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RETHINKING SUSTAINABLE RURAL DEVELOPMENT: A THEORETICAL SYNTHESIS OF TERRITORY, SUSTAINABILITY, AND RESILIENCE

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Abstract

This study analyzes the theoretical and conceptual evolution of Sustainable Rural Development (SRD), identifying its constitutive dimensions and its reconfiguration in response to contemporary challenges. This qualitative, bibliographic, and theoretical-conceptual study is based on an interpretive synthesis of a purposively selected corpus according to criteria of relevance and theoretical diversity. The analysis identified four theoretical-conceptual movements: critical-multidimensional, agroecological, territorial-relational, and adaptive-resilient, demonstrating the expansion of SRD from approaches centered on economic growth and agricultural modernization toward a multidimensional, relational, and territorially situated conception. Five interdependent dimensions were identified: environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational. The study concludes that territory, sustainability, and resilience constitute articulating axes of contemporary SRD: territory contextualizes development relations, sustainability guides its objectives, and resilience incorporates capacities for response, learning, adaptation, and transformation in the face of risks and uncertainties. This synthesis updates the understanding of SRD in light of the growing socio-environmental and climate-related complexity of rural territories.

Keywords: Sustainable Rural Development; Territory; Sustainability; Resilience; Rurality.

1. Introduction

Rural development constitutes a field of inquiry marked by profound theoretical, political, and socio-environmental transformations (Almeida, 1995). During a significant portion of the twentieth century, prevailing conceptions of development

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Pages: 1-40

were associated with notions of progress, economic growth, productive modernization, and technological expansion, based on the assumption that societies considered less developed should follow trajectories similar to those of industrialized economies. In rural areas, this orientation materialized, among other aspects, in the intensification of production, agricultural specialization, and the increasing incorporation of technologies and inputs, consolidating a model in which development and economic growth were frequently treated as equivalent (Costabeber; Caporal, 2003).

The progressive recognition of the social and environmental limitations of this paradigm, however, contributed to questioning the linearity attributed to development and to the emergence of perspectives concerned with the relationships among society, the economy, and nature. In this process, sustainability came to occupy a central position in critiques of conventional models, broadening the understanding of development beyond economic growth. Almeida (1995) emphasizes that this shift entails recognizing different forms of social organization and distinct territorial demands, replacing the idea of a single development trajectory with the construction of alternatives capable of simultaneously addressing social and environmental crises.

In rural areas, this shift contributed to the construction of the concept of Sustainable Rural Development (SRD). Its emergence reflects an attempt to move beyond strictly productivist conceptions of development and to incorporate environmental, social, and cultural concerns into economic dynamics. The concept itself, however, did not develop consensually. Almeida (1995) identifies different interpretations of sustainability, ranging from perspectives linked to technological modernization to approaches that challenge the centrality of economic rationality and advocate forms of development that are socially just, economically viable, ecologically sustainable, and culturally acceptable. Along the same lines, Costabeber and Caporal (2003) distinguish between ecotechnocratic and ecosocial perspectives on sustainable development, demonstrating that different conceptions of sustainability also produce different responses to transformations in agriculture and rural areas.

This theoretical evolution also changed the understanding of the rural itself. Rather than conceiving it exclusively as a space devoted to agricultural production, contemporary approaches recognize rurality as an expression of the social, cultural, historical, productive, and environmental specificities that characterize ways of life and relationships established in rural areas. In this sense, the rural is integrated into broader societal transformations while retaining particularities related to identities, labor relations, family farming, and different forms of social reproduction (Wanderley, 2001). Territory, although related to rurality, constitutes a distinct

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analytical category: it is formed through relationships among actors, institutions, resources, knowledge, interests, and power relations that are established spatially and across different scales. Thus, while rurality enables an understanding of the specificities and ways of life associated with the rural, territory highlights the relational, political, and institutional processes through which these realities are appropriated, organized, contested, and transformed.

Consequently, understanding SRD requires recognizing that rural territories are shaped by multiple actors, interests, forms of knowledge, and relationships. Farmers, social organizations, public institutions, markets, universities, extension agents, and other actors do not merely respond to development policies and projects; they also participate in their interpretation, negotiation, and transformation. From this perspective, actor-oriented and sociotechnical network approaches make it possible to understand development as a relational process in which different forms of knowledge, experiences, and interests intersect and, at times, come into conflict, forming networks and producing distinct territorial trajectories (Alves, 2026).

Multidimensionality thus becomes a constitutive characteristic of Sustainable Rural Development. Economic and productive issues are articulated with natural resource conservation, social inclusion, participation, public policies, cultural diversity, and territorial specificities. This broader perspective also highlights the need to move beyond fragmented analyses that consider only isolated components of rural realities. Even the early formulations of the Brazilian debate on SRD addressed challenges such as integrating technical, environmental, and social issues, developing new forms of institutional action, articulating different disciplinary fields, constructing sustainability indicators, and strengthening the participation of rural actors in public policies (Almeida, 1995).

Based on this trajectory, this study advances the proposition that the contemporary understanding of SRD can be structured through the articulation of territory, sustainability, and resilience. Territory expresses the relational, social, political, and spatial basis upon which development processes are constructed; sustainability establishes the multidimensional orientation of these processes by articulating economic viability, social justice, and environmental conservation; and resilience adds the capacity to respond, adapt, and reorganize in the face of disturbances, risks, and uncertainties. The conceptual hypothesis guiding the analysis is therefore that these three axes do not constitute isolated categories but rather complementary components whose interaction provides a framework for interpreting recent reconfigurations of Sustainable Rural Development.

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In recent decades, however, this issue has become even more complex. Climate change, ecosystem degradation, transformations in agri-food systems, pressure on natural resources, and socioeconomic inequalities have imposed new demands on development strategies in rural territories. The climate crisis, in particular, intensifies vulnerabilities and highlights the need to relate sustainability, adaptation, and resilience, considering both the conditions that make certain groups and territories more susceptible to impacts and their capacities for response, learning, and reorganization in the face of change. In this context, production and environmental conservation need to be associated with social justice, participation, adaptive capacity, and the construction of territorially appropriate responses (Zonin et al., 2026).

These transformations have significantly broadened the contemporary SRD agenda. Topics such as climate change and socio-environmental resilience now coexist with family farming, agroecology, water, food security, bioeconomy, innovation, technology, and public policies, reinforcing the interdisciplinary and cross-cutting nature of the field (Zonin et al., 2026). Thus, sustainability and resilience cannot be understood as external dimensions merely added to rural development, but rather as components increasingly associated with the capacity of territories to reconcile social reproduction, economic dynamism, ecosystem conservation, and responses to socio-environmental change.

Against this background, Sustainable Rural Development cannot be regarded as a static or fully established concept. Its trajectory accompanies transformations in society and ruralities, incorporating new dimensions, actors, relationships, and issues. Although the literature has advanced the understanding of sustainability, territoriality, agroecology, participation, and public policies, it remains important to understand how these contributions are articulated with contemporary approaches to adaptation and resilience and the extent to which this convergence theoretically reconfigures SRD. This gap becomes particularly significant in light of intensifying climate change and the socio-environmental vulnerabilities affecting rural territories. In this context, the central research question guiding this study is: How has the concept of Sustainable Rural Development changed in response to theoretical shifts and the new socio-environmental, territorial, and climate-related challenges affecting rural areas?

Investigating this question makes it possible to understand not only the trajectory through which SRD has been constructed, but also the elements that currently redefine its assumptions and its potential for interpreting rural territories. The study is grounded in the understanding that territory, sustainability, and resilience constitute complementary analytical axes capable of highlighting interdependent

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relationships between society and nature, production and conservation, actors and institutions, and knowledge and public policies. Accordingly, this article aims to analyze the theoretical and conceptual evolution of Sustainable Rural Development, identifying its main constitutive dimensions and discussing its reconfiguration in response to contemporary socio-environmental, territorial, and climate-related challenges.

2. Methodological Procedures

This research is characterized as qualitative and bibliographic, with a theoretical-conceptual nature and an exploratory-analytical approach, aimed at understanding the transformations that have occurred in the concept of Sustainable Rural Development (SRD). Methodologically, it is configured as a theoretical-conceptual synthesis based on the purposive selection of literature and does not constitute a systematic, integrative, or bibliometric review. This approach was chosen because the study seeks to analyze the theoretical and conceptual evolution of SRD, identify its main constitutive dimensions, and discuss its reconfiguration in response to contemporary socio-environmental, territorial, and climate-related challenges. Bibliographic research was therefore employed as a means of bringing different perspectives and stages of the debate into dialogue, identifying convergences, divergences, complementarities, tensions, and conceptual shifts in the construction of the field.

