

POLICY AND DEVELOPMENT IN THE LEGAL AMAZON: ANALYSIS OF INDICATORS USING THE BAROMETER OF SUSTAINABILITY

POLÍTICA E DESENVOLVIMENTO NA AMAZÔNIA LEGAL: ANÁLISE DE INDICADORES USANDO O BARÔMETRO DE SUSTENTABILIDADE

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ABSTRACT

This study aims to analyze regional development indicators using the barometer of sustainability and the impacts of public policies in the counties of the Legal Amazon. Based on the precepts of the Institutional Theory, Public Policies, Municipalism and Sustainable Regional Development, this research analyzes the characteristics of the 771 counties of the Legal Amazon from 26 indicators incorporated into a Sustainability Barometer composed of 9 themes. It compares them starting with the data obtained from counties, the public policies that most impact Sustainable Development in the Amazon Region. In order to allow managers and policy makers to act, as a priority, to more effectively achieve the Millennium Goals in the Legal Amazon. As a result, it was observed that the policies involving the themes of education, income, sanitary treatment and waste treatment are fundamental to increase the region to the required level of sustainability. However, the results also indicate low efficiency of human and environmental wellness in the Legal Amazon, which makes it possible to observe the contribution to the increase of knowledge over the subject, taken into account the methodology developed and the results set forth, without running out the possibilities of further researches.

Keywords: Sustainable Development. Public Policies. Legal Amazon. Barometer of Sustainability.

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RESUMO

Este estudo tem como objetivo analisar indicadores de desenvolvimento regional, utilizando o barômetro da sustentabilidade, e os impactos das políticas públicas nos municípios da Amazônia Legal. Baseada nos preceitos da Teoria Institucional, de Políticas Públicas e do Municipalismo e Desenvolvimento Regional Sustentável, esta pesquisa analisa as características dos 771 municípios da Amazônia Legal a partir de 26 indicadores incorporados a um Barômetro de Sustentabilidade, composto por 9 temas. A partir dos dados obtidos sobre os municípios, são comparadas as políticas públicas que mais impactam o Desenvolvimento Sustentável na Região Amazônica para permitir que gerentes e formuladores de políticas ajam, tendo como prioridade, alcançar de maneira mais eficaz os Objetivos do Milênio na Amazônia Legal. Como resultado, observou-se que as políticas que envolvem os temas educação, renda, saneamento e tratamento de resíduos são fundamentais para elevar a região ao nível de sustentabilidade exigido. Porém, os resultados também indicam baixa eficiência do bem-estar humano e ambiental na Amazônia Legal, o que possibilita observar a contribuição para o aumento do conhecimento sobre o assunto, levando em consideração a metodologia desenvolvida e os resultados apresentados, sem esgotar-se as possibilidades de novas pesquisas.

Palavras-chave: Desenvolvimento Sustentável. Políticas Públicas. Amazonia Legal. Barometro da Sustentabilidade.

1 INTRODUCTION

The Amazon Region and industrial development are part of a dilemma between scientific and technological progress and the expansion of pauperization, ecological disasters and threats to the ozone layer, ensuring global concerns (CAMPOS, 2009). In economic and social terms, the Legal Amazon faces low levels of Human Development Index [HDI] (Legal Amazon - 0.683, Southeast - 0.754, South - 0.756) (UNDP, 2013) and Gross Nacional Product (Brazilian Institute of Geography and Statistics [IBGE], 2013), when compared to the most developed regions of the country. Overall, the last two decades have seen an improvement on environmental conservation. Some indicators have pointed to a decrease in deforestation, with a consistent reduction of -3.5% per year, from 1988 to 2013 (FERREIRA; COELHO, 2015) - even though recent political changes in the country showed a spike in deforestation. However, other indicators should be taken into account to provide a complete chart of the region's environmental and social wellness.

This scenario raises a few questions. If the region is rich in natural resources and biodiversity, why does it have so many economic, social and environmental development problems? It may be a simple question, but much effort is needed to understand, diagnose and propose solutions that can be adopted in the medium and long term to reconcile the willingness to provide improvements in the living conditions of the Amazon population with the preservation of the environment and the culture. Sustainable Development contains two essential elements: the sense of "necessity", especially the essential needs of a human being, which must receive overall priority; and the notion of the limits that the stage of technology and social organization appoint on the environment, preventing it from attending present and future needs. The term is clearly filled with values, in which there is a strong link between the principles, ethics, beliefs and values that form a society or community and its conception of sustainability (BENETTI, 2006).

The theme Sustainable Development is today widely discussed in the society, among scientists, technicians, politicians, entrepreneurs and NGOs. As a new interpretation began to emerge according to the expectations and interests of many social actors, an important impression was caused on the current thinking of development: economical, social, environmental, cultural, political, scientific, technological, legal, as examples (Martins, 2001).

Sustainable Development is already normalized as a goal to be followed by national and transnational organizations, ranging from the United Nations [UN], through developed and developing countries, besides subnational governments, corporations and NGOs.

This study aims to analyze the regional development indicators using the barometer of sustainability and the impacts of public policies in the counties of the Legal Amazon. This paper analyzes the characteristics of the 771 counties of the Legal Amazon using 26 incorporated indicators in the barometer of sustainability, composed of 9 themes. It considers that the public policies are relevant in identifying and meeting the demands of the population by those who are nearest to the local context. Those whom will be the main ones affected by the decisions that, in its turn, will involve their culture and the environment in which they live and in their labor relations, citizenship, homes and quality of life in the future.

We base our analysis through the lenses of the institutional theory, public policy, municipalism and sustainable regional development.

2 THEORETICAL REFERENCE

2.1 INSTITUTIONAL THEORY

Societies have many institutionalized rules that provide a framework pattern of formal organizations as stated by Meyer and Rowan (1977). For DiMaggio and Powell (1983) the institutional structuring process consists of four elements, to (1) increase the amplitude of the interaction between organizations in the field; (2) the emergence of clearly defined structures of domination and patterns of interorganizational alliances; (3) increasing the amount of information in the limit that the organizations must deal with; (4) developing mutual awareness among participants in a group of organizations that are involved in a common business.

Different organizations, when dealing with the same domain of business, or in a particular field, by the state or professional categories, make powerful forces emerge. Through the dispersal of knowledge, norms and behaviors, they begin to operate in a similar fashion. Due to the increasing innovation, they reach an injunction farther than the permits that is adopted to provide instead of improving the achievement (MEYER; ROWAN, 1977).

