



## SUSTAINABLE REGIONAL DEVELOPMENT

## DESENVOLVIMENTO REGIONAL SUSTENTÁVEL

## DESARROLLO REGIONAL SOSTENIBLE

Jandir Ferrera de Lima<sup>1</sup>

### ABSTRACT

This paper is a reflection on the interaction between regional development and sustainable development, here called sustainable regional development. To meet the objective, the definition of sustainable development is presented and how it is limited by the growth of the regional economy; the relationship between sustainable regional development, local values and territorial perspective is discussed. The approach concludes that sustainable regional development must become a practice moving beyond simple discourse. For that, it needs to become a value of society and of the actors that govern the regions in its most different spheres.

**Keywords:** Territory. Sustainable development. Regional economy. Regional development.

### RESUMO

Esse texto é uma reflexão sobre a interação entre desenvolvimento regional e o desenvolvimento sustentável, aqui chamado de desenvolvimento regional sustentável. Para atender o objetivo, é apresentada a definição de desenvolvimento sustentável e como o mesmo é limitado pelo crescimento da economia regional; se discute a relação entre o desenvolvimento regional sustentável, os valores locais e a perspectiva territorial. A abordagem conclui que o desenvolvimento regional sustentável tem de se tornar uma prática avançando além do simples discurso. Para isso ele precisa se tornar um valor da sociedade e dos atores que governam as regiões nas suas mais diferentes esferas.

**Palavras-chave:** Território. Desenvolvimento sustentável. Economia regional. Desenvolvimento regional.

### RESUMEN

Este texto es una reflexión sobre la interacción entre desarrollo regional y desarrollo sostenible, aquí llamado desarrollo regional sostenible. Para cumplir con el objetivo, se presenta la definición de desarrollo sostenible y cómo se ve limitado por el crecimiento de la

---

<sup>1</sup>Ph.D. Professor do PGDRA e PGE da Universidade Estadual do Oeste do Paraná (UNIOESTE). Pesquisador do NDR/UNIOESTE, CNPQ, Fundação Araucária e CRDT/CANADA. Santa Catarina, Brasil. ORCID: <https://orcid.org/0000-0002-0359-0670>. E-mail: [jandir.lima@unioeste.br](mailto:jandir.lima@unioeste.br)

economía regional; Se discute la relación entre desarrollo regional sostenible, valores locales y prospectiva territorial. El enfoque concluye que el desarrollo regional sostenible debe convertirse en una práctica que vaya más allá del simple discurso. Para ello, necesita convertirse en un valor de la sociedad y de los actores que gobiernan las regiones en sus más diferentes ámbitos.

**Palabras clave:** Territorio. Desarrollo sostenible. Economía regional. Desarrollo regional.

**Como citar este artículo:** LIMA, Jandir Ferrera de. Desenvolvimento regional sustentável. **DRd - Desenvolvimento Regional em debate**, v. 11, p. 132-143, 29 jun. 2021. DOI: <https://doi.org/10.24302/drd.v11.3454>

**Artigo recebido em:** 11/12/2020

**Artigo aprovado em:** 01/06/2021

**Artigo publicado em:** 28/06/2021

## 1 INTRODUCTION

Reducing regional inequalities has posed a challenge for researchers and governments. Partly due to infrastructure megaprojects period, which seems to have diminished or frazzled. Hydroelectric and nuclear power plants, roads, and railways megaprojects encountered resistance from the population before a scenario of climate change, natural resources depletion, biodiversity loss, and phytosanitary effects. In face of the limited intervention by major infrastructure works to stimulate regional development, the alternative is the potential endogenous regional development. That is, the bottom-up development performed at the base, together with communities. This approach does not imply the abandonment of megaprojects, but rather a special look at regions potential and their ability to build new business without harming the environment and future generations.

The development debate, be it regional or sustainable, endogenous or exogenous, has always been based on three fields of discussion: development equivalent to economic growth; development as the capacity to meet human needs; and, development as environmental sustainability. The first three fields are complementary, as human needs are infinite and the productive structure must be able to provide the consumption pattern of society. However, this productive structure is limited by the finitude of resources and the availability of these resources also depends on the physical limits of each region. This also defines the potential of the regions (SANTOS et al., 2012).