Table 1 – Theoretical corpus of the research

Author(s)/year	Main focus	Predominant dimensions	Contribution to the analysis
Almeida (1995)	Progress and sustainability	Multidimensional	Transition from the progress paradigm to SRD.
Dominguez Garcia (2001)	Agroecological perspective	Environmental, economic, and social	Integrates agroecosystems, economy, and society.
Santos (2001)	Alternative rural development	Social, economic, and political-institutional	Articulates family farming, social justice, and participation.
Wanderley (2001)	Rurality	Social, cultural, and territorial	Understands the rural as a social and territorial space.
Costabeber and Caporal (2003)	Agroecology and SRD	Environmental, social, and economic	Provides the basis for the ecosocial perspective and agroecological transition.
Bianchini (2005)	Family farming and public policies	Economic, political, and territorial	Relates differentiated policies, family farming, and SRD.
Moreira and Carmo	Agroecology	Environmental, social,	Values agroecology,

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(2007)		and territorial	autonomy, participation, and local knowledge.
Veiga (2016)	Sustainable development	Multidimensional	Provides a basis for understanding sustainability beyond economic growth.
Dalbello *et al.* (2021)	Measurement of SRD	Environmental, social, and economic	Operationalizes SRD through indicators.
Borges *et al.* (2021)	Sociological perspective	Social, political, and territorial	Highlights public policies, management, and social relations in SRD.
Nepomoceno and Bastos (2021)	Technology and Agriculture 4.0	Economic, environmental, and political	Incorporates technological innovation and access to technologies.
Corrêa and Passini (2022)	Ecodevelopment	Multidimensional and territorial	Articulates the economy, social inclusion, and environmental conservation.
Soares *et al.* (2024)	Donna Haraway's perspective	Environmental, social, and relational	Extends SRD to relationships between humans and nonhumans.
Alves (2026)	Actors and sociotechnical networks	Territorial, social, and political	Incorporates agency, networks, discourses, and translation processes.
Fausto (2026)	Climate resilience	Environmental, social, and political	Articulates education, climate, food security, and resilience.
Weirich *et al.* (2026b)	Human Right to Adequate Food and food security	Social, political, and territorial	Articulates food security, rights, and the 2030 Agenda with SRD.
Zonin (2026)	Interdisciplinarity and SRD	Multidimensional and territorial	Integrates interdisciplinarity, territory, knowledge, and actors.
Zonin *et al.* (2026) – *Innovative Extension*	Extension and territory	Social, political, and territorial	Articulates knowledge, extension, participation, and territory.
Zonin *et al.* (2026) – *Climate Crisis*	SRD and the climate crisis	Environmental, social, political, and territorial	Incorporates climate, resilience, science, and governance into SRD.
Gonzalez *et al.* (2023)	Disasters and territorial resilience	Environmental, economic, political, and territorial	Relates climate risks, planning, and the construction of territorial resilience.
Gonzalez, Exime, and Pereira (2025)	Family farming and the climate crisis	Environmental, social, cultural, and territorial	Articulates climate vulnerability, local knowledge, family farming, and resilience.
Carniatto, Pereira, and Gonzalez (2025)	Climate Environmental Education and	Social, political, and territorial	Highlights the role of networks, education, and cooperation in building

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	networks		climate resilience.
Fausto *et al.* (2026)	Environmental Education and the 2030 Agenda	Social and political-institutional	Relates education, the SDGs, and the territorial appropriation of sustainability.

Source: Prepared by the Author (2026).

The bibliographic corpus consisted of 23 publications, including scientific articles, books, and book chapters published between 1995 and 2026. It was assembled through purposive selection, guided by the relevance of the works to the research question, the significance of their theoretical contributions, and the pursuit of diversity in perspectives, periods, and approaches related to SRD. The corpus included both formulations that contributed to the constitution of the field and contemporary approaches related to transformations in ruralities, climate change, and emerging demands for sustainability and resilience. The selection was not intended to be exhaustive or statistically representative of the literature on SRD; rather, it sought to achieve theoretical sufficiency for the proposed synthesis. The corpus was considered sufficient when the publications incorporated into the analysis predominantly began to reiterate previously identified conceptual categories and relationships without substantially altering the analytical structure developed.

The predominance of Brazilian and Latin American publications in the corpus is acknowledged, reflecting the theoretical scope of the study and its proximity to the SRD debate developed within these contexts. The corpus also includes studies originating from academic and institutional networks closely associated with the field under investigation. To reduce the risk of selection bias and theoretical circularity, the corpus sought to combine foundational and contemporary works, different publication periods, and perspectives related to rurality, agroecology, family farming, public policies, actors and networks, innovation, education, climate change, and resilience. Nevertheless, this composition limits the interpretive scope of the synthesis and is acknowledged as a limitation of the research.

The temporal delimitation from 1995 to 2026 resulted from the characteristics of the selected corpus itself. The starting point corresponds to Almeida's (1995) study, which problematizes the transition from the ideology of progress to the conception of sustainable rural development, while the subsequent period makes it possible to trace the diversification and expansion of the debate through contemporary formulations. Thus, the temporal scope was not intended to establish a linear or exhaustive history of the concept, but rather to serve as an analytical resource for identifying continuities, shifts, and the incorporation of new issues into the field of SRD.

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The inclusion criteria were as follows: a) studies presenting conceptual or theoretical discussions of rural development and Sustainable Rural Development; b) studies addressing the economic, social, environmental, territorial, cultural, or political-institutional dimensions of rural sustainability; c) publications addressing family farming, agroecology, rurality, public policies, innovation, education, networks, and social actors when directly related to SRD; and d) studies incorporating contemporary issues capable of contributing to the updating of the concept, particularly climate change, socio-environmental resilience, food security, technologies, and territorial transformations. Materials whose relationship with SRD was merely incidental or that did not provide a relevant contribution to the central research question were excluded from the analysis.

The analytical process was conducted in three complementary stages. In the first stage, an exploratory and comprehensive reading of the corpus was carried out to identify the context of each publication, its conception of development, the main concepts mobilized, and its contributions to understanding rurality and sustainability. A similar procedure has been employed in bibliographic analyses of SRD, in which exploratory reading precedes the identification and comparison of conceptual elements across studies.

In the second stage, thematic coding was performed, taking as units of analysis the concepts, propositions, and theoretical relationships present in the publications and relevant to the research question. The coding sought to identify recurrences, convergences, divergences, tensions, and conceptual shifts, thereby avoiding an exclusively chronological or descriptive organization of the literature. The content considered included, among other aspects, society–nature relations, production systems, family farming, agroecology, rurality, territory, social actors, institutions, public policies, knowledge, innovation, vulnerability, adaptation, and resilience.

In the third stage, the units of meaning were grouped into five analytical categories: i) environmental-ecological, encompassing content related to natural resource conservation, biodiversity, agroecology, climate change, and society–nature relations; ii) economic-productive, encompassing production, income, markets, family farming, diversification, innovation, and technology; iii) social-cultural, encompassing quality of life, equity, identities, knowledge and local knowledge systems, participation, and food security; iv) political-institutional, encompassing public policies, institutions, social organizations, institutional participation, and governance; and v) territorial-relational, encompassing territory, ruralities, actors, agency, networks, power relations, and linkages across different scales.

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The categories were not treated as mutually exclusive. The same unit of meaning or publication could be associated with more than one dimension when it contained multidimensional content. Classification was determined by the predominant relationship between the analyzed content and the operational definition of each category, while interfaces among the dimensions were preserved whenever necessary for interpreting SRD.

Table 2 – Thematic coding matrix of the dimensions of SRD

Analytical dimension	Coding criterion	Examples of units/concepts
Environmental-ecological	Relationships between development, ecological systems, and natural resources	Biodiversity; conservation; agroecology; climate change; water
Economic-productive	Economic and productive conditions for the reproduction of rural areas	Production; income; markets; diversification; innovation; technology
Social-cultural	Social, cultural, identity-related conditions and the reproduction of rural life	Equity; quality of life; local knowledge; food security; education
Political-institutional	Institutional, political, and organizational mediations of development	Public policies; institutions; governance; participation; 2030 Agenda
Territorial-relational	Spatially constructed relationships among actors, networks, scales, and power	Territory; rurality; actors; networks; agency; power relations

Source: Prepared by the Authors (2026).

These dimensions were conceived as interdependent analytical categories rather than isolated components of SRD. This orientation stems from the understanding that transformations in rural territories result from interactions among society, nature, production, institutions, public policies, culture, knowledge, and social actors, requiring interpretations capable of overcoming disciplinary fragmentation (Zonin, 2026).

Finally, a theoretical-interpretive synthesis of the identified contributions was conducted, comparing the formulations that marked the construction of Sustainable Rural Development with those incorporating contemporary issues. At this stage, particular attention was given to the emergence of resilience as an element associated with climate change and the new vulnerabilities of rural territories, as well as to the relationships among sustainability, territory, actors, knowledge, innovation, and governance. The analytical procedure did not seek to establish a hierarchy among the authors but rather to identify the specific and complementary

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Pages: 1-40

contribution of different perspectives to the conceptual reconstruction of SRD, adopting interpretive integration as a strategy for theoretical synthesis.