Strategies that are rational for individual organizations may not be if adopted by a large number of them. The concept behind this process of homogenization is defined as isomorphism (HAWLEY, 1968). Isomorphism is a constraint process that forces one unit in a population to resemble other units that face the same set of environmental conditions.

For Meyer (1979) and for DiMaggio and Powell (1983) there are three mechanisms through which institutional isomorphic changes occur, each with its own antecedents.

1. Coercive isomorphism – comes from political, legislative, and legitimacy influences. As a result of pressure, the invitation to participate, as an information force is an invitation to join, as dependent companies and dependent on the culture of society. Factors such as horizontal precursors, eg.

2. Mimetic isomorphism – comes from standardized responses to questions. It occurs because organizational technologies are insufficiently understood, goals are not clear, or the environment creates symbolic doubts, so other organizations begin to serve as a reference. Organizations tend to model after other organizations that are perceived to be more legitimate or successful. Organizations pattern themselves, following other organizations, not purposely – through transferences or employee turnover – or specifically – through consulting firms, organizations and industry associations;

3. Normative isomorphism – comes from professionalization – collective struggle of members who advocate a position to define the conditions and methods of their work to establish a cognitive basis and legitimation for the autonomy of their profession. The legitimacy of a cognitive base produced by university experts and the increase and development of professional networks – which pass through organizations and over new models spread rapidly – are two important sources of normative isomorphism. The support of formal education and legitimacy on a cognitive basis produced by university experts and the growth and networking of professionals pass beyond organizations and through the new models are rapidly disseminated. These are important sources of professional isomorphism.

The ideas of the new institutions and new policy instruments, according to Dagnino and Thomas (2009), are an experience so called transfer and model adjustment of organizational patterns and isomorphism, due to the lack of contextualization of the leadership. They also point out that decontextualization is approached in two ways: as an anachronism by a delayed transference that generates a time lag or as a problem in the context of the theory generated by an inadequate banishment of experiences occurred in different contexts. Resulting in the identity of the transferred or copy of the element ceases by its absence in the comparable operations, and is replaced by a series of processes of the creation of elements that only by the abstract way they can identify each other, revealing that the new institution is identical to the original or imitated only in the minds of policy makers, that is the elected representatives or those who analyze their results.

This is an important point in this research, since the theme sustainable development is already widespread and institutionalized in the multilateral relations that Brazil is a sponsor, as well as established through goals with the United Nations [UN]. Observing the performance of public policy results may clarify the presence of isomorphism and efficiency of practices, as expressed by Dagnino and Thomas (2009).

Thus, the need for a more detailed comprehension of the commitment of public policy in social, economic and environmental development. It is also worth noting that isomorphism is not the only factor that leads to inefficiency of public policies, since there are other factors such as: budget restrictions, management quality, failure in developing projects in the governmental areas, the trade of tax collection, which need to be analyzed in the clarity of the theories.

2.2 PUBLIC POLICY

The citizen perspective of whom has access to assets and benefits, recognizes that the lack of absolute freedom is directly related to poverty, leaving people with no possibility of being satisfied, having their own home, treated water, regulate and control the of food quality, transportation, municipal health services, education, culture, sports and leisure. The impossibility of access is not restricted only to goods and services, or entering the labor market, but also to special needs or situations of risk, or to the absence of guarantees arising from the participation of collective decisions, which makes it possible

to exercise their citizenship to live with dignity and have quality of life (JUNQUEIRA; INOJOSA, 2013). Therefore, the social dimensions, which makes it possible to observe development as freedom, contribute to determine the standard social development of a region, country or continent.

In this sense, public policies are a set of programs, actions and activities carried out by the State, directly or indirectly, with the participation of public or private entities, which aim to guarantee a certain right of citizenship, in a diffuse or for a certain social, cultural, ethnic or economic way, corresponding to rights guaranteed by the Constitution or affirmed through recognition by society or public authorities (Sema, 2013).

For Barros (2007) the process of citizenship construction occurs when there is participation and involvement of the communities, who must take a leading role in sustainable development in order to pressure the governmental agenda for the creation of new public policies. This characteristic of communities participation, which emerges from the culture of sustainable development, requires two types of tools: one of mechanisms participation, characterized by the use of judicial, parliamentary, administrative, symbolic and social means in the implementation of sustainable development actions; and another one of channels of participation, structured through the creation of instances with participation in forums, committees, teams, councils, public hearings, among others.

An important step for the consolidation of public policies is to identify, in population groups, sensitive sets of specific actions and services, such as: segments by age group - such as children and adolescents; by form of social arrangements - as families; and by occupation - as workers in the formal and informal sectors. These sets, which are not mutually excludents, allow social action to be organized in an intersectional logical way, through an organizational structure capable of creating intersectoral logic. This is also an important point of this research for the choice and presentation of variables and indicators that will correspond to the expectations of society, with human and environmental well being.

It is possible to perceive that public policies encourage the increase of the population liberty, stimulating access to essential goods and services as rights guaranteed and recognized by society or by the public power, increasing the citizenship process through a leading role and of self-assertion. In order for participation to take place properly, centralized models of decision-making appear to be ineffective, at least in countries with great social, economic and environmental diversity, as is the case in Brazil. Thus, municipalism and decentralization play a key role in sustainable development.

2.3 MUNICIPALISM AND DECENTRALIZATION

The need to decentralize is argued by Castells (1998), who postulates the existence of two forces that lead to this path: the State response to local and regional demands and collective expressions of identity, on the one hand, and a conscious effort on the part of the nation-state to find alternative formulas in the face of the rigidity of centralization and the crisis of legitimacy emanating from the distrust of citizens on the other (AZEVEDO; PASQUIS; BURSZTYN, 2007).

Castells (1998) argues that the most appropriate level for a certain competence is a discussion that is much more political than technical, and that this level is modeled according to the historical moments of different societies. What is essential, according to the author, is to carry out a broad decentralization in which power and resources are transferred to the closest levels of citizens and their problems.

In the limit, the principle of subsidiarity allows the transfer of executive responsibilities of the State to the society itself and even to companies, in all that the State is not necessary as a direct

executor. This means that the principle of subsidiarity is the one that guides the decentralization process (AZEVEDO; PASQUIS; BURSZTYN, 2007).

