Global Recycling Day: Recycling and Sustainable Waste Management in the Greater Caribbean

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Global Recycling Day 2026 is observed under the theme “Don’t Think Waste. Think Opportunity!”, highlighting the potential of recycling and circular economy approaches to transform discarded materials into resources that support sustainable development, resource efficiency, and environmental protection.

1. Why Recycling is important and where it is relevant

Recycling is widely recognized as an important tool for reducing waste, conserving resources, and supporting more sustainable production systems. By reprocessing materials, recycling extends the life cycle of resources that would otherwise be discarded and reduces the demand for new raw materials. Recycling materials such as aluminium can reduce energy use by up to 95% compared with primary production, demonstrating the significant environmental benefits associated with material [1] This reduction helps decrease greenhouse gas emissions associated with energy generation, contributing to climate change mitigation while reducing pressure on natural resource extraction.

Within the context of the circular economy, material recovery allows resources to remain in productive use for longer, improving resource efficiency and reducing waste. These practices directly support several Sustainable Development Goals, particularly SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 7 (Affordable and Clean Energy) by promoting more efficient use of materials and energy across production systems.

Globally, the importance of recycling has increased as waste generation continues to rise. The World Bank estimates that the world generates more than 2.24 billion tons of municipal solid waste annually, and this figure could reach 3.88 billion tons by 2050 if current trends continue.[2] Recycling therefore plays a critical role in reducing waste flows and supporting the transition toward more resource-efficient economic systems.

In the Greater Caribbean Region, recycling is particularly relevant within several interconnected priority areas. These include waste management and disposal, the development of circular economy strategies, the reduction of marine pollution affecting coastal ecosystems, and the promotion of sustainable consumption and production practices. These themes are closely linked to broader environmental and economic priorities in the region, where coastal ecosystems, fisheries, and tourism industries are especially sensitive to waste pollution.

2. Benefits of Recycling in the Greater Caribbean Region

Recycling can contribute to several environmental, economic, and social benefits across the Caribbean.

One of the most important benefits is the reduction of marine pollution. Plastic debris and other waste materials threaten coral reefs, mangroves, and fisheries throughout the region. The United Nations Environment Programme (UNEP) estimates that approximately 80% of marine pollution originates from land-based sources, including poorly managed plastic waste entering rivers and coastal environments.[3] Recycling initiatives can help divert waste from landfills and prevent materials from leaking into the marine environment.

Recycling can also help address the problem of limited landfill capacity, which is a significant challenge for many Caribbean islands. Small island states often have limited land available for waste disposal, and many landfills are already operating at or near capacity.

In addition, recycling contributes to the reduction of energy consumption and greenhouse gas emissions associated with the production of new materials.[4] Recycling metals, plastics, and paper products typically requires significantly less energy than producing them from virgin resources.

From an economic perspective, recycling can also support economic diversification and job creation. Circular economy activities such as recycling, repair, reuse, and remanufacturing can generate new employment opportunities and stimulate local entrepreneurship. In a region where many economies rely heavily on tourism and services, recycling initiatives can help develop green[5] economic sectors.[6]

Finally, recycling contributes to resource efficiency, allowing materials already in circulation to be reused rather than discarded after a single use. This contributes to more sustainable consumption which are essential for long-term environmental sustainability in the Greater Caribbean.

3. Limits to Recycling

Despite its benefits, recycling has important limitations that must be recognized.

3.1 Global limits

While recycling plays an important role in reducing waste and improving resource efficiency, it also operates within certain physical limits. From a biophysical perspective, recycling cannot create perfectly closed material cycles. Ecological economists such as Nicholas Georgescu-Roegen, later discussed by scholars including Joan Martínez-Alier, note that economic activity follows the laws of thermodynamics, particularly the second law, which implies that energy and materials degrade during use.[7] In practice, materials may become dispersed, contaminated, or chemically transformed over time, which makes complete recovery difficult. As a result, recycling helps slow the accumulation of waste and reduce pressure on natural resources, even though it cannot entirely eliminate material losses.

Recycling also does not remove the need for continuous inputs of new materials and energy. In economies oriented toward sustained economic growth, expanding production requires constant inflows of raw materials. Even efficient recycling systems can therefore only partially offset environmental pressures associated with increasing material throughput.

Recycling initiatives may shift environmental pressures rather than eliminate them. Recycling processes require energy, transportation, and industrial processing, and their environmental impacts can be transferred to other regions or communities. At the same time, recycling campaigns often individualize environmental responsibility, emphasizing household sorting or consumer behaviour while the production systems generating large volumes of disposable materials remain largely unchanged.

