



Smart Cities, Sustainability, and Associative Networks: The Configuration of the Solidarity Economy Movement (SEM) in Response to the Environmental Question in São Carlos (SP-Brazil)¹

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Abstract: *This article analyzes the positions of the Solidarity Economy Movement (SEM) regarding the environmental question in the city of São Carlos (SP-Brazil), focusing on both territorial practices and discursive disputes that shape its intervention in the face of hegemonic development models. In an urban context marked by spatial segregation, social conflict, and the consolidation of agribusiness, the study examines how SEM articulates associative, productive, and symbolic actions that challenge dominant interpretations of sustainability. Particular emphasis is placed on the role of the Integrated Multidisciplinary Center for Studies, Training, and Intervention in Solidarity Economy (NuMI-EcoSol in Portuguese) as a key institutional actor that provides coherence, depth, and projection to the movement's strategies. The study also explores agroecological experiences*

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developed in rural settlements, solidarity fairs as alternative spaces of commerce, and short circuits of critical consumption. The methodology employed is qualitative, based on interviews with relevant actors, analysis of normative documents, and review of institutional sources. The article concludes that the Solidarity Economy in São Carlos not only promotes concrete forms of sustainable production, but also constitutes a socio-political platform of resistance that contests dominant meanings of urban development through a situated political ecology.

Keywords: *Solidarity economy, sustainability, São Carlos, smart cities, Associative Networks.*

Ciudades inteligentes, sustentabilidad y trama asociativa. La configuración del Movimiento de Economía Solidaria (MES) ante la cuestión ambiental en São Carlos (SP-Brasil)

Resumen: Este artículo analiza los posicionamientos del Movimiento de Economía Solidaria (MES) frente a la cuestión ambiental en la ciudad de São Carlos (SP-Brasil), focalizando tanto en las prácticas territoriales como en las disputas discursivas que configuran su intervención frente a los modelos hegemónicos de desarrollo. En un contexto urbano caracterizado por la segregación espacial, la conflictividad social y la consolidación del agronegocio, se examina cómo el MES articula acciones asociativas, productivas y simbólicas que tensionan los sentidos dominantes de la sustentabilidad. Se destaca especialmente el papel del Núcleo Multidisciplinar Integrado de Estudos, Formação e Intervenção em Economia Solidária (NuMI-EcoSol) como actor institucional clave que otorga coherencia, densidad y proyección a las estrategias del movimiento. El estudio aborda, asimismo, experiencias agroecológicas desarrolladas en asentamientos rurales, las ferias solidarias como espacios de comercialización alternativa, y los circuitos cortos de consumo crítico. La metodología empleada es cualitativa, basada en entrevistas a actores relevantes, análisis documental normativo y revisión de fuentes institucionales. Se concluye que la Economía Solidaria en São Carlos no solo impulsa formas concretas de producción sustentable, sino que constituye una plataforma de resistencia sociopolítica que disputa sentidos sobre el desarrollo urbano desde una ecología política situada.

Palabras claves: Economía solidaria, sustentabilidade, São Carlos, ciudades inteligentes, redes asociativas.

Cidades inteligentes, sustentabilidade e trama associativa: a configuração do Movimento de Economia Solidária (MES) diante da questão ambiental em São Carlos (SP-Brasil)

Resumo: Este artigo analisa os posicionamentos do Movimento de Economia Solidária (MES) diante da questão ambiental na cidade de São Carlos (SP-Brasil), com foco tanto nas práticas territoriais quanto nas disputas discursivas que conformam sua intervenção frente aos modelos hegemônicos de desenvolvimento. Em um contexto urbano marcado pela segregação espacial, pela conflitualidade social e pela consolidação do agronegócio, examina-se como o MES articula ações associativas, produtivas e simbólicas que tensionam os sentidos dominantes da sustentabilidade. Destaca-se, em especial, o papel do Núcleo Multidisciplinar Integrado de Estudos, Formação e Intervenção em Economia Solidária (NuMI-EcoSol) como ator institucional chave que confere coerência, densidade e projeção às estratégias do movimento. O estudo aborda, ainda, experiências agroecológicas desenvolvidas em assentamentos rurais, as feiras solidárias como espaços de comercialização alternativa e os circuitos curtos de consumo crítico. A metodologia empregada é qualitativa, baseada em entrevistas com atores relevantes, análise documental normativa e revisão de fontes institucionais. Conclui-se que a Economia Solidária em São Carlos não apenas impulsiona formas concretas de produção sustentável, mas constitui uma plataforma de resistência sociopolítica que disputa sentidos sobre o desenvolvimento urbano a partir de uma ecologia política situada.

Palavras-chave: Economia solidária, sustentabilidade, São Carlos, cidades inteligentes, redes associativas.

Introduction

Urbanization constitutes a structural feature of capitalist modernity and manifests itself as one of the predominant forms of spatial organization in contemporary civilization. However, this process cannot be fully understood without considering its articulation with neoliberal globalization, the financialization of urban life, and the acceleration of technological innovations. Numerous studies on urban development identify factors that shape the recent transformations of cities, among which the expansion of the knowledge economy, the digitization of productive processes, the rhetoric of sustainable development, and the proliferation of the so-called “smart cities” discourse stand out (GÓNGORA, 2015).

Within this framework, a technocratic narrative takes shape in which social capital, innovation, and energy efficiency are presented as pillars of urban development, thereby displacing critical perspectives on the structural conditions of inequality (FERNÁNDEZ GÜELL, 2015).

This technocratic vision, primarily promoted by centers of political and economic power in Europe and North America, is reproduced in Latin America under schemes of structural dependency, in which cities in the Global South are subordinately integrated into global accumulation processes. Within such a context, local states face the challenge of adapting their urban management policies to the smart city paradigm—whose promises of sustainability and efficiency often conceal an instrumental rationality that redefines state functions and fosters the privatization of urban commons. As SIKORA-FERNÁNDEZ (2017) points out, the question of “how to make the city smarter” functions as a technical imperative that naturalizes a Eurocentric development model while rendering its social and territorial consequences invisible.

From this perspective, the smart city concept can be understood as a discursive device that articulates sustainable development, urban planning, and technoscience, proposing a model of the city that is functional, environmentally efficient, and oriented toward economic growth. Within this approach, sustainability is reduced to a set of technical indicators that prioritize energy efficiency, the digitization of services, and the attraction of investment, without challenging the power structures or consumption patterns that underpin the global socio-environmental crisis.

The dominant European approach, for example, links the notion of the smart city to policies for reducing carbon emissions, improving energy efficiency, and enhancing urban quality of life, thereby promoting an image of harmony between technological progress and citizen well-being (ALVARADO-LÓPEZ, 2020). Nevertheless, this ideal is inscribed within a logic of development that is far from neutral, as it reproduces the hierarchical structures inherent to the capitalist world-system.

