Revista de Gestão Ambiental e Sustentabilidade – GeAS

Received: 19 Dec. 2017 / **Aproved:** 20 June 2018
Evaluation Process: *Double Blind Review*
DOI: https://doi.org/10.5585/geas.v8i2.1211
e-ISSN: 2316-9834

Analysis of the sustainability criteria applied to biddings of a federal public university

Ives Gallon[1], *Graziela Machado Flores*[2], *Marcelo Trevisan*[3], *Jordana Marques Kneipp*[4]

ABSTRACT

Study Objective: the present study aims to analyze the application of sustainability criteria in bidding processes for the acquisition of consumables in a federal public university, located in the interior of Rio Grande do Sul state.

Methodology/approach: a documentary research was conducted in the biddings carried out over the years of 2016 and 2017 that had as objective the acquisition of consumable materials, using keywords to filter these processes. Thus, it was possible to verify the types of sustainable items that were being acquired and their characteristics.

Originality/relevance: the study is relevant considering that it was only in recent years that the Brazilian legislation included sustainability in public contracting, and it is important to analyze which criteria are being effectively used.

Main results: the results indicate the predominance of requirements of environmental sustainability criteria, followed by criteria of social sustainability and, finally, criteria of economic sustainability. Items requiring sustainability criteria accounted for just over seven percent of the total items analyzed.

Contributions: the work contributed to a better understanding of the sustainability criteria most used by the institution, as well as presented methodological contributions for future studies that use the federal government procurement system as a database.

Conclusion: it was concluded that the institution is mainly concerned with complying with specific legislation, with few initiatives regarding the acquisition of sustainable products.

Keywords: Sustainable biddings. Sustainability criteria. University.

Cite as:
Gallon, I., Flores, G. M., Trevisan, M., & Kneipp, J. M. (2019). Analysis of the sustainability criteria applied to biddings of a federal public university. *Rev. Gest. Ambient. Sustentabilidade - GeAS*, *8*(2), 313-332. https://doi.org/10.5585/geas.v8i2.1211

[1] <ives.gallon@gmail.com>
[2] <mfgraziela@gmail.com>
[3] <marcelotrev@gmail.com>
[4] <jordana.mk@gmail.com>

Análise dos critérios de sustentabilidade aplicados nas licitações de uma universidade pública federal

RESUMO

Objetivo do estudo: o presente estudo tem como objetivo analisar a aplicação dos critérios de sustentabilidade nos processos licitatórios para aquisição de materiais de consumo em uma universidade pública federal, localizada no interior do estado do Rio Grande do Sul.

Metodologia/abordagem: foi conduzida uma pesquisa documental nas licitações realizadas durante os anos de 2016 e 2017 que tivessem como objetivo a aquisição de materiais de consumo, utilizando-se palavras-chave para filtrar estes processos. Assim, foi possível verificar os tipos de itens sustentáveis que estavam sendo adquiridos e suas características.

Originalidade/relevância: o estudo se mostra relevante considerando que foi somente nos últimos anos que a legislação brasileira incluiu a temática de sustentabilidade nas contratações públicas, sendo importante analisar quais critérios estão sendo efetivamente utilizados.

Principais resultados: os resultados indicam a predominância de exigência de critérios de sustentabilidade ambiental, seguida por critérios de sustentabilidade social e, por último, critérios de sustentabilidade econômica. Os itens com exigência de critérios de sustentabilidade representaram pouco mais de sete por cento do total de itens analisados.

Contribuições: o trabalho contribuiu para a melhor compreensão dos critérios de sustentabilidade mais utilizados pela instituição, assim como apresentou contribuições metodológicas para a realização de futuros estudos que utilizem como base de dados o sistema de compras do governo federal.

Conclusões: identificou-se que a instituição se preocupa principalmente em atender as legislações específicas, possuindo poucas iniciativas em relação à aquisição de produtos sustentáveis.

Palavras-chave: Licitações sustentáveis. Critérios de sustentabilidade. Universidade.

Análisis de los criterios de sostenibilidad aplicados en las licitaciones de una universidad pública federal

RESUMEN

Objetivo: el presente estudio tiene como objetivo analizar la aplicación de los criterios de sostenibilidad en los procesos licitatorios para adquisición de materiales de consumo en una universidad pública federal, ubicada en el interior del estado de Rio Grande do Sul.

Metodología: se llevó a cabo una investigación documental en las licitaciones realizadas durante los años 2016 y 2017 que tuvieran como objetivo la adquisición de materiales de consumo, utilizando palabras clave para filtrar estos procesos. Así, fue posible verificar los tipos de ítems sostenibles que se estaban adquiriendo y sus características.