Finally, narratives framing waste primarily as an economic "resource" or "opportunity" may unintentionally reduce pressure to address the structural causes of waste generation. By focusing on technological solutions such as recycling or waste-to-energy systems, these approaches risk overlooking the need to reduce overall material consumption.

For recycling to contribute meaningfully to sustainability, it must therefore be accompanied by efforts to slow the overall pace of material and energy use in the economy, reducing the volume of resources extracted, produced, and discarded in the first place.

3.2 Regional limits: the Greater Caribbean

In the Greater Caribbean Region, recycling also faces structural constraints linked to uneven infrastructure and investment patterns. According to the Small Island Developing States Waste Management Outlook, improvements in waste management have often concentrated in larger urban centers where infrastructure and regulated disposal sites exist, while smaller islands or remote areas frequently lack adequate facilities.[8] As a result, recycling systems remain uneven across the region.

These patterns reflect broader investment dynamics in waste management. Recycling initiatives and waste infrastructure are more likely to develop in locations with existing logistics networks and predictable waste streams, while less affluent municipalities often remain dependent on limited waste management systems. This uneven distribution of infrastructure can reinforce regional disparities in environmental management.[9]

Taken together, these global and regional limits suggest that recycling should be understood as one component of broader strategies aimed at reducing material throughput, improving waste governance, and addressing the structural drivers of waste generation.

4. Challenges Addressed by Recycling Initiatives in the Greater Caribbean Region : Examples of Regional Initiatives

Despite these challenges, several initiatives across the Greater Caribbean illustrate the potential for recycling and circular economy strategies to address waste-related issues.

In 2025, Dominica launched a recycling campaign in partnership with the United Nations Development Programme (UNDP) aimed at making it easier for residents and businesses to separate waste at the source. By improving waste sorting and collection practices, the initiative strengthens waste management and disposal systems while encouraging more sustainable consumption and production practices at the community level.[10][11]

In Colombia, the *Vision Circular* initiative led by the National Business Association (ANDI) reported that more than 60,000 tons of waste were reintegrated into production cycles in 2025, enabling the country to meet key targets ahead of schedule. The initiative directly supports the development of circular economy strategies by reinserting materials into industrial supply chains and reducing the need for virgin resource extraction[12][13]

In Mexico, progress in plastic recycling has positioned the country as the largest collector of PET plastic bottles for recycling in the Americas. Expanding plastic recovery contributes to improved waste management systems and helps reduce the volume of plastic waste that may otherwise reach rivers and coastal ecosystems, supporting efforts to reduce marine pollution.[14]

Other initiatives focus on innovative waste management solutions. In Cuba, projects that convert plastic waste into fuel explore alternative approaches to waste valorization, contributing to resource recovery and circular economy practices.[15] Meanwhile, Guatemala has secured approximately $250 million in financing to build wastewater treatment infrastructure and close major dumpsites responsible for pollution entering the Motagua River. These efforts help address land-based sources of pollution that affect the Caribbean Sea and coastal ecosystems, demonstrating the role of waste management improvements in reducing marine pollution.[16]

These initiatives demonstrate how recycling and circular economy approaches can contribute to improved waste management and pollution prevention across the region.

5. Challenges to Recycling in the Greater Caribbean Region

Despite growing interest in recycling, the region faces several structural challenges that limit the development of recycling systems.

One major challenge is limited economies of scale. Many small Caribbean states produce limited quantities of recyclable materials, making it difficult to establish economically viable recycling industries.

Another challenge is the high volume of imported packaging materials. Caribbean economies rely heavily on imported goods, which often arrive with significant amounts of plastic and cardboard packaging. This increases the amount of waste generated locally while limiting opportunities for domestic recycling industries.

Transportation and logistics costs also present major obstacles. In many cases, recyclable materials must be exported to processing facilities abroad, and shipping costs can exceed the value of the materials being transported.