The thematic coding and interpretation of the corpus were conducted by the author. No independent coding procedure involving a second reviewer was employed, nor was an inter-rater agreement index calculated, given the theoretical-conceptual and interpretive nature of the investigation. To enhance analytical transparency and traceability, the corpus selection criteria, units of analysis, thematic categories, operational definitions, and classification rules were explicitly stated. The absence of independent validation of the coding is acknowledged as a methodological limitation and was considered when delimiting the scope of the interpretations presented.

Based on this methodological process, the analysis was guided by the following question: How has the concept of Sustainable Rural Development changed in response to theoretical shifts and the new socio-environmental, territorial, and climate-related challenges affecting rural areas? The final interpretation sought to reconstruct the main shifts identified in the corpus and, on this basis, develop an original theoretical-conceptual synthesis articulating territory, sustainability, and resilience as interdependent axes for the contemporary understanding of Sustainable Rural Development. The resulting synthesis is interpretive in nature and should be understood within the limits of the corpus and the analytical choices adopted.

3. THEORETICAL FRAMEWORK

3.1. FROM RURAL DEVELOPMENT TO SUSTAINABLE RURAL DEVELOPMENT

Understanding Sustainable Rural Development (SRD) requires considering the transformations that have occurred in the very conceptions of development and rurality. Throughout much of the twentieth century, development was associated with notions of progress, economic growth, industrialization, and modernization, presupposing a linear trajectory through which societies and sectors considered traditional were expected to incorporate the productive and technological patterns characteristic of industrialized economies. In rural areas, this conception found expression in agricultural modernization, primarily oriented toward increasing productivity, productive specialization, and the growing incorporation of technologies and external inputs (Almeida, 1995).

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Pages: 1-40

This association between development and economic progress, however, began to be questioned as its social and environmental limitations became increasingly evident. Growth in production and income alone proved insufficient to address inequality, poverty, social exclusion, and the degradation of natural resources. According to Santos (2001), development cannot be reduced to economic growth; rather, it must incorporate justice, social participation, and environmental preservation, with the improvement of living conditions and the exercise of citizenship as its guiding principles.

In rural contexts, this questioning acquired particular importance because of the contradictory consequences of agricultural modernization. Although technological development significantly increased agricultural productive capacity, the conventional model did not resolve problems related to food and social inequalities and, at the same time, intensified environmental impacts resulting from the use of natural resources. Simón Fernández and Dominguez Garcia (2001) argue, in this regard, that the economic, social, and ecological problems of the conventional model cannot be addressed separately, since the sustainability of rural systems depends on the integration of agrarian, socioeconomic, and ecological components.

The incorporation of sustainability into the rural development debate therefore represented more than the introduction of environmental concerns into growth strategies. It entailed reconsidering the very objectives of development, its subjects, its scales, and its relationships with nature. In this process, SRD came to express the search for forms of development capable of reconciling economic viability, environmental conservation, social equity, and improved living conditions for rural populations (Almeida, 1995; Costabeber; Caporal, 2003).

This shift also brought different interpretations of the meaning of sustainability into the debate. Costabeber and Caporal (2003) demonstrate that alternatives to the conventional model may follow distinct orientations. A predominantly ecotechnocratic perspective seeks to reconcile growth and conservation through technological adjustments and greater productive efficiency, whereas an ecosocial perspective presupposes broader transformations in the economic, social, environmental, cultural, and political relations associated with rural development. From the latter perspective, sustainability ceases to constitute merely a technical attribute of production systems and comes to encompass the relationships established between society and nature.

Agroecology occupies a relevant position in this conceptual shift. According to Costabeber and Caporal (2003), it provides principles and knowledge capable of guiding not only the management of sustainable agroecosystems but also broader

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Pages: 1-40

rural development processes. This approach articulates scientific knowledge with farmers' experiences and knowledge and understands the agroecological transition as a continuous process that simultaneously involves economic and productive rationality, biophysical conditions, changes in actors' attitudes, and natural resource conservation.

Moreira and Carmo (2007) further develop this perspective by positioning Agroecology as an alternative to the conventional logic of rural development. From this standpoint, sustainability does not result exclusively from replacing specific technologies or inputs, but from constructing productive and social relations based on autonomy, farmers' participation, the appreciation of local knowledge, diversification, and forms of production adapted to the socio-environmental conditions of territories.

Agroecology's contribution to SRD can also be related to building the resilience of rural systems, particularly when it promotes productive diversification, the appreciation of local knowledge, farmers' autonomy, and practices adapted to the socio-environmental conditions of territories. More diversified production systems and management processes grounded in local ecological specificities can expand the alternatives available in the face of environmental, economic, or climate-related disturbances. This relationship, however, should not be understood as automatic or deterministic. The response capacity of farmers and territories also depends on access to resources, public policies, infrastructure, markets, knowledge, cooperation networks, and socioeconomic conditions. Thus, Agroecology can contribute to building resilience when articulated with the other social, economic, political, and territorial dimensions of SRD.

At the same time, family farming has acquired increasing prominence in rural development debates. Santos (2001) identifies its strengthening as one of the pillars of an alternative SRD project, linking it to agrarian reform, social inclusion, employment and income generation, cooperation, and public policies. The author also incorporates into the debate issues related to gender and generational relations, social participation, food sovereignty, and the democratization of decision-making within family farming units. Family farming is therefore understood not merely as a productive category, but as a component of broader strategies for development and the social reproduction of territories.

The institutionalization of specific policies for this sector also represented an important change in the approach to rural development in Brazil. The recognition of family farmers as a specific social category and the creation of instruments such as the National Program for Strengthening Family Farming (Programa Nacional de

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Fortalecimento da Agricultura Familiar – PRONAF) in 1996 reflected changes in state action and policies directed toward rural areas. In this context, Bianchini (2005) emphasizes the need for differentiated policies capable of recognizing the specific characteristics of family farming and linking them to Sustainable Rural Development strategies.

The broadening of the rural development debate also demonstrates that sustainability cannot be dissociated from transformations involving the Agricultural Sciences themselves. In this regard, Zonin *et al.* (2017) articulate ethics, the environment, and rural development when discussing challenges related to agricultural and livestock production and their social and environmental interfaces. This perspective contributes to understanding SRD beyond productive efficiency, bringing it closer to a reflection on the socio-environmental responsibilities associated with production, scientific knowledge, and interventions carried out in rural areas.

The expansion of SRD, however, does not imply conflict-free convergence among its different objectives and perspectives. The distinction between ecotechnocratic and ecosocial orientations itself demonstrates that different conceptions of sustainability can produce divergent responses in rural territories (Costabeber; Caporal, 2003). The pursuit of greater productivity may create tensions with environmental conservation objectives; technological modernization processes may increase productive efficiency while also deepening dependencies and inequalities in access; market integration may generate economic opportunities while altering local forms of organization and autonomy; and certain conservation measures may impose costs that are unevenly distributed among territorial actors. SRD should therefore also be understood as a field of negotiation, conflict, and choice, in which benefits, costs, and capacities for participation are not distributed homogeneously among farmers, institutions, and other actors.

Thus, the constitution of SRD represents a progressive shift from a conception predominantly centered on production and agricultural modernization toward one that recognizes the interdependence of the economy, society, and nature. This shift, however, does not correspond to the linear replacement of one paradigm by another, but rather to the coexistence of perspectives, disputes, and different interpretations of sustainability and rural development. As the rural ceases to be understood exclusively as an agricultural space, rurality, territory, identity, institutions, networks, power relations, and interactions among actors acquire greater prominence in the interpretation of development processes. This broader perspective leads to the need for a more precise understanding of how rurality and

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territory, although related, represent distinct categories in the contemporary construction of SRD.

3.2. TERRITORY, RURALITY, AND THE MULTIDIMENSIONALITY OF SUSTAINABLE RURAL DEVELOPMENT

The broadening of the concept of Sustainable Rural Development is directly related to the transformation in the understanding of the rural itself. The perspective that identified rural areas almost exclusively with agricultural production became insufficient in light of their economic, social, and functional diversification. Contemporary rural areas encompass productive activities, social relations, ways of life, identities, cultural heritage, natural resources, institutions, and particular forms of interaction between society and nature.

Wanderley (2001) contributes to this interpretation by understanding Brazilian rurality through its historical, social, cultural, and ecological specificities. The rural remains integrated into broader societal transformations without this integration implying the disappearance of its particularities. From this perspective, family farming, ways of life, identities, labor relations, and forms of social reproduction constitute elements that express rurality. This interpretation moves away from the idea that modernization and urbanization would necessarily lead to the disappearance of the rural and makes it possible to recognize functions that extend beyond agricultural production, including those related to natural resources, biodiversity, and environmental quality.

Rurality and territory, however, are not equivalent categories. In this study, rurality refers to the characteristics, relationships, practices, identities, and ways of life that confer social, cultural, economic, and environmental specificity on the rural (Wanderley, 2001). Territory, in turn, is understood as a relational and historical construction produced through the interaction among actors, institutions, resources, knowledge, interests, and power relations within a given space and in articulation across different scales (Alves, 2026; Zonin, 2026). Thus, while rurality contributes to understanding the specificities and transformations of the rural, territory makes it possible to analyze how actors and institutions organize, appropriate, negotiate, contest, and transform these realities (Wanderley, 2001; Alves, 2026).