Thus, decentralization within a state that loses its legitimacy precisely because it fails to fulfill its social functions or promote economic development is an instrument that attempts to regain its governance power, understood here as legitimacy to make decisions regarding policy. With the implementation of public policies getting closer to affected citizens, participation spaces tend to become more evident to the population, which feels more entitled to intervene (AZEVEDO; PASQUIS; BURSZTYN, 2007).

The emphasis on participation, in turn, re-signifies development practices that, instead of being driven top-down, as a consequence of centralizing policies away from the local context of the population, is collectively conceived, thus depending on a process of the different social actors (ANDION, 2003). This collective accountability transforms development into a political process, involving choices and decisions that can only be made through a link between the local and the global, between the individual and the collective and between the different social spheres (state, market and society civil society).

It should be noted that the ideal process of decentralization is linked to other aspects, such as local institutional and administrative capacity, social control, flexibilization mechanisms, but above all, it is of the utmost importance that the process occurs in a shared way with other instances and spheres of government (AZEVEDO; PASQUIS; BURSZTYN, 2007).

Network state has an interesting appeal, because it allows to bring together the inherent aspects at the global level to local desires. The center is not as defined as before, and people feel closer to political decisions. This more active citizenship can be a vector of legitimation of the State in all spheres and in the network are seen as forms of organization and action of the social actors, aiming to promote a change, being it can be economic or not (ANDION, 2003).

Thinking of the nation-state, the strategies adopted by it to increase its operability (through international cooperation) and to regain its legitimacy (through decentralization and autonomy) actually end up deepening its crises, because, in putting them into practice, it loses power, skills and autonomy to the benefit of the supranational and subnational levels. Therefore, it is important to follow the process of redistribution of competences and resources through mechanisms of coordination between the different institutional levels in which the actions of political agents are developed (CASTELLS, 1998).

If, on the economic level, the changes are profound, at the social level, in turn, new forms of regulation appear, emphasizing the partnership between the different social enclaves (state, market and civil society), in search of solutions to the impasses generated by the capitalist system (unemployment, exclusion and violence). Even wage-based accumulation schemes are being rethought, with new income distribution practices being proposed by firms and the state and studied by social scientists, such as the sharing of working time or even the minimum wage (ANDION, 2003).

Local development and decentralization are distinct and relatively independent processes, although almost always interlinked and complementary (BUARQUE, 1999). Decentralization deals with a political-institutional aspect that results from decisions restricted to the way society and the public administration are organized in the treatment of policies and programs. However, decentralization can contribute significantly to local development, usually resulting from initiatives and endogenous capacities of local and municipal populations and their political-administrative bodies. In this sense, despite representing a restricted and independent movement, decentralization can represent an important basis to stimulate and facilitate local development, creating the institutional conditions for organization and mobilization of social energies and autonomous decisions of society.

2.4 SUSTAINABLE DEVELOPMENT AND SUSTAINABLE REGIONAL DEVELOPMENT

The concept of sustainable development was disseminated in the 1990s, with the realization of Eco 92 in Rio de Janeiro, serving as a reference in both the scientific field and the practice of international, national and local corporations (ANDION, 2003).

As an international political document, the Brundtland Report (1991) enriched the debate by introducing the concept of equity among social groups (rich and poor), developed and developing countries, and generations (current and future) (DE OLIVEIRA CLARO; CLARO; AMÂNCIO, 2008). These concepts are defined as basic principles of sustainability: equity, democracy, precautionary principle, political integration and planning, as established: (1) equity consists in that environmental problems are related to social and economic inequalities; (2) democracy refers to the importance of solving environmental problems in a democratic way, taking into account the desires of the poorest and most disadvantaged, encouraging the participation of the community involved in political planning and decision making; (3) the precautionary approach supports the idea that lack of scientific certainty should not be the reason for delaying measures to prevent environmental degradation or environmental protection. This principle is consistent with the notion that there are some irreversible damages, and it is necessary to reduce the pressure on the environment; (4) and political integration and planning meet the idea of economic, social and environmental integration. Political integration involves the creation of new structures, the reform of existing institutions and the transformation of current political processes.

There is a difference in the definitions of Sustainable Development, resulting from different approaches to the concept. The degree of sustainability is relative, depending on the point of view considered, that is, according to the environmental ideological field or dimension in which each actor is placed (LAFER, 1996).

The problem in the definition of Sustainable Development lies in the very junction of a noun – development – with an adjective – sustainable – that would represent a judgment of each concept's own value and, therefore, not quantifiable (BELLIA, 1996).

The terms sustainability and sustainable development would be synonymous, by the analysis of Dresner (2002). For Ultramari (2003) sustainability is abstract and difficult to achieve as a concept, and sustainable development already denotes a future process, or a postponed but sustainable present, treating sustainable development as a process and sustainability as an end.

The main focus when discussing and worrying about sustainability is the linkage of the theme to the place it is intended to reach, while with development, the focus is on how to achieve it. And they continue to consider that the two terms are not contradictory, but complementary, that is, when discussing sustainable development, one can not lose sight of one's own sustainability, the opposite being also true. The authors believe that sustainability and sustainable development have different objectives, but with common interests (Benetti, 2006).

The biggest challenge, however, of sustainable development is the compatibility of the analysis with the synthesis to build a so-called sustainable development together with the choice of indicators that show this trend. The complexity of situations involving sustainable development requires interconnected systems, interrelated indicators or the aggregation of different indicators (BENETTI, 2006).

A central aspect of this approach is the balancing of environmental protection with social and economic development, inducing a spirit of common responsibility as a process of change, in which exploitation of material resources, financial investments and technological development routes should

acquire harmonious sense (DE OLIVEIRA CLARO, 2008). Technological development should be directed towards goals of balance with nature and increasing the capacity for technological innovation in developing countries. Development, in this case, is a process of transformation that combines economic growth with social and cultural changes, recognizing the physical limits imposed by ecosystems, making environmental considerations embedded in all sectors and also in the political arena.

Ignacy Sachs, one of the greatest advocates of Sustainable Development in Brazil, aiming to extend the content originally proposed to it. A new participatory approach to planning and management, guided by an interdependent set of ethical postulates, namely: meeting basic human needs (material and intangible), promoting the self-confidence of the people involved and cultivating ecological prudence. In this context, variables such as the reduction of superfluous consumption and waste by the rich minority and the universal coverage of the fundamental needs of the poor and socially excluded majority assumed a prominent role (SACHS, 2007).

