CADERNOS EBAPE.BR

FGV EBAPE

ARTICLE

Circular economy and claims for social nexus

Florence Cavalcanti Heber Pedreira de Freitas [1]
Edgilson Tavares de Araújo [2]
Rodrigo Teles Dantas de Oliveira [2]
Rodrigo Mascarenhas Amorim [1]

[1] Universidade Federal de Sergipe (UFS) / Programa de Pós-graduação em Administração, São Cristovão – SE, Brazil
[2] Universidade Federal da Bahia (UFBA) / Núcleo de Pós-graduação em Administração, Salvador – BA, Brazil

Abstract

This essay seeks to analyze questions about the emergence of the circular economy (CE), with an emphasis on the limitations regarding the values and social inclusion of recycling workers. The reflections were constructed from the perspective of the inequalities and social exclusions that may emerge from the CE in Brazil if implemented without the proper recognition and valorization of the main recycling actors in the country: the waste pickers. This article contextualizes the CE debates, integrates recent contributions from critical studies on the subject, and discusses claims regarding the potential of social management to promote social inclusion and governance in the political agenda of CE projects in Brazil.

Keywords: Circular economy. Social inclusion. Waste pickers. Governance.

Economia circular e reivindicações de nexo social

Resumo

Este ensaio busca analisar questões sobre a emergência da economia circular (EC), com ênfase nas limitações referentes a valores e inclusão social de trabalhadores da reciclagem. As reflexões foram construídas sob uma óptica acerca de desigualdades e exclusões sociais que podem emergir da EC no Brasil caso ela seja implementada sem os devidos reconhecimento e valorização dos principais atores da reciclagem no país: os catadores. Com este artigo, esperamos contextualizar os debates a respeito da economia circular, integrar as contribuições recentes de estudos críticos sobre o tema e discutir reivindicações quanto à potencialidade da gestão social, a fim de promover a inclusão social e a governança na agenda política de projetos de EC no Brasil.

Palavras-chave: Economia circular. Inclusão social. Catadores. Governança.

Economía circular y reivindicaciones de vínculo social

Resumen

Este ensayo busca analizar cuestiones sobre el surgimiento de la economía circular (EC), con énfasis en las limitaciones relativas a los valores y la inclusión social de los trabajadores del reciclaje. Las reflexiones se construyeron desde la perspectiva de las desigualdades y exclusiones sociales que pueden surgir de la EC en Brasil si se implementa sin el debido reconocimiento y valorización de los principales actores del reciclaje en el país: los recolectores. Con este artículo, esperamos contextualizar los debates sobre la economía circular, integrar las contribuciones recientes de los estudios críticos sobre el tema y discutir las reivindicaciones sobre el potencial de la gestión social para promover la inclusión social y la gobernanza en la agenda política de los proyectos de EC en Brasil.

Palabras clave: Economía circular. Inclusión social. Recolectores. Gobernanza.

Article submitted on August 14, 2023 and accepted for publication on February 19, 2024.
[Translated version] Note: All quotes in English translated by this article's translator.
DOI: https://doi.org/10.1590/1679-395120230167x

INTRODUCTION

Within a short space of time, the circular economy (CE) has spread worldwide, translating into public, industrial and environmental policies and regulatory texts in several countries in the European Union (EU), as well as in China and the United States. Discussions are mainly led by policymakers such as the European Commission, and linked to debates in the European Parliament, as well as business defence bodies such as the Ellen MacArthur Foundation, which advocate that the CE not only has a positive environmental impact, despite also being a new paradigm for socio-economic growth.

However, these organisations have also strongly criticised the CE model proposed due to its technicality, and which privileges economic issues over ethical values, justice and social inclusion, especially since it consists of a so-called economic development model that promises to overcome the linear development model and its negative social externalities, established in the industrial revolution. Reflecting this logic, the Brazilian National Confederation of Industry (CNI, 2018, p. 21) acknowledges that the major highlight is "not the incorporation of the circular economy into the economic mainstream as the saviour of the planet and the human species, but as the saviour of the economy itself".

As this is a global discourse, the way in which the CE is translated in different places, countries and communities may have repercussions on social values based or not on solidarity and social inclusion. By seeking to contextualise possibilities and limits in Brazil, we defend that, in addition to legal texts – laws, decrees and regulations – it is necessary to politicise the debate on the social inclusion of waste pickers with regard to the concept, public policies and social management of CE in Brazil.

In this regard, the present work highlights the importance of an integrated approach, mobilised by Integrated Municipal Solid Waste Management Plans, in a process of social management of CE, whereby dialogue and the effective participation of waste pickers, companies, government and civil society prevail. We chose to explore the intrinsic relationship between both subjects. The main guiding statement is that the current discourse on CE, whose origin is the global North, has neglected social and political dimensions – labour practices, working conditions, equity and the social inclusion of socially marginalised groups – and has been translated as a managerial and technocratic issue for tackling economic and environmental problems in the present and the future.

In order to develop the discussion and arguments of this theoretical work, extensive bibliographic and desk research was undertaken, enabling to select a range of sources that advocate a promising global future based on CE, which criticise CE, deal with waste pickers and recycling in Brazil, besides talking about social management of territorial development and governance of complex inter-organisations. Other sources of information were used, such as websites and blogs, which offered elements of contextualisation and experiences that highlight the relevance of the arguments being defended in a more sensitive way, through individual and social action.

CIRCULAR ECONOMY: CURRENT CONTEXT AND DRIVERS

A powerful discourse on a future based on the CE, replacing the linear economy, has strongly emerged in recent years, originating in the global North. Unlike previous discourses, such as the 1972 Club of Rome report *The Limits to Growth,* which presented environmental and economic priorities as incompatible, the current circular economy discourse reformulates this debate in a positive way, postulating the compatibility between sustainability and economic growth (Kovacic et al., 2020).

The central argument of the CE discourse is that the economic model of production that has been dominant since the (linear) Industrial Revolution, characterised by the extraction of raw materials, the production and consumption of goods and their disposal (*take-make-dispose),* must be replaced, as waste and residue production is inevitable and growing in line with the increase in production and consumption.