In this context, territory becomes a fundamental category for understanding SRD. The territorial perspective shifts the analysis from the isolated production unit to the relationships established among different actors, institutions, economic activities, natural resources, and development projects (Zonin, 2026). Territory does not constitute merely a spatial or administrative delimitation, but rather a socially constructed space in which interests, identities, knowledge, resources, and

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Pages: 1-40

strategies are continuously produced and negotiated (Wanderley, 2001; Alves, 2026). Because it involves different decision-making capacities, access to resources, and institutional influence, this construction is also shaped by power relations, cooperation, disputes, and conflicts that condition development trajectories and the distribution of their benefits and costs (Alves, 2026).

This shift helps explain why similar interventions may produce different outcomes across rural areas. Development processes are conditioned by the historical and socio-environmental characteristics of territories, the capacities of local actors, the presence of institutions, forms of collective organization, public policies, and connections established with markets and external scales. In this sense, SRD cannot be conceived as a universal model to be simply applied to territories, but rather as a process conditioned by the specificities and relationships existing within each context.

The territorial approach also broadens the multidimensionality of development. Territorial sustainability is not limited to the environmental dimension but presupposes the articulation of social inclusion, employment, inequality reduction, and economic conditions capable of ensuring the social reproduction of rural populations. This interpretation is consistent with the perspective of development associated with Sachs' contributions, according to which economic growth, social inclusion, and environmental conservation should be addressed in an integrated manner (Corrêa; Passini, 2022).

Consequently, SRD encompasses environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational dimensions, whose contents and relationships assume different configurations according to the characteristics of each territory (Corrêa; Passini, 2022; Zonin, 2026). These dimensions are analytically distinguishable but empirically interdependent: none of them, in isolation, is sufficient to explain the sustainability of rural development processes (Zonin, 2026). A multidimensional perspective therefore requires not only identifying different components but also understanding the mechanisms through which changes in one dimension produce effects on the others.

These interactions may occur through different pathways. Changes in production systems and the technologies employed may affect income, labor, and pressure on natural resources (Nepomoceno; Bastos, 2021); public policies and institutional capacities may expand or restrict access to resources, markets, knowledge, and adaptation strategies; environmental transformations may affect productivity, food security, and conditions of social reproduction; and networks, local knowledge, and forms of collective organization may influence both the adoption of productive

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

practices and the capacity to participate in territorial decision-making (Alves, 2026; Zonin, 2026). Relationships among the dimensions may also generate synergies or tensions, since an economically favorable outcome may entail environmental or social costs, while environmentally desirable measures may require economic resources, institutional capacities, and distributive mechanisms capable of enabling their adoption (Costabeber; Caporal, 2003; Corrêa; Passini, 2022).

This complexity also explains the increasing convergence between SRD and interdisciplinarity. Zonin (2026) argues that interpreting transformations in rural territories requires the integration of different fields of knowledge, since rurality, society–nature relations, Agroecology, participation, sustainability, and territorialization constitute interrelated aspects. From this perspective, interdisciplinarity does not consist merely of bringing disciplines together, but rather of constructing interpretations capable of establishing relationships among dimensions traditionally analyzed separately.

This territorial and multidimensional conception represents another relevant shift in the trajectory of SRD. While its initial formulation was strongly associated with the need to reconcile production, environmental conservation, and social justice, its evolution has increasingly recognized that these objectives materialize within historically constructed territories shaped by actors, institutions, knowledge, networks, power relations, and differing capacities for action. Territory thus assumes an articulating function: it is where the environmental-ecological, economic-productive, social-cultural, and political-institutional dimensions interact and produce different development trajectories. Accordingly, understanding SRD requires moving beyond the identification of its dimensions toward an analysis of who participates, who decides, what forms of knowledge are mobilized, how resources and capacities are distributed, and how cooperation, negotiation, and conflict condition the sustainability of rural territories.

3.3. AGROECOLOGY, SOCIAL ACTORS, AND THE TERRITORIAL CONSTRUCTION OF SUSTAINABILITY

Understanding SRD as a territorial process implies recognizing that sustainability is not produced exclusively by policies, technologies, or economic structures, but through the actions and interactions of different actors. Family farmers, communities, social organizations, cooperatives, public institutions, universities, extension agents, companies, and other actors participate in the construction of development strategies, mobilizing interests, knowledge, resources, and different interpretations of the territory (Alves, 2026; Zonin, 2026).

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

In this regard, family farming plays a relevant role not only because of its economic and productive dimension, but also because of its territorial embeddedness and its capacity to articulate forms of cooperation, associativism, food production, and social reproduction. Santos (2001) argues that strengthening family farming should be associated with public policies, infrastructure, technical assistance, productive diversification, and local initiatives, enabling it to contribute to decentralized and sustainability-oriented development.

Participation therefore constitutes a fundamental element of this construction. Development processes intended to respond to territorial characteristics depend on the capacity to incorporate local actors into the formulation, implementation, and evaluation of strategies. According to Santos (2001), community mobilization and the construction of alliances among social organizations, public institutions, universities, cooperatives, and associations constitute important conditions for the continuity of development initiatives.

Contemporary perspectives go further by recognizing that these actors are not merely recipients of policies or technologies. Alves (2026), by bringing actor-oriented approaches and Actor–Network Theory into the discussion of SRD, makes it possible to understand development as a relational process marked by interactions, negotiations, discourses, translations, and network formation. From this perspective, territorial transformations do not result simply from the application of previously defined models, but from interactions among different actors, forms of knowledge, resources, and interests.

Interaction among actors, however, does not imply convergence of interests. Territorial networks are also shaped by asymmetries in resources, capacities for influence, disputes, and power relations. Certain actors may have greater capacity to define problems, mobilize resources, and establish which alternatives are considered legitimate, while others face greater limitations in participating in decision-making processes (Alves, 2026). Thus, the territorial construction of sustainability simultaneously involves cooperation, negotiation, and conflict, making it necessary to consider not only the existence of participation but also the conditions under which different actors are able to influence development trajectories.

Rural sustainability thus comes to be understood as a social and territorial construction rather than merely a technical outcome. This conception reinforces the importance of dialogue between scientific knowledge and the knowledge developed by farmers themselves. From an agroecological perspective, farmers' knowledge and experiences are integral to the construction of sustainable alternatives, making

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Nexus Science Review
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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

the agroecological transition a simultaneously technical, social, cultural, and political process (Costabeber; Caporal, 2003).

Agroecology also has important interfaces with the capacity of rural systems to respond to change and disturbances. Productive diversification, the appreciation of local knowledge, the adaptation of practices to ecological conditions, and the reduction of certain external dependencies can broaden the alternatives available to farmers in the face of environmental, economic, or climate-related changes (Costabeber; Caporal, 2003; Moreira; Carmo, 2007). This contribution, however, does not imply an automatic relationship between Agroecology and resilience. Adaptive capacity also depends on socioeconomic conditions, access to resources, public policies, infrastructure, markets, cooperation networks, and institutional capacities. Agroecology should therefore be understood as one of the strategies that can contribute to building resilience when articulated with the other dimensions of SRD.

This movement also redefines the role of rural extension and universities. Bringing scientific knowledge closer to territorial experiences can foster participatory processes of learning, innovation, and the construction of context-specific solutions. In this way, teaching, research, and extension become instruments for articulating knowledge, institutions, and communities, helping ensure that territories themselves participate in producing responses to the problems that affect them (Zonin *et al*., 2026).

Innovation and technology are likewise part of this process of territorial construction. Digital technologies, information systems, new forms of management, and renewable energy sources can contribute to productive efficiency, access to information, reduced environmental impacts, and diversification of economic reproduction strategies in rural areas (Nepomoceno; Bastos, 2021; Nunes *et al*., 2023). Their effects on SRD, however, depend on the social and territorial conditions of access and appropriation. Economic inequalities, limitations in infrastructure and connectivity, difficulties in training, and dependence on external technologies and inputs may restrict their benefits or deepen asymmetries among farmers. Thus, innovation should not be regarded as sustainable merely because of its technological novelty, but rather according to the conditions under which it is socially accessible, economically viable, environmentally appropriate, and territorially suited.

Consequently, sustainability cannot be conceived as an end state or as a fixed set of practices regarded as sustainable. Rather, it is a process continuously constructed and reconstructed through relationships among actors, knowledge,

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

production systems, technologies, institutions, and nature. This processual condition becomes particularly relevant in the face of disturbances and uncertainties capable of altering the environmental, economic, and social conditions of territories. The intensification of climate change highlights this challenge and introduces into the SRD debate issues related to vulnerability, adaptation, resilience, and transformation—concepts that, although related, have distinct meanings and therefore need to be analytically differentiated.