One of the strategies for adapting to this paradigm has been the incorporation of Solidarity Economy experiences as a means of integrating broader sectors of society into a transition toward sustainability. In this context, concepts such as the Circular Economy, Green Economy, or Ecological Economy have emerged, aiming to challenge the dominant conception of the economy (MARTÍNEZ & PORCELLI, 2018) and to problematize the ecological and social consequences of the contemporary accumulation regime (LINARES-GARCÍA & VÁSQUEZ-SANTOS, 2018).

Given the subordinate circulation of global discourses on sustainable urban development, it becomes essential to interrogate how certain collective actors

in the Global South—such as the Solidarity Economy Movement (SEM) in São Carlos (SP)—position themselves in relation to the environmental question. This research is guided by the question: What kinds of contributions, re-significations, or disputes emerge from SEM in response to the hegemonic discourses and practices around urban sustainability, particularly in a context marked by the city's effort to consolidate itself as a “technological capital”.

The objective of this article is to identify and analyze the potential relationships that are formed between SEM actors and the environmental question, paying close attention to their concrete practices, associative networks, and the symbolic and material disputes they engage in vis-à-vis dominant urban models.

Method

This study adopts a qualitative and interpretive research approach, aimed at understanding the stances of the SEM regarding environmental issues in São Carlos (São Paulo, Brazil). Consistent with the principles of a situated sociology, the methodological strategy combines fieldwork, documentary analysis, and critical review of academic literature. The objective is to reconstruct the associative, institutional, and territorial fabric of the movement.

The research was conducted throughout 2023 and comprised twelve semi-structured interviews with key actors linked to the SEM. Among the interviewees were members of the Núcleo Multidisciplinar Integrado de Estudos, Formação e Intervenção em Economia Solidária (NuMI-EcoSol), agroecological producers from rural settlements, representatives of solidarity fairs, public officials, solidarity economy activists, as well as local historians whose participation proved essential for addressing the cultural and identity configurations of the city. The selection of interviewees followed a snowball sampling strategy, beginning with NuMI-EcoSol representatives and progressively expanding through recommendations and relational networks among actors.

The interviews were conducted in person at facilities of the Federal University of São Carlos (UFSCar in Portuguese), in municipal agencies of the city, and, in some cases, virtually through digital platforms such as Google Meet. All interviews were recorded with informed consent, fully transcribed, and subjected to a thematic coding process based on emergent categories such as “associative fabric,” “environmental question,” “capital of technology,” “solidarity fairs,” and “self-management.” This analytical procedure enabled the identification of discursive regularities, institutional tensions, and practices relevant to the objectives of the study.

The empirical work was complemented by documentary analysis of laws, regulations, and institutional materials related to the public policy on solidarity economy

in the municipality—particularly Laws No. 15.196/2010 and No. 15.779/2011—as well as internal materials produced by NuMI-EcoSol. Secondary sources were also incorporated, including a substantial body of prior academic research on the subject, along with a systematic review of local news articles that helped contextualize specific conjunctures, emerging conflicts, and processes of public visibility involving the movement. This documentary corpus enriched the methodological triangulation by providing both regulatory traceability and interpretive insights into the symbolic and media dimensions of territorial development disputes.

Lastly, it is important to emphasize that the researcher's positionality was the object of continuous reflection throughout the process. As a foreign researcher, linguistic and cultural dimensions posed a particular methodological challenge—not only due to language barriers but also due to the need to build trust and engage in attentive, situated listening. This condition demanded an attitude of openness and a reflexive disposition toward the symbolic frameworks inherent to the researched territory, thereby acknowledging the co-construction of knowledge as a dialogical and ethically engaged practice.

Results

Historical Development of São Carlos: Between Urban Segregation and the Symbolic Construction of the 'Technology Capital'

The urban history of São Carlos is intertwined with the processes of coffee expansion, industrialization, and technological modernization that have characterized the interior of the state of São Paulo since the 19th century. Founded on November 4, 1857, the city initially developed around the chapel of Saint Charles Borromeo, on the lands of the former Sesmaria do Pinhal, owned by the Arruda Botelho and Soares de Arruda families. During the second half of the 19th century, São Carlos consolidated itself as a key coffee-producing center, initially sustained by the systematic exploitation of enslaved people on local plantations, prior to the progressive incorporation of European immigrants—especially Italians—who contributed to the city's economic and demographic growth (TRUZZI, 2000). The arrival of the railway in 1884 facilitated coffee exports and marked the beginning of a more structured process of urbanization.

Priore Lima (2008) identifies three major periods in the urban configuration of São Carlos. The first period, from 1857 to 1929, was characterized by a regular urban layout of Portuguese Renaissance inspiration, where territorial control was concentrated in the Municipal Council and the Catholic Church. The railway played a central role in the commercialization of coffee and structured

urban space according to the logic of the market and late slavery. In this foundational moment, symbols were crucial to the construction of territorial identity. For instance, the coat of arms, created in 1933 by Afonso Taunay, includes five golden araucarias—a symbol of the ‘Pinhal’—and the figure of Saint Charles Borromeo as patron saint, reinforcing the link between colonial discourse, Catholic tradition, and origin narrative (SÃO CARLOS, 2023a; 2023b).

The second period (1930–1959) is associated with the consolidation of industrial economy, restructuring of local government, and the transfer of land control to the municipal executive branch. Simultaneously, a transition occurred among the local elites—from oligarchic domination to new industrial factions. This cycle was accompanied by unregulated urban expansion, marked by real estate speculation and the displacement of low-income populations to the margins of the urban territory.

The third period (1960–1977) unfolded in a context of industrial growth, international financing, and the consolidation of segregating real estate development, with continued speculative practices. It was during this period that UFSCar (Federal University of São Carlos) was established, an institution that became fundamental for the development of new technologies and for positioning the city as a scientific and academic hub (UFSCAR, 2023).

In the following decades, São Carlos reinforced its profile as an academic and technological pole. The presence of two prestigious public universities (UFSCar and the University of São Paulo), together with research centers such as the Brazilian Agricultural Research Corporation (EMBRAPA in Portuguese)³, consolidated its reputation as a city of science and technology. This ecosystem is complemented by institutions such as the High Technology Park (ParqTec) and the Damha EcoTechnology Park, both focused on incubating innovative ventures and promoting knowledge transfer (PARQTEC, 2023). The city’s official designation came in 2011, when Federal Law No. 12.504 recognized São Carlos as the “National Capital of Technology”⁴ (BRASIL, 2011).

