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INDICATORS OF GREEN AND SOCIAL ACCOUNTING IN THE SUSTAINABILITY POLICY IN THE STATE OF MATO GROSSO DO SUL, BRAZIL

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ABSTRACT

Due to globalization, policies aimed at achieving development or sustainability have become a call to many countries in recent decades. A series of events has been taking place, demanding from the political scene important decisions. In order to measure the impacts on the various variables related to the growth and development of society, indicators such as the Human Development Index (HDI) and the Environmental Sustainability Index (ISA) have emerged, Environment and Sustainable Regional Development. The general objective of this manuscript was to identify the level of sustainable development of 79 municipalities in the state of Mato Grosso do Sul (MS) / Brazil, taking into accounts the environmental, economic and social variables. The methodological procedure used in this study consisted of a collection of secondary data in 2016 in several Brazilian public agencies, mainly considering the Brazilian Institute of Geography and Statistics (IBGE), as well as the Integrated System of Economic-Environmental Accounts (SICEA), which is a reference tool for the system of environmentally sustainable economic growth. The methodology consisted of the use of selected environmental indicators, the impact and performance of the environmental quality, and the economic, social and environmental information of each MS municipality. From a measurement we evaluate the level of sustainability of each municipality mentioned. As a general result, one can identify and rank cities with the best performance in each dimension. In a similar way, the IDS in the MS state was also analyzed, with the ranking of the 10 municipalities that presented the best index of sustainable development and the worst index.

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INTRODUCTION

The advent of sustainability brings with it various interactions of the sectors of the economy, the environment due to the increasing seriousness of environmental problems and the growing awareness of the repercussions of these problems. In this sense, nations have made efforts to reduce exploitation without control of environmental resources due to the increasing degradation of these resources. In fact, resources are less present in many countries, causing a constant concern about the production of resources for future generations and even for the current gener. In this study of the harmful practices of man, the use of Environmental Accounting becomes fundamental for the process of recovery of these resources, for the evaluation of positive and negative impacts for the environment, for the entity itself and for society in general (PAIVA, 2003). When we think of sustainable development conceptualizing the category, it is thinking of survival beyond immediate and present reality. To develop

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sustainably is to devise a way for socially organized human groups to relate to the environment and their particularities in meeting socio-cultural and physical needs. The philosophy behind the concept is to guarantee the very continuity of the human species and the external environment in which these species reproduce and create their conditions of existence (SACHS, 2000). Regarding the concept of the environment, it is understood that the meaning is not restricted only to the physical and biological environment, but also to the sociocultural environment and its interrelations with man-made development structures. Structures that allow the existence of living beings; therefore, it is not the environment in which one lives or can behave life, it is the set of conditions that justify the existence of the planet; thus, anthropogenic intervention on natural resources can cause significant changes in the environment. Conventional national accounts take into account a fundamental analysis of economic growth, thus reflecting only the level of activity of the economy. The national accounts disregard questions related to the use of environmental assets traded during the process of transformation of the goods and services of these activities. The system of Environmental-Economic Accounting (SEEA) contains the internationally agreed standard concepts, definitions, classifications, accounting rules and tables to produce internationally comparable statistics on the environment and its relation to the economy. The SEEA structure follows a similar accounting structure to the National Accounts System (SNA) and uses SNA-compatible concepts, definitions and classifications to facilitate the integration of environmental and economic statistics. Environmental Accounting refers to changes in the National Accounts System to incorporate the use or depletion of natural resources (IUCN, 1998).

There are significant differences between the applications of Environmental Accounting in the public and private sectors. In the public area, the main interest is the modification of the National Accounts Systems (SNA), internalizing the environmental assets and liabilities in their balance sheets and other statements, as well as the use of data made available for external control or judicial control. On the other hand, in the private sector, its use has been progressively implemented by transnational companies, interested essentially in presenting a satisfactory image to its shareholders, consumers and pressure groups very active in their countries of origin. (TINOCO; KRAEMER, 2006).