3.4. CLIMATE CHANGE AND RESILIENCE: NEW CHALLENGES FOR SUSTAINABLE RURAL DEVELOPMENT

The intensification of climate change introduces new conditions for understanding Sustainable Rural Development. Changes in precipitation patterns, extreme events, pressures on water availability, and impacts on agricultural productivity directly affect rural territories, although their effects are unevenly distributed. Small-scale farmers, traditional communities, and socially vulnerable groups may have lower adaptive capacity, demonstrating that climate-related challenges also involve inequality and socio-environmental justice (Nepomoceno; Carniatto, 2023).

Understanding these implications requires distinguishing between related but non-equivalent concepts. Vulnerability refers to the conditions that make systems, groups, or territories susceptible to the adverse effects of climate change, whereas adaptation corresponds to processes of adjustment to observed or expected climatic conditions and their effects. Mitigation, in turn, addresses the causes of climate change, particularly through reducing greenhouse gas emissions or enhancing their sinks (IPCC, 2022).

Resilience has a distinct scope. In the field of social-ecological systems, it refers to the capacity to cope with disturbances and reorganize in response to change while maintaining essential functions, structures, and processes and, at the same time, retaining or developing capacities for adaptation and learning (Walker et al., 2004; Folke et al., 2010; IPCC, 2022). From this perspective, resilience does not merely mean returning to a condition that existed before a disturbance but involves capacities for adaptation and transformation. Adaptability refers to the capacity of actors to influence and adjust system trajectories, whereas transformation involves more profound changes in system characteristics when existing structures become unsustainable or incapable of responding to new conditions (Walker et al., 2004; Folke et al., 2010).

In this context, it is no longer sufficient for rural development to focus solely on reducing environmental impacts or conserving natural resources. Territories must also build capacities to anticipate risks, respond to disturbances, adapt practices

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

and institutions, learn from experience, and, when necessary, transform components of their social and productive systems (Walker et al., 2004; Folke et al., 2010; IPCC, 2022). Resilience therefore broadens the understanding of SRD by more explicitly incorporating territorial capacities for response, learning, adaptation, and transformation in the face of change and uncertainty.

These categories should also not be confused with sustainability. Within SRD, sustainability constitutes a multidimensional and long-term orientation related to the articulation of economic viability, social justice, and environmental conservation, whereas resilience emphasizes the capacity of territories to cope with disturbances, learn, adapt, and reorganize in the face of risks and uncertainties (Folke et al., 2010; IPCC, 2022). A resilient system, however, is not necessarily sustainable or socially desirable, since environmentally degrading or socially unequal structures may also demonstrate a capacity to persist. For this reason, incorporating resilience into SRD should be normatively linked to sustainability, social justice, and ecological integrity, thereby preventing the mere persistence of a particular structure from being interpreted as a positive outcome.

The climate crisis also demonstrates that exclusively technological responses are insufficient. Building resilience in rural territories requires combining innovation and scientific knowledge with public policies, social participation, education, local knowledge, ecosystem conservation, and socio-environmental justice (Zonin et al., 2026). Climate Environmental Education and networking can also contribute to articulating scientific and traditional knowledge, social actors, institutions, and collective strategies in response to climate risks (Carniatto; Pereira; Gonzalez, 2025). From this perspective, adaptation and resilience cease to be exclusively technical issues and instead encompass social, political, institutional, and territorial capacities.

Family farming particularly illustrates this interdependence. The effects of the climate crisis may affect planting and harvesting, productivity, soil conditions, income, and food security, while response strategies depend not only on farmers' individual decisions but also on knowledge, resources, public policies, and territorial conditions (Gonzalez; Exime; Pereira, 2025). Similarly, experiences with disasters demonstrate that reducing risks and losses requires territorial planning, preventive policies, and institutional capacities, reinforcing the relationship among vulnerability, adaptation, and resilience (Gonzalez et al., 2023).

Resilience also broadens the temporal dimension of SRD. In addition to responding to present needs and preserving conditions for future generations, it becomes necessary to consider the capacity of territories to cope with transformations whose

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

intensity, frequency, and consequences cannot always be anticipated. Diversified production systems, institutions capable of learning, social and organizational networks, adaptive policies, local knowledge, and participatory mechanisms can expand the range of alternatives available in the face of disturbances. These conditions, however, are unevenly distributed, which is why adaptive capacity cannot be dissociated from the socioeconomic and institutional conditions that characterize each territory.

From this perspective, climate change does not constitute merely a new environmental variable added to SRD. It simultaneously cuts across its environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational dimensions, affecting production, income, food security, natural resources, infrastructure, public policies, inequalities, and forms of social organization. Responses to climate change therefore depend on interactions among these dimensions and on the differentiated capacities of actors and institutions to mobilize resources, knowledge, and strategies.

This theoretical trajectory reveals an important transformation: Sustainable Rural Development shifts from a formulation initially oriented toward the critique of productivist modernization and the articulation of the economy, society, and the environment, through the incorporation of rurality, territory, Agroecology, actors, institutions, and knowledge, and ultimately toward contemporary concerns related to vulnerability, adaptation, resilience, and transformation. SRD can therefore be interpreted less as a fixed model and more as a territorial, multidimensional, and dynamic process that is continuously reconstructed in response to society–nature relations, existing conflicts and inequalities, and the transformations affecting rural territories.

4. Results and Discussion

The comparative analysis and thematic coding of the corpus demonstrated that Sustainable Rural Development is not a static concept, but rather a theoretical construct that has progressively expanded in response to the economic, social, environmental, and territorial transformations affecting rural areas. The interpretation of recurrences, convergences, shifts, and tensions across the analyzed publications made it possible to identify four theoretical-conceptual movements: critical-multidimensional, agroecological, territorial-relational, and adaptive-resilient, as well as five constitutive and interdependent dimensions of SRD: environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational.

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Nexus Science Review
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Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

The results do not indicate a linear succession of paradigms, but rather a process of theoretical accumulation, reinterpretation, and increasing complexity. Elements incorporated at different moments remain relevant, although they establish new relationships in response to emerging issues. Production and economic viability remain fundamental but are no longer sufficient criteria for development; environmental conservation remains central but becomes increasingly related to socio-environmental justice, vulnerability, and resilience; and territory ceases to function merely as a spatial reference and assumes an articulating role in the relationships among actors, institutions, resources, knowledge, production systems, and nature.

4.1. THE THEORETICAL-CONCEPTUAL EVOLUTION OF SUSTAINABLE RURAL DEVELOPMENT

The first trend identified in the corpus corresponds to the progressive overcoming of the equivalence between development, economic growth, and agricultural modernization. The earliest formulations analyzed are grounded precisely in the critique of the progress paradigm. Almeida (1995) questions the linearity of traditional conceptions of development and points to the emergence of perspectives capable of incorporating qualitative, social, and environmental dimensions.

Santos (2001) further develops this shift by arguing that development should incorporate, in addition to economic growth, justice, social participation, and environmental preservation, placing citizenship and quality of life among its objectives. The meaning of rural development thus begins to shift from a predominantly productive issue toward a social, political, and environmental concern.

Simón Fernández and Dominguez Garcia (2001) and Costabeber and Caporal (2003) introduce a second relevant movement: the convergence between SRD and Agroecology. The critique no longer focuses solely on the social outcomes of modernization but extends to the ecological foundations of production systems themselves. Rural sustainability comes to require the integration of agrarian, socioeconomic, and ecological components, countering the fragmentation of these elements.

In this context, Agroecology does not appear merely as a set of environmentally appropriate agricultural practices. It assumes a broader perspective by relating agroecosystem management, scientific knowledge, farmers' experiences, cultural dimensions, and social processes. The agroecological transition involves economic-productive and biophysical changes, as well as values and the relationships established by social actors with natural resources (Costabeber; Caporal, 2003;

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Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

Moreira; Carmo, 2007). The analysis of the corpus also makes it possible to relate this perspective to the development of adaptive capacities, insofar as productive diversification, local knowledge, and the adaptation of practices to ecological conditions can expand the alternatives available in the face of disturbances. This contribution, however, depends on the social, economic, and institutional conditions of territories and does not support an automatic association between Agroecology and resilience.

Family farming also emerges as a structuring component of this transformation. Santos (2001) associates its strengthening with social inclusion, employment and income generation, cooperation, food sovereignty, and public policies. The author further demonstrates that an SRD project requires articulation among different scales and actors and cannot be limited either to exclusively local initiatives or to general policies. Bianchini (2005), in turn, reinforces the need for differentiated policies addressing the specificities of family farming. This social dimension is also related to food security and the realization of the Human Right to Adequate Food, bringing rural production, sustainability, the guarantee of rights, and the commitments established by the 2030 Agenda into closer articulation (Weirich et al., 2026).

A third shift occurs as the literature broadens the understanding of the rural itself. Wanderley (2001) contributes to demonstrating that rurality encompasses historical, social, cultural, and ecological specificities and cannot be reduced to agricultural activity. Family farming, ways of life, identities, labor, and social reproduction thus come to be understood as interconnected components of rural territories.

