Plastics Circularity Transition Index (PCTI)

An Index to Track, Benchmark, and Drive Country-Level Plastics Circularity

WHITEPAPER

BCG

ALLIANCE TO END PLASTIC WASTE®

About Alliance to End Plastic Waste

The Alliance to End Plastic Waste is an independent, global non-profit organisation working to create a circular economy for plastic and end plastic waste and pollution. We partner with stakeholders across the plastics value chain, including the private sector, governments, financiers, development institutions, and NGOs, to develop and deploy solutions on the ground, and catalyse the capital needed to replicate them.

This involves developing, deploying, de-risking, and supporting solutions related to the design, collection, sorting, processing, recycling, and reuse of plastic. We foster innovation, collaboration, and knowledge-transfer among different stakeholders around the world, and we mobilise funding from development and private sources to support initiatives at scale.

Under Strategy 2030, the Alliance focuses on advancing systemic change through Country and Thematic Programs. Our Country Programs support high-need countries in improving collection, sorting, recycling, and strengthening demand for recycled materials to help move them up the recycling maturity curve. Our Thematic Programs address critical cross-market challenges, beginning with flexible plastics, one of the most widely used yet hardest-to-recycle material streams.

Together with our members and partners, we are progressing economically viable, environmentally beneficial, and socially responsible solutions to create a circular economy for plastic.

➔ **Find out more at endplasticwaste.org**

About Boston Consulting Group

Boston Consulting Group partners with leaders in business and society to tackle their most important challenges and capture their greatest opportunities. BCG was the pioneer in business strategy when it was founded in 1963. Today, we work closely with clients to embrace a transformational approach aimed at benefiting all stakeholders, empowering organisations to grow, build sustainable competitive advantage and drive positive societal impact.

Our diverse, global teams bring deep industry and functional expertise and a range of perspectives that question the status quo and spark change. BCG delivers solutions through leading-edge management consulting, technology and design, as well as corporate and digital ventures. We work in a uniquely collaborative model across the firm and throughout all levels of the client organisation, fuelled by the goal of helping our clients thrive and enabling them to make the world a better place.

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Background

This whitepaper presents the concept of the Plastics Circularity Transition Index (PCTI), a new index being developed by the Alliance to End Plastic Waste, in collaboration with Boston Consulting Group. The PCTI tracks, benchmarks, and drives country-level plastics circularity, including both the circularity performance and readiness. The Alliance is uniquely positioned to lead this effort, drawing on deep insights into how in-country systems work from its country programs, diverse perspectives from the value-chain representation of its membership, and an analytical foundation built through its solutions playbooks and past waste infrastructure studies.

The paper sets out the rationale for the PCTI, describes its objectives and the decisions it supports, identifies its target users across the plastics value chain, outlines the key features that will distinguish it from existing indices, introduces its two-pillar design covering both circularity performance and readiness, and describes the metrics under consideration. The first edition of the PCTI is expected to be published by the end of 2026.

The Need for the Plastics Circularity Transition Index

Why plastics circularity matters

Managing plastic waste is a systems challenge that impacts the broader socio-economic agenda. Reducing plastic waste and closing material loops directly supports global net-zero ambitions by lowering the carbon footprint of plastics production and disposal. It helps curb marine pollution, which threatens ocean ecosystems and coastal livelihoods worldwide.

Plastic circularity valorises waste and helps uplift communities, improving work environments and enabling access to education and healthcare. This transition toward a circular economy, one of the most critical systemic shifts required to achieve the Sustainable Development Goals, is essential not only for the plastics value chain, but for the health of the planet and its people.

Progress is underway, but there is a complex road ahead to circularity outcomes

At both global and regional levels, governments are introducing circular regulations and initiatives in varying combinations including recycled-content mandates, Extended Producer Responsibility (EPR) schemes, deposit-return systems, and single-use plastic restrictions. Companies across the plastics value chain have made voluntary commitments, though many are reassessing their approaches as challenges emerge.

Achieving these ambitions at the pace and scale required has proven more complex than anticipated, as progress depends not only on individual company action but on broader enablers including policy frameworks, infrastructure readiness, and market economics.

It is not surprising therefore that circularity outcomes have been uneven at best. Plastics production and waste have both doubled in the last two decades[1]. Recycled plastics' share of total production remains at 3–6% globally[1]. Circularity investment stands at approximately $32 billion per annum, far below the $1 trillion per annum needed by 2040[2]. Mismanaged waste is projected to increase by 47% by 2040[3]. Contradictory market signals, where virgin plastic trades at a discount to recycled alternatives, new virgin capacity and slipping timelines for voluntary brand commitments, further cloud the path forward.

Toward a more comprehensive cross-country view of circularity

While plastic waste is a global challenge, the key levers for advancing circularity, including behavioural change, infrastructure investments, regulations, downstream industry, and a viable offtake market, are shaped by national policy frameworks, regulated at the country level, and often funded through domestic investment. This positions the country as a fundamental unit of analysis for assessing circularity progress and identifying where targeted action can have the greatest impact.