This idea is backed up by various studies that have shown the undesirable effects of the growth of the economic model based on the intense exploitation of natural resources, their conversion into products and the improper disposal of waste and residues, with numerous and serious consequences for public health and the natural environment in various regions of the planet

(Berardi & Dias, 2018; Lourenço & Chiaramonti, 2014; Morseletto, 2020; Schaubroeck, 2018). In particular, since the 1980s, the idea of sustainable development – and its environmental, economic and social pillars – has included severe restrictions from organisations and governments on trading partners who do not engage in sustainable industrial and commercial practices.

However, advocates of the circular economy (Ellen MacArthur Foundation, 2023; Wijkman et al., 2015; European Commission, 2020; CNI, 2021) point out that, although welcome, these practices which are derived from the ideals of sustainable development are not enough at the current economic stage of global production, consumption and disposal. The main argument is that this is a structural, systemic problem that involves a certain (historical) economic model of production and cannot simply be solved by pulverised solutions in individual organisations.

According to Lazarevic and Valve (2017), the concept of CE seeks to motivate change and mobilise resources through an idealised vision. Thus, the expectations associated with it have great persuasive and influential power by describing a vision of how things could and should be. This new economic model represents sustainable and green growth, which moves away from the linear model based on consumption and disposal, by adopting a system that extends the useful life of materials and products, minimising waste, as advocated by the European Investment Bank (EIB, 2020).

Governments, public agencies, supranational organisations, foundations and social, environmental and business associations have been involved in its promotion and/or development, most notably the EU, China and the Ellen MacArthur Foundation. In Brazil, its main advocates and spokespeople today are also business associations, such as the country's National Confederation of Industry (CNI), consultants and foundations, most notably the Ellen MacArthur Foundation (s.d.), which argue that the strength of the spread of ideas and practices can be assessed by the quantity and global business weight of the network of partners. According to this foundation, the CE can be understood as

> Restorative and regenerative in principle. Its aim is to maintain products, components and materials at their highest level of utility and value at all times, distinguishing between technical and biological material cycles. This approach ultimately seeks to decouple economic development from the consumption of finite resources and eliminate negative externalities from the economy (Ellen MacArthur Foundation, 2017, p. 10).

However, as Kovacic et al. (2020, p. 127) point out, the concept of CE did not emerge from science, but from politics. For the authors, science provides support based on research evidence so that the CE could be considered a nexus policy. In other words, a term was coined that emphasises the possibility of forging political alliances. Instead of talking about trade-offs, restrictions and limits, the circular economy discourse focuses on synergistic solutions, opportunities and win-wins. Thus, environmental sustainability is not seen as an opposition to economic objectives, but rather as a means of achieving them (Kovacic et al., 2020, p. 128). A notable example of this contradiction is the uncritical promotion of capitalist growth in the pursuit of social justice and ecosystem health (Kaul et al., 2022, p. 1149).

As a nexus policy, far from signalling any conceptual unity, the notion of circular economy is known through a wide range of concepts and denominations: "ecological economics, industrial ecology, cradle-to-cradle design, performance economics, biomimicry, eco-efficiency, resilience science, natural capitalism and cleaner production" (Korhonen et al., 2018, p. 549). Equally diverse are the fields of research in which a CE is applied: "industrial ecosystems [...], industrial symbioses [...], resilience of socio-ecological systems [...], performance economics [...], the zero emission concept [...] and others" (Korhonen et al., 2018, p. 545). As a nexus policy, it adds another important layer, which is the need to operate in various policy domains and negotiate interests and discourses (Kovacic et al., 2020).

Based on the premise of replacing the linear economy model as indicated above, leveraging CE around the world seems to require much more than only isolated actions by organisations and companies. Instead, it demands articulated and structural coordination efforts (a nexus policy) that consider the systems as a whole: different sectors of the economy, producers, consumers and, in particular, recyclers. Thus, the role of the state and its national and supranational representations is essential, as

> Such a radical change implies a major transformation of our current production and consumption patterns, which in turn will have a significant impact on the economy, the environment and society. Understanding these impacts is crucial for researchers, as well as for regulators engaged in formulating future policies in the area (Rizos et al., 2017).

The discourse of CE also carries the intention of promoting a change capable of allowing the dissociation between the use of resources, taking into account their consequent environmental impact, and economic growth (Lazarevic & Valve, 2017). From this perspective, the CE appears as the holy grail of economic development, contesting critical positions of developmentalism, such as those of Harvey (2018), Santos (2020), among others. Included in the sustainable development agenda, the CE is based on the vision of a future based on a balance between economic, social and environmental development. For Kaul et al. (2022, p. 1149), "although the Brundtland Report popularised sustainable development, this elusive concept has marginalised previous critiques of development and has been compatible with a wide range of conflicting agendas".

However, theses in defence of the circular economy have been vigorously questioned. As Corvellec, Stowell and Johansson (2021) emphasise, criticisms of the possibilities of a transition to the CE, as well as what it would require and what it would result in, make more realistic contributions to this change. The criticisms are based on the realisation that the CE is a limited approach, since it does not deal with broader problems of social and environmental justice, such as income inequality, unequal access to resources and services, the negative impacts of large-scale production, and, like the concept of sustainable development, does not deeply discuss the very issue of consumption and development.

In discussions about the feasibility of achieving a CE through contemporary politics, critics point out that many current conceptualisations do not question the fundamental power bases, norms and politics of modern capitalism, which would represent incremental rather than transformative change (Fitch-Roy et al., 2019). They argue about the possibilities of identifying neocolonialism in developing countries, based on a neomodernist agenda or restrictions on the agency of people or organisations from the global South, involving informal sectors (Hobson & Lynch, 2016). Others point out that the CE may be too focused on efficient use of resources to the detriment of issues of equity and social justice. Thus, it seen as a technocentric approach based on *gaps* between a holistic discourse and *end-of-pipe* policies, which mainly focus on economic growth and competitiveness, rather than tackling the serious socio-ecological problems of the 21st century and challenging the current configuration of the capitalist system (Friant et al., 2021).