A third identified shift corresponds to the territorialization of SRD. Development ceases to be interpreted solely through production units or economic sectors and begins to encompass the relationships established among actors, institutions, policies, natural resources, knowledge, and different spatial scales. Territory therefore acquires a broader analytical function: in addition to spatially situating rural activities, it makes it possible to understand the processes through which resources are mobilized, knowledge circulates, decisions are negotiated, and different actors influence development trajectories (Alves, 2026; Zonin, 2026).

The fourth movement identified, termed adaptive-resilient, results from the growing incorporation of climate change, socio-environmental vulnerabilities, innovation, and adaptive capacity into the rural development debate. Within this movement, sustainability is no longer examined solely in terms of maintaining particular economic, social, and environmental conditions but also incorporates the capacity of territories to respond, learn, adapt, and reorganize in the face of disturbances and

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Nexus Science Review
INTERNATIONAL JOURNAL OF INTERDISCIPLINARY RESEARCH

Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

uncertainties (Walker et al., 2004; Folke et al., 2010; IPCC, 2022). In the contemporary corpus, this expansion is particularly evident in discussions of family farming and the climate crisis, Climate Environmental Education, networks, risk reduction, and the development of territorial capacities (Gonzalez et al., 2023; Gonzalez; Exime; Pereira, 2025; Carniatto; Pereira; Gonzalez, 2025; Zonin et al., 2026).

This movement does not mean that resilience replaces sustainability. On the contrary, the analysis indicates a broadening of the theoretical problem: in addition to establishing conditions considered sustainable, it becomes necessary to understand how these conditions can be maintained, adapted, or transformed in response to change. At the same time, adaptive capacity is unevenly distributed among territories and actors, making vulnerability, access to resources, institutional capacities, and socio-environmental justice relevant components of this interpretation.

The more recent literature further expands this perspective. Alves (2026) shifts attention toward actors, agency, discourses, knowledge, networks, and translation processes, making it possible to interpret SRD as a relational construction. From this perspective, development is not simply produced by the state, the market, or particular technologies, but results from relationships and negotiations established among multiple actors.

Zonin (2026), in turn, synthesizes part of this increasing complexity by understanding SRD as a multidimensional, territorial, and interdisciplinary issue. Society, nature, production, institutions, public policies, culture, knowledge, and social actors emerge as inseparable dimensions of territorial transformations.

The temporal comparison of the corpus therefore makes it possible to systematize this transformation into four theoretical-conceptual movements, as shown in Table 2.

Table 2 – Theoretical-conceptual evolution of Sustainable Rural Development

Movement	Predominant emphasis	Conceptual expansion	Representative authors
Critical-multidimensional	Critique of progress and productivism	Economic → social + environmental	Almeida (1995); Santos (2001)
Agroecological	Sustainability of production systems	Production → agroecosystems + knowledge + family farming	Simón Fernández and Dominguez Garcia (2001); Costabeber and Caporal (2003); Moreira and Carmo (2007)
Territorial-	Rurality, territory,	Rural space →	Wanderley (2001); Bianchini

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Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

relational	actors, and institutions	socially constructed territory	(2005); Alves (2026); Zonin (2026)
Adaptive-resilient	Climate change, vulnerability, innovation, and adaptive capacity	Sustainability → adaptation + resilience + transformation	Gonzalez *et al.* (2023); Gonzalez, Exime, and Pereira (2025); Carniatto, Pereira, and Gonzalez (2025); Zonin *et al.* (2026)

Source: Prepared by the author (2026).

This systematization should be understood as an analytical construction derived from the comparison of the corpus rather than as a rigid historical periodization or universal classification of the SRD literature. The four movements coexist, overlap, and establish relationships of continuity and tension. The central outcome of this trajectory therefore lies less in the replacement of one approach by another than in the progressive expansion of the complexity attributed to rural development: from the critique of productivism and agricultural modernization toward an interpretation that incorporates social-ecological systems, family farming, rurality, territory, actors, institutions, knowledge, innovation, vulnerability, adaptation, and resilience. This evolution provides the basis for examining, in the following section, how these elements are organized within the five constitutive dimensions identified in the analysis of SRD.

4.2. THE CONSTITUTIVE DIMENSIONS OF SUSTAINABLE RURAL DEVELOPMENT

The second finding emerging from the analysis is that multidimensionality constitutes one of the most persistent elements of SRD. However, the corpus demonstrates that the meaning of this multidimensionality has also expanded. The classic articulation among the economy, society, and the environment remains necessary, but no longer appears sufficient to encompass the contemporary transformations of rural territories.

The thematic analysis made it possible to organize the contributions examined into five predominant dimensions: environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational. These categories do not represent independent elements, but rather dimensions that mutually condition one another.

The environmental-ecological dimension encompasses natural resource conservation, biodiversity, soil, water, agroecosystems, Agroecology, and society–nature relations. Its evolution within the corpus demonstrates an important shift: from concern with reducing the environmental impacts of agriculture toward a

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INTERNATIONAL JOURNAL OF INTERDISCIPLINARY RESEARCH

Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

broader understanding of social-ecological interdependencies. The agroecological literature illustrates this shift by relating environmental sustainability to economic, social, cultural, political, and ethical aspects.

The economic-productive dimension remains indispensable but is reinterpreted. Economic viability does not disappear from SRD; rather, it comes to be analyzed together with productive diversification, income generation, family farming, innovation, markets, and the sustainability of production systems. This means that increasing production does not, in itself, constitute an indicator of sustainable rural development.

Crisis situations also demonstrate the interdependence among the different dimensions of Sustainable Rural Development. In analyzing the effects of the COVID-19 pandemic on family farming, the environment, and the Brazilian economy, Nepomoceno (2021) introduces into the debate the need to consider the vulnerability of rural systems to external disturbances. This perspective reinforces an understanding of SRD in which production, socioeconomic conditions, and environmental issues must be analyzed jointly, particularly in contexts capable of compromising the continuity of productive activities and the social reproduction of family farming.

The incorporation of new technologies into rural areas constitutes another dimension of the contemporary reconfiguration of SRD. Nunes et al. (2023), in addressing photovoltaic energy as an instrument for fostering sustainable development in rural areas, introduce the energy issue into this debate. The adoption of renewable energy sources can, in this context, be understood as part of the transformation of rural production systems, articulating technological innovation, the use of energy resources, and sustainability. This approach broadens the economic-productive dimension of SRD by bringing it closer to the technological and environmental changes affecting rural properties.

The contribution of technological innovation to SRD, however, should not be assumed to be automatically positive. Its effects depend on territorial conditions of access, appropriation, and use of technologies, since economic inequalities, limitations in infrastructure and connectivity, difficulties in training, and dependence on external technologies or inputs may restrict their benefits or deepen asymmetries among farmers. Innovation therefore contributes to SRD when it is socially accessible, economically viable, environmentally appropriate, and compatible with the conditions and needs of territories (Nepomoceno; Bastos, 2021; Nunes et al., 2023).

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Nexus Science Review
INTERNATIONAL JOURNAL OF INTERDISCIPLINARY RESEARCH

Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

The social-cultural dimension encompasses quality of life, equity, citizenship, gender and generational relations, identities, local knowledge, food security, and social reproduction. Santos (2001), for example, associates rural development with the recognition of different social actors and the participation of women and young people in decision-making and development policies. This dimension demonstrates that development outcomes must also be assessed in terms of their social distribution and their capacity to ensure dignified conditions for remaining and sustaining life within territories.

The social dimension of Sustainable Rural Development is also directly related to ensuring food security and realizing the Human Right to Adequate Food (HRAF). From this perspective, Weirich et al. (2026b) emphasize that addressing hunger and food insecurity requires coordinated actions involving public policies, sustainability, and the commitments established by the 2030 Agenda. This approach broadens the understanding of SRD by demonstrating that the sustainability of rural territories should be assessed not only in terms of productive capacity or natural resource conservation, but also according to their contribution to food systems capable of ensuring regular and adequate access to food. Thus, rural production, food security, and the guarantee of rights constitute interdependent dimensions in the construction of socially inclusive and sustainable development processes.

The political-institutional dimension encompasses public policies, participation, social organizations, institutions, governance, and coordination capacity. The results demonstrate that SRD does not depend solely on farmers' individual choices. Its realization is conditioned by credit, technical assistance, rural extension, research, infrastructure, public policies, and spaces for participation. The articulation among social organizations, universities, cooperatives, associations, and public institutions itself emerges as an important component of development processes. This dimension therefore performs a mediating function among the others, since institutional capacities and public policies can expand or restrict opportunities for technology adoption, environmental conservation, income generation, social participation, and adaptation to climate change.

Another contemporary expansion of SRD concerns the role of education and institutions in building sustainability. Weirich et al. (2026) highlight the relationships among Environmental Education, Education for Sustainable Development, and the 2030 Agenda, assigning particular importance to universities in the institutionalization of sustainability. This perspective makes it possible to incorporate the formative dimension of development into SRD, since the transformation of territories depends not only on economic resources, technologies, or public policies,

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Nexus Science Review
INTERNATIONAL JOURNAL OF INTERDISCIPLINARY RESEARCH

Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

but also on the production and circulation of knowledge capable of strengthening sustainability-oriented practices and institutions.

