of the world. They observed that the Chinese studies emphasized digital-driven development, rural revitalization, and system design. On the other hand, research from other countries highlighted a circular economy, distribution, additive manufacturing, and artificial intelligence. Notably, Chinese and international studies lacked quantitative research methods concerning socio-cultural sustainability. Another article, "*Leveraging Blockchain and Smart Contract Technologies to Overcome Circular Economy Implementation Challenges*" (https://www.mdpi.com/2071-1050/14/15/9492, accessed on 10 August 2023), is something different than other articles published in this Special Issue, which provided an appropriate digital solution for circular economy (CE) implementation. The article presents a thorough investigation of challenges under five barrier categories, Technological, Financial, Infrastructural, Institutional, and Societal, to address CE challenges and solutions to challenges raised in the earlier information and communication technologies-based solutions for CE. This perspective further explores the role of blockchain smart contract technology in overcoming CE challenges and presents a circular economy blockchain (CEB) architecture development.

3. Call-to-Action

Based on the Special Issue contributions discussion in Section 2, we can argue that research related to resource conservation, recycling, and waste management practices is extensively happening on various waste products or resources and the systems or processes surrounded by them across different sectors of society. However, when we see things from deeper insights, many of these *Trash to Treasure* activities are still in the early stages, at least in the global south. In contrast, there are many instances of greenwashing in the name of waste management and sustainable transition in the global north. So, as a best practice, with this editorial, we came up with call-to-action (CtA) statements, which are directives that encourage or prompt individuals or groups to take a specific course of action. In our context, CtA serves as an invitation, urging people to participate, engage, or support initiatives or movements in Trash to Treasure activities by unlocking the power of resource conservation, recycling, and waste management. A well-crafted CtA should be action-oriented; that is what we did here, see Boxes 1–4.

Box 1. Call-to-action for Researchers and Academicians.

Call-to-action initiatives for researchers and academicians to realize resource conservation, recycling, and waste management are crucial for generating knowledge, innovation, and evidence-based solutions. Here are some key initiatives that researchers and academicians can undertake:

Conduct Research on Sustainable Practices: Research to explore and analyze sustainable practices in resource conservation, recycling, and waste management. Investigate waste reduction strategies, recycling technologies, circular economy models, and the environmental impacts of different waste management approaches. Generate knowledge that can inform policies, practices, and technological advancements.
Develop Innovative Technologies: Focus on developing innovative technologies and processes that improve resource conservation, recycling, and waste management. This can include advancements in recycling techniques, waste-to-valuable materials, waste-to-energy conversion, waste sorting and separation methods, and sustainable materials design. Collaborate with industry partners, gov-ernment agencies, and other stakeholders to translate research into practical applications.

Box 1. *Cont.*

Collaborate in Interdisciplinary and Transdisciplinary Projects: Foster collaboration among researchers and academicians from various disciplines to address the complex challenges of resource conservation, recycling, and waste management. Encourage interdisciplinary and transdisciplinary projects integrating engineering, environmental science, social sciences, economics, and policy studies ex-pertise. This can lead to holistic and comprehensive solutions.
Share Knowledge and Best Practices: Publish research findings in academic journals and share knowledge through conferences, seminars, news articles, and workshops. Disseminate information on best practices, case studies, and successful waste management initiatives.
Engage with Stakeholders: Collaborate with stakeholders, including government agencies, NGOs, industry representatives, and communities, to understand their needs, challenges, and perspectives. Engage in participatory research approaches that involve stakeholders in problem-solving, decision-making, and implementing sustainable waste management practices.
Educate and Mentor Students: Integrate resource conservation, recycling, and waste management topics into academic curricula across various disciplines. Educate students about the importance of sustainability and equip them with the knowledge and skills needed to contribute to sustainable waste management practices. Mentor students in research projects focused on waste management and encourage them to pursue careers in the field.
Policy and Advocacy: Engage in policy discussions and advocacy efforts related to resource conservation, recycling, and waste management. Provide expert input to policymakers, contribute to developing evidence-based policies, and advocate for sustainable practices at local, national, and international levels.
Foster Industry-Academia Collaboration: Collaborate with industry partners to bridge the gap between research and practice. Work together to develop and implement sustainable waste management solutions, test new technologies, and conduct pilot projects. Facilitate knowledge transfer and technology transfer to ensure research outcomes have real-world impact.
Continuous Learning and Improvement: Stay updated with the latest advancements, technologies, and best practices in resource conservation, recycling, and waste management. Foster a culture of con-tinuous learning and improvement within academic institutions. Encourage collaboration among researchers through conferences, seminars, and research networks to share experiences and learn from each other.
Influence Research Funding Priorities: Advocate for research funding priorities that support resource conservation, recycling, and waste management. Engage with funding agencies, policymakers, and research councils to emphasize the importance of research in these areas and secure funding for innovative projects.