There are also those who criticise the CE discourse as the new dominant sustainability narrative, fetishised within a capitalist order (Valenzuela & Böhm, 2017, p. 26), and those who, based on the laws of thermodynamics, argue that the closed cycle, as proposed in a CE, is an impossibility and that even circular systems generate waste and emissions (Giampietro, 2019; Korhonen et al., 2018). Many see several difficulties in large-scale implementation, as it requires significant changes in infrastructure, policies, attitudes, practices and governance systems (Fitch-Roy et al., 2019; Lehmann et al., 2022).

These criticisms point to the need for specific approaches and analyses to understand the circumstances and particularities related to the possibilities of transition to a more sustainable (or circular) economy. One which takes into account and prioritises contextual social and environmental issues, as discussed below.

CIRCULAR ECONOMY AND THE PROTAGONISTS OF RECYCLING IN BRAZIL

Still pending approval in the Brazilian Federal Senate, Bill No. 1,874/2022 seeks to institute the National Circular Economy Policy. However, considering that waste management policies have a direct impact on recycling and waste reintegration, the main piece of legislation that touches on aspects that make up the idea of CE in Brazil is Law No. 12,305/2010, which instituted the National Solid Waste Policy (PNRS) and which already lays down provisions for extending the life cycle of products through reverse logistics, extended producer responsibility, the legal inclusion of waste collectors, among other actions.

With the PNRS in force, all Brazilian states and municipalities now have a comprehensive regulatory framework for solid waste management. The scope of incentives for the actions provided for in the PNRS includes: drawing up regionalisation studies, drawing up state integrated solid waste management plans, strengthening and implementing inter-municipal public consortia, drawing up inter-municipal and/or municipal integrated solid waste management plans and supporting/encouraging the organisation and development of cooperatives and associations working in the solid waste recycling sector.

However, although the PNRS was created over a decade ago, it still has not managed to be effectively institutionalised, nor has it proved capable of effectively changing the Brazilian reality in terms of the problems arising from waste production, handling and recycling/reintegration, with some of these issues having already been identified by Heber and Silva (2014).

The Brazilian Association of Public Cleaning and Special Waste Companies (Abrelpe) regularly publishes data on solid waste in Brazil. In its latest annual report, *Panorama of Solid Waste in Brazil* (Abrelpe, 2022), it found that the unprecedented reduction in the generation of municipal solid waste (MSW) in the country is more linked to the restrictive socio-economic outlook rather than to gains in awareness or efficiency in waste management (Abrelpe, 2022). Regarding the volume of MSW, the association warns that "the pace that has been recorded over the last few years is not fast enough to cope with the growth in waste generation [...], despite the legal provisions and other normative instruments that seek to reverse this gloomy scenario".

This situation extends to the area of recycling, where there has been practically no progress. Moreover, although some municipalities present initiatives aimed at recycling, they are limited, partial and lack the continuity and regularity required. There are around 82.5 million tonnes/year of waste generated in Brazil, of which only around 4% is recycled and reused (Abrelpe, 2022) – a far cry from the 20% set as a target by Decree No. 11,043/2022, which established the National Solid Waste Plan (Planares) for the year 2040.

The initial stage of waste recycling is the separation of materials at the source, i.e., when the generator – in the urban environment, these are people, homes, condominiums, public bodies, markets, supermarkets and companies – separates recyclable materials from non-recyclable materials and makes them available for selective collection. Yet, only 23 per cent of Brazilian municipalities have a selective waste collection system, which is far below what would be expected, taking into account the obligation established by the PNRS (Lima & J. E. Rutkowski, 2022). Furthermore, the selective collection systems in place are not always effective. Despite the PNRS guidelines, there is a huge gap between the law and compliance, as Heber and Silva (2014) point out.

As pillars of the declared objectives of the CE and the PNRS, recycling and reusing waste in Brazil has had a central actor present in almost every municipality in the country for decades: waste pickers. These professionals can be considered the main promoters of recycling and waste reuse actions, despite being largely marginalised and not getting the visibility and recognition they deserve.

In an effort to categorise the actors involved in the recycling value chain in Brazil, J. E. Rutkowski and E. W. Rutkowski (2017) group them into 3 categories: reclaimers, which can be classified as type 1 (T1) and type 2 (T2), according to their activities; reclaimers, responsible for the industrial processes needed to transform recycled plastics and glass into secondary raw materials; and transformers, the industry that uses pre-processed recycled materials as secondary raw materials in its production lines (J. E. Rutkowski & E. W. Rutkowski, 2017).

Waste pickers are classified as T1 *recoverers*. Organised in cooperatives, associations and/or collectives of waste pickers, or carrying out their work independently, most of them are part of everyday life in Brazilian cities and in open dumps, which are still very much a part of the Brazilian scene. T2 *reclaimers*, on the other hand, are usually private companies that do not collect material at source, except from large generators. *Recoverers* and transformers, in turn, are industries that generate inputs (raw materials) from waste and industries that use recyclables as raw materials.

Waste pickers are responsible for collecting, sorting, transporting and selling a large proportion of recyclable household waste, even in cities where selective collection is carried out by municipalities, as Lima and J. E. Rutkowski (2022) point out. For the Business Commitment to Recycling (Cempre, s/d) movement,

> waste pickers represent one of the essential pillars for strengthening the recycling chain and for valuing the product's life cycle, i.e. the circular economy comes about thanks to the participation of waste pickers in the process of collecting, sorting and selling recyclable materials to the recycling industry.

According to data from the Ciclosoft 2020 survey on selective collection and reverse logistics in the country (Cempre, s/d), 95 per cent of recyclable waste sorting units in Brazil are operated by associations or cooperatives of waste pickers. Their enterprises often expand the scope of selective collection on their own, even without any kind of contract, support or formal

permission from local authorities. This situation results in significant amounts of waste destined for recycling not even being recorded in the official selective collection indicators of municipalities, where the practice is institutionalised (Lima & J. E. Rutkowski, 2022).

The International Solid Waste Association (ISWA) considers waste pickers to be actors who play a fundamental role in raising public awareness of the importance of recycling. For the association, waste pickers also provide additional services to waste management systems and push for proper material recovery to be treated as a public issue. The association states, however, that,

> although the work of waste pickers has been recognised by the legal system in several countries, there has not yet been adequate professionalisation or formalisation – with health guarantees and access to decent jobs – of the work of these professionals [...] this absence prevents greater productivity, transparency and effective systemic coordination of the MSW management system. [...] [it is necessary]: a. Truly strengthen the sector's workforce. b. Implement comprehensive training programmes in the sector and induce a major cultural paradigm shift, changing the view of waste management workers from low-status jobs at the bottom of the social pyramid to essential agents of change in the green transition. c. Improve working conditions by providing minimum requirements on site and benefiting from ongoing advances in technological development (ISWA, 2022, pp. 21-22).