The results of the corpus also indicate that education constitutes a cross-cutting element of the social-cultural and political-institutional dimensions of SRD. Fausto et al. (2026), in investigating teachers from the Paraná state public education system, found that 77% of participants were unaware of or had never heard of the SDGs, although content related to the 2030 Agenda was present in their teaching practices.

This finding reveals a gap between the existence of institutional sustainability frameworks and their appropriation by the actors responsible for operationalizing them within territories. From the perspective of SRD, this finding reinforces that policies, agendas, and normative instruments do not automatically produce transformations: their effectiveness depends on the training of actors, the circulation of knowledge, and the institutional capacity to translate global objectives into context-specific practices. Education therefore assumes a structuring role in building the social capacities required for sustainability and resilience (Fausto et al., 2026).

Finally, the territorial-relational dimension acts as an integrating element. Territory is the space in which the other dimensions converge and where actors, resources, knowledge, institutions, conflicts, and development projects establish relationships. It is precisely this dimension that makes it possible to move from a conception of sustainability composed of parallel components toward a relational understanding of SRD.

The relationship between sustainability and resilience becomes particularly evident when SRD is analyzed through the lens of family farming. Gonzalez, Exime, and Pereira (2025), in research conducted with family farmers in Western Paraná and Galicia, demonstrate that the effects of the climate crisis extend beyond the environmental dimension, affecting productivity, income, food security, and the living conditions of rural families. The findings therefore reinforce the interdependence of the constitutive dimensions of SRD: an environmental disturbance has repercussions for production systems, socioeconomic conditions, and the social reproduction of families, requiring equally multidimensional responses.

In this context, resilience is not limited to the incorporation of technologies or the technical capacity of production systems to recover. Gonzalez, Exime, and Pereira (2025) argue that addressing the climate crisis in family farming requires the integration of society and nature and consideration of ethical and political dimensions, while also emphasizing the articulation between traditional and

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INTERNATIONAL JOURNAL OF INTERDISCIPLINARY RESEARCH

Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

scientific knowledge. This contribution converges with the synthesis proposed in this study by demonstrating that the adaptive capacity of rural territories is also social, cultural, and relational. Local knowledge, identity, sense of belonging, collective organization, and educational processes therefore become part of the conditions through which territories construct responses to change.

The environmental-ecological dimension is also expressed through the formation of resilient networks connecting different actors and territorial scales. Carniatto, Pereira, and Gonzalez (2025) emphasize that research and Climate Environmental Education networks foster collaboration among social, academic, and political actors, the exchange of knowledge, and the construction of joint strategies in response to the climate emergency. From this perspective, the response capacity of territories does not derive exclusively from internally available resources, but also from relationships established with universities, organizations, public institutions, and knowledge networks. The authors emphasize that these articulations contribute to citizenship education, democratic practice, and the pursuit of resilience and sustainability at local and global scales. This finding reinforces the territorial-relational dimension identified in this study, as it demonstrates that contemporary SRD depends on the capacity to articulate actors, knowledge, and institutions across different scales.

The results therefore suggest that the contemporary multidimensionality of SRD can be represented not as the simple sum of independent dimensions, but as a system of relationships in which changes in one dimension can produce effects on the others. The environmental-ecological dimension conditions and is conditioned by production systems; these systems influence income, labor, and food security; public policies and institutional capacities affect access to resources, knowledge, technologies, and adaptation strategies; and actors, networks, and forms of collective organization influence how these relationships are constructed and transformed within territories. Territory, in this sense, constitutes the relational space in which these interdependencies materialize, while resilience emerges as a cross-cutting capacity constructed through the interaction among the different dimensions.

This interpretation is consistent with Zonin (2026), who argues that the analysis of SRD requires moving beyond fragmented approaches and recognizing the relationships among society, nature, production, institutions, policies, culture, knowledge, and actors.

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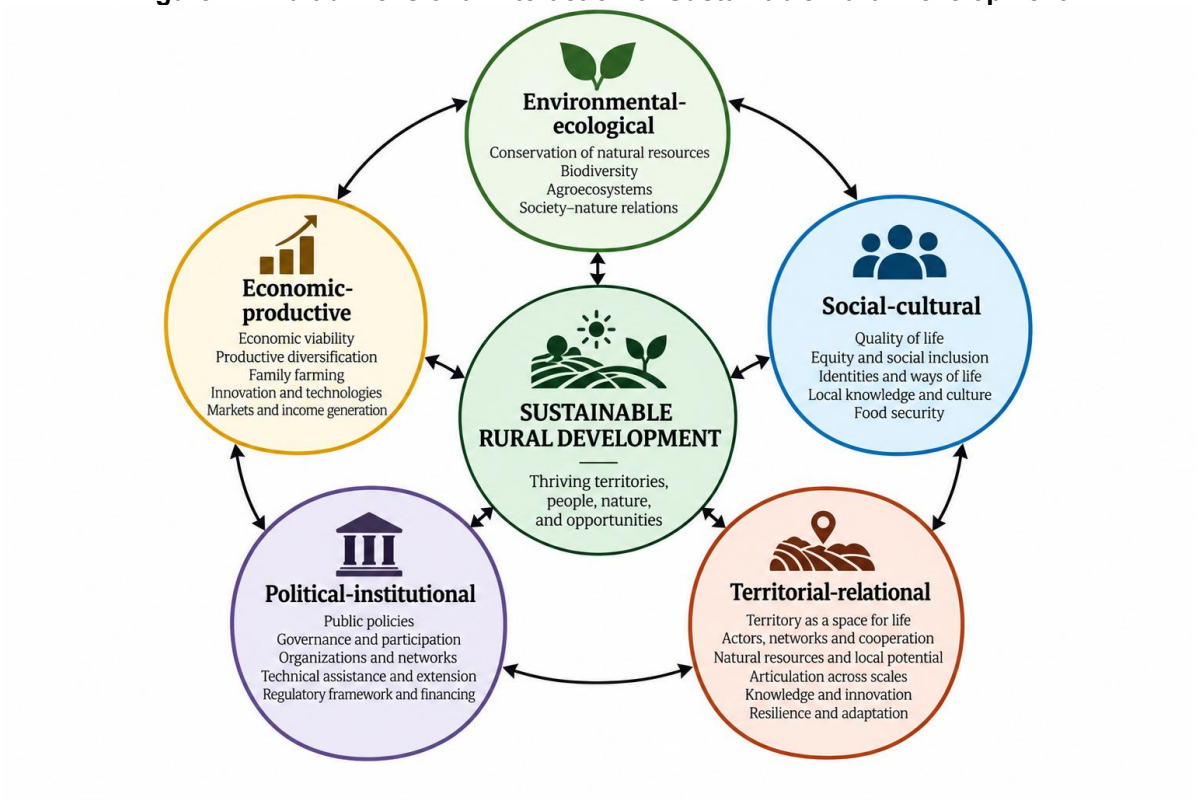
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

Figure 1 – Multidimensional Interaction of Sustainable Rural Development



Source: Prepared by the Author (2026).

The contemporary studies analyzed therefore make it possible to further develop the articulation among territory, sustainability, and resilience proposed in this study. Evidence concerning natural disasters demonstrates the need for planning and territorial adaptive capacity (Gonzalez *et al*., 2023); the experience of family farming shows that climate impacts simultaneously affect production, income, food security, the environment, and living conditions (Gonzalez; Exime; Pereira, 2025); Climate Environmental Education networks demonstrate the importance of relationships among knowledge, institutions, and collective action (Carniatto; Pereira; Gonzalez, 2025); and the gaps identified in the appropriation of the SDGs demonstrate that the realization of sustainability depends on the training and capacity of actors to translate global agendas into territorially grounded practices (Fausto *et al*., 2026).

Taken together, these findings support the understanding that resilience, within SRD, does not constitute an isolated dimension, but rather a cross-cutting capacity produced through the interaction among the environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational dimensions.

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

Its construction depends on the availability and distribution of resources, knowledge, networks, institutions, and capacities for action, meaning that different territories and social groups have unequal conditions for responding and adapting to disturbances. The analysis of the five dimensions therefore demonstrates that contemporary SRD does not result from the isolated maximization of each component, but from the quality of the relationships established among them and the territorial capacity to manage synergies, tensions, and trade-offs.

This interpretation leads to the theoretical-conceptual synthesis proposed in this study: territory, sustainability, and resilience do not represent competing categories, but rather articulating axes of contemporary SRD. Territory relationally organizes the different dimensions; sustainability guides the economic, social, and environmental objectives of development; and resilience expresses the capacity of territorial systems to respond, learn, adapt, and, when necessary, transform in the face of risks and uncertainties.

4.3. TERRITORY, SUSTAINABILITY, AND RESILIENCE: A CONTEMPORARY SYNTHESIS OF SRD

The main theoretical-conceptual synthesis resulting from the analysis lies in the understanding that territory, sustainability, and resilience do not constitute independent components, but rather articulating axes of contemporary Sustainable Rural Development. The contribution of this articulation lies in bringing together, within a single interpretive framework, the relational and situated dimension of development, its normative orientation, and its dynamic capacity to respond to change.