Infrastructure limitations also play an important role. Many countries in the region lack material recovery facilities, recycling plants, and waste sorting systems, making it difficult to implement large-scale recycling programs. The *Waste Management Outlook for Latin America and the Caribbean* (2018) highlights significant infrastructure limitations that constrain recycling efforts in the region. Recycling rates remain very low—generally between 1% and 20% across countries, meaning that around 90% of municipal waste is ultimately disposed of in landfills or dumpsites rather than recovered. In addition, the report notes that many waste streams lack adequate treatment facilities, and in some cases, they are not even properly inventoried or characterized, reflecting the limited availability of sorting systems, recycling plants, and material recovery facilities. These infrastructure gaps make it difficult for many countries to implement large-scale recycling programs, particularly outside major urban areas

Finally, the tourism sector significantly increases waste generation in many Caribbean destinations. In many destinations, tourists produce significantly more waste than residents, partly because of higher consumption levels and disposable products used in tourism services.[17]

6. ACS Mandate and Activities Supporting Recycling and Related Issues

The Association of Caribbean States (ACS) supports environmental sustainability and regional cooperation in the Greater Caribbean through several areas of work that are directly connected to waste management, recycling, and marine pollution prevention.

One of the ACS's central priorities is the Preservation and Conservation of the Caribbean Sea, which recognizes the importance of protecting the region's marine ecosystems from pollution and environmental degradation. Marine debris and plastic waste pose significant threats to coral reefs, mangroves, fisheries, and coastal tourism industries. In this context, the ACS Plan of Action 2022–2028 includes specific measures to address these challenges, particularly through initiatives aimed at mitigating the impacts of solid waste and promoting its sustainable management. The Plan calls for mechanisms to prevent waste generation, improve the recovery and management of urban solid waste, and reduce environmental contamination; particularly through Strategic Objective C.4, which aims to "promote measures for the elimination or mitigation of the impacts generated by solid waste on the environment and on the health of the citizens of the Greater Caribbean"

In addition to its policy and coordination role, the ACS supports practical, on-the-ground initiatives to address marine pollution, including participation in activities such as International Coastal Cleanup Day. These initiatives not only contribute to the removal of marine debris, but also strengthen public awareness, community engagement, and regional cooperation in addressing waste and plastic pollution across the Greater Caribbean.

The Declaration of Montería commits ACS Member States and Associate Members to reduce pollution from plastics and microplastics and promote their gradual elimination through coordinated regional policies, which directly implies strengthening waste reduction, recovery and recycling systems across the Greater Caribbean.

Through the Caribbean Sea Commission, the ACS promotes regional dialogue and cooperation on issues related to the sustainable use and protection of the Caribbean Sea. In this context, the Association is advancing work on the designation of the Caribbean Sea as a Special Area in the context of sustainable development, an initiative that seeks to strengthen regional governance and international recognition of the sea's ecological, economic, and cultural importance. Efforts to reduce marine pollution, including improved waste management and recycling practices, are structural to this objective.

The ACS also promotes sustainability through its programmes on Sustainable Tourism, which encourage environmentally responsible tourism practices and improved waste management in coastal destinations.

Through these initiatives, the ACS contributes to strengthening regional dialogue and cooperation on environmental sustainability, including issues related to waste management, recycling, and marine pollution in the Greater Caribbean.

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[1] Aluminium recycling saves 95% of the energy needed for primary aluminium production -

International Aluminium Institute

[2] Open Knowledge Repository

[3] Marine and Land-based Pollution | UNEP - UN Environment Programme

[4] Recycling of Critical Minerals

[6] Turning Waste into Opportunity: The Circular Economy Path for the Eastern Caribbean — Global Green Growth Institute

[7] Georgescu-Roegen, N. (1986). The entropy law and the economic process in retrospect. *Eastern Economic Journal*, *12*(1), 3-25.

[8] SIDS_OUTLOOK_HiRes_Doublepage.pdf

[9] United Nations Environment Programme. (2018). *Waste management outlook for Latin America and the Caribbean*. UNEP Latin America and the Caribbean Office. https://wedocs.unep.org/bitstream/handle/20.500.11822/26448/Residuos_LAC_EN

[11] https://www.undp.org/barbados/press-releases/dominica-launches-new-recycling-campaign-partnership-undp

[13] Colombia reincorporó más de 60.000 toneladas de residuos en 2025 y se adelantó un año en metas de economía circular

[14] Mexico exceeds goals in plastic recycling and circular economy six years after the signing of the National Agreement | Political Animal

[15] Proyecto Pyralis transforma residuos plásticos en combustible en Cuba - Noticias Prensa Latina

[16] How Ecuador and Guatemala are tackling plastic pollution | World Economic Forum

[17] Giurea, R., Precazzini, I., Ragazzi, M., Achim, M. I., Cioca, L.-I., Conti, F., Torretta, V., & Rada, E. C. (2018). Good Practices and Actions for Sustainable Municipal Solid Waste Management in the Tourist Sector. *Resources*, *7*(3), 51. https://doi.org/10.3390/resources7030051