According to Sachs (2002), history has preached a cruel piece: Sustainable development is, of course, incompatible with the unrestrained game of market forces, as they are too myopic to transcend the short deadlines and blind to any considerations that are not profits and Smith's resource allocation efficiency. For Veiga (2005) sustainability has seven basic premises, named:

1. Greater sustainability, if it can be achieved, would mean a stabilization of the population, globally and in most regions;
2. Economic practices that encourage the collection of real costs, growth in quality rather than quantity, and life based on the dividends of nature and not on its capital;
3. Technology that has comparatively low environmental impact;
4. Wealth is somehow more equitably distributed, especially so that extreme poverty ceases to be common;
5. Stronger global and transnational institutions to deal with urgent global problems;
6. Better informed public about the multiple and interconnected challenges of the future;
7. Predominance of attitudes that favor unity in diversity, that is, cooperation and non-violent competition between different cultural traditions and nation-states, as well as coexistence with organisms that share the biosphere with humans.

This way, Sachs (2002) states that a viable combination of economics and ecology is necessary because the natural sciences can describe what is needed for a sustainable world, but it is the social sciences that articulate the strategies of transition towards this path.

The following is the methodology used and built to carry out the research that resulted in this article.

3 METHODOLOGY

This study is based on a descriptive analysis within the quantitative approach. Its basic objective is to describe and interpretate official data over the impact and the relevance of public policies in the municipalities of the Legal Amazon. On the next sections, we present the sources and characteristics of indicators selected.

3.1 SELECTION OF DATABASES FOR RESEARCH

To meet the goal of our study, it was prioritized data and indicators already raised in the main sources of Brazilian information from previous surveys. Thus, the indicators that constituted the Municipal Sustainability Barometer [BS-M] were similar to those used in the Bragança Municipality Sustainability Barometer (Fundação Amazônia de Amparo a Estudos e Pesquisa [FAPESPA], 2016) and, at the same time, considered indicators more sensitive to the immediate actions of the State. A total of 19 indicators of Human Well-being and 7 indicators of Environmental well-being were selected (data from 2010 to 2016).

The choice of indicators was conditioned by the existence, consistency of data and simplicity of measurement. In this way, the data was collected at the municipal level through consultation with various institutions and official bodies, in databases, publicly accessible on official websites. The documents or data source used are shown in the Table 1:

Table 1- Research data documents and sources

Database		Reference
SUS 2014, 2015 and 2016	TABNET - Vital Statistics tabs and Assistance Network, Department of Information Technology of SUS [DATASUS], which from 2011 onwards became part of the Strategic and Participatory Management Secretariat, according to Decree No. 7,530 of July 21, 2011, which deals with the Regimental Structure of the Ministry of Health.	DATSUS 2016
IBGE 2010 and 2013	The Brazilian Institute of Geography and Statistics [IBGE] is the main provider of data and information in Brazil, which responds to the needs of the most diverse segments of civil society, as well as federal, state and municipal government bodies. In this research, the information from the 2010 Census and the GDP of 2013 were used.	IBGE 2016
INEP 2013 and 2014	The National Institute of Educational Studies and Research Anísio Teixeira [INEP] is a federal agency linked to the Ministry of Education [MEC], whose mission is to promote studies, research and evaluations on the Brazilian Educational System with the objective of subsidizing the formulation and implementation of public policies for the educational area based on quality and equity parameters, as well as producing clear and reliable information for managers, researchers, educators and the public in general. In this research were used data from the IDEB and School Income.	INEP 2016
MMA 2016	The Ministry of the Environment [MMA], created in November 1992, has as its mission to promote the adoption of principles and strategies for knowledge, protection and recovery of the environment, sustainable use of natural resources, valuation of environmental services and the insertion of sustainable development in the formulation and implementation of public policies, in a transversal and shared, participatory and democratic manner, at all levels and instances of government and society.	MMA 2016

Continua...

Continuação Table 1

	Database	Reference
PRODES 2014	Since 1998, the PRODES project has been conducting satellite monitoring of shallow-deforestation in the Legal Amazon region and has been producing data on annual deforestation rates in the region, which are used by the Brazilian government to establish public policies. The annual rates are estimated from the deforestation increments identified in each satellite image that covers the Legal Amazon	PRODES 2014
INPE BDQUEIMADAS 2014	NPE was renamed the National Institute of Space Research in 1990 and integrated with the basic structure of the Secretariat of Science and Technology of the Presidency of the Republic [SCT/PR]. The monitoring of fires in satellite images is useful for remote regions without intensive means of monitoring, a condition that represents the general situation of the country.	INPE, 2016

Source: Prepared by the authors.

Figure 1 - Themes, municipal indicators and scale of the Sustainability considered in this analysis