Territory corresponds to the relational space in which development is socially constructed. It is where actors, institutions, natural resources, production systems, knowledge, identities, policies, networks, and power relations interact (Wanderley, 2001; Alves, 2026; Zonin, 2026). Within this synthesis, territory addresses the questions “where, by whom, and through which relationships is SRD constructed?”, making it possible to understand that development trajectories result from territorially differentiated conditions and capacities.

Sustainability establishes the normative orientation of this process by articulating economic viability, environmental conservation, social equity, cultural diversity, and political-institutional conditions capable of sustaining the social and ecological reproduction of territories (Santos, 2001; Costabeber; Caporal, 2003; Corrêa; Passini, 2022). It therefore addresses the question “development toward what

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

ends?", defining the objectives and principles according to which territorial transformations can be assessed.

Resilience, in turn, incorporates the dynamic capacity of interconnected social, economic, and ecological systems to cope with disturbances, respond, and reorganize while preserving essential functions and developing capacities for learning, adaptation, and, when necessary, transformation (Walker et al., 2004; Folke et al., 2010; IPCC, 2022). In this sense, resilience does not merely involve returning to the conditions that existed before a disturbance, since certain structures may become inadequate or unsustainable under new conditions. Resilience thus addresses the question "how can territories respond, adapt, and transform in the face of change?"

The relationship among these three axes is complementary but not equivalent. Territory situates and connects development processes; sustainability establishes their multidimensional and normative orientation; and resilience makes it possible to understand capacities for response, learning, adaptation, and transformation in the face of risks and uncertainties. This distinction is particularly important because a system may demonstrate a capacity for persistence without necessarily being sustainable or socially desirable. Within SRD, resilience acquires meaning when articulated with social justice, economic viability, and ecological integrity, thereby preventing the mere persistence of unequal or environmentally degrading structures from being interpreted as a positive outcome.

Theoretical-conceptual proposition: Sustainable Rural Development can be understood as a territorial, multidimensional, participatory, and adaptive process constructed through the interaction among actors, institutions, knowledge, production systems, and nature, oriented toward economic viability, social justice, and environmental conservation, and capable of strengthening the resilience of territories in the face of change, risks, and uncertainties.

This formulation constitutes an original interpretive synthesis derived from the analysis of the corpus and does not correspond to a universal definition or one directly attributable to a single author. Its contribution lies in integrating the theoretical shifts identified in the literature: from production to multidimensionality; from space to territory; from beneficiaries to actors; from intervention to participation; from technology to the articulation of different forms of knowledge; from isolated conservation to society–nature relations; and from stability to adaptation, resilience, and the possibility of transformation.

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Received: 17/08/2026 - **Accepted:** 11/09/2026
Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

The relevance of incorporating resilience into SRD is also demonstrated by the contemporary studies analyzed. Gonzalez et al. (2023), in examining natural disasters that occurred in Marechal Cândido Rondon, Paraná, demonstrate that extreme events produce simultaneous economic, social, and environmental repercussions and that knowledge of risks is related to planning, public policies, and the construction of territorial resilience. This perspective converges with the international literature on social-ecological systems, according to which responses to disturbances involve capacities for adaptation, learning, and reorganization (Walker et al., 2004; Folke et al., 2010), as well as with the contemporary understanding of climate adaptation as a process conditioned by differentiated vulnerabilities and capacities (IPCC, 2022).

The proposed synthesis also makes it possible to recognize that these capacities are not equally distributed across territories or among the actors who constitute them. Economic resources, infrastructure, access to technologies and knowledge, public policies, social networks, and institutional capacities condition the possibilities for response and adaptation. Consequently, strengthening resilience within SRD does not merely mean increasing the technical capacity to cope with disturbances, but also reducing vulnerabilities and creating social, economic, environmental, and institutional conditions that enable territorially appropriate and socially just responses.

Table 3 – Contemporary Theoretical-Conceptual Synthesis of Sustainable Rural Development

Axis	Guiding question	Main elements	Function within SRD
Territory	Where, by whom, and through which relationships?	Actors, networks, institutions, identities, resources, knowledge, and power relations	Contextualizes and articulates development relationships
Sustainability	Development toward what ends?	Economic viability, social justice, environmental conservation, culture, and governance	Guides the objectives, principles, and criteria of development
Resilience	How to respond, adapt, and transform in the face of change?	Adaptation, learning, diversity, innovation, reorganization, and transformation	Strengthens response capacities in the face of risks, disturbances, and uncertainties

Source: Prepared by the authors (2026).

The synthesis demonstrates that contemporary SRD cannot be adequately understood from an exclusively productive, environmental, or territorial perspective. Its interpretation requires simultaneously recognizing the conditions that enable territories to produce and generate income, conserve resources and ecosystems, reduce inequalities, strengthen actors and institutions, and build capacities for

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

adaptation and transformation in response to contemporary changes. The relationship among territory, sustainability, and resilience thus provides an interpretive framework capable of articulating the five constitutive dimensions identified in the analysis.

This institutional function can also be observed in the trajectory of interdisciplinary programs specifically focused on rural development. In analyzing the 14-year trajectory of PPGDRS/UNIOESTE, Zonin, Weirich, and Hansel (2026) demonstrate the convergence among academic education, research, extension, sustainability, and the 2030 Agenda. This experience helps demonstrate that SRD is also constructed through institutions capable of articulating different scientific fields and establishing relationships between universities and territories, fostering the interdisciplinary production of knowledge directed toward contemporary socio-environmental challenges.

Accordingly, the question guiding this study can be answered by stating that the concept of Sustainable Rural Development has changed through a process of expansion, integration, and reinterpretation of its theoretical foundations. SRD has shifted from formulations predominantly critical of productivist modernization toward a multidimensional conception; incorporated rurality and territory as structuring categories; recognized the agency of actors, institutions, networks, and knowledge; and, in response to climate change and other contemporary disturbances, has increasingly required capacities for adaptation, learning, resilience, and transformation. This process does not represent the abandonment of earlier formulations, but rather their articulation within a more relational, dynamic, and territorially situated understanding of rural development.

6. Conclusion

This study analyzed the theoretical-conceptual evolution of Sustainable Rural Development (SRD), identifying its constitutive dimensions and discussing its reconfiguration in response to contemporary socio-environmental, territorial, and climate-related challenges. The analysis demonstrated that the concept has evolved through a process of theoretical expansion, integration, and reinterpretation, shifting from approaches predominantly centered on economic growth and agricultural modernization toward a multidimensional, relational, and territorially situated understanding.

In response to the research question, the findings indicate that this transformation did not occur through the linear replacement of earlier perspectives, but through the

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Vol: 01.04
DOI: 10.66104/p7r87111
Pages: 1-40

incorporation and reinterpretation of new components in response to changes affecting rural areas. Along this trajectory, four theoretical-conceptual movements were identified critical-multidimensional, agroecological, territorial-relational, and adaptive-resilient which reflect the progressive incorporation of sustainability, Agroecology, family farming, rurality, territory, actors, institutions, knowledge, innovation, adaptation, and resilience into the rural development debate.

The analysis also identified five constitutive and interdependent dimensions of SRD: environmental-ecological, economic-productive, social-cultural, political-institutional, and territorial-relational. Their interaction demonstrates that the sustainability of rural territories does not result from the isolated performance of any single dimension, but from the relationships established among production systems, natural resources, social conditions, institutions, policies, knowledge, technologies, and the capacities for action of different actors.

The main theoretical-conceptual contribution of this study lies in articulating territory, sustainability, and resilience as complementary axes for the contemporary understanding of SRD. Territory situates and articulates development processes; sustainability establishes their economic, social, and environmental orientation; and resilience incorporates capacities for response, learning, adaptation, and transformation in the face of risks and uncertainties. This articulation makes it possible to understand SRD as a territorial, multidimensional, participatory, and adaptive process constructed through the interaction among actors, institutions, knowledge, production systems, and nature, oriented toward economic viability, social justice, and environmental conservation, and capable of strengthening the resilience of territories.

It is therefore concluded that the contemporary reconfiguration of SRD results both from the expansion of the dimensions considered relevant to rural development and from the need to understand the relationships, tensions, and adaptive capacities that condition their articulation within territories. In the face of climate change and growing socio-environmental uncertainties, developing sustainably entails not only conserving resources, generating income, and promoting social justice, but also building territorial capacities to learn, adapt, and, when necessary, transform structures and practices. The proposed synthesis thus contributes to updating the debate on SRD and provides a conceptual framework that can be further developed and applied in future research across different rural contexts.

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Pages: 1-40

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Conflict of Interest

The author declares that there are no conflicts of interest related to the conduct, preparation, or publication of this study.

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Author Responsibility Statement

The author declares that they contributed substantially to the conception, design, execution, and interpretation of the study and assumes full responsibility for the content of the manuscript. The author approves the final version of the manuscript and agrees to its submission to the journal.

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