Within this context, the prospective analyzes to anticipate impacts and identify strategies for Brazilian development are fundamental for sectoral and regional prospective studies that subsidize the improvement of public policies, giving subsidies to the strategic programs that take into account the issues of environmental sustainability. In this context, the possibility of constructing indicators to deal with issues such as green national accounting and sustainability indicators are of fundamental importance for measuring the impacts of economic activity on the environment and on society as a whole in the state of Mato Grossso do Sul. Thus, the diagnoses generated offer the decision-making bodies of sectoral prospective studies subsidizing the improvement of public policies and strategic programs, expanding the advice and cooperation of the SNA with other relevant government agencies, influencing the evaluation and formulation of public policies and government programs.]

Social and 'green accounting: From the beginning of human existence on earth man established a direct relationship with the environment, initially without causing serious damage to the occupied spaces. However, there have always been environmental changes brought about by human action, transformations that involved the interrelationships established between ecosystems and human groups. In search of a balance so as to ensure the harmonious development of the human species and the environment for the present and future generation, that is, to guarantee sustainability, we must understand the relationship between man and the environment and how this relationship over a given period. Demetrioet al. (2009) report that the development model of cities around the world is physically connected to the use of energy and resources from nature. This means that it is necessary to search for production mechanisms taking into account the environmental issues that have a connection with the other variables.

The preservation of natural capital (environment) is important for the maintenance of sustainable growth, a better living condition for man, making evident the need for an economic system connected to the environment, in which the economic and environmental systems participate of a process of greater and not individual exchange. However, conventional national accounting systems do not account for measuring the uses and resources of natural assets traded or even for the degradation of natural capital (UN, 2014). Thus, the productive economic system during the process of producing a particular good or service, does not account for the costs of externalities generated in the production process by conventional methods. As Coase (1960) already observed, the marketed values of goods and services do not include the costs of externalities that production and consumption processes may have for society. For Duchin (2009), fuels, various minerals, land, water and other components of the environment are crucial for maintaining life directly and indirectly through their respective roles in the production of goods and services. Understanding the flow of input inputs such as energy and water, and outputs, is crucial for countries to develop in a sustainable manner and to allocate their resources optimally and preserve the environment. In addition, Miranda (1980) argues that environmental problems are, as a rule, originated by economic activities, and yet it is hardly treated within a single analytical framework. In order to measure the externalities of the regional production system, the input-output matrix theory developed by Leontief (1946) will be used in relation to the environment and a single basis of analysis.

This author has studied how the economic sectors of a particular economy relate to each other and connect with the environment. From this methodology, several applications of environmental problems were developed based on the input-output matrix technique, such as Isard (1972); Leontief (1970); Miller and Blair (2009). In Brazil, some attempts to systematize environmental accounting started from Motta (1995) and Young et al. (2000). However, Motta (1995) offers a clear and complete version of the subject of Environmental Accounting, presenting a detailed dimension of the theoretical and methodological aspects. Motta (1995) states that environmental satellite accounts expand the analytical capacity of National Accounts by offering a physical counterpart of economic activity. Thus, accounting for environmental losses represents measuring the negative cost over the environment of economic activities. In addition, it measures the service

provided by the environment is added to the product as environmental production. Young et al. (2000) go even further by pointing out that using only the conventional accounting of National Accounts becomes fragile when the sustainability of economic activities is based on the exploitation of natural resources is not taken into account. For Young et al. (2000) sustainability, understood as the ability to currently exploit resources without compromising future levels of activity, involving a much broader time perspective than the National Accounts are capable of dealing with. The author also states that introducing this new dimension in the calculation of products produces corrections in the treatment of natural resources within the National Accounts.

Experimental Ecosystem Accounting Method: Model developed by the System of Environmental Economic Accounting (SEEA) and is based on the structure of ecosystem accounting adopting a different perspective of accounting. Ecosystem accounting takes a spatial approach and assets are delineated in spatial areas containing a combination of biotic, abiotic, and other features that work together. In fact, environmental issues had their incorporation in the 1960s into the economy as a critique of the overemphasis on the goal of growth at all costs and limits of the conventional economy to solve the problems that escape the market. Ecosystem assets provide ecosystem services, which are the contributions and benefits of ecosystems to economic activities and other human activities. In this way, SEEA ecosystem accounting has a system of accounts that presents a coherent and comprehensive view of ecosystems as follows:

i) **Ecosystem extension account:** This account serves as a common starting point for ecosystem accounting. This account also organizes information on the extent of different types of ecosystems within a country in terms of area;
ii) **Ecosystem condition account:** Measures the overall quality of an ecosystem asset and measures key indicators, the state or functioning of the ecosystem in relation to its naturalness and its potential to provide ecosystem services;
iii) **Monetary Asset Account:** This account records the monetary value of opening and closing inventories of all ecosystem assets within an accounting area of the ecosystem and increases and reductions to these actions;
iv) **Thematic Accounts:** This set of accounts covers land, water, carbon and biodiversity accounts, are independent accounts on topics in their own right and are also of direct relevance in measuring ecosystems and assessing policy response.