3 It was established in 1973 and is recognized as one of the leading research institutions in agribusiness in Latin America. Its mission is to develop knowledge, technology, and innovation for Brazilian agriculture, with a strong emphasis on productivity, sustainability, and the competitiveness of agribusiness.

4 In contrast to the national average—one PhD holder per 5,423 inhabitants—São Carlos stands out for its high concentration of professionals with postgraduate degrees, with one PhD holder for every 180 inhabitants. This academic density is closely linked to the presence of the aforementioned top-tier public universities and multiple research and technological development centers. Moreover, the city boasts one of the highest patent registration rates in the country: 14,5 per 100,000 inhabitants, compared to a national average of only 3,2, reinforcing its status as an innovation hub in the interior of São Paulo.

In addition, cultural life and mass events also play a significant role in constructing the collective imaginary and sustaining the local economy. Among the most prominent are the Climate Festival—celebrated every April for over thirty years, combining educational, environmental, and recreational activities—and *Taça Universitária de São Carlos* (TUSCA), a traditional university tournament that brings together thousands of students from across the state, reinforcing São Carlos's symbolic identity as a university city (SÃO CARLOS, 2023c).

Nonetheless, this process of modernization and technological specialization has historically coexisted with strong dynamics of socio-spatial segregation, structuring differential access to urban goods and shaping what some local actors call “three cities in one”: the university city, the wealthy city, and the city of the popular sectors (PRIORE LIMA, 2008; personal communication with DN, 2023).

This panorama is further complicated by other urban tensions. According to the Brazilian Yearbook of Public Security (2023), São Carlos is the second most violent city in the state of São Paulo, with a rate of 19.2 intentional violent deaths per 100,000 inhabitants (FÓRUM BRASILEIRO DE SEGURANÇA PÚBLICA, 2023). This contrast between technological prestige and persistent levels of inequality and insecurity reveals the structural contradictions of the urban development model.

The Construction of the Solidarity Economy Movement (SEM) in São Carlos: Mapping the Associative Fabric, Legal Frameworks, and Conflictual Dynamics

The SEM⁵ in São Carlos should not be interpreted as a spontaneous or merely reactive phenomenon, but rather as the outcome of a historical accumulation of experiences, symbolic disputes, and collective initiatives that, since the late 1990s, have contributed to the consolidation of an alternative model of economic and social organization. At the center of this process lies the NuMI-EcoSol,

5 It is important to clarify that the notion of “movement” is not employed in this study as an analytical category derived from the theoretical frameworks of social movement studies, but rather as a native category — in the sense proposed by GEERTZ (1973) — constructed by the actors themselves through their experiences, organizational practices, and forms of self-identification. From this perspective, an emic approach is adopted, allowing for an interpretation grounded in locally situated meanings, rather than externally imposed academic classifications (PIKE, 1967). This methodological choice is also informed by a relational understanding of the social world (BOURDIEU, 1990), which emphasizes that categories of perception and naming are the result of symbolic struggles within specific contexts. While this article does not aim to develop an exhaustive discussion of social movement theory, it seeks to reconstruct the elements that, from the actors' standpoint, constitute the SEM as a movement — understood as a relational, symbolic, and performative form of collective action.

a key actor that has operated as a catalyst for associative networks, academic training, and territorial activation (MOYA, 2010).

Prior to becoming an institutional center at the UFSCar, NuMI-EcoSol functioned as the Incubadora Regional de Cooperativas Populares (INCOOP), established in 1998 as a university extension program. From its inception, INCOOP adopted a multidisciplinary approach that combined knowledge production with direct intervention, aimed at incubating self-managed enterprises. Its primary objectives included the generation of employment and income for excluded populations and the promotion of solidarity and cooperative values (FAJARDO; MARTINS, 2016).

Between 2007 and 2011, INCOOP concentrated its activities in two main territories: Jardim Gonzaga (an urban neighborhood) and a rural settlement in Itapeva, in the state of São Paulo. In these areas, the incubator supported not only the creation of economic enterprises but also the organization of local fairs, the development of commercialization networks, and the articulation of initiatives with sectoral public policies in areas such as health, education, social assistance, and sanitation. As its intervention strategies evolved, INCOOP incorporated dimensions of territorial development and sustainability, including social, economic, institutional, environmental, and cultural aspects (MOLINA; CORTEGOSO, 2015).

This initiative involved the active participation of faculty members from various departments—Psychology, Engineering, Occupational Therapy, Sociology, among others—alongside technical staff, researchers from other institutions, and members of the national network of university incubators known as the *Incubadoras Tecnológicas de Cooperativas Populares* (ITCPs). This trajectory laid the groundwork for the institutionalization of NuMI-EcoSol in 2011 as a center for teaching, research, and extension, following its approval by UFSCar's University Council (UFSCAR, 2023).

In line with these developments, UFSCar was ranked in 2023 as the seventh most entrepreneurial university in Brazil. This recognition reflects both a robust infrastructure and an institutional culture favorable to innovative initiatives, among which NuMI-EcoSol stands out as a prominent territorial articulation hub (ACIDADE ON, 2023).

A second essential factor in the configuration of the SEM was the rise of the Partido dos Trabalhadores (PT) to the municipal executive, marked by the administrations of Professor Newton Lima Neto (2001–2008) and Oswaldo Barba (2009–2012). These administrations implemented a wide range of public policies aimed at fostering the solidarity economy, combining political will, social participation, and legal-institutional consolidation (FAJARDO; MARTINS, 2016).

Through a participatory process that engaged SEM representatives, local legislators, and UFSCar officials, Law No. 15.196 was enacted in 2010, institutionalizing the *Programa Municipal de Fomento à Economia Solidária*. This legislation provides for incentives to new enterprises, the strengthening of solidarity-based productive chains and networks, and the inclusion of cooperatives in public procurement mechanisms (SÃO CARLOS, 2010). Prominent examples include Coopervida (focused on solid waste management), agroecological producer groups in Cidade Aracy, Santa Helena, and Nova São Carlos, as well as the establishment of solidarity finance mechanisms such as the Banco Comunitário Nascente in Jardim Gonzaga. In addition, craft production has been promoted through the Feira da Praça XV, and regular solidarity fairs have been institutionalized, including the organic market at Praça dos Voluntários and the EcoSol fair held at the UFSCar campus gymnasium.

One of the most contentious moments in the SEM's trajectory was the dissolution of Cooperlimp⁶, a cooperative launched with INCOOP's support in 1999. Following a judicial settlement in 2011, the cooperative was dismantled, resulting in significant harm to hundreds of families. The case revealed the legal and institutional limitations of the solidarity economy when confronted with dominant labor norms and the regulatory frameworks of the Ministério Público do Trabalho (MOYA, 2010).