THEME	COUNTIES INDICATORS	THE BAROMETER SCALE OF SUSTAINABILITY									
		0	20	21	40	41	60	61	80	81	100
		BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER
THE COUNTIES VARIABLE VALUES SCALE											
HEALTH & POPULATION	INEANT MORTALITY AMONG 5 YEAR OLD CHILDREN 0 FOR 1000 HABITANT	300	76	75,99	50	49,99	20	19,99	10	9,99	0
	MATERNAL FATALITIES PER 100 THOUSAND HABITANTS	4600	150	149,99	50	49,99	20	19,99	10	9,99	0
	NUMBER OF DOCTORS PER 1000 HABITANTS	0	0,4	0,4	0,69	0,7	1,39	1,4	2,69	2,7	30
	HOSPITAL BEDS PER 1000 HABITANTS	0	0,59	0,6	1,9	2	2,49	2,5	2,99	3	30
	INFANT & YOUNG PREGNANCY UNTIL 19 YEAR OLD	100	20	19,99	10	9,99	3	2,99	1	0,99	0
WEALTHINESS	EXTREME POVERTY 1/4 MINIMUM WAGE OR NO WAGE	100	50,1	50,09	20,1	20,09	10,1	10,09	5,1	5,09	0
	ACTIVITY RATE (18 YEAR OLD OR MORE)	0	20,99	21	40,99	41	60,99	61	80,99	81	100
	CHILD LABOR (BETWEEN 10 AND 14 YEAR OLD)	100	10,1	10,09	5,1	5,09	3,1	3,09	1	0,99	0
	GDP (PER CAPITA)	0	6793	6794	12006	12007	18159	18160	32901	32902	800000
	INCOME (PER CAPITA)	0	180,99	181	333,99	334	624,99	625	1157,99	1158	100000
KNOWLEDGE AND CULTURE	ILLITERACY	100	20,1	20,09	10,1	10,09	5,1	5,09	1	0,99	0
	IDBE (initial school)	0	1,99	2	3,99	4	5,99	6	7,99	8	10
	IDBE (final school)	0	1,99	2	3,99	4	5,99	6	7,99	8	10
	SCHOOL DROPOUT (FUNDAMENTAL)	100	20,1	20,09	10,1	10,09	5,1	5,09	1	0,99	0
	SCHOOL DROPOUT (MEDIUM)	100	20,1	20,09	10,1	10,09	5,1	5,09	1	0,99	0
	INTERNET ACCESS	0	20,99	21	40,99	41	60,99	61	80,99	81	100
COMUNITY	HOMICIDE (PER 100 THOUSAND HABITANTS)	300	50,1	50,09	20,1	20,09	10,1	10,09	5	4,99	0
	ELETRIC ENERGY ACCESS	0	69,99	70	79,99	80	89,99	90	94,99	95	100
EQUITY	GINI INDEX	1	0,8001	0,8	0,5001	0,5	0,4001	0,4	0,21	0,2099	0
LAND	RURAL ENVIRONMENTAL REGISTRY	0	20,99	21	40,99	41	60,99	61	80,99	81	100
	DEFORESTATION	300	161	160,99	121	120,99	81	80,99	41	40,99	0
	FOREST STOCK	0	39,99	40	49,99	50	59,99	60	69,99	70	100,99
WATER	POPULATION IN HOUSEHOLD WITH PONY WATER	0	69,99	70	79,99	80	89,99	90	94,99	95	100
	POPULATION IN HOUSEHOLD WITH BATHROOM & PONY WATER	0	69,99	70	79,99	80	89,99	90	94,99	95	100
AIR	HEAT FOCUSS	9000	41	41	31	31	21	21	11	11	0
TTT+A1:P52+A1:P52	GARBAGE COLLECTION	0	69,99	70	79,99	80	89,99	90	94,99	95	100

Source: Prepared by the authors.

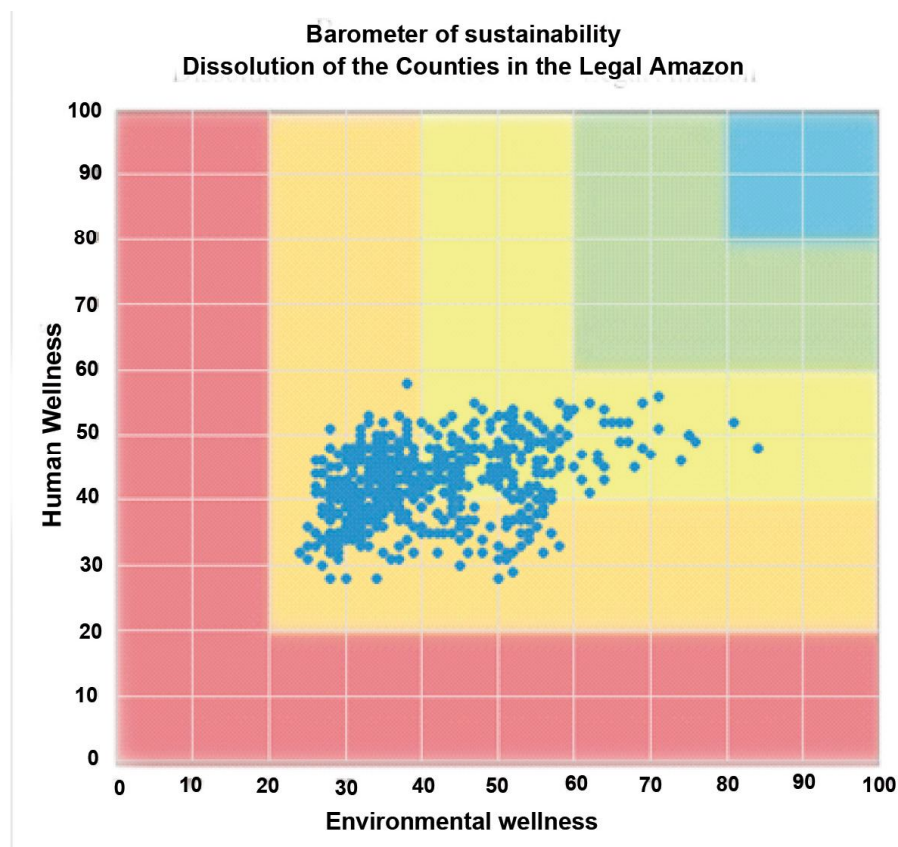
The proposal of the BS-M of the Legal Amazon aims to provide managers in the counties of the Brazilian Legal Amazon with a first concern subsidy effort in the implementation of public policies in relation to each theme listed.

4 RESULTS AND DISCUSSION

Characteristics of the counties of the Legal Amazon: The first result drawn out from the BS-M Legal Amazon comes from the distribution of the counties results, taking X as the Environmental Wellness and Y as the Human Well-Being. As it can be observed in Figure 2, the counties of the Legal Amazon are concentrated in the Potentially Unsustainable areas, with greater intensity and intermediate with medium intensity, represented, respectively, by the colors orange and yellow. None of the 771 counties are in the Unsustainable, Potentially Sustainable or Sustainable classes represented by the colors red, green and blue.

The counties alignment still shows that in the axis (x) of environmental well-being, they are slightly better off than in the (y) axis of human well-being, just remembering that here they are a few counties, confirming the concepts found in the theoretical framework on social sustainability is often neglected as a dimension, possibly as a result of the weak association of the social networks that make up the social capital of the municipalities of the Legal Amazon, denouncing the flagrant delay in public institutions in improving the living conditions of citizens to enjoy the benefits of a rich region in natural resources. The only result of the BS-M Legal Amazon considered positive is that no municipality in the Legal Amazon is in an unsustainable situation in the overall result.