The objectives of this accounting model are to make a measurement symptom, concepts derived from various disciplines. It is intended to be used to encourage and support the work of ecosystem accounting in facilitating the exchange of related experiences for the testing of its variables.

From these considerations, we have the reflection of the fact that ecosystem accounting is a relatively new and emerging field of measurement and is considered experimental. However, this method of accounting is based on findings in well-established disciplines such as official statistics, indicators and the field of environmental accounting.

MATERIALS AND METHODS

From the publication of "Sustainable Development Indicators (IDS): Brazil 2002", the Brazilian Institute of Geography and Statistics (IBGE) starts the research sequentially every two years on the subject. The set of information about the Brazilian reality, in its environmental, social, economic and institutional dimensions, creates a seminal contribution for decision makers on the broad panorama of the main themes related to sustainable development in Brazil (IBGE, 2016). In the last edition of 2016, 60 indicators were presented by the IBGE, which are divided by the four dimensions, allowing the monitoring of the phenomena over time and the examination of their occurrence in the national territory (IBGE, 2016). In fact, to define a state or municipal division, the number of indicators would be more restricted. Different from the magnitude of indicators available at the national level, a large part of them are carried out sporadically at census periods.From the sample surveys or systematically carried out in Brazilian states and municipalities, the available data restrict the scope of useful indicatorsAccording to Roldan and Valdés (2002), the methodology proposed for the selection of the set of indicators to account for different regions, and that makes it possible to compare and generate a ranking of these Brazilian regions should represent the question of sustainable development, should obey the following criteria:i) Availability and reliability of data sources; ii) The most up-to-date data statistic possible; iii) The representation in the analysis of three systems: natural, social and economic, with its regional importance; iv) A holistic approach that includes quantitative and qualitative terms.

The methodology proposed in this article considers all the municipalities of Mato Grosso do Sul / Brazil, including all the dimensions proposed by the United Nations Commission on Sustainable Development (CSD) and used in the IBGE national IDS methodology. Thus, from such considerations the analysis is more complete and the proposed regional indicators can be compared to the national indicators. The Environmental Balance Sheet (BPA) uses the Social Balance Sheet (BS) as the basis of the model, made available by the Brazilian Institute of Social and Economic Analysis (IBASE). According to CLAUDE (1997), natural heritage accounting is a global system of records that integrates physical and monetary information into a system of relations between economic and environmental accounts, through matrices of interrelations that allow information to be crossed. The main social indicators to which they are divided into 7 blocks, according to (PFITSCHER, 2009) are the following lower ones:

a) **Basis of calculation:** These are the three financial information: net revenue, operating income and gross payroll. In this calculation the values serve to inform the impact of the investments in the accounts of the company, and allow the comparison between companies and sectors over the years;
b) **Internal social indicators:** Are the internal, obligatory and voluntary investments that the company performs to benefit and / or serve the functional body (food, compulsory social charges, private pension, health, safety and medicine at work, education, culture, training and professional development, crèches, profit sharing and results, etc.);

c) **External social indicators:** This part of the balance sheet presents voluntary investments, whose public is society in general, such as projects and initiatives in the areas of education, culture, health and sanitation, sports, hunger and food security, payments of taxes and others;
d) **Environmental indicators:** the Company's investments are presented to mitigate or compensate for its environmental impacts and also to improve the environmental quality of the company's production/operation through technological innovation or internal environmental education programs. Investments are also requested in projects and actions that are not related to the business operation;
e) **Indicators of the functional body:** In this part the information that identifies the way the company relates to its internal public with regard to job creation, use of outsourced work, number of trainees, valuation of diversity - black men, women , age group and people with disabilities - and the participation of historically discriminated groups in the country (women and black people) in managerial and management positions;
f) **Relevant information regarding the exercise of corporate citizenship:** It refers to a series of actions related to the public that interact with the company, with great emphasis on the internal public. Most are qualitative indicators that show how the internal participation and the distribution of benefits are. Some of the guidelines and processes developed in the company that are related to the policies and practices of corporate social responsibility management appear in this part of the balance sheet;
g) **Other information:** This is reserved and widely used by companies to disclose other information that is relevant to the understanding of their social and environmental practices.