Regions potential to build business and promote production depend on the use of local resources, tangible and intangible. In this sense, creative economy, solidarity economy, and social innovation are allies of a more sustainable regional development. Such development

must then combine: social changes, improving quality of life and human development; environmental changes, preserving natural resources and strengthening environmental education; and economic changes, inducing capital accumulation and investments in areas that harness territories potential without harming future generations.

Although technology has mitigated the environmental impact of some productive activities and improved some regions living conditions, local values still play an essential role in ensuring a more harmonious development between productivity gains and environmental conservation. Reflecting upon sustainable regional development implies reflecting upon a development rooted in human development and the guarantee that future generations will enjoy a dignified life. Considering that, this essay ponders on the interaction between regional and sustainable development, here called sustainable regional development. The essay points out elements to discuss this theme, little explored in theoretical studies, which focus exclusively on a development that combines the social, the environmental, the cultural and the economic in the face of regional limitations and borders.

This paper is divided into topics. At the next topic defines sustainable development and explains how it is limited by regional economy growth. This is not intended to be an economics-based approach, but we understand generating jobs and income as an important factor for maintaining population and its fixation within regions. Then, we will discuss the association between sustainable regional development, local values, and territorial perspective. Finally, some considerations will summarize this work and its reflection proposal. This is not intended to be a conclusive text, but a reflection grounded on literature review to foster a discussion about sustainable development and its association with regional development.

## **2 METHODOLOGICAL APPROACH**

To construct the reflection proposed in this paper, the methodology used was the bibliographic review, contextualizing the notes in a qualitative way, that is, it describes, comments and points out subjective elements. The reflection is also a simple model of sustainable regional growth based on the expansion of investment, consumption and the limitation of natural resources, based on the studies proposed in Jandir Ferrera de Lima (2002; 2018).

The description of the concepts and their consequences from the bibliographic review used the exploratory descriptive method. In this case, the references were aligned with the choice of theme and the researcher's arguments. And references are sought in scientific texts published in indexed journals or academic books that discuss the theme, but profiled with the proposed objective and the intended argument (SAMPIERI et al., 2013). As the texts used were chosen based on their alignment with the theme, the period and contemporaneity of the approaches are related to the elements of sustainable development and are the most current classic works or scientific productions.

As this approach is not an empirical study, the approach points out only the elements that it considers important to discuss sustainability in regional studies, among them the spatial

profile that is the region. In this case, the region is delimited by geographic, social and economic elements. These elements define a physical boundary, based on relief and hydrography; an economic frontier, based on the conditions of productive exploitation that the relief and hydrography give it; a social frontier, based on the ethnic profile of occupation in your area. These elements also allow describing the regional conjuncture, regardless of the political division (MARQUES; PIFFER, 2016; ALVES, 2016). From the elements cited, contextualization's, discussions, comments and references were made. That is, the logic of discourse is used to construct the argument.

### **3 SUSTAINABLE DEVELOPMENT AND REGIONAL ECONOMIC GROWTH**

According to the United Nations Environment Programme (UNEP) and the International Union for Conservation of Nature (IUCN), sustainable development is a development process that aims to "improve communities existence conditions, remaining within the limits of ecosystem burden capacity" (UNEP/WWF/IUCN, 1991, p. 09). That is, sustainable development is a transformation process that meets present generations' needs without compromising future generations' (ALVES; LIMA, 2007). As sustainable development, regional development is also a transformation process, but it conducts delayed regions into becoming advanced. Sustainable regional development emerges as a process that must modernize regions without harming future generations, which implies rational exploitation of natural resources, proper use of production factors, environmental preservation, and solidarity. The level and pace of socioeconomic growth and development must not harm the upcoming society, represented by future generations.

