Journal of Circular Economy
https://doi.org/10.55845/IKHI7118 Volume 2, Issue 3

Perspective

Enabling Mechanisms for Circularity in Latin America and the Caribbean

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Handling Editor: Julian Kirchherr

Received: 07.05.2024/Accepted: 17.07.2024

Abstract

Within Latin America's strategic importance in the global value chain, circular economy strategies emerge as pivotal pathways for the region. By identifying key enabling mechanisms (namely regulatory frameworks, assessing and monitoring socio-economic metabolism, and financial instruments), this paper unveils the imperative for actions in fostering a circularity transition, and preserving traditional circular economy practices for Latin American and the Caribbean countries in the upcoming decade.

Keywords: Enabling Mechanisms, Circular Economy, Latin America & the Caribbean, Global South

1. INTRODUCTION

Latin America and the Caribbean (LAC)[7] occupies a crucial position in the global value chain, particularly in biomass production and the supply of metal ores as essential resources for the global energy transition. Circular economy (CE) strategies within LAC countries have the potential to significantly shape the global supply chain.

While not always labelled as such, CE practices are deeply embedded in LAC communities, evidenced by common practices like the reuse and repair of household appliances and vehicles, primarily driven by economic necessity. From a macro perspective, several LAC governments — including Colombia, Chile, Costa Rica, Mexico, Peru, and Uruguay — have initiated national strategies and roadmaps to advance CE initiatives over the past five years (Samaniego et al., 2022).

Focusing on key sectors, such as agriculture, mining, manufacturing, and construction, CE strategies in LAC prioritize areas with high economic relevance for the region and worldwide (Circle Economy, 2023). However, challenges persist, including a lack of regulatory frameworks, inadequate data infrastructure for CE monitoring, and ineffective financial instruments.

In this paper, we explore these challenges, identifying the enabling mechanisms required to facilitate an effective and just circularity transition in LAC for the next decade. We investigate regulatory frameworks,

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7 As defined by UN classification (UNSD, 2024) including: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

assessing and reporting socio-economic metabolism, and financial instruments as key enabling mechanisms. Our focus on these mechanisms is based on their fundamental role in driving the CE transition, and the current developments within the CE debate in LAC (Samaniego et al., 2022). By prioritizing these enablers in terms of their relevance and urgency for short-term action, we aim to provide policymakers, practitioners, and researchers with actionable insights to guide the region's CE agenda.

2. REGULATORY FRAMEWORKS

Policy regulation is widely recognized as a critical enabling mechanism for facilitating a circularity transition (Fitch-Roy et al., 2021). In LAC, some countries are making significant developments in terms of CE public policy, while others are just beginning to establish frameworks. For example, Colombia implemented an Extended Producers Responsibility (EPR) regulation since 2007 — including value chains such as electronics, car tires, lighting, pharmaceutical and agrochemical packaging (Park et al., 2018) —, while Mexico recently started to incorporate EPR regulations as part of the waste management strategies (Federal Government of Mexico, 2023). Moreover, Chile has also shown commitment with CE regulations, implementing several initiatives like its EPR Law in 2016, and Plastic Packaging Directive in 2021 (Government of Chile, 2016, 2021).

For the upcoming years, it is crucial that regulatory frameworks are updated to enable the adoption of CE initiatives, including a clear taxonomy for CE implementations. For example, regulations concerning treated sewage should be revised to facilitate water re-use, and definitions of waste treatment need to include perspectives on recycling and re-use. Likewise, regulations regarding product certifications and material traceability are crucial, and require international agreements between LAC and other countries.

While considering the need for contextualized CE policies, regulatory frameworks should be fit-to-purpose, and aligned with CE objectives from a system perspective. Considering this systemic aspect, regulatory frameworks should take into account vulnerable stakeholders, such as strengthening opportunities for small and medium-sized enterprises (SMEs), which represent over 90% of total businesses and provide 60% of formal employment in the region (Dini & Stumpo, 2020; Herrera, 2020; OECD, 2019). Information accessibility, investment funding, and regulations that ensure fairness in competition have been highlighted as crucial aspects to enable the CE implementation within SMEs (Pabón-Pereira & Mora, 2023).

Moreover, there is a pressing need to integrate the informal economy into CE policies. The informal economy — comprising street vendors, waste pickers, unregistered businesses — holds immense potential for CE strategies (Cook et al., 2024). Despite representing 60% of the workforce in LAC, these stakeholders are often overlooked in CE plans (Circular Economy Coalition Latin America & Caribbean, 2022).

Recognizing and integrating SMEs and informal economy into policy regulation will be crucial for fostering a just transition towards circularity in the region (Kahhat et al., 2022) . By doing so, policymakers could employ the untapped potential of these sectors and ensure that the benefits of CE initiatives are inclusive and equitable for all stakeholders.

3. ASSESSING AND REPORTING SOCIO-ECONOMIC METABOLISM

The current CE national plans lack a comprehensive understanding of system characteristics, including quantity and quality of material flows, their spatial distribution and stakeholder responsibilities, which are crucial for identifying key materials flows-stocks, and bottlenecks (i.e., points along a supply chain where material flows are slowed, lost or restricted, generating delays and inefficiency). More importantly, decision-makers need an evidence-based approach to facilitate collaboration among different stakeholders and institutions involved in CE implementation.