Box 2. Call-to-action for Individuals.

Call-to-action initiatives for individuals in realizing resource conservation, recycling, and waste management are essential for promoting sustainable practices at the individual level. Here are some key initiatives individuals can take:

Practice Reduce, Reuse, Recycle: Practice the three R's of waste management. Reduce waste by avoiding unnecessary packaging, opting for reusable products, and buying only what is needed. Reuse items whenever possible, such as using refillable water bottles, bringing your shopping bags, and donating or selling items instead of throwing them away. Finally, recycle materials accepted in your local recycling program to ensure they are properly processed and turned into new products.
Separate and Sort Waste: Properly segregate waste at home by separating recyclable materials, such as paper, plastic, glass, and metal, from non-recyclable items. This makes it easier for recycling facilities to process and recover valuable resources.
Composting: Establish a composting system for organic waste, such as fruit and vegetable scraps, yard trimmings, and coffee grounds. Composting helps reduce the amount of waste sent to landfills while producing nutrient-rich compost that can be used in gardens or landscaping.
Responsible Consumption: Make conscious choices when purchasing products. Consider the environmental impact of the items you buy, such as their packaging, durability, and recyclability. Opt for products made from recycled materials or those with minimal packaging.
Energy Conservation: Conserve energy by practicing energy-efficient habits. Turn off lights when not in use, unplug electronics when they are not being used, use energy-efficient appliances, and adjust thermostats for optimal energy use. Energy conservation reduces the demand for fossil fuels and helps mitigate climate change.

Box 2. *Cont.*

Educate Yourself: Stay informed about your community's waste management practices, recycling guidelines, and resource conservation initiatives. Familiarize yourself with local recycling programs, collection schedules, and guidelines to ensure proper waste disposal.
Spread Awareness: Share your knowledge and enthusiasm for resource conservation and waste management with others. Encourage friends, family, and colleagues to adopt sustainable practices and participate in recycling programs. Organize community events, workshops, or educational campaigns to raise awareness about the importance of recycling and waste reduction.
Support Recycling Infrastructure: Advocate for and support the development of recycling infrastructure in your community. Engage with local authorities, businesses, and organizations to promote the expansion of recycling programs, collection centers, and facilities.
Participate in Clean-up and Recycling Initiatives: Get involved in local clean-up events and recycling drives. Join community efforts to clean up parks, beaches, and other public spaces while promoting recycling and proper waste disposal.
Engage in Policy Advocacy: Support policies and regulations that promote resource conservation, recycling, and waste management. Stay informed about relevant legislation and advocate for initiatives prioritizing local, regional, and national sustainable practices.

Box 3. Call-to-action for Industries/Corporates.

Call-to-action initiatives for industries/corporates in realizing resource conservation, recycling, and waste management are crucial for promoting sustainable practices at a larger scale. Here are some key initiatives that industries and corporations can undertake:

Implement Sustainable Supply Chains: Evaluate and optimize supply chains to minimize waste generation and resource consumption. Incorporate sustainable practices such as sourcing materials from responsible suppliers, reducing packaging waste, and promoting the use of recycled or renewable materials.
Adopt Circular Economy Principles: Embrace the principles of the circular economy by designing products for durability, repairability, and recyclability. Implement strategies such as product take-back programs, remanufacturing, and incorporating recycled content into new products.
Waste Reduction and Recycling Programs: Establish comprehensive waste reduction and recycling programs within the organization. Set ambitious waste reduction targets, promote waste segregation and sorting, and invest in efficient recycling infrastructure. Encourage employees to actively participate in recycling and waste management initiatives.
Resource Efficiency and Conservation: Implement measures to optimize resource efficiency, such as energy-efficient technologies, water conservation practices, and waste minimization strategies. Conduct regular audits to identify areas for improvement and implement energy-saving initiatives throughout operations.
Adopt Life Cycle Assessments: Conduct life cycle assessments (LCAs) to analyze the environmental impacts of products and processes. Use the results to identify opportunities for waste reduction, resource conservation, and environmental improvements throughout the supply chain.
Collaboration and Partnerships: Collaborate with suppliers, customers, and other stakeholders to promote sustainability and waste management initiatives. Engage in partnerships to develop innovative recycling, waste reduction, and resource conservation solutions.
Employee Education and Engagement: Educate employees about the importance of resource conservation, recycling, and waste management. Provide training on waste reduction practices, recycling guidelines, and the organization's sustainability goals. Encourage employee participation through recognition programs, incentives, and internal communication channels.
Transparent Reporting: Provide transparent and accurate reporting on waste generation, recycling rates, and resource conservation efforts. Publicly disclose sustainability performance to stakeholders, shareholders, and customers. Use sustainability reports to demonstrate progress and set future targets.
Extended Producer Responsibility (EPR): Take responsibility for the entire life cycle of products by implementing EPR programs. Develop strategies to collect, recycle, or safely dispose of products at the end of their life, ensuring their proper management and reducing the burden on waste management systems.
Innovation and Research: Invest in research and development to explore innovative technologies and processes that promote resource conservation and waste management. Support initiatives that enhance recycling capabilities, develop new recycling methods, and improve the recyclability of materials.
Advocacy and Policy Engagement: Engage in advocacy efforts to support policies and regulations that promote sustainable practices, resource conservation, and waste management. Collaborate with industry associations and organizations to influence and shape policies that drive sustainability.