In modern societies, quality of life is associated with goods accumulation and the permanent need for economic growth. However, unlimited production is limited to production factors availability, purchasing power, and ecosystems burden capacity. Regions potential must be harness intertwined to creating productive structures capable of self-renewing, causing no permanent impacts or damage to long-term productive potential. That is, regional economic growth must sustain itself (FRITZ, 1997; PEDRÃO, 2011).

For illustrating such situation, regional economic growth is measured by regional gross domestic product (GDP) increase. Regional GDP is measured by all material goods produced within a region borders. Yet, non-material goods also influence GDP, such as: cultural heritage, human capital, and communities ability to associate and cooperate. In this example, consumption and investment are considered necessary for regional GDP increase. New goods and services are demanded and must be replaced in the regional production structure as they are consumed. Investment takes action if consumption expands, generating employment and a productive base and meeting the new level of regional population consumption. In turn, if consumption retracts, investment retreats due to regional market limitation. In addition to the limitations mentioned, there is also the population element: a growing population increasingly demands natural resources and, according to their energy consumption patterns, the pressure on the growth of the economy's product will be unsustainable (RIPPEL et al., 2003).

---

Growing consumption and investment are necessary for a regional GDP to increase. If

the regional market is limited, new markets must be sought in other regions, expanding interregional trade and economic export-base (PIFFER, 2012).

Considering that, regional economy growth and the strengthening of its sustainable development are limited by production factors availability (natural resources, labor, capital). The region requires a population growing at an appropriate pace but resetting generations over time, productive infrastructure and financial capital to meet demands, and abundant and affordable supplies of natural resources. However, this is a circular system. The lack of workforce to transform and consume natural resources, for example, compromises capital accumulation and investment.

In the case of the population, Rippel et al (2003) and Silva and Franz (2020) already call attention to the fact that demographic dynamics, especially in urban centers, are essential to reflect sustainable development. As regions are made up of agglomerations, namely urban centers, regional sustainability depends on the profile of capital accumulation that occurs in the city and its surroundings.

Capital accumulation is closely related to population consumption capacity and natural resources availability. Consumption demands employment, which generates enough income to maintain population living standards. Population and capital are expandable in regions stimulated by a business environment favorable to economic growth and development, but natural resources availability does not present the same growth potential and pace. Although some natural resources are renewable, their replacement may not be as fast as required or their quality may be questionable. A regional development productive dynamics unable to create a productive structure that conserves, recycles, or reuse resources, ends by restricting its long-term economic growth and development potential.

The regional development dynamics is limited by natural resources stocks and environmental services available to society. Natural resources stock comprises recyclable resources, which return to productive structure for new consumption, *in natura* renewable natural resources, whose supply varies according to exploitation and preservation pace, and non-renewable natural resources or at least whose replacement demands more time than the productive system waiting capacity, that is, its supply is constant. Thus, the ability to maintain the pace of regional economic growth depends on such growth and the ability to preserve natural resources or restore their losses. While human needs are unlimited (meaning unlimited consumption throughout individuals lives), natural resources show a negative slope before the rapid increase in demands for goods and services.

As natural resources recycling and reusing rate is very low in some societies, pressure on available natural resources varies according to each society local values and territorial prospective regarding how resources are exploited and how economic agents behave when faced by their depletion (LIMA, 2018).

Boudeville (1972, p. 229) and the Economic Commission for Latin America and the Caribbean (ECLAC) originally developed an alternative approach to the impact of environmental issues on regional economy expansion. For ECLAC (1980, p. 420-430), environment economic analysis is related to waste management and the impact on public expenditure. To measure this economic factor, GDP must be disaggregated, as shown in equation (01):

$$PIB = G + A \quad (01)$$

In which: "G" is the regional governance expenditure (government and organizations); and "A" the environmental services offered to society by natural resources, which are: life preservation on the planet; storage, dissemination, and absorption of productive and consumption waste; sources of raw materials for various procedures and investments, particularly industrial, as well as sources of nutrition and maintenance of living organisms. "A" comprises productive investments (I) and consumption (C), of internal goods and services or those stemming from outside the region, and resources stock. Thus, GDP directly depends on the variables "G" and "A". According to the illustration proposed by Boudeville (1972: 229) and ECLAC (1980: 420-430), consumption and investment are inextricable from the environment. Miranda et al (2017) make the same note. However, the authors point out that the economic viability and profitability of expenditures must observe the capacity of the environment to supply raw material, absorb waste and renew itself, maintaining an adequate management between production and return. Environmental services must be preserved, in a harmonious management between resources and the needs of the community.