Figure 2 - BS-M Legal Amazon – Cloud Points of the 771 Municipalities of the Amazon

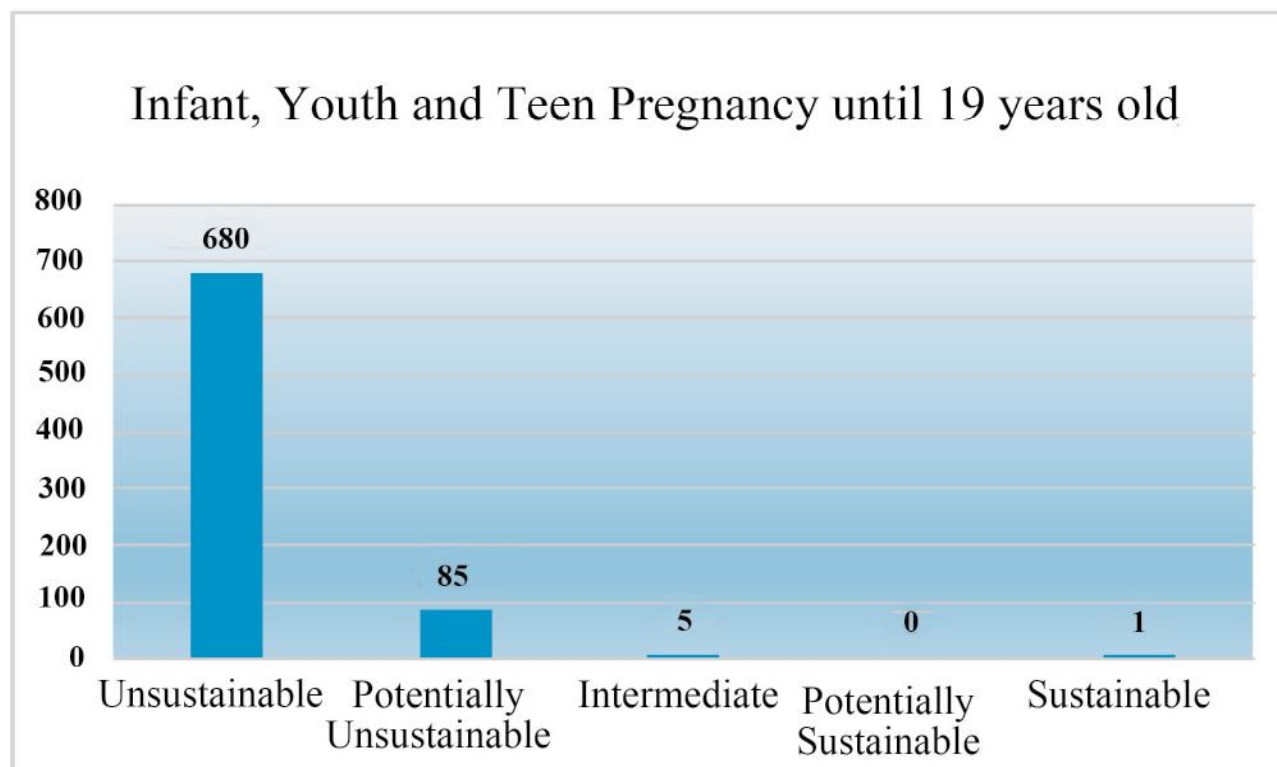


Source: Elaborated by the Authors.

4.1 PREGNANCY IN CHILDHOOD, ADOLESCENCE AND YOUTH

The indicator pregnancy in childhood, adolescence and youth presented, sequentially, the total percentage of counties per class, according to Figure 3: 88.20% (680) unsustainable; 11.02% (85) potentially unsustainable; 0.70% (5) intermediate; 0.00% (0) potentially sustainable; and 0.13% (1) sustainable, pointing out notorious disinformation and lack of education of young adolescents mainly in relation about sex education.

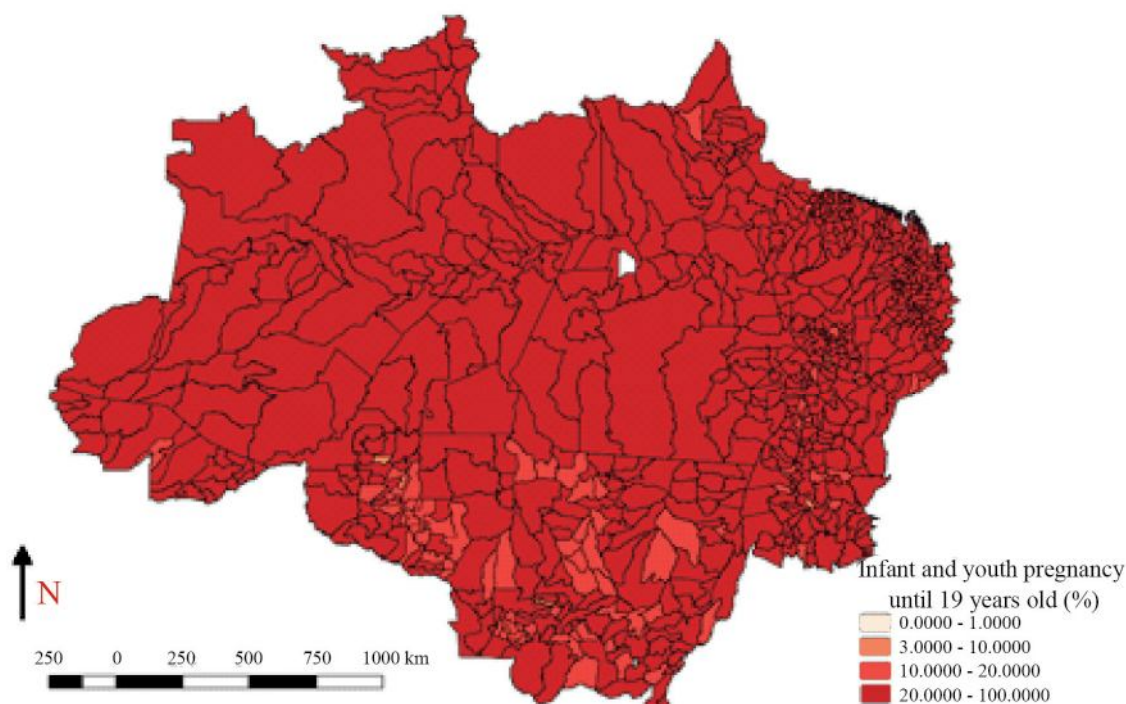
Figure 3 - Pregnancy in childhood, adolescence and youth up to 19 years



Guimarães Neto, Dias, Rocha and Cunha (2007) affirmed that children, adolescents and young people with prospects to reach college can be disrupted by an early marriage or pregnancy, having to change their projects, interfering with consolidation of dreams, financial and emotional stability. Adolescent pregnancy is considered a social risk because it leads to dropping out of school, risk during pregnancy (not performing a prenatal care with excellence), or health services that are not eligible for such care. Public Policy over teenage pregnancy in the region follows the same strategy applied nationally using schools, hospitals and health professionals, disseminating information and prophylactics, with special programs created for indigenous people. Local context, however, shows a greater distance from these institutions to rural populations.