Existing indices capture important aspects of circularity, but none delivers a complete, actionable view across a meaningful set of comparable countries. Global reports synthesise trends without disaggregating by individual country; country-level dashboards cover limited geographies or update irregularly; and regional frameworks are confined to specific economies.

The PCTI represents an important step toward closing these gaps, focusing on the countries where circularity improvements will have the greatest impact, covering approximately 50 countries across key regions that together account for approximately 90% of global plastic waste.

1. *OECD, Global Plastics Outlook, 2022.*
2. *The Circulate Initiative, The Private Investment Landscape for a Global Circular Economy for Plastics, 2024.*
3. *OECD, Policy Scenarios for Eliminating Plastic Pollution by 2040, 2024.*

The Need for the Plastics Circularity Transition Index

What the PCTI sets out to do

The PCTI synthesises fragmented market signals into integrated, system-level insights that help inform and prioritise country-level circularity actions. It is built around five objectives:

- **Diagnose end-to-end value-chain bottlenecks** from pre-waste generation through waste generation, collection, sortation, recycling, and end-use/offtake
- **Inform policy design** by linking performance gaps to specific levers such as EPR, recycling mandates, and fiscal incentives
- **Guide capital allocation** by signalling relative investment attractiveness based on policy, infrastructure, and market readiness
- **Accelerate learnings** by highlighting proven best practices from leading countries for adoption elsewhere
- **Provide comparable country** scorecards that track circularity performance and readiness progress over time

Who the PCTI is for

The PCTI is designed to support the early stages of user decision-making, complementing and focusing subsequent due diligence.

Potential user group	How PCTI supports user decision making
Government & Regulators	Identify gaps and prioritise the most impactful policy interventions, referencing experience and performance of other countries
Financiers & NGOs	Compare system-level gaps and infrastructure readiness within and across countries to direct catalytic capital and unlock greater impact
Material Producers	Identify countries where recycling capacity provides feedstock access and availability, as well as where policy mandates (e.g., recycled-content targets) are creating demand for circular polymers, signalling where to locate production and prioritise sales
Collection/sortation Infra Owners	Identify countries with supportive policy frameworks (e.g., EPR, DRS) but underdeveloped collection and sortation infrastructure, highlighting where infrastructure investment is most needed
Recycling Infra Owners	Identify countries with available feedstock and growing collection volumes but insufficient recycling capacity, indicating where new recycling assets can be sited
Offtakers (e.g., converters, brand owners)	Assess which countries have growing recycling output and policy mandates driving recycled-content demand, informing where to commit offtake volumes

Key Features of the PCTI

The PCTI will be built around the following distinguishing features:

01.

Dual focus on performance and readiness

Clarity on how a country's plastics system performs today and whether the right enablers are in place to improve over time.

02.

Actionable guidance by country context

Scoring translated into actionable insights through country archetypes and tailored next-step actions.

03.

Designed for ongoing relevance

Built with a methodology and data architecture that supports regular refresh cycles, with future editions shaped by user adoption, funding partnerships, and evolving stakeholder needs.

04.

Stable and transparent methodology

Enabling comparability and credibility, with only controlled adjustments to improve accuracy or reflect better data availability.

05.

Pragmatic approach to data

The PCTI will balance methodological rigour with data realities. Where country-level data is incomplete, the framework will employ best-available proxies and modelled estimates, with full transparency on data sources and assumptions. The Alliance is committed to working with industry, governments, and data partners to continuously strengthen the evidence base over successive editions.

The PCTI Framework: Performance and Readiness

The PCTI assesses countries along two complementary pillars:

Circularity Performance	Circularity Readiness
End-to-end waste-flow outcomes across the value chain, reflecting quantity, quality, and market economics gaps.	**Strength of enablers** including policy framework and enforcement as well as infrastructure and market readiness.
What the system is actually delivering.	*Whether the enabling conditions are in place.*

By plotting countries on a matrix of Performance versus Readiness, the PCTI classifies each country into one of three archetypes, each with a distinct strategic action pathway.

Circularity Performance: Measuring What the System Delivers

The Performance pillar traces material flows from pre-waste generation through to recyclate offtake. The framework is structured across five sub-pillars, each capturing a critical stage of the plastics value chain. The table below shows potential metrics under consideration for the first edition.

Performance Sub-Pillar	Rationale	Potential Metrics
Pre-Waste Generation 	Reveal how upstream design choices shape the waste challenge downstream	• Long-lived plastic use share
MSW Waste Generation 	Measure how much MSW plastic waste a country generates per person and whether waste volumes are growing in line with or outpacing population	• Per-capita plastic waste generation • Per-capita plastic waste growth
MSW Waste Collection & Treatment 	Measure the critical gap between what is generated and what is captured into managed pathways, and the extent of loss through environmental leakage or mismanagement	• Capture/collection rate • Waste valorisation rate • Improper disposal rate • Mismanaged waste rate
MSW Waste Processing & Conversion 	Measure how efficiently a country's recycling system converts collected plastic waste into usable recyclate	• Domestic recycling input rate • Recovery rate post sorting and recycling (all plastics) • Recovery rate post sorting and recycling (excluding PET & HDPE)
End-use/ offtake 	Assess how circular a country's plastics economy is, recognising countries that have built recycling capacity proportionate to their consumption burden and whose plastics industry integrates recycled feedstock into production (independent of recyclate of plastics trade flows given data limitations)	• Recyclates production[1] share of plastics consumption[2] • Recyclates consumption[3] share of plastics production[1]