RESULTS AND DISCUSSION

The concept of sustainability refers to principles such as democracy and justice. It is an easy-to-pronounce but difficult to define concept. In the environmental economics literature, the debate regarding sustainability conditions tends to be based on two concepts: "weak" and "strong" sustainability. The weak sustainability test is an intuitive rule based on the hypothesis of unrestricted substitution between produced and non-produced assets. An economy is considered "unsustainable" if total savings fall below the combined depreciation of assets produced and not produced, in this case the latter usually restricted to natural resources (PEARCE; ATKINSON, 1993, 1995). Although environmental problems have existed for a long time, it is only recently that the economic analysis has been sufficiently aware of them and their implications. Such circumstances do not mean that environmental problems have been completely ignored by the various schools of economic thought. However, it is enough to recall its history: Physiocracy placed natural resources (land) first among the factors of economic growth and the classical school considered the three factors together - land, capital and labor. However, it was not until the 1970s that a great number of studies and advances emerged, especially in the neoclassical economic line. These studies have built two Sciences - Environmental Economics and Natural Resource Economics. The construction of sustainable development indicators in Brazil is part of a series of international efforts to implement the ideas and principles formulated at the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, regarding the relationship between environment, society, development and information for decision making.

Final considerations: There is now a growing awareness of environmental aspects and the concept of sustainable development, since this concept, in addition to being used in political discourses, has gradually been incorporated into public policies in both the economic and social spheres. For authors like Donaire (1995), organizations tend to obtain economic and strategic benefits through their engagement in the environmental cause. In addition, the author Valle (1995) points out that in addition to a moral persuasion imposed by organizations to stimulate environmental control, fiscal and economic mechanisms have also been created that can induce organizations and individuals to change their behavior and their posture towards the environment.

Taxing or imposing fines on a polluter pays principle and granting benefits and tax exemptions to favor products and activities that are considered "natural" and "clean" can be highlighted. In view of the above, Hans (1994) argues that considering environmental demands means understanding how ecological issues involve business and can contribute to profits. It means that "being greener" involves several steps such as manufacturing the products to suppliers, customers, employees, the media, and the community in which they are inserted in order to achieve synergy in results. The sustainable development effort in the state of Mato Grosso do Sul has been seeking to comply with a guideline of the Federal Government of the Federative Republic of Brazil, and will take care of the disclosure of its information. As a result, accounting began to align its social and environmental financial data. Such data make the south region Matogrossense have its economic performance in a rational and sustainable way. However, to monitor whether development has taken place in a sustainable way, the state proposes a system composed of environmental indicators, which are integrated as a very important tool for monitoring the policy of parsimonious progress.

It can be affirmed, therefore, that when it comes to competitiveness in the state of Mato Grosso do Sul, there is the municipality of TrêsLagoas, which is showing a higher average of moderate performance, presenting values of 20.52 in the year 2010. However, in 2015, there was an increase to 22.52, followed by the group of other municipalities composed of São Gabriel do Oeste, Nova Andradina, Iguatemi and Campo Grande, which stand out with respect to competitiveness, all of them with financial performance within the range 13 to 16, being the most competitive, taking advantage of the other 79 municipalities of the state that present economic performance between 2 to 11, showing little competitiveness in relation to these five first ones. As a conclusion of this manuscript, it is believed that this article has created a reliable and valid indicator, serving to signal trends and show the reality of competitiveness in the state of Mato Grosso do Sul / Brazil. However, it is expected, as a consequence, that the results can contribute to the economic, social and environmental progression of Mato Grosso do Sul and can serve as an essential tool for its improvement and serving as an accompaniment to regional sustainable development.

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