Cooperlimp was one of the most significant experiences of the solidarity economy in São Carlos. Not only because of the number of jobs it generated, but because it symbolized the real possibility of building a different kind of relationship with urban labor—one grounded in self-management and dignity. The cooperative even came to be regarded as a reference for other cities, including through institutional recognition. However, it must be acknowledged that this process was gradually destabilized by factors beyond internal management: there was concrete pressure from local economic sectors

6 It is important to note that, by 2009, the cooperative had achieved a significant degree of consolidation, comprising approximately two hundred cooperative members. It operated from its own headquarters, managed around 150 jobs across different localities, and was facing challenges of far greater complexity than in its early years—yet it continued to rely on cooperative principles and self-management. The outcomes of the initiative were evident both to its members and to the broader community. Among the most notable achievements were the social inclusion of cooperative members into the labor market and the resulting income generation. As a collective, they also received training in administrative and management areas, enabling them to interact with both public and private clients in the provision of specialized cleaning services. In the eyes of the community, cooperative members began to be perceived differently—less stigmatized by exclusion, more widely recognized for their role in the cooperative, and increasingly solicited to participate in other neighborhood organizational efforts (MOYA, 2010).

unwilling to cede ground to a model that did not operate according to the logic of profit. This pressure manifested both directly and indirectly, including within the very structures of public administration. Unfortunately, at that time, the movement lacked the strength to sustain that dispute. (MM, personal communication, 2023, author's translation)

Despite these advances, the SEM has encountered substantial obstacles, including reductions in financial support, the dismantling of federal policy frameworks since 2016⁷, internal fragmentation, and an overreliance on local political administrations. Nevertheless, the movement continues to maintain spaces of articulation—solidarity fairs, associations, and public forums—as evidenced by the VI Conferência Municipal de Economia Solidária in 2023. This event addressed legislative challenges, assessed local policy implementation, and marked the reopening of the Centro Público Herbert de Souza.

The broader social indicators of São Carlos shed light on the context within which the SEM has developed. According to the Instituto Brasileiro de Geografia e Estatística (IBGE, 2023), the city had 254,857 residents and a population density of 224.17 inhabitants/km². The per capita Gross Domestic Product (GDP) was R\$ 47,000 (2021), and the Municipal Human Development Index (IDHM) reached 0.805—although substantial intraurban inequalities persist. Jardim Gonzaga, a key site for NuMI-EcoSol's work, exemplifies these disparities and highlights the urgency of redistributive, inclusive, and sustained public policies (IBGE, 2023).

The Contributions of the Solidarity Economy to the Environmental Question in São Carlos: Between Territorial Practices and Discursive Disputes

The concept of the *environmental question* makes it possible to reveal not only the material impacts of ecological collapse, but also the symbolic struggles surrounding the notion of sustainability. This term—widely disseminated over

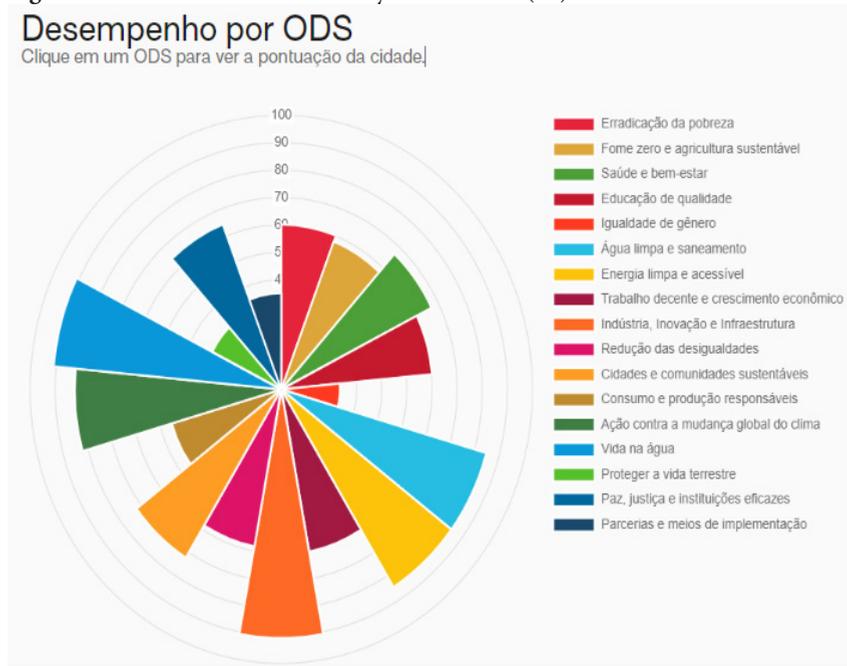
7 The National Secretariat for Solidarity Economy (Secretaria Nacional de Economia Solidária – SENAES), linked to the Ministry of Labor and Employment, was established in 2003 during the presidency of Luiz Inácio Lula da Silva as an institutional response to the demands of the Solidarity Economy Movement (SEM) and other actors in the associative field. For over a decade, SENAES played a strategic role in the formulation of public policies, the financing of self-managed enterprises, and the strengthening of networks such as the ITCPs (Incubadoras Tecnológicas de Cooperativas Populares). However, following the impeachment of President Dilma Rousseff in 2016, the Secretariat was progressively stripped of its mandate and deprioritized within the federal government's agenda. Under subsequent administrations, its responsibilities were absorbed by other governmental bodies without programmatic continuity, leading to a significant institutional setback for the solidarity economy in Brazil (SENAES, 2016; FAJARDO; MARTINS, 2016).

the past few decades—has been appropriated by multiple actors, from international agencies to transnational corporations, acquiring a polysemic character that often depoliticizes its content. Thus, while hegemonic discourses on sustainability emphasize technological development, energy efficiency, and corporate responsibility, solidarity economy and agroecological initiatives re-signify the term through a territorial praxis that integrates environmental justice, economic democracy, and the defense of the commons. Recognizing these tensions is essential to understanding the strategies of co-optation, resistance, and reinvention that unfold in the field of sustainability—particularly in contexts of the Global South, where alternative practices must navigate fragmented state structures and profoundly unequal markets (ACSELRAD, 2004; LAVOREL, 2021).

According to the Sustainable Development Index for Cities of the State of São Paulo (IDSC-SP)⁸, the city of São Carlos ranks 17th in the statewide classification. Developed in alignment with the United Nations 2030 Agenda, this index functions as a diagnostic tool aimed at evaluating the performance of municipalities across the state of São Paulo with respect to the 17 Sustainable Development Goals (SDGs). Through a methodology that integrates more than 100 indicators distributed across social, economic, environmental, and institutional dimensions, the IDSC makes it possible to identify specific strengths, weaknesses, and challenges for each locality within the state (IDSC-SP, 2023).