Corroborating with Gonçalves Neto *et al.*, (2007), the indicator has a strong sibilance with infant mortality, child labor, school performance and school dropout, access to electricity and sanitary conditions in counties. The adverse of what is expected is a sibilance for environmental development, with contrary indices of environmental records and forest inventory, indicates that the counties advanced more economically, but with larger environmental problems, have more pregnancy rates.

Figure 4- Map Pregnancy in childhood, adolescence and youth up to 19 years
Infant and youth pregnancy until 19 years old in the Legal Amazon

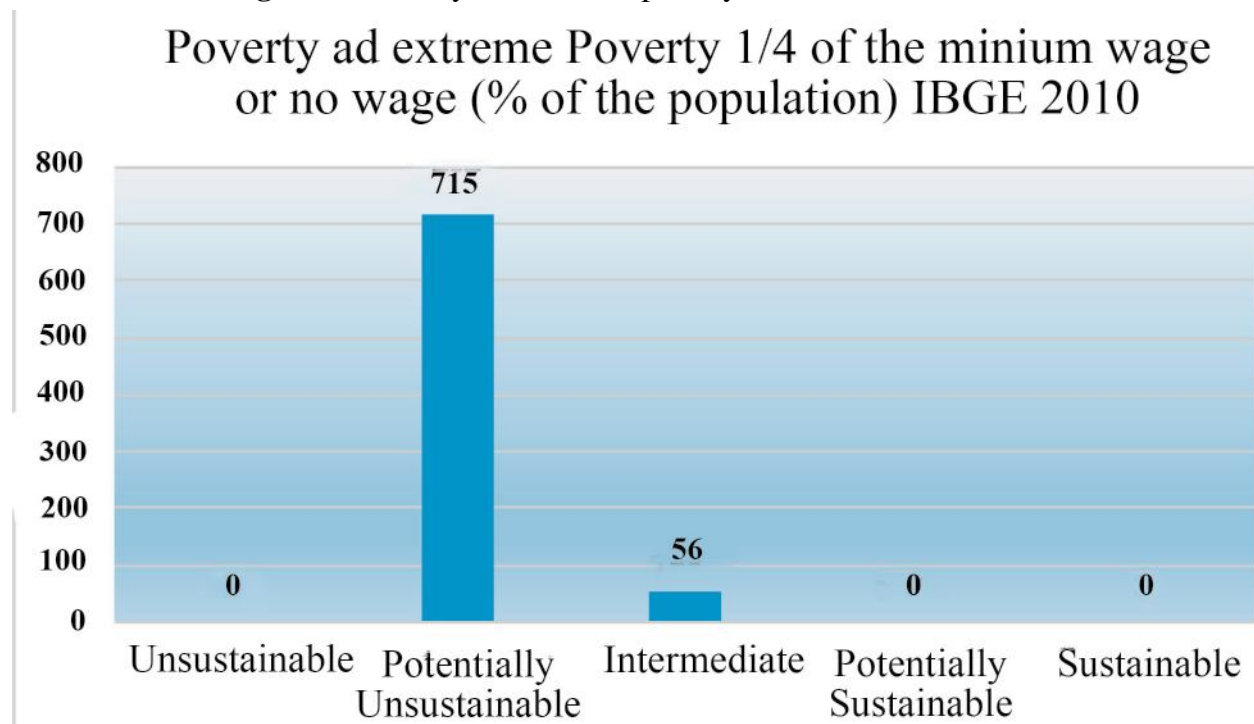


Source: Research data.

The third figure presents once more, in a mild manner, that counties that are located in the farther south of the Legal Amazon, notably in the states of Rondônia and Mato Grosso, have a greater number of counties with potentially unsustainable indicators in comparison to the other states. In a set of analysis with Poverty and Extreme Poverty, a pattern of influence of early pregnancy is evident, as well as the inverse.

4.2 POVERTY AND EXTREME POVERTY

The poverty and extreme poverty indicator presented, respectively, the total percentage of counties per class, according to Figure 4: 0,00% (0) unsustainable; 92.73% (715) potentially unsustainable; 7.26% (56) intermediate; 0.00% (0) potentially sustainable; and 0,00% (0) sustainable, with a very poor performance in the BS-M Legal Amazon, which points to the deficiency of income policies associated with employment creation and the concept of wealth in the Legal Amazon. The data was collected in 2010, and there should have been a potential improvement of this indicator, but recent data from 2013 revealed that extreme poverty increased, which is related to school dropouts in high school and an estimated activity indicating the search for precocious work without finishing high school education. As a positive point, there are no counties in the unsustainable class.

Figure 5 - Poverty and extreme poverty 1/4 of SM or no income

Source: Research data.

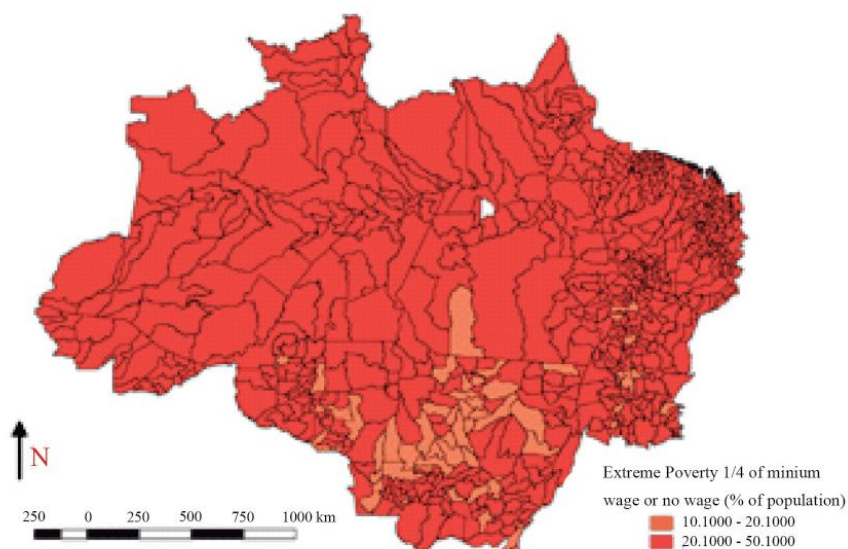
Silva (2011) considers that poverty assumes a broad dimension in Brazil, evidencing an extensive framework for the intervention of social policies, understanding that social policies, in order to be more effective, must be linked to macroeconomic policies that guarantee: sustained economic growth; employment generation; increase in income from work; and, above all, the redistribution of income still highly concentrated in Brazil.