"A" represents services offered by the environment to productive system and regional collectivities, but negative impacts on the environment caused by the living standards and productive system must be subtracted from the function. Equation (02) unfolds "A" to insert environmental impacts of the productive structure and human agglomerations, as those hinder ecosystem ability to offer environmental goods and services:

$$A = R^* - D \quad (02)$$

In which: "R\*" represents the available natural resources and "D" the amount of decayed or depleted natural resources, which reduce available environmental services.

Regional governance may take various actions that result in public expenditure to reduce "D" impact, such as actions of enforcement, acquisitions, preservation, recovery, and conservation. "T" represents governance structure available amount to recover and protect natural resources when environmental protection is ineffective. Consequently, it also represents the governance structure revenue loss – a loss of public revenue that could have been invested if natural resources were effectively and rationally preserved or conserved; and "G\*" represents taxes, fees, and contributions revenues:

$$G = G^* - T \quad (03)$$

Equations (01), (02), and (03) are transcribed according to (04):

$$GDP = (G^* - T) + (R^* - D) \quad (04)$$

$$GDP = (G^* + R^*) - (T + D) \quad (05)$$

In which:  $(T+D)$  represent the total cost of environmental impacts on regional society, which restricts regional economic growth and its sustainability. Ultimately, it represents the impact on the region sustainable development. From the reflection proposed by the mathematical illustration adapted from Boudeville (1972, p. 229) and ECLAC (1980, p. 420-430), for a society to promote a regional development more harmonious with the environment, it must evolve valuing long-term intangible elements of the territory. Two elements are key for sustainable regional development: local values and territorial perspective.

#### 4 SUSTAINABLE REGIONAL DEVELOPMENT

Although some believe that the market system is the perfect regulator of regional economies, society is regulated by social norms, political wills, cultural models, regulatory frameworks, and moral elements. That is, a set of intangible factors are regulated by organizations or unwritten rules that permeate civil society, limiting or stimulating both the market and sustainable regional development.

Regulation made exclusively by the market takes into account the price system. This means that the company will only be interested in preserving the environment and advancing an internal sustainability policy for its production structure if its way of producing pressures its costs, its prices and, consequently, its competitiveness. As the market and the region are part of the same space, that is, of the same regional reality, the interaction between both also defines the company's competitiveness. And the care that the company will or will not have with the environment also has one more variable: the perception of the local society about its activities. When the company's activities violate local values, expressed in individual and collective rights, then the synergy between civil society organizations can impose costs and losses of competitiveness on companies.

The production environment is then regulated by something superior to the price system: the local values that protect society's rights. For this reason, developing regions is much more than strengthening the regional economy, as developing implies guaranteeing individual and collective rights, in addition to stimulating cooperation and synergy between regional actors. As communities differ regarding their cultures and ways of life, actions for sustainable regional development must consider local values, power relations, institutionalized organization, feeling of belonging, and territorial features of sustainable regional development (LACOUR, 1992; LA FONTAINE, 1995; LIMA, 2002; HADDAD, 2009).

When reflecting upon development territoriality, one must observe it endogenously. That is, observing internal transformations in regions, stimulated by local society actions. These actions stimulate and strengthen regional potentialities in creating or increasing productive structure and social interaction and improving living conditions. Some potentialities, as natural resources, are inherent to regions; others, as the way natural resources are used, are inherited with the process of historical territory formation. This is represented in habits, folklore, and architecture. The way through which natural resources and potentialities are harnessed or built and how results of this harness are distributed among population

depends on local values, which also indicates whether regional development is inclusive and sustainable.