While there exist quantifications of the material flows for LAC (including recent estimations of the circularity gap), these are often aggregated, lacking granularity necessary to pinpoint specific actions per country or region (Aguilar-Hernandez et al., 2019; Circle Economy, 2023). Moreover, data gaps also exist within CE activities

performed by the informal sector. Overall, several challenges exist in terms of capacities to perform such integral analyses, as shown in the case of urban nutrient flows in LAC (Girett et al., 2023).

Limitations often revolve around data scarcity, which holds true for some nations. However, several LAC countries feature comprehensive datasets suitable for assessing and monitoring circularity from a physical viewpoint (see, for example, Kahhat & Williams, 2009). What remains deficient is clarity regarding data accessibility and the institutions responsible for leading monitoring efforts. For instance, Costa Rica could rely on indicators provided by its Central Bank (MINAE, 2023), whereas in Colombia, potential monitoring avenues exist through the national statistics bureau (DANE, 2024).

For assessment and monitoring of LAC circularity, the enabling mechanism lies in centralizing efforts within each country, and defining responsible institutions capable of integrating and harmonizing the required data for assessing socio-economic metabolism to understand national baselines, identify hotspots and guide policy development. Furthermore, incentivizing the assessment of socio-economic metabolism can be achieved by engaging academic entities to offer guidance and scientific rigor throughout the process. Researchers examining best practices in CE assessment and monitoring within the scientific literature provide methodological frameworks for quantifying material flows and stocks (see, for example, Mayer et al., 2018), which can be used as basis for LAC circularity assessments. From a business perspective, access to the knowledge and technological tools for tracking material flows across borders is crucial in LAC as part of the global effort to closing supply chains (Teixeira et al., 2020).

4. FINANCIAL INSTRUMENTS

Sustainable financial mechanisms, including CE finance, have gained prominence in LAC. Such financial instruments encompass debt mechanisms (i.e., loans and bonds, offering funds in exchange for interest payments), equity mechanisms (i.e., involving equity representatives in project governance), and hybrid mechanisms (i.e., blending public and private resources, often for large infrastructure projects like water, sanitation, and clean energy) (IDB, 2023; Schröder & Raes, 2021).

In 2020, climate-focused development finance in LAC reached almost 12 billion euros, sourced from bilateral organizations, multilaterals, and private donors (OECD, 2022). Likewise, the issuance of green bonds more than doubled within two years since 2019. For instance, Mexican beverage FEMSA issued two sustainability-linked bonds in 2021, totalling 1.2 billion euros, aimed at curbing waste to landfills and boosting renewable energy use (Núñez et al., 2022). Regarding blended finance, Latitud R has developed about 30 initiatives, benefitting over 15,000 recyclers across 17 LAC countries (Circular Economy Coalition Latin America & Caribbean, 2022). To expand CE finance in the region, multilateral organizations —such as the Interamerican Development Bank and UNEP-finance — could advance capacity building in financial institutions and taxonomies for CE finance (IDB, 2023).

Financial instruments should also aim at realigning financial and economic incentives, as until CE alternatives become financially competitive with business-as-usual practices, systemic changes will be limited. Furthermore, LAC governments need to level the playing field, and ensure that appropriate financial instruments are in place to promote activities such as reuse, repair, regenerative agriculture, and remanufacturing in the region.

5. FINAL REMARKS

Expanding beyond the enabling mechanisms, collaboration within LAC and globally is crucial. Initiatives like the Latin America and the Caribbean Circular Economy Coalition (2024) serve as pivotal platforms for fostering collaboration among governments, private sectors, and academic institutions in the region. These platforms not only disseminate enabling mechanisms to stakeholders, but also facilitate joint action and knowledge-sharing. Given the global relevance of LAC's economy, engaging in international collaboration, particularly with partners in the Global North, is essential for a cohesive circularity transition.

In terms of research, understanding the socio-economic and environmental implications of circularity transitions in LAC is imperative. This involves identifying potential trade-offs and synergies to inform decision-makers and prioritize CE strategies while addressing bottlenecks.

LAC needs to position itself in relation to its role to play in the long term within the global circularity transition, especially as raw material supplier, which needs to be re-considered with other forms of taking part in the new circular supply chain. Looking ahead, policymakers, the private sector, and researchers should prioritize collaboration, knowledge-sharing, and evidence-based decision-making to advance the CE agenda in LAC and beyond, leveraging the potential benefits of a circularity transition.

ACKNOWLEDGEMENTS

We thank Pedro Patra, and Jessica Roccard for their valuable insights to this article.

AUTHOR CONTRIBUTIONS

Glenn A. Aguilar-Hernandez: conceptualisation, writing, review and editing

Bart Van Hoof: conceptualisation, writing, review and editing

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Claudia Pabón-Pereira: review and editing

DECLARATIONS

Competing interests: The authors declare no competing interests.

FUNDING

Glenn A. Aguilar-Hernandez is a Marie Curie Research Fellow of the UNravelling the socioeconomic and environmental Impacts of Circularity in Latin America (UNICA) project, which is funded by European Commission under Marie Skłodowska-Curie Actions (Grant Agreement: 101103532).

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