With this in mind, the National Working Group of the Federal Public Defender's Office (DPU), created in 2015, called *GT Catadoras e Catadores*, works to improve the socio-environmental conditions of cooperatives, associations and collectives of recyclable and reusable material collectors in the collection and reverse logistics systems, as provided for in the PNRS (DPU, 2022). The DPU points out that, for the PNRS, the political and legal importance given to this group is equivalent to the attention given to environmental aspects. Moreover, they state that guaranteeing a sustainable future involves unofficial public agents (waste pickers) who have been carrying out services that should have been done by public authorities for decades.

From 2019 to 2022, the Brazilian federal government defined specific policies for recycling, in particular, Ordinance No. 307/2019 (Lixão Zero Programme), Interministerial Ordinance No. 274/2019, Decree No. 10,936/2022, Decree No. 11,043/2022 (Planares) and Decree No. 11,044/2022 (Recicla+). It is worth noting that the PNRS remains the policy that is hierarchically superior to all programmes, regulations and decrees on the subject.

For the DPU, the *Lixão Zero* programme does not mention waste pickers or recognise their central role in the PNRS by setting targets and deadlines for the closure of dumps. It also warns that it is worrying that Interministerial Ordinance 274 encourages the creation of incineration plants for potentially recyclable municipal solid waste, reducing the country's low recycling rates; a fact made worse by the incentive to emit polluting gases during incineration. For the same reasons, it questions and recommends repealing Decree No. 11,043/2022 (Planares). As for Decree No. 10,936/2022, which regulates the PNRS, in addition to the incentive to incinerate waste, the DPU criticises the lack of priority given to waste pickers by admitting the participation of other groups and companies possibly interested in the activity and making the destination of waste from federal public administration bodies to waste picker associations optional, minimising the potential of solidarity selective collection. In the case of Decree No. 11,044/2022 (Recicla+), it argues that it does not use the knowledge and experience of waste pickers to certify sustainable practices and does not include them in the management of reverse logistics (DPU, 2022).

In 2023, under the new federal government, Decree No. 11,413/2023 instituted the Reverse Logistics Recycling Credit Certificate, the General Packaging Structuring and Recycling Certificate and the Future Mass Credit Certificate, within the scope of the reverse logistics systems referred to in art. 33 of the PNRS. In the beginning of the same year, Decree No. 11,414/2023 was published, establishing the *Diogo de Sant'Ana Pro-Catadoras and Pro-Catadores* Programme for Popular Recycling and the Interministerial Committee for the Socioeconomic Inclusion of Waste Pickers and Collectors of Reusable and Recyclable Materials.

The first encouraged the incorporation and prioritisation of self-employed waste pickers and waste picker organisations in reverse logistics systems, contrary to Decree No. 10,936/2022. It also provided for declarations and certifications of recovered mass produced by companies, including for self-employed waste pickers, as well as the preferential hiring of waste picker organisations in selective collection by municipalities and the incorporation of concepts such as popular recycling, solidarity selective collection, CE and payment for urban environmental services.

Secondly, it was planned to encourage the formation of cooperation networks in the production chain, with the aim of verticalizing production, offering training, technical advice and incubation for waste pickers by experienced entities and by the waste pickers' own organisations. The Interministerial Committee for the Socio-Productive Inclusion of Waste Pickers was also created.

In an interview with the organisation *Ideia Circular* in 2020, waste picker Sergio da Silva Bispo, or Bispo Catador, creator of the Kombosa Seletiva collective, argues that the concept of CE is not limited to the recovery of materials, but encompasses a series of values and principles. He points out that waste pickers have been practising CE for over 50 years by valuing what others call waste and by adopting a democratic, egalitarian and cooperative principle in the organisation of collectives. For him, circularity also implies decentralisation, respect for diversity and the construction of fair and collaborative networks.

If the CE can include principles such as diversity, fair and collaborative networks, as suggested by Bispo Catador, a more equitable and circular economy can perhaps be inaugurated by political processes that alter and challenge adverse institutional conditions and include social values of social and environmental justice. Therefore, considering these actors in the CE implies designing social management processes in projects and programmes so that waste pickers also play a leading role in management and decision-making processes. Through this, we are not talking about a mere participatory process in which those involved are only summoned and do not decide; we need to move forward in proposing dialogical and deliberative processes, in which everyone can reflect and put forward their arguments and deliberations to the extent that decision-making is democratic (Tenório & Araújo, 2020). The next section discusses these possibilities.

CIRCULAR ECONOMY AND SOCIAL LINKS

Several authors have argued that the current discourse and agenda of the CE has a managerial and technocentric bias. Further, as it is a knowledge that has engineering and the natural sciences as its matrix, it reflects on the absence of socio-cultural and political issues, as well as on ethical values. Precisely because it does not address ontological and epistemological issues that would guide choices and discourse about its socio-ethical prerogatives and premises for a common future (Kovacic et al., 2020; Rödl et al., 2022). As Mavropoulos and Nilsen (2020, p. 4) suggest, "while hiding the fact that there will be winners and losers [...], the circular economy is not a neutral system; it will materialise through a broader socio-political framework, and there is no guarantee that the end results will be positive for societies".

Gathering supporters around high and generic aspirations to preserve the environment, free from criticism and conflict around its ideals, the CE has created an apparent consensus (Kovacic et al., 2020). However, while the policies linked to it are based on well-defined material aspirations and ambitions, its ambitions in terms of social justice are scarce or non-existent (Giampietro, 2023).

According to Murray et al. (2017), there is no definite understanding of how the concept and developments of the CE will contribute to the promotion of social equality in terms of diversity, gender, race, religion and other categories, as well as financial equality and social opportunities. Thus, these ethical and moral questions are essential for the construction of the idea of the CE. As a contested concept (Korhonen et al., 2018), idea, ideal, or as a notion of politics rather than a branch of science, there are numerous challenges to the coordination, governance and institutionalisation process of the CE on a solidary and socially just basis. In other words, despite the innovative economic purpose, in many cases, the managerialist logic of development seems to prevail, rather than the implementation of a social management of socio-territorial development that is more in line with the CE in its entirety.