8 The IDSC-SP enables a range of analytical possibilities that include—but are not limited to—municipal boundaries. It is possible, for instance, to access data for each of the 645 municipalities in the state of São Paulo, as well as to define broader geographic groupings, such as metropolitan regions. Furthermore, the index allows for the aggregation and comparison of municipalities based on shared and specific characteristics that go beyond territorial or politico-administrative borders, including demographic, social, and environmental aspects, among others. The São Paulo Cities Index is the result of a collaborative initiative among various civil society organizations, coordinated by the Coletivo 660 with the support of Ação Educativa and the Instituto de Cidades Sustentáveis (ICS), as part of the project 'Innovation, Development and Resilience for Public Policies in São Paulo: A Roadmap for the 2020–2030 Challenges', led by the Secretariat for Economic Development, Science, Technology and Innovation of the State of São Paulo (SDECTI in Portuguese). The funding for this roadmap falls under Promotion Agreement CDRT No. 01/2020, Parliamentary Amendment No. 2020.49.17615 – Process 0134/2020, executed by Coletivo 660, represented by Ação Educativa, in partnership with SDECTI.

Figure 1: SDG Performance in the City of São Carlos (SP)



Source: IDSC-SP, 2023.

As observed in the most recent results of the index, São Carlos demonstrates particularly strong performance in areas such as access to safe drinking water and basic sanitation (SDG 6), the promotion of sustainable cities and communities (SDG 11), and its commitments related to climate action (SDG 13). The municipality also stands out for its adherence to public policies that encourage the use of clean and affordable energy (SDG 7), as well as for maintaining high levels of educational and technological coverage, in alignment with SDG 4 on quality education and SDG 9 on innovation and infrastructure. This statistical configuration suggests that, in comparative terms, São Carlos presents a relatively consolidated sustainability profile within the broader context of the state of São Paulo.

Although the notion of sustainability has been widely criticized for its discursive appropriation by corporate sectors and its reduction to frameworks of corporate responsibility, within various initiatives associated with the solidarity economy field, the term acquires alternative meanings. It is re-signified through territorially rooted agroecological practices oriented toward the reproduction of life rather than profit. In the city of São Carlos, rural settlements have played a strategic role in promoting such initiatives, consolidating themselves as spaces

of community articulation and generators of socio-environmental alternatives to the dominant model. Among these experiences are CooperVida, the Santa Helena and Nova São Carlos settlements, and the Capão das Antas encampment.

The Santa Helena settlement was officially established in 2005 as a Sustainable Development Project (Projeto de Desenvolvimento Sustentável – PDS), through organizational processes driven by the National Institute for Colonization and Agrarian Reform (Instituto Nacional de Colonização e Reforma Agrária – INCRA), in collaboration with rural families mobilized around land access. Since its inception, this settlement has adopted an agroecological production model focused on strengthening food sovereignty and environmental preservation. The resident families cultivate diversified crops without the use of agrochemicals, combining traditional knowledge with technical expertise provided by universities and social organizations. This initiative has received sustained support from NuMI-EcoSol and rural extension teams from the Federal University of São Carlos (UFSCar) since the mid-2000s, establishing itself as a local reference point for territorial practices within the solidarity economy (FERREIRA, 2014).

The Nova São Carlos settlement, for its part, was created in 2002 as part of a series of agrarian reform policies implemented during the early years of Luiz Inácio Lula da Silva's government. In its initial phase, dominant agricultural practices were conventional, based on monocultures and the use of chemical inputs. However, beginning in 2007, training processes promoted by the Landless Workers' Movement (Movimento dos Trabalhadores Rurais Sem Terra – MST), in partnership with INCRA, NuMI-EcoSol, and UFSCar extension teams, supported the transition toward agroecological systems. Since then, the settlement has made significant progress in crop diversification, the gradual reduction of agrochemical use, and the adoption of sustainable practices. Currently, several families actively participate in solidarity-based distribution networks and self-managed markets where they sell agroecological food products directly, without intermediaries (FERREIRA, 2014; INCRA, 2025).

The Capão das Antas encampment, which emerged in 2011 through the occupation of lands near an environmental protection area by landless families, constitutes an emblematic case of territorial resistance and socio-environmental innovation. Although it still lacks formal regularization by INCRA, its residents have developed, from the outset, environmentally respectful productive strategies grounded in agroecology, permaculture, and the rational use of natural resources. Over the past decade, the community has received support from organizations such as the non-governmental organization (NGO) Veracidade,

coordinated by activist and city councilor Djalma Nery, who has promoted an agenda focused on environmental justice and ecological economics (NERY, 2025). The actions carried out in Capão das Antas not only generate income through direct sales at solidarity markets but also promote environmental education, community participation, and territorial defense, challenging hegemonic narratives about development and land ownership.

Rural settlements in São Carlos are not only territories of struggle for land access, but also spaces for the construction of economic and ecological alternatives that reconfigure the relationships between society, nature, and the state. By linking sustainable production, self-management, and solidarity, these settlements actively contribute to redefining the meaning of sustainability from the perspective of the Global South, positioning themselves as collective subjects capable of influencing public policy and contesting dominant interpretations of the environmental question (SOUZA, 2000; NERY, 2025).

Although not all rural settlements in São Carlos are formally affiliated with the Landless Rural Workers' Movement (Movimento dos Trabalhadores Rurais Sem Terra – MST), they share a set of historical demands, particularly regarding access to land, the self-management of means of production, and environmental justice. In this sense, they represent territorial expressions of a broader struggle resisting the effects of agribusiness on agrarian structures, biodiversity, and peasant livelihoods. These communities—located in a mid-sized municipality such as São Carlos, which is profoundly shaped by the expansion of the agro-industrial model and a technoscientific rationality oriented toward entrepreneurial innovation—embody everyday forms of resistance that challenge prevailing notions of rural and peri-urban development and legitimate land use (CARVALHO, 2020).

In this context, the solidarity fairs of São Carlos operate not merely as alternative marketplaces, but as strategic socio-territorial devices that connect the agroecological practices of rural settlements with urban circuits of consumption. These fairs—such as EcoSol, the Praça XV Fair, and the organic market at Praça dos Voluntários—not only enable the circulation of goods without intermediaries, but also foster encounters between producers and consumers mediated by values of reciprocity, trust, and sustainability. As Nery (2022) notes, these spaces function as platforms for visibility and legitimation for popular actors who resist the logics of invisibilization imposed by the formal market.