Yet, potentialities are not limited to natural resources. The collective environment stimulates a visionary and innovative entrepreneurship, capable of creating different forms of productive activities within regions. Tacit knowledge is an inducer of innovation and visionary entrepreneurship. It is related to individuals life experience and practices and differs from region to region, sometimes not being reproduced in other regions. The world view, tacit knowledge, and folklore of a regional society, among others, shape the local values that differentiate them from other societies in the ability to innovate and develop. Whereas in some regions preserving or conserving natural resources is non-negotiable, in others this is merely a material means of survival.

Using local values to build or harness potentialities is an ongoing debate within the so-called creative economy. Creative economy values tacit knowledge and certain potentialities intangibility and immateriality. It employs individuals or collectives creativity and imagination to exploit natural, cultural, and territorial heritage in a sustainable way. It also values individual and community uniqueness and differentials that permeate the local culture, such as crafts, cuisine, folklore, musicality, paintings, clothing, and its natural heritage, such as landscape, flora, fauna, and its characteristics (KHUN; LIMA, 2014).

The creative economy concept shows that improving sustainable regional development by local values requires human development to be strengthened. That means to increase investments in environmental education and improve living conditions, which would stimulate collective learning and a sustainability mindset. Local values become important not only for preserving natural resources, but also for the capability of building alternatives for sustainable regional development.

Another important aspect of local values is the social capital – capacity for collective organization, associativism, and openness to different cultures. Some regions, even without sociocultural diversity, fail in presenting elements of social cohesion to obtain collective results. For regions to be developed while preserving the environment by local values, different actors involved in the process must dialogue, and development actions impacts must be clear. Considering that, actions for regional development should be implemented in harmony with communities to avoid socioeconomic and environmental imbalances.

## **5 TERRITORIAL PROSPECTIVE IN SUSTAINABLE REGIONAL DEVELOPMENT**

Achieving a world with better quality of life indicators and fewer social problems, where industrial and agricultural production structure conserves the ecosystem and employment and investment level, requires a sustainable development policy focused on equating the rational use of natural resources with society future vision. Thus, territorial prospective plays an important role in the process of sustainable regional development for establishing parameters for the desired future and its possibilities. It mobilizes forecasting actions to select priorities and possible future scenarios, as well as obstacles to be overcome (LACOUR, 1992).



From such perspective, actions that impact the environment and have economic value for agents should have a social benefit higher than their social cost, including their harm to future generations well-being and communities desired future. The prospective anticipates and provides ways to build the desired future, favoring quantitative and qualitative dimensions complementarity to reduce uncertainties in environmental impacts (STAFFORD; SARRAZIN, 2000; PELLIN, 2019).

Territorial prospective must consider some elements for sustainable regional development: temporal issue, ecosystems burden capacity, regional geographic space, and regional governance.

Temporality implies replacing the short- by long-term horizon, as the effects of waste, pollution, and man's impact on the environment last many years. Such prospective delimits time and space within its prognosis, as cumulative effects of problems arise over time, producing ruptures that lead to new dynamics and problems. Analyzing long historical series and projecting impacts for long periods provide trends that can be applied into eliminating turbulences and understanding studied systems dynamics (JOUVENEL, 1999).

Temporal issue generates the idea of permanent change within regions and the environment. Thus, using time as a variable means including in the analysis the mobility of people, resources, production factors, biodiversity, and political elements. Structures, ways of thinking, and institutional logics are rather rigid, so changes and operations within them demand time. This denotes the need to consider scales and temporalities (LACOUR, 1992).

Ecosystems burden capacity is directly associated with the concept of sustainable regional development. That happens because non-recyclable waste accumulation and pollution have different impacts on production, employment, and income. The previous topic on regional economic growth exemplified such claim.

Besides time horizon and ecosystem burden capacity, regional geographic space also serves as reference. It entails a region physical (relief, hydrography, climate), biological (fauna and flora), and socio-territorial elements (human being organization and occupation). For connecting natural environment, human groupings, and governance area, the region comprises a privileged place of interventions. Considering that, the regional scope is susceptible to territorial prospective, particularly peripheral regions rich in natural resources (GAGNON; FORTIN, 1999). This does not preclude the prospect of using the prospective approach in the urban space, as an entity in which different aspects of productive transformation occur and is pressured by human agglomeration (SILVA; FRANZ, 2020).