It is thus important to talk about the social management of the CE, in the sense of proposing a fairer and more democratic society, articulated in its interests rather in those of the market, which is an enclave of society and wants to replace it as a whole. Social management, therefore, seeks to replace technobureaucratic, monological management with participatory, dialogical, horizontal management, aimed at changing and innovating current standards, promoting socio-territorial development, strengthening democracy, consolidating citizenship and governance, as the main ideological values and structuring elements that govern them (Araújo, 2012; Tenório & Araújo, 2020).

In agreement with Bonciu (2014), one of the central assumptions is that institutionalising the CE in this way will require an extensive network of relationships, collaboration and articulation between different actors and sectors of activity, requiring governance of complex inter-organisational issues. Pierre (2011, p. 5) points out that "governance, unlike government, analyses the interaction between society and the state", stressing that collective projects can be institutionalised through the articulated mobilisation of resources.

Frey et al. (2019) argue that the complexity of these processes is often perceived by the accumulation of adjustments, realigned commitments typical of processes involving collective action, tensions and contradictions, conflicts and negotiation, as well as a multiplicity of political units.

In turn, Hobson and Lynch (2016) question how socio-economic institutions, norms and shared practices could take on a circular form, as well as what processes, values and actors would be needed to achieve this. On the other hand, Velis (2018) advocates that, in addition to the traditional cost-benefit analysis, it is necessary to indicate the benefits in social matters. Ideally, the CE would, in theory, have the potential to bring prosperity and social benefits. However, depending on the coalition of forces involved in the collective arrangements involved in its institutionalisation, it could have negative consequences for individuals and communities.

It is therefore imperative to consider the issue of social equity, since the CE can benefit certain communities and sectors of activity, while harming others. For example, the implementation of selective collection systems by companies can be a difficult constraint for waste pickers. Despite the recent guidelines of Decree No. 11,413/2023 and Decree No. 11,414/2023, which present important achievements for waste pickers, it is necessary to pay attention to the long and complex process of appropriation and materialisation of the law in the various units and levels involved.

With regard to this problem, Commaille (1998), in his work entitled *La régulation des temporalités juridiques par le social et le politique,* suggests an approach to the legal economy less in sequential or binary terms than in terms of a *continuum*. For him, the view of the moment in which the law is enacted and the phase in which it is applied must be replaced by a model in which its formulation is inseparable from the long process in which it will be the object of multiple, successive and contradictory appropriations. The pyramidal perspective of the production of law as a one-off decision, with hierarchical sequences, is thus replaced by a circular vision in which the economy of the legal is continuously established.

Analysing policy possibilities that ensure the institutionalisation of a socially inclusive CE in Brazil means understanding the collective action, conflicts and compromises generated, whether in relation to legislation or coordination efforts. Likewise, it means understanding the institutional architecture based on the law, the commitment and the value system involved. According to Patala et al. (2022), polycentric governance in a CE can arise from collaboration between companies, government and civil society actors, based on various units of cooperation, agreements and adjustments between those involved, collective agency practices and resource-sharing structures that lead to an emergent order towards common goals. This idea of governance is close to social management in the sense that it rethinks ways of managing inter-organisations, territories and social relations, being guided by a social ideology and the *res publica*, orchestrating different scales and types of power, so that the public and social interests prevail over private, individual and monetary interests (Araújo, 2014).

Still pending approval in the Federal Senate, Bill No. 1,874/2022 seeks to establish the National Circular Economy Policy in Brazil. In its design and structuring of governance and management, some objectives could be proposed with the aim of leveraging a more socially inclusive and sustainable CE. It would be important to take the PNRS as a reference, recognised as a policy that safeguards the inclusion of waste pickers in initiatives aimed at shared responsibility for the life cycle of products, requiring that integrated municipal solid waste management plans contain programmes and actions involving cooperatives and associations of waste pickers made up of low-income people who work in the collection and recycling of reusable materials.

CC BY

FINAL CONSIDERATIONS

The circular economy (CE) will increasingly demand the governance of complex issues. The pressures towards greater sustainability make the need to develop collective practices and structures to deal with waste and leverage recycling ever more pressing. Exploring a collective agency in governance practices that interconnect different actors – waste pickers, companies, the public sector and residents – on common challenges can generate adaptive capacities and coordination efforts mediated by the local context. Far from being a single solution, model or package, like the EU's CE model, the development of a CE in Brazil can be based on local characteristics, actors and circumstances, given the diversity of contexts and demands in the country. Thus, solutions can vary greatly according to the region, state and municipality, which will require articulated and contextualised coordination efforts (a nexus policy). This, however, does not reduce the importance of central guidelines and clauses to be formulated in the National Circular Economy Policy in Brazil.

As a contested concept (Korhonen et al., 2017) that emerges from politics (Kovacic et al., 2020), the CE stands as a discourse that, until now, has favoured the economy, excluded social dimensions and simplified its environmental consequences. One of the main criticisms is that it often fails to take into account the needs and rights of informal workers, especially those who collect and recycle materials. These workers are often low-income citizens who rely on this activity to survive, but who are excluded from formal CE value chains. The absence or insufficiency of effective public policies for the social inclusion of these workers in a CE can lead to the concentration of income and power in the hands of companies and individuals already established in the market, to the detriment of individual informal workers and small recycling cooperatives.

Brazilian Bill No. 1,874/2022, which seeks to establish a National Circular Economy Policy, could be a viable and socially inclusive way to implement it. To do this, an alternative would be to take advantage of the provisions of the PNRS and propose a CE that works as a solution to real, locally contextualised problems, with concrete objectives (primarily social); something that an inclusive circularity model requires.

As a privileged place for collective action, the integrated municipal solid waste management plans provided for in the PNRS can encourage partnerships between waste pickers and private companies, formalising agreements with public bodies for selective collection. The same municipal plans can provide for decentralised waste collection and storage sites, which are important above all for independent waste pickers. Integrated Municipal solid waste management plans can encourage campaigns aimed at recycling organic compost, composting and community gardens on underused public land with the participation of waste pickers, residents and surrounding businesses.