These forms of articulation reveal the possibility of building short supply chains in which not only the final product matters, but also the social, environmental, and political conditions under which it was produced. The fairs make

visible the collective labor of the settlements and transform it into both economic and symbolic value, positioning the solidarity economy as a concrete practice of resistance to agribusiness. As Joelson Carvalho (2020) argues, these socio-territorial devices activate non-market relations that challenge the hierarchical mediations of capital and reaffirm the agency of community actors.

Nevertheless, it is important to note that the solidarity dimension of these experiences tends to be concentrated in the commercialization stage, while previous phases—such as production, transport, and distribution—continue to face challenges related to labor precarity and institutional asymmetries. While the fairs represent a prominent embodiment of the principles of the solidarity economy, it is conceivable to imagine an expansion of those principles across all phases of the productive circuit, through the articulation of mutual support networks, fair access to inputs, and mechanisms for the co-production of agro-ecological knowledge (NERY, 2022; CARVALHO, 2020).

Discussion

São Carlos: Technological Capital and Fragmented City

Based on the historical and institutional trajectory reconstructed in the previous section, this discussion offers a critical interpretation of the contemporary urban configuration of São Carlos. The analysis focuses on the tensions that emerge between the narrative of the smart city, the processes of socio-spatial segregation, and the symbolic configurations that legitimize a profoundly unequal urban model.

São Carlos has been officially recognized as the “National Capital of Technology,” a distinction grounded in its concentration of high-quality public universities, scientific research centers, and technology hubs. This designation, supported by objective indicators such as the high density of PhD holders per capita, has consolidated an image of modernity that positions the city as a strategic intermediate urban center within the national context (Prefeitura Municipal de São Carlos, 2022). However, this status also functions as a discursive device that naturalizes an exclusionary urban matrix, wherein disparities in access to basic goods and services persist as structural features of the territory.

As Fernández Güell (2015: 26) cautions, the smart city model tends to impose an instrumental rationality that “aims to address urban challenges through standardized technological solutions, without considering the social specificities of each territory.” In the case of São Carlos, this rationality is reflected in the coexistence of highly technologized circuits—such as those linked to

university-led innovation—with vast peripheral sectors that face precarious housing conditions, informal labor relations, and low public service coverage. The interviews conducted confirm this fragmented perception, frequently referring to a city divided into three: the university city, the wealthy city, and the working-class city.

Therefore, the image of São Carlos as a “technological capital” cannot be understood in a linear or homogeneous fashion. Rather, it must be situated within a matrix of historical tensions involving discourses of modernity, symbolic devices of legitimation, and persistent configurations of exclusion. Although this designation is supported by objective indicators of scientific output and technological density, it is also sustained by a narrative construction that obscures the profound inequalities that permeate the urban space. Thus, understanding the discursive configuration of this identity requires a simultaneous analysis of material processes of segregation, institutional forms of territorial valorization, and the power relations that shape the historical development of the city.

As Clark (2020: 14) argues, smart cities “are not merely a set of technological solutions, but political arrangements for organizing inequality in urban space.” In line with this perspective, São Carlos represents a form of technocratic urbanism that fosters competitiveness while relegating large segments of the population to the margins. This paradox—scientific advancement alongside structural exclusion—constitutes a key challenge for envisioning more inclusive models of urban development, in which technology is not merely a market-driven vector but also a tool for territorial justice.

Tensions in the SEM Associative Fabric

The SEM in São Carlos constitutes a singular experience within the field of organized popular economy, in which historical trajectories of collective organization, academic knowledge, public policy, and territorial practices converge. At the core of this articulation lies NuMI-EcoSol, a key actor in the consolidation of a socio-economic field of action that goes beyond the promotion of productive ventures, fostering instead an organizational fabric with territorial density and political legitimacy.

The notion of “associative fabric”, central to understanding this configuration, refers to a set of stable ties among diverse actors who, in contexts marked by inequality and fragmentation, manage to sustain forms of cooperation and collective action through a flexible, multi-scalar, and relational institutional framework. As formulated in previous research, this category denotes a matrix of

social relations that is not organized hierarchically, but rather in a networked manner, and whose strength lies in its ability to articulate heterogeneous actors, sustain partial consensuses, and project horizons of territorial transformation from below (BARRERA CALDERÓN, 2023).

The trajectory of NuMI-EcoSol exemplifies this approach. From its origin as a university-based incubator in 1998 to its institutionalization as an academic center, this space has woven together processes of training, territorial intervention, and the production of situated knowledge. Between 2007 and 2011, it focused on two territories—one urban and one rural—supporting self-managed initiatives, organizing solidarity fairs, and fostering intersectoral connections with municipal public policies. This relational dimension has been crucial to sustaining the movement across different political cycles and reconfiguring its alliances in response to changing conjunctures (FAJARDO; MARTINS, 2016; MOLINA; CORTEGOSO, 2015).

As members of NuMI-EcoSol affirm, this fabric is not reducible to a mere sum of actors or to an instrumental coalition; rather, it constitutes a form of insurgent institutionality whose efficacy depends not only on the construction of symbolic legitimacy, but also on the articulation of material resources, communication strategies, and organizational know-how (IS, personal communication, 2023, author's translation). This hybrid character—between academia and territory, between institutionality and self-management—enables the SEM to deploy a strategy of creative resistance in the face of exclusionary processes that shape the urban landscape.

In this sense, recognizing the historicity of this experience does not entail idealizing it, but rather understanding the conditions that made its emergence possible, as well as the limitations it faces in an adverse political scenario. The associative fabric of the SEM is not immune to the tensions between state recognition and organizational autonomy, nor to the internal conflicts arising from the heterogeneity of its actors. However, its capacity to endure, adapt, and reinvent itself amid cycles of institutional openness and regression reveals a political potential that transcends strictly economic dimensions and raises fundamental questions about possible forms of social organization in profoundly unequal urban contexts.

The Environmental Question Through a Solidarity Lens

In the current context of global ecological collapse—characterized by climate change, biodiversity loss, and territorial devastation driven by agribusiness

and other forms of accumulation by dispossession—a profound critique of the extractivist model underpinning capital expansion has gained traction. This critique has been formulated not only within various strands of political ecology but also through solidarity economy initiatives that propose alternative modes of production, distribution, and consumption. In both perspectives—though not equivalent—there is a shared questioning of the dominant economic paradigm, which externalizes environmental costs and perpetuates a logic of infinite accumulation on a planet with biophysical limits (LEFE, 2006; SOUZA, 2000; ACSELRAD, 2004; LAVOREL, 2021).