As can be observed, there are only counties classified as potentially unsustainable and intermediate, keeping in relation to the general framework of the Sustainability Barometer of the counties of the Legal Amazon. Therefore only the directions of the straight lines, whether strong or adverse, are compared. Only four indicators had contrary meanings: high school dropout rates, homicides, environmental records and deforestation. In this case, the possible inference is the relationship with more developed counties, due to the last three variables and, especially, to high school dropouts, which presents early access to the labor market by young people, preventing the dream of attending higher education, going against sustainable development.

The sets analysis of the two indicators - pregnancy in childhood, adolescence and youth, and poverty and extreme poverty allow a reflection about a vicious cycle that weakens the socioeconomic development of the families on the Legal Amazon. It is a continuous narrative from the data: teenagers present precocious pregnancy and therefore find difficulties in reaching the educational level expected to develop a professional career and becoming financially independent. The income, which is mostly low, comes mostly from the precocious husband, who also escapes from studies to enter the labor market. The children of this early couple, due to the various financial difficulties and even lack of information within its social circle and family, enters in the same cycle of pregnancy in the youth, disrupting other generations. Few of them, as the indicator itself shows, manage to escape this path. With low income and few public services reaching quality levels, there is no prospect of improvement at this time.

Figure 6 - Poverty and extreme poverty 1/4 of SM or no income

Extreme Poverty 1/4 of minium wage or no wage



Source: Research data.

The fifth figure shows a pattern similar to that of pregnancy in childhood and youth in the Legal Amazon, with the two maps being overlapping with the coincidence of most counties, with childbearing and youth being mostly unsustainable, while poverty and extreme poverty are potentially unsustainable.

5 CONSIDERATIONS ON THE INDICATORS ANALYZED

The maps constructed in this research indicate a clear division, in the majority of the indicators, between the counties of the states that are more to the north of the Legal Amazon in relation to the counties that are located in the area more to the south of the region. This is because the latest are more focused on agribusiness, with less vocation to explore the resources of the Amazon forest. The northern counties are of more difficult access historically and are surrounded by the forests and national conservation units. Policy in the northern region, therefore, tends to be focused on conservation and sustainable use of the forest resources.

On the other hand, southern counties are on the agricultural frontier, they have a greater population of immigrants from the south/southeast of Brazil who occupied the region looking for cheaper land. The souther counties are closer to the Mid-West and its heavy investment in agricultural production and are also closer to markets and ports in the southeast/south of Brazil, helping to move production. Policy in the south has been historically more focused on agricultural development/technology. Traditional economic development has brought some advantages to these southern counties. However, as shown in environmental indicators, it has brought environmental damage.

Decentralization contributes significantly to local development, resulting from initiatives and endogenous capacities of local and municipal populations and their political-administrative instances. In this sense, despite representing a restricted and independent movement, decentralization can represent an important basis to stimulate and facilitate local development, creating the institutional conditions for the organization and mobilization of social energies and autonomous society decisions.

The five indicators that were used to measure education: Illiteracy, Ideb Initial Series, Ideb Final Series, Elementary School Evasion, and High School Evasion presented results that were far below

expectations in a sustainable region. To illustrate this, we can look upon the Ideb Final Series, which indicates learning and flow through advancing to next stages in the final years of basic education. Only the states of Acre, Amazonas and Mato Grosso have shown to surpass the established goals, with the remaining six falling short. The worst number on state level is Amapá, with a proposed goal of 4.3, reaching 3.4. On average, expectations for the region were of 3.95, while achieving 3.7. Both numbers are below the levels expected nationally, with the national goal of 4.1, achieving 4.0. Greater disparity is felt when accounting bigger and more urban counties against rural and agricultural ones.

Education is an inductive indicator of the others, it directly impacts on the other themes of the barometer of sustainability, as can be verified in the average values found. The most recent data, from 2016, indicate a worsening in the education result, which will impact therefore the sustainable development measured in Brazil and in the Legal Amazon.

6 CONCLUSION

The Amazon region is rich in natural resources and biodiversity. Its problems of economic, social and environmental development are linked to the application of public policies that do not fully consider or respect the context in which the region is inserted. This indicates, according to the research, that there is coercive and mimetic isomorphism, since the practices of other regions are directly applied without considering the local, social, cultural and environmental characteristics, as they are national policies. The facts that lead to this affirmation consists in particular, in the treatment of income and income distribution in federal programs that apply national values without recognizing the difference in living cost that occurs between regions.

Another factor observed shows that the concentrations of better living conditions are found in the counties with the highest GDP per capita and per capita income. This situation goes against sustainable regional development, it stimulates the imbalance of the population by migrating to the largest centers in search of better living conditions, annoying the first premise of sustainable development. This premise is that equally income distributed in a region with higher costs and worse living conditions has, in fact, a comparative disequilibrium that prevents the population from leaving the more developed cities and preferring smaller centers, in a movement that could tend to stabilize populations.

On the environmental front, there are better conditions for the region, since Brazil has specific programs for the Legal Amazon, which emphasize and treat better the local context. On the other hand, the environmental indicators show opposite signs, since the counties developed economically in the region, while presenting better socioeconomic levels, show a mismatch with good environmental preservation agenda. Nevertheless, for the selected indicators, the region has the best results in the country on average, with counties in a potentially sustainable and even sustainable environmental situation verified, even though to a small extent only considering environmental well-being. However, the results indicators also indicate low efficiency of human and environmental well-being in the Legal Amazon, which makes it possible to observe the contribution to the advancement of knowledge in the area, presenting the methodology developed and the results.

Finally, this research fulfilled its objectives by analyzing the data collected in the main official databases of the Federal Government concerning the counties of the Legal Amazon from the Barometer of Sustainability tool, allowing to verify the equivalence between the indicators listed, being those whom are already identified in the theories and established theoretical framework, as well as allowing the observation of new equivalence that may be the subject of future research.

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