As indicated, waste pickers are the main agents promoting selective collection in municipalities where this type of collection has institutional backing or not. Through agreements and contracts with municipalities, companies and housing estates, selective collection can be boosted, generating income and economic benefits for the urban environment. Waste pickers and their associations can also play a key role in providing guidance on how to separate waste in order to maximise its use, since, to a large extent, inadequate ways of packaging waste in homes and organisations may render a large part of what could be recycled and reinserted into production chains as useless. In addition, it is important to provide training and capacity building for waste pickers to ensure that they can carry out their work more safely and efficiently.

It is important to encourage the creation of waste picker cooperatives and to promote regular communication about these workers and their importance to recycling systems, with the aim of raising awareness in society and tackling the stigmatised image that still surrounds them. No less important is attention to social security – since most of them work informally – health protection, the provision of protective equipment and incentives for preferential medical care, especially for workers who work in open dumps.

The inclusion of waste pickers in the CE is imperative and can contribute to the creation of green jobs and the reduction of poverty and social inequality. As key players in the recycling chain, they are strategic in generating income in various communities, especially the most vulnerable. In this regard, greater appreciation to their work can enable the transition to a more sustainable and socially just CE, which takes into account the needs and rights of informal workers and marginalised groups.

Finally, Brazil is experiencing a historic moment in which opportunities to improve the institutional and regulatory arrangements provided for in the PNRS and the new National Circular Economy Policy can be discussed with a view to integrating and prioritising social and environmental demands towards the effective transition from a linear to a circular economic development model. To this end, a renewed, expanded and transdisciplinary research agenda on the CE is crucial, supporting the political process and enabling reflection and criticism on the values and priorities that the country defends for its own circular model.

REFERENCES

Araújo, E. T. (2012). *(In)consistências da gestão social e seus processos de formação: um campo em construção* (Tese de Doutorado). Pontifícia Universidade Católica de São Paulo, São Paulo, SP, Brasil.

Araújo, E. T. (2014). Gestão social. In R. F. Boullosa (Org.), *Dicionário para a formação em gestão social*. CIAGS/UFBA.

Associação Brasileira de Empresas de Limpeza Pública e Resíduos Especiais. (2022). *Panorama dos resíduos sólidos no Brasil 2022*. http://abrelpe.org.br

Berardi, P., & Dias, J. (2018). O mercado da economia circular: como os negócios estão sendo afetados pelo modelo que substitui o linear. *GVExecutivo*, *17*(5), 34-37. https://doi.org/10.12660/gvexec.v17n5.2018.77340

Bonciu, F. I. (2014). The European economy: from a linear to a circular economy. *Romanian Journal of European Affairs*, *14*(4), 78-91.

Comissão Europeia (2020). *A new circular economy action plan*. European Commission.

Commaille, J. (1998). La régulation des temporalités juridiques par le social et le politique. In O. François, & V. H. Mark (Eds.), *Temps et droit: le droit a-t-il pour vocation de durer?* Bruylant.

Compromisso Empresarial para a Reciclagem. (s/d). 1° de março: Dia Internacional dos Catadores de Resíduos. https://bit.ly/3U9dB8P

Confederação Nacional da Indústria. (2018). *Economia circular: oportunidades e desafios para a indústria brasileira*. https://static.portaldaindustria.com.br/media/filer_public/2f/45/2f4521b9-d1eb-44f7-b501-cda01254738a/miolo_economia_circular_pt_web.pdf

Confederação Nacional da Indústria. (2021). *Economia circular e gestão de resíduos na OCDE*. https://static.portaldaindustria.com.br/media/filer_public/c4/d9/c4d9df11-bf21-4d45-947c-d8019f65c1f4/ocde_briefing_economiacircular.pdf

Corvellec, H., Stowell, A. F., & Johansson, N. (2021). Critiques of the circular economy. *Journal of Industrial Ecology*, *26*(2), 421-432.

Decreto nº 10.936, de 12 de janeiro de 2022. (2022). Regulamenta a Lei nº 12.305, de 2 e agosto de 2010, que institui a Política Nacional de Resíduos Sólidos. https://legis.senado.leg.br/norma/35443315

Decreto nº 11.043, de 13 de abril de 2022. (2022). Aprova o Plano Nacional de Resíduos Sólidos. https://planalto.gov.br/ccivil_03/_Ato2019-2022/2022/Decreto/D11043.htm

Decreto nº 11.044, de 13 de abril de 2022. (2022). Institui o Certificado de Crédito de Reciclagem - Recicla+. https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2022/decreto/d11044.htm

Decreto nº 11.413, de 13 de fevereiro de 2023. (2023). Institui o Certificado de Crédito de Reciclagem de Logística Reversa, o Certificado de Estruturação e Reciclagem de Embalagens em Geral e o Certificado de Crédito de Massa Futura, no âmbito dos sistemas de logística reversa de que trata o art. 33 da Lei nº 12.305, de 2 de agosto de 2010. https://www.planalto.gov.br/ccivil_03/_Ato2023-2026/2023/Decreto/D11413.htm

Decreto nº 11.414, de 13 de fevereiro de 2023. (2023). Institui o Programa Diogo de Sant'Ana [...] e o Comitê Interministerial para Inclusão Socioeconômica de Catadoras e Catadores de Materiais Reutilizáveis e Recicláveis. https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/decreto/D11414.htm

Defensoria Pública da União. (2022). *Relatório temático: catadoras e catadores de materiais recicláveis*. https://bit.ly/3pHJdYF

Diretiva nº 2018/851 do Parlamento Europeu e do Conselho, de 30 de maio de 2018. (2018). Altera a Diretiva 2008/98/CE relativa aos resíduos. https://bit.ly/3U2XZDZ

Ellen MacArthur Foundation. (s/d). *Nossa rede*. https://bit.ly/3DfkJJd

Ellen MacArthur Foundation. (2012). *Towards the circular economy: opportunities for the consumer goods sector*. https://bit.ly/3pOtOpc

Ellen MacArthur Foundation. (2017). *Uma economia circular no Brasil: uma abordagem exploratória inicial*. https://bit.ly/3DdAZKT

Ellen MacArthur Foundation. (2023). *Investigating, exploring, and showcasing the circular economy in 2023*. https://bit.ly/3KqCyZ6

European Investment Bank. (2020). *The EIB Circular Economy Guide*: supporting the circular transition. Luxembourg: EIB. Recuperado de: https://bit.ly/3NRJYpP.