From this standpoint, the solidarity economy not only challenges market structures but also emerges as a socio-economic practice with ecosystemic potential, as it integrates cooperative labor, territorial rootedness, and community self-management. Within this framework, the environmental question is understood as a political dimension of development. As Acselrad (2004) has pointed out, the notion of sustainability has been progressively appropriated by various institutional and corporate actors, stripping it of its transformative content. This tension is clearly reflected in indicators such as the Índice de Desenvolvimento Sustentável de Cidades (IDSC), which—while useful—tend to obscure territorial inequalities and naturalize technocratic visions of sustainable development. Therefore, it is essential to contrast such frameworks with the practices and discourses emerging from popular actors.

In this context, the agroecological production developed in the rural settlements of Santa Helena, Nova São Carlos, and Capão das Antas can be interpreted as a political response to the hegemonic models of intensive agriculture. As Carvalho (2020) argues, agroecology as practiced by these groups cannot be reduced to a technical alternative; it constitutes a socio-political strategy for the reterritorialization of the peasantry and the reinvention of ties between community and nature. Along the same lines, Nery (2022) proposes framing these practices within a political ecology of conflict, as they challenge the private appropriation of land and the corporate discourse of sustainability promoted by the agribusiness sector in São Paulo.

These experiences are not limited to production; rather, they configure alternative circuits of commercialization and socialization, as exemplified by the solidarity fairs of São Carlos. In a landscape marked by social fragmentation and the commodification of social relations, these spaces function as arenas of encounter, care, and the circulation of knowledge, practices, and goods. Although they reproduce certain inequalities—such as the segmentation between popular producers and middle-class consumers—they open cracks within the

dominant social order. As Souza (2000) notes, these spaces reconfigure urban life by creating zones of coexistence shaped by an economy of care and by new articulations between rural production and urban consumption (FERREIRA, 2014; MST, 2025).

Within this network, NuMI-EcoSol occupies a strategic role as an institutional catalyst. Its trajectory has enabled it to consolidate itself as an actor that articulates the university, social movements, and public policies, operating on a hybrid plane that combines academic legitimacy with territorial anchorage. As part of the SEM, its members—often activists, technical advisors, and educators—embody a form of insurgent institutionality capable of contesting dominant meanings of sustainability, environmental justice, and possible development horizons within the territory of São Carlos.

Conclusions

This study offers a situated and relational understanding of the Solidarity Economy Movement in São Carlos, emphasizing the central role of the NuMI-EcoSol as an institutional and territorial articulator of the movement. NuMI's capacity to combine academic legitimacy, public intervention, and the collective construction of knowledge has been pivotal in consolidating a multi-scalar associative fabric that sustains solidarity-based practices, discursive disputes, and institutionalization strategies beyond partisan conjunctures.

Among its most significant contributions, the study conceptualizes solidarity economy as a territorial mediation device that enables the articulation of heterogeneous actors in an urban context marked by fragmentation. Solidarity fairs, agroecological circuits, and self-managed territorial experiences represent concrete forms of social fabric recomposition which, while not eliminating inequalities, challenge the exclusionary logic of dominant urban development. Moreover, the analysis of the environmental question from a situated perspective reveals how the SEM re-signifies the notion of sustainability in political terms, linking social justice, food sovereignty, and territorial rootedness.

Nevertheless, this research entails certain limitations that must be acknowledged. Firstly, although the analysis addresses class dimensions in the examination of territory and economic practices, it does not explicitly consider intersections with gender and race. This omission is not the result of a theoretical exclusion, but rather of the analytical boundaries adopted and the availability of sources. It is, however, recognized that such dimensions are fundamental for a more comprehensive reading of the solidarity economy field and represent

a relevant axis for future research that seeks to deepen the understanding of differential forms of participation, exclusion, and agency within the SEM.

In this regard, it would be especially fruitful to further explore the ongoing processes that are reshaping the solidarity economy in other medium-sized cities of the state of São Paulo, with the aim of understanding how collective experiences, institutional disputes, and territorial sustainability strategies are articulated in contexts marked by the expansion of agribusiness and the financialization of urban life. Rather than engaging in a formal comparison between incommensurable realities, the goal is to investigate how certain associative configurations—similar to those in São Carlos—challenge hegemonic meanings of development and experiment with alternative forms of economic organization, in which sustainability is not reduced to a technical criterion but is projected as a political horizon linked to the expanded reproduction of life and to socio-environmental justice.

References:

- ACSELRAD, Henri. *Discursos da sustentabilidade urbana*. Rio de Janeiro: Civilização Brasileira, 2004.
- ALVARADO-LÓPEZ, Rodrigo Antonio. Ciudades inteligentes y sostenibles: una medición a cinco ciudades de México. *Estudios Sociales: Revista de Alimentación Contemporánea y Desarrollo Regional*, v. 30, n. 55, p. 1–24, 2020.
- BARRERA CALDERÓN, Emanuel. *Asociativismo a la defensiva y a la ofensiva del capital. Análisis de algunas tensiones de los cooperativismos en Argentina*. In: BARRERA CALDERÓN, E.; MARTÍN, R. (Eds.). *Cooperativismo(s): abordajes interdisciplinarios y experiencias*. Buenos Aires: Teseo Press, 2023. p. 15–36. Disponible en: <https://www.teseopress.com/cooperativismos/chapter/asociativismo-a-la-defensiva-y-a-la-ofensiva-del-capital/>.
- BOURDIEU, Pierre. *O sentido prático*. 2. ed. Campinas, SP: Papirus, 2009.
- BRASIL. Lei nº 12.504, de 11 de outubro de 2011. Confere ao Município de São Carlos, no Estado de São Paulo, o título de Capital Nacional da Tecnologia. *Diário Oficial da União: seção 1*, Brasília, DF, p. 1, 13 out. 2011.
- CARVALHO, Joelson. A agroecologia como estratégia de resistência e reterritorialização camponesa: conflitos agrários e construção do conhecimento agroecológico. *Revista NERA, Presidente Prudente*, v. 23, n. 49, p. 88–111, 2020.
- DF. Personal communication with Emanuel Barrera Calderón. São Carlos: UFSCar, November 2023.
- DN. Personal communication with Emanuel Barrera Calderón. São Carlos: UFSCar, October 2023.