Box 4. Call-to-action for Governments and Policy Makers.

Call-to-action initiatives for governments and policymakers in realizing resource conservation, recycling, and waste management are crucial for creating an enabling environment and driving systemic change. Here are some key initiatives that governments and policymakers can undertake:

Develop Comprehensive Waste Management Policies: Establish comprehensive waste management policies prioritizing waste reduction, recycling, and resource conservation. Set clear targets and timelines for waste diversion, recycling rates, and landfill reduction. Ensure alignment with international best practices and commitments.
Strengthen Legislative Frameworks: Enact and enforce legislation that supports sustainable waste management practices. This includes regulations on waste segregation, recycling requirements, EPR, and landfill restrictions. Strengthen penalties for illegal dumping and improper waste disposal practices.
Promote and Implement EPR Programs: Implement EPR programs that hold producers responsible for the entire life cycle of their products, including post-consumer waste management. Encourage producers to design products for recyclability, establish take-back systems, and support recycling infrastructure development.
Invest in Recycling Infrastructure: Allocate resources and funding to develop and enhance recycling infrastructure, including collection systems, sorting facilities, and recycling plants. Support the es-tablishment of recycling hubs and material recovery facilities to enable efficient and effective recy-cling processes.
Provide Incentives and Support Mechanisms: Offer financial incentives, tax breaks, grants, and subsidies to businesses and industries that adopt sustainable waste management practices, invest in recycling technologies, and reduce waste generation. Support research and development efforts focused on waste management innovation.
Foster Public-Private Partnerships: Facilitate partnerships between the government, private sector, and civil society organizations to promote collaboration and knowledge sharing. Encourage joint initiatives to develop sustainable waste management solutions, share best practices, and leverage resources.
Education and Awareness Campaigns: Implement public education and awareness campaigns to inform citizens about the importance of resource conservation, recycling, and waste management. Guide proper waste segregation, recycling practices, and the benefits of sustainable waste management. Promote behavior change through targeted messaging and community engagement.
Support Research and Innovation: Invest in research and development to explore new technologies, processes, and materials that enhance recycling capabilities, improve waste management practices, and promote resource efficiency. Support pilot projects and innovation centers focused on waste management and recycling.
International Cooperation and Knowledge Exchange: Foster international cooperation and knowledge exchange on best practices, policies, and technologies for waste management. Partner with other countries and international organizations to share experiences, collaborate on research, and promote global solutions.
Monitoring and Reporting: Establish monitoring and reporting systems to track progress toward waste management targets and evaluate the effectiveness of policies and initiatives. Regularly publish reports on waste generation, recycling rates, and resource conservation efforts to promote transparency and accountability

4. Conclusions

Overall, this editorial argues that we will all see a new normal in the Trash to Treasure initiatives in the near future as the knowledge around this subject is increasing and widely accepted, of course, with some uncertainties. However, it can also be understood that realizing this new normal is not easy without unlocking the power of *resource conservation, recycling, and waste management* practices, in which the actions that stakeholders of society should follow play an important role. For instance, researchers and academicians undertaking CtAs can contribute significantly to advancing resource conservation, recycling, and waste management. Their work can drive innovation, inform policies, and provide evidence-based solutions to address the environmental challenges associated with waste and resource management. Individuals undertaking CtAs can be significant in realizing resource conservation, recycling, and waste management. Collectively, these actions can substantially impact conserving resources, reducing waste, and protecting the environment

for future generations. Similarly, industries/corporations undertaking CtAs can make significant strides in realizing resource conservation, recycling, and waste management. By integrating sustainability into their operations, they can reduce environmental impacts, enhance their reputation, and contribute to a more circular and sustainable economy. Lastly, when Governments and policymakers undertaking the CtAs can create an enabling environment for resource conservation, recycling, and waste management. They can drive systemic change, set the direction for sustainable practices, and ensure the long-term well-being of communities and the environment.

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