Fitch-Roy, O., Benson, D., & Monciardini, D. (2020). Going around in circles? Conceptual recycling, patching, and policy layering in the EU circular economy package. *Environmental Politics*, *29*(6), 983-1003.

Frey, K., Jacobi, P., Torres, P., & Ramos, R. (2019). Ostrom visits the urban global south: a discussion on environment governance and planning of São Paulo macrometrolis. In *Proceedings of the Ostrom Workshop Conference*, Bloomington, IN, EUA. https://bit.ly/3m19ZJB

Friant, M. C., Lakerveld, D., Vermeulen, W. J. V., & Salomone, R. (2021). Transition to a sustainable circular plastics economy in the Netherlands: discourse and policy analysis. *Sustainability*, *14*(1), 1-32.

Giampietro, M. (2019). On the circular bioeconomy and decoupling: implications for sustainable growth. *Ecological Economics*, *162*, 143-156. https://doi.org/10.1016/j.ecolecon.2019.05.001

Giampietro, M. (2023). Reflections on the popularity of the circular bioeconomy concept: the ontological crisis of sustainability science. *Sustainability Science*, *18*, 749-754. https://doi.org/10.1007/s11625-022-01267-z

Harvey, D. (2018). *A loucura da razão econômica*. Boitempo.

Heber, F., & Silva, E. (2014). Institucionalização da Política Nacional de Resíduos Sólidos: dilemas e constrangimentos na Região Metropolitana de Aracaju (SE). *Revista de Administração Pública*, *48*(4), 913-937.

Hobson, K., & Lynch, N. (2016). Diversifying and de-growing the circular economy: radical social transformation in a resource-scarce world. *Futures*, *82*, 15-25. https://doi.org/10.1016/j.futures.2016.05.012

Ideia Circular. (2020). *Catadores e catadoras na economia circular*. https://bit.ly/3Gm1NGF

International Solid Waste Association. (2022). *O futuro do setor de gestão de resíduos*. https://bit.ly/3UbWWl8

Kaul, S., Akbulut, B., Demaria, F., & Gerber, J-F. (2022) Alternatives to sustainable development: what can we learn from the pluriverse in

practice? *Sustainability Science*, *7*, 1149-1158. https://doi.org/10.1007/s11625-022-01210-2

Korhonen, J., Nuur, C., Feldman, A., & Birkie, S. E. (2018). Circular economy as an essentially contested concept. *Journal of Cleaner Production*, *175*, 544-552. https://doi.org/10.1016/j.jclepro.2017.12.111

Kovacic, Z., Strand, R., & Völker, T. (2020). *The circular economy in Europe: critical perspectives on policies and imaginaries*. Routledge.

Lazarevic, D., & Valve, H. (2017). Narrating expectations for the circular economy: towards a common and contested European transition. *Energy Research & Social Science*, *31*, 60-69. https://doi.org/10.1016/j.erss.2017.05.006

Lehmann, C., Cruz-Jesus, F. Oliveira, T., & Damásio, B. (2022). Leveraging the circular economy: investment and innovation as drivers. *Journal of Cleaner Production*, *360*, 132-146. https://doi.org/10.1016/j.jclepro.2022.132146

Lei nº 12.305, de 2 de agosto de 2010. (2010). Institui a Política Nacional de Resíduos Sólidos; altera a Lei no 9.605, de 12 de fevereiro de 1998; e dá outras providências. https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm

Lima, F., & Rutkowski, J. E. (2022). *Atlas brasileiro da reciclagem*. Ancat.

Lourenço, M. S., & Chiaramonti, C. (2007). O desenvolvimento sustentável e a economia circular: a experiência chinesa. In *Anais do 2º Fórum UNIFAE sobre Sustentabilidade*, Curitiba, PR, Brasil.

Mavropoulos, A., & Nilsen, A. W. (2020). *Industry 4.0 and circular economy: towards a wasteless future or a wasteful planet?* Wiley.

Morseletto, P. (2020). Restorative and regenerative: exploring the concepts in the circular economy. *Journal of Industrial Ecology*, *24*(4), 763-773.

Movimento Nacional dos Catadores de Materiais Recicláveis. (2023). *Nota sobre novos decretos do Governo Federal*. https://bit.ly/3lYfBV1

Murray, A., Skene, K., & Haynes, K. (2017). The circular economy: an interdisciplinary exploration of the concept and application in a global context. *Journal of Business Ethics*, *140*(3), 369-380.

Nalbandian, J., O'Neill, R., Jr., Wilkes, J. M., & Kaufman, A. (2013). Contemporary challenges in local government: evolving roles and responsibilities, structures, and processes. *Public Administration Review*, *73*(4), 567-574.

Ostrom, E. (2005). *Understanding institutional diversity*. Princeton University Press.

Patala, S., Albareda, L., & Halme, M. (2022). Polycentric governance of privately owned resources in circular economy systems. *Journal of Management Studies*, *59*(6), 1563-1596. https://doi.org/10.1111/joms.12810

Portaria Interministerial nº 274, de 30 de abril de 2019. (2019). Disciplina a recuperação energética dos resíduos sólidos urbanos referidos no §1° do art. 9, da Lei n° 12.305, de 2010, e no art. 37, do Decreto n° 7.404, de 2010. https://bit.ly/3NL6mkM

Portaria nº 307, de 30 de abril de 2019. (2019). Aprova o Programa Nacional Lixão Zero. https://bit.ly/43tPfd3

Projeto de Lei nº 1.874, de 2022. (2022). Institui a Política Nacional de Economia Circular. https://bit.ly/3P6xEVc

Remade Institute. (2021). *The circular economy institute: impact report 2021*. https://bit.ly/40UMdOm.

Rizos, V., Tuokko, K., & Behrens, A. (2017). *The circular economy: a review of definitions, processes, and impacts* (Ceps Papers, n. 12440). Centre for European Policy Studies.