- FAJARDO, Renata de Cássia Alves; MARTINS, Gisele Ferreira. Economia Solidária e Política Pública: avanços e desafios da institucionalização no município de São Carlos/SP. *Mundo do Trabalho Contemporâneo*, v. 1, n. 1, 2016. Disponível em: <https://periodicos.unb.br/index.php/mtc/article/view/7248>. Acesso em: 6 jun. 2025.
- FERNÁNDEZ GÜELL, José Manuel. Ciudades inteligentes: la mitificación de las nuevas tecnologías como respuesta a los retos de las ciudades contemporáneas. *Economía Industrial*, n. 395, p. 17–28, 2015.
- FERREIRA, Luana. *Economia Solidária e Sustentabilidade: práticas agroecológicas em assentamentos da reforma agrária em São Carlos*. Dissertação (Mestrado em Sociologia) – Universidade Federal de São Carlos, São Carlos, 2014.
- FÓRUM BRASILEIRO DE SEGURANÇA PÚBLICA. *Anuário Brasileiro de Segurança Pública 2023*. São Paulo: FBSP, 2023. Disponível em: <https://forumseguranca.org.br/wp-content/uploads/2023/07/anuario-2023.pdf>. Acesso em: 6 jun. 2025.
- GEERTZ, Clifford. *A interpretação das culturas*. Rio de Janeiro: LTC, 1989. (Trad. da obra original: *The Interpretation of Cultures*, 1973).
- GÓNGORA, Gloria Pineda Martínez. Revisión de literatura sobre ciudades inteligentes: una perspectiva centrada en las TIC. *Ingeniare*, v. 19, p. 137–149, 2015.
- IBGE – Instituto Brasileiro de Geografia e Estatística. *Cidades: São Carlos*. Brasília, DF, 2023. Disponível em: <https://cidades.ibge.gov.br/brasil/sp/sao-carlos/panorama>. Acesso em: 6 jun. 2025.
- IDSC-SP. Índice de Desenvolvimento Sustentável das Cidades do Estado de São Paulo. São Paulo: Fundação Seade, 2023. Disponível em: <https://indicadores.sc.gov.br>. Acesso em: 6 jun. 2025.
- INCRA – Instituto Nacional de Colonização e Reforma Agrária. *Dados institucionais sobre assentamentos rurais de São Carlos*. Brasília, DF, 2025.
- IS. Personal communication with Emanuel Barrera Calderón. São Carlos: UFSCar, novembro 2023.
- LAVOREL, Gilberto. *Agroecologia e transição do sistema agroalimentar: confrontos entre sustentabilidade e reprodução social camponesa*. São Paulo: Outras Expressões, 2021.
- LEFF, Enrique. *Racionalidade ambiental: a reapropriação social da natureza*. 2. ed. São Paulo: Cortez, 2006.
- LINARES-GARCÍA, Julio; VÁSQUEZ-SANTOS, Karen. Ciudades inteligentes: ¿materialización de la sostenibilidad o estrategia económica del modelo neoliberal? *El Ágora USB*, v. 18, n. 2, p. 479–495, 2018.
- MARTÍNEZ, Alfredo Najjar; PORCELLI, Ana María. Estudio sobre la economía circular como una alternativa sustentable frente al ocaso de la economía tradicional (primera parte). *Lex: Revista de la Facultad de Derecho y Ciencia Política de la Universidad Alas Peruanas*, v. 16, n. 22, p. 301–334, 2018.

- MM. Personal communication with Emanuel Barrera Calderón. São Carlos: UFSCar, October 2023.
- MOLINA, Wagner; CORTEGOSO, Ana Luiza. Universidade e economia solidária: algumas considerações sobre processos de fomento e políticas públicas em economia solidária. *Revista de Extensão Universitária +E*, n. 5, p. 158–167, 2015.
- MOYA, Roberta Damasceno. *Limites à Economia Solidária: legitimidade e legalidade. O caso da Cooperativa Cooperlimp e seus impactos no desenvolvimento territorial*. Dissertação (Mestrado em Engenharia Urbana) – Universidade Federal de São Carlos, São Carlos, 2010.
- MST – Movimento dos Trabalhadores Rurais Sem Terra. *Assentamentos em São Carlos e experiências de agroecologia popular*. Brasília, DF: MST Nacional, 2025.
- NERY, Djalma. *Ecologia política dos assentamentos urbanos e rurais em São Carlos: práticas sustentáveis e disputas pelo território*. Entrevista pessoal. São Carlos: UFSCar, 2022–2025.
- NERY, Djalma. *Relatos e práticas sobre justiça ambiental e agricultura ecológica em São Carlos*. Entrevista e arquivos internos. São Carlos: ONG Veracidade, 2025.
- OLIVERA, Gabriela. Personal communication with Emanuel Barrera Calderón. São Carlos: UFSCar, 2023.
- PARQTEC – Parque de Alta Tecnologia de São Carlos. São Carlos, 2023. Disponível em: <http://www.parqtec.com.br>. Acesso em: 6 jun. 2025.
- PIKE, Kenneth L. *Language in relation to a unified theory of the structure of human behavior*. 2. ed. The Hague: Mouton, 1967.
- PRIORE LIMA, Magali. *A cidade e o campo: segregação socioespacial em São Carlos*. São Carlos: EdUFSCar, 2008.
- SÃO CARLOS. *Lei nº 15.196, de 16 de fevereiro de 2010*. Institui o Programa de Fomento à Economia Solidária do Município de São Carlos. Diário Oficial do Município, São Carlos, SP, 2010.
- SÃO CARLOS. *Símbolos cívicos*. São Carlos: Prefeitura Municipal, 2023a. Disponível em: <https://www.saocarlos.sp.gov.br/index.php/simbolos-civicos.html>. Acesso em: 6 jun. 2025.
- SÃO CARLOS. *Brasão do Município de São Carlos: história e simbologia*. São Carlos: Fundação Pró-Memória, 2023b. Disponível em: https://www.promemoria.saocarlos.sp.gov.br/acervo-files/historias-sc/brasao_saocarlos.pdf. Acesso em: 6 jun. 2025.
- SÃO CARLOS. *Calendário oficial de eventos*. São Carlos: Prefeitura Municipal, 2023c. Disponível em: <https://www.saocarlos.sp.gov.br/index.php/calendario-oficial>. Acesso em: 6 jun. 2025.
- SIKORA-FERNÁNDEZ, Dorota. Factores de desarrollo de las ciudades inteligentes. *Revista Universitaria de Geografía*, v. 26, n. 1, p. 135–152, 2017.

SOUZA, Marcelo Lopes de. *O desafio metropolitano: um estudo sobre a problemática sócio-espacial nas metrópoles brasileiras*. Rio de Janeiro: Bertrand Brasil, 2000.

TRUZZI, Oswaldo Mário Serra. *Café e indústria: São Carlos, 1850–1950*. 2. ed. São Carlos: EdUFSCar, 2000.

UFSCAR – Universidade Federal de São Carlos. São Carlos: UFSCar, 2023. Disponível em: <https://www.ufscar.br>. Acesso em: 6 jun. 2025.

USP – Universidade de São Paulo – Campus de São Carlos. São Carlos: USP, 2023. Disponível em: <https://www.saocarlos.usp.br>. Acesso em: 6 jun. 2025.

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