The elements that have been presented are measurable. In this case, methodologies for monitoring, monitoring and efficiency in the use of natural resources can be developed. In addition to these elements, Passos and Pires (2008) also draw attention to the level of “disturbance”. That is, the level of disturbances natural or human defines the profile and concept of agrosystems. Likewise, the level of “disturbance” is also one of the elements that can be measured and assessed. It is up to regional governance and even ecosystem governance to define the parameters that will be the object of evaluation and intervention. In this case, governance has a strategic role in managing the development process.

The governance should stimulate actions in which local actors feature and promote regional development. As those actors get to experience regions and feel that they belong,

their desire to leave a legacy and a healthy habitat for their descendants strengthens their interest in the development sustainability. As an element to understand society evolutionary trend, the interest in territorial perspective works as a tool for regional planning. The quality of regional organizations and institutions management over natural resources and productive structure is proportional to the amount of environmental elements incorporated by territorial prospective.

## **6 FINAL CONSIDERATIONS**

This paper reflected the call for a sustainable regional development grounded on regional economy growth, local values, and territorial perspective. To construct this reflection, a bibliographic review was used and a simple model of sustainable regional growth based on increasing investment and consumption, and limiting natural resources. Then, we presented the two main elements of sustainable regional development: local values and territorial perspective.

Although this reflection intrinsically reinforces productive structure role, the regional development, as an element that provides peripheral regions modernization and advancement, goes far beyond. Regional development entails tangible and intangible resources that grants regional communities the capacity of cooperating, associating, and taking entrepreneurial and creative actions for their development. That is, very specific values associated to local communities strengthen them as development actors.

Building a dynamic productive base is pointless if it does not strengthen human development and natural resources preservation. Preserving natural resources entails worrying about future generations and how they will enjoy natural heritage and the benefits of development. By enjoying we understand that societies must equally and responsibly appreciate the environment, in a relationship of synergy and respect.

The modern world, in which unlimited consumption meets limited resources, demands increasing creativity to combine environmental preservation actions with the need to generate material living conditions in the form of employment and income. Such challenges require actions for sustainable regional development that employ local values and territorial perspective as elements of governance, solidarity, and innovation.

Beyond a discourse, sustainable regional development must become a practice, and for this to happen, it must become a value for society and regional governor actors from its most varied spheres.

## **ACKNOWLEDGEMENTS**

Thanks to the support of the National Council for Scientific and Technological Development (CNPQ) and the Araucaria Foundation (FAAP-PR).