Rödl, M. B., Åhlvik, T., Bergeå, H., Hallgren, L., & Böhm, S. (2022). Performing the circular economy: how an ambiguous discourse is managed and maintained through meetings. *Journal of Cleaner Production*, *360*, 132144. https://doi.org/10.1016/j.jclepro.2022.132144

Rutkowski, J. E., & Rutkowski, E. W. (2017). Recycling in Brazil: paper and plastic supply chain. *Resources*, *6*(3), 43. https://doi.org/10.3390/resources6030043

Santos, B. S. (2020). *O futuro começa agora: da pandemia à utopia*. Edições 70.

Schaubroeck, T. (2018). Towards a general sustainability assessment of human/industrial and nature-based solutions. *Sustainability Science*, *13*, 1185-1191. https://doi.org/10.1007/s11625-018-0559-0

Tenório, F. G., & Araújo, E. T. (2020). Mais uma vez o conceito de gestão social. *Cadernos EBAPE.BR*, *18*(4), 891-905. https://doi.org/10.1590/1679-395120200105

Valenzuela, F., & Böhm, S. (2017). Against wasted politics: a critique of the circular economy. *Ephemera Journal*, *17*(7), 23-60.

Velis, C. (2018). No circular economy if current systemic failures are not addressed. *Waste Management & Research*, *36*(9), 757-759.

Wijkman, A., Skånberg, K., & Berglund, M. (2015). *The circular economy and benefits for society jobs and climate clear winners in an economy based on renewable energy and resource efficiency*. Club of Rome. https://bit.ly/3UagzKu

Florence Cavalcanti Heber Pedreira de Freitas
ORCID: https//orcid.org/0000-0002-0682-0881

Ph.D. in Administration from the Postgraduate Centre in Administration at the Federal University of Bahia (NPGA/UFBA); Associate Professor in the Postgraduate Programme in Administration at the Federal University of Sergipe (PROPADM UFS). E-mail: florenceheber@hotmail.com

Edgilson Tavares de Araújo
ORCID: https//orcid.org/0000-0002-2145-8796

Ph.D. in Administration from the Postgraduate Centre in Administration at the Federal University of Bahia (NPGA/UFBA). Adjunct professor at the Postgraduate Centre in Administration (NPGA/UFBA); the Postgraduate Programme in Development and Social Management (PDGS/UFBA); the Postgraduate Programme in Public Policy Management at the Federal University of Recôncavo da Bahia (PPGPP/UFRB). E-mail: edgilson@gmail.com

Rodrigo Teles Dantas de Oliveira
ORCID: https//orcid.org/0000-0001-6009-3454

Ph.D. student in Administration at the Postgraduate Centre in Administration of the Federal University of Bahia (NPGA/UFBA).
E-mail: oliveira.rtd@gmail.com

Rodrigo Mascarenhas Amorim
ORCID: https//orcid.org/0000-0003-0296-7920

Master's degree from the Postgraduate Programme in Administration at the Federal University of Sergipe (PROPADM UFS).
E-mail: rodrigomamorim@yahoo.com.br

AUTHORS' CONTRIBUTION

Florence Cavalcanti Heber Pedreira de Freitas: Conceptualization (Lead); Investigation (Lead); Methodology (Lead); Project administration (Lead); Resources (Equal); Writing- original draft (Lead); Writing- review & editing (Equal).

Edgilson Tavares de Araújo: Conceptualization (Lead); Investigation (Supporting); Methodology (Supporting); Project administration (Supporting); Resources (Equal); Writing- original draft (Supporting); Writing- review & editing (Equal).

Rodrigo Teles Dantas de Oliveira: Conceptualization (Supporting); Investigation (Supporting); Methodology (Supporting); Project administration (Supporting); Resources (Equal); Writing- original draft (Supporting); Writing- review & editing (Equal).

Rodrigo Mascarenhas Amorim: Conceptualization (Supporting); Investigation (Supporting); Methodology (Supporting); Project administration (Supporting); Resources (Equal); Writing- original draft (Supporting); Writing- review & editing (Equal)

DATA AVAILABILITY

The entire data set supporting the results of this study was published in the article itself.

ACKNOWLEDGEMENTS

We would like to thank the Postgraduate Centre for Administration at the Federal University of Bahia (NPGA/UFBA) for the post-doctoral research carried out by Professor Florence Cavalcanti Heber Pedreira de Freitas, under the supervision of Professor Edgilson de Araújo Tavares, from December 2022 to September 2023. We extend our thanks to the Brazilian National Council for Scientific and Technological Development (CNPq) for funding the research project "Regulation and Institutionalisation of the Circular Economy in the European Union and Brazil" (Universal Notice CNPq/MCTI/FNDCT No. 18/2021- Process 406844/2021-6), coordinated by Professor Florence Cavalcanti Heber Pedreira de Freitas.

EDITOR-IN-CHIEF

Hélio Arthur Reis Irigaray (Fundação Getulio Vargas, Rio de Janeiro / RJ – Brazil). ORCID: https://orcid.org/0000-0001-9580-7859

ASSOCIATE EDITOR

Fabricio Stocker (Fundação Getulio Vargas, Rio de Janeiro / RJ – Brazil). ORCID: https://orcid.org/0000-0001-6340-9127

REVIEWERS

Wilson Danilo Eccard (Fundação Getulio Vargas, Rio de Janeiro / RJ – Brazil). ORCID: https://orcid.org/0000-0002-9766-2259

Maria Helena Cirne de Toledo (Centro Universitário das Faculdades Associadas de Ensino, São João da Boa Vista / SP – Brazil).
ORCID: https://orcid.org/0000-0003-1449-3566

Rosinha Machado Carrion (Universidade Federal do Rio Grande do Sul, Porto Alegre / RS – Brazil). ORCID: https://orcid.org/0000-0003-3967-0602

Ana Teresa Oliveira da Silva Basto (Fundação Getulio Vargas, São Paulo / SP – Brazil). ORCID: https://orcid.org/0000-0001-8546-2025

PEER REVIEW REPORT

The peer review report is available at this URL: https://periodicos.fgv.br/cadernosebape/article/view/91993/86301