1. *Domestic + exports*
2. *Domestic*
3. *Domestic + imports*

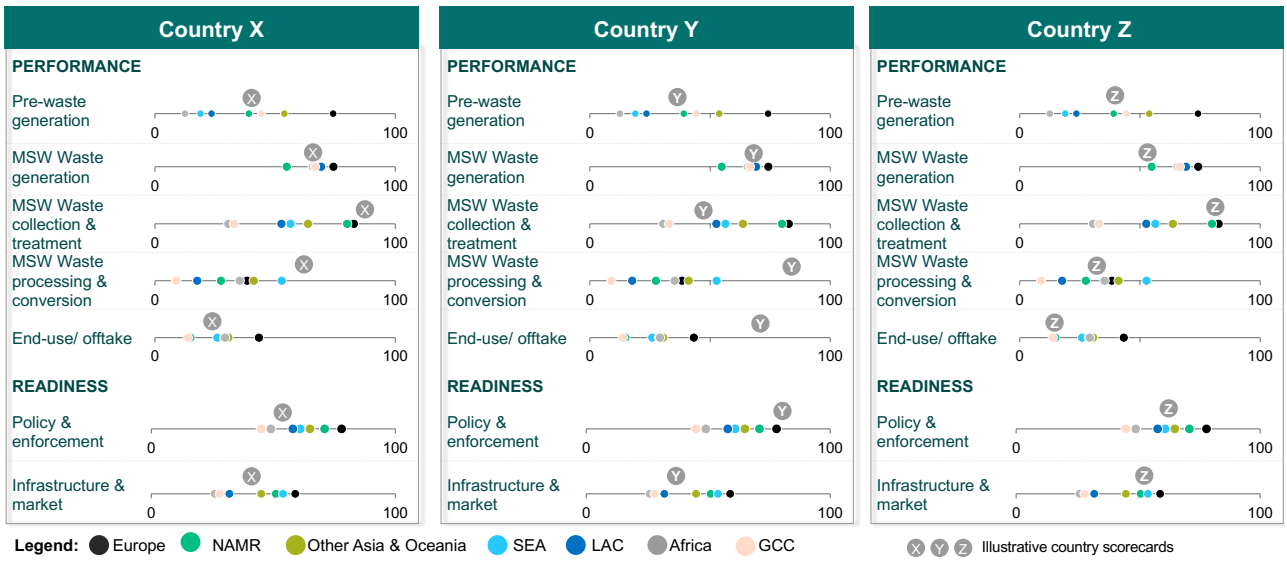
Circularity Readiness: Assessing the Enabling Conditions

The Readiness pillar evaluates whether the conditions required to drive and sustain circularity outcomes are in place. It is structured across two sub-pillars, Policy & Enforcement and Infrastructure & Market.

Readiness Sub-Pillar	Rationale	Potential Metrics
Policy & Enforcement 	Assess the strength and specificity of the regulatory environment, from general waste legislation through plastics-specific mandates, incentives, and enforcement capacity	• General waste legislation & institutional framework • Plastics strategy & system rules • Regulatory measures for circular plastics • Economic incentives for circular plastics • Enforcement & governance effectiveness
Infrastructure & Market 	Assess the level and growth of private capital flowing into plastics circularity, and the market economics between virgin and recycled plastics, as forward-looking signals of a country's circular economy potential	• Investments in circular plastics • Price gaps between recycled and virgin polymers

Together, Performance and Readiness provide a diagnostic framework that explains both what a country's circularity system is delivering and whether the enabling conditions are in place to improve. The PCTI will position countries on the matrix, benchmark them against peers, and surface insights across countries, regions, pillars, and sub-pillars, enabling users to pinpoint where systemic barriers lie. Best practices from top performers will be highlighted to enable cross-country learning.

The PCTI in Practice: Illustrative Country Scorecards



The Road Ahead

The Alliance, in collaboration with BCG, is working towards publishing the first edition of the Plastics Circularity Transition Index by the end of 2026. The PCTI is designed to become a recurring, industry-reference index for plastics circularity, updated on a regular cadence to provide a live indicator of country-level progress. Strengthening the PCTI will benefit from broad participation across the plastics value chain, including industry, government, investors, academia, and civil society. Together, we can build a shared foundation for evidence-based action and collective impact on circularity.

Notes and References

Metrics shown are indicative and under active development. All metrics, weightings, and scoring methodology will be finalised during the detailed design phase.

The PCTI draws on a broad set of data sources, including international databases, national statistics, and industry data. A full methodology and data source inventory will be published alongside the first edition of the index by the end of 2026.