## REFERENCES

- ALVES, L. Região, urbanização e polarização In: PIACENTI, C.; FERRERA DE LIMA, J.; EBERHARDT, P. H. (orgs.). **Economia & desenvolvimento regional**. Foz do Iguaçu: Editora Parque Itaipu, p. 41-52, 2016.
- ALVES, L.; LIMA, J. F. Desenvolvimento sustentável: elementos conceituais e apontamentos para reflexão. **Revista Integração Ensino-Pesquisa-Extensão**, v. 13, n. 50, p. 241-248, 2007.
- BOUDEVILLE, J. R. **Aménagement du territoire et polarisation**. Paris: Éditions M.-Th. Génin, 1972.
- CEPAL (Comisión Económica para América Latina y el Caribe). **Agua, desarrollo y medio ambiente en America Latina**. Santiago de Chile: CEPAL, 1980.
- FRITZ, J-C. Le développement durable: la recherche d'autres logiques? In: APOSTOLIDIS C., FRITZ, G.; FRITZ, J-C. (org.) **L'Humanité face à la mondialisation: Droits des peuples et environnement**. Montréal : L'Harmattan, 1997, p.187-208.
- GAGNON, C.; FORTIN, M-J. La gouvernance environnementale locale: où est le timonier ? **Revue Économie et Solidarités**, v. 30, n. 02, p. 94-111, 1999.
- HADDAD, P. Capitais intangíveis e desenvolvimento regional. **Revista de Economia**, v. 3, n. 03, p. 119-146, 2009.
- JOUVENEL, H. La démarche prospective, un bref guide méthodologique. **Revue Futuribles**, n. 247, p. 06-21, 1999.
- KUHN, S. L.; LIMA, J. F. Os gargalos e desafios da economia criativa nos municípios periféricos do Oeste do Paraná. **Orbis Latina**, v.4, n. 01, p. 153-170, 2014.
- LA FONTAINE, D. Trois prismes du développement et leurs orientations normatives: pour une éthique de l'accompagnement. In: DUFOUR, J; PROULX, M-U; KLEIN, J. (org.) **L'Éthique du développement**. Chicoutimi: GRIR/UQAC, 1995, p. 93-131.
- LACOUR, C. Pour une planification écologique stratégique: l'éco -aménagement des territoires. **Revue d'Économie Régionale et Urbaine**, n. 03, p. 477-501, 1992.
- LIMA, J. F. Les limites et le potentiel du développement durable. **Revista Interfaces Brasil/Canadá**, v. 1, n. 2, p.187-196, 2002.
- LIMA, J. F. Política de desenvolvimento sustentável: elementos para reflexão. In: SERPE, B. M.; DA SILVA, L. M. (orgs.) **Desenvolvimento, gênero e pobreza**. Ponta Grossa: EdUEPG, 2018, p. 17-36.
- MIRANDA, R. L.; SANTOS, G. F.; MARTINS, E. M.; ALBERTO JR., C. Sistema sócio ecológico e ambientalismo no contexto empresarial. **Desenvolvimento Regional em Debate**, v. 7, n. 2, p. 188-205, 2017.

OLIVEIRA, N. M.; PIFFER, M. Conjuntura do desenvolvimento regional dos municípios do estado do Tocantins. **Desenvolvimento Regional em Debate**, v. 6, n. 03, p. 32-61, 2016.

PASSOS, H. D.; PIRES, M. M. Indicadores ambientais para a avaliação de agroecossistemas. **Informe Gepec**, v. 12, n. 01, p. 01-15, 2008.

PEDRÃO, F. C. Sistemas regionais (in) sustentáveis. **Informe Gepec**, v. 15, n. 02, p.06-17, 2011.

PELLIN, V. Desenvolvimento territorial sustentável: a experiência do mapa no estímulo às indicações geográficas em Santa Catarina. **Informe Gepec**, v. 23, n. 01, p. 74-92, 2019.

PIFFER, M. Indicadores de base econômica. In: PIACENTI, C.; LIMA, J. F. **Análise regional: indicadores e metodologias**. Curitiba: Camões, 2012, p. 50-63.

PNUMA/WWF/UICN. **Sauver la planète: stratégie pour l'avenir de la vie**. New York: Éditions de l'ONU, 1991.

RIPPEL, R.; RIPPEL, V. L.; LIMA, J. F. As inter-relações da energia com os padrões de consumo e de sustentabilidade dos recursos ambientais. **Informe Gepec**, v. 07, n. 01, p. 54-62, 2003.

SAMPIERI, R. H.; COLLADO, C. F.; BAPTISTA L., M. P. **Metodologia de pesquisa**. 5.ed. Porto Alegre: Penso, 2013.

SANTOS, E. L.; BRAGA, V.; SANTOS, R. S.; BRAGA, A. M. Desenvolvimento: um conceito multidimensional. **Desenvolvimento Regional em Debate**, v. 02, n. 01, p. 44-61, 2012.

SILVA, C. L.; FRANZ, N. M. Análise de *brandings* urbanos contemporâneos na ótica da sustentabilidade: abordagens centrais, potencialidades e limitações. **Desenvolvimento Regional em Debate**, v. 23, n. 01, p. 60-89, 2020.

STAFFORD, J.; SARRAZIN, B. **La prévision –prospective en gestion**. Québec: PUQ, 2000.