Originalidad/relevância: el estudio se muestra relevante considerando que fue sólo en los últimos años que la legislación brasileña incluyó la temática de sustentabilidad en las contrataciones públicas, siendo importante analizar qué criterios están siendo efectivamente utilizados.
Principales resultados: los resultados indican el predominio de la exigencia de criterios de sostenibilidad ambiental, seguida por criterios de sostenibilidad social y, por último, criterios de

sostenibilidad económica. Los ítems con exigencia de criterios de sostentabilidad representaron poco más del siete por ciento del total de ítems analizados.

Contribuciones: el trabajo contribuyó para la mejor comprensión de los criterios de sostenibilidad más utilizados por la institución, así como presentó contribuciones metodológicas para la realización de futuros estudios que utilicen como base de datos el sistema de compras del gobierno federal.

Conclusiones: se concluyó que la institución se preocupa principalmente en atender las legislaciones específicas, teniendo pocas iniciativas en relación a la adquisición de productos sostenibles.

Palabras clave: Licitaciones sostenibles. Criterios de sostenibilidad. Universidad.

Introduction

Purchasing and consumer goods in public agencies is carried out through bidding processes. This administrative process is aimed at choosing companies that offer more advantageous proposals for public acquisitions, such as better quality and lower price. The procedures for public procurement must be carried out in accordance with Law No. 8.666 (1993), which covers public tenders, and follow the following principles: publicity, isonomy, impersonality, morality, legality, objective judgment, speed, and binding to the bidding invitation. The public notice of tender, specifies the objects to be bidded, as well as the modalities and types of public procurement defined in the contract.

The duty of socio-environmental protection was included in the Federal Constitution (1988), and art. 3 of the Law of Tenders (Law No. 8.666 (1993)) outlines sustainable national development in public procurement procedures, being a legal obligation to be observed by all levels of public authority. In recent years, other legal documents have been published that also require public procurements that consider sustainable criteria in the acquisition of these bodies. Faced with these demands, public institutions began to include sustainability criteria in their acquisitions.

In this context, the objective of the present study was to analyze the application of sustainability criteria in the procurement of a federal public university for the acquisition of consumables. As the specific objectives, the work sought to identify the criteria that characterize the purchase of sustainable consumables through bibliographic research, categorize criteria based on the dimensions of sustainability, survey the items that meet the established criteria, which were tendered during the years 2016 and 2017, verify the relationship between the most widely used sustainability criteria, and the most acquired types of sustainable items.

This study is justified by the fact that Brazilian legislation improved promoting the acquisition of more sustainable materials, construction, and services. However, this process of change is very slow and involves a number of factors, including the training of procurement employees, awareness of the agents that request materials, supplier awareness, and product adaption to more sustainable specifications.

It is also believed that it is the role of the state to seek ways to foster the demand for sustainable contracting. The productive sector is expected to be stimulated in order for it to invest in goods, services, and processes that aim at sustainable development in Brazil. The development of large-scale demand by the federal government causes an economic impact on the production of sustainable goods by increasing production, expanding economies of scale, reducing unit cost, and reducing the price for the final consumer. In this way, not only does the public sector benefit, but it also encourages the use of these materials in the private sector. The survey of the criteria that result in these services will provide a better understanding of the current facilities and difficulties. Thus, it will be possible to subsidize planning actions to improve the flow of purchases.

Communication between managers is also relevant, due to the strict legislation applied to public contracting and the complexity of acquiring products for the most diverse publics and purposes. Within the same body, this practice becomes a facilitator of planning actions. On the other hand, successful actions should be spread to other agencies, avoiding rework and unsuccessful actions.

This article is organized into an introduction, a literature review on public contracting and sustainability criteria, followed by the method of study and presentation and discussion of the results. Finally, the final considerations of the article are presented and the references used to elaborate the study.

Sustainable public procurement

Public procurement are regulated according to the guidelines of Law No. 8.666 (1993), which established the norms on procurements and administrative contracts related to construction work, services (including advertising), purchases, divestitures, and leases. The direct administration bodies, autarchies, public foundations, public companies, mixed-capital

companies, and other institutions within the scope of the federal government, states, federal district, and municipalities must obey the norms.

The reasons for procurements are diverse and all focused on the preservation of the public object, an expression used to refer to the public administration inventory, which is composed of assets, rights, goods and interests, as well as obligations, liabilities and duties assumed in disfavor of Public Administration (Pestana, 2013). Until quite recently, especially before 2010, public organs were not obliged to worry about the impact of their acquisitions. The environmental and social impacts that may have been caused by the goods and services were not considered. More recently, the environmental criteria in public procurement began to be more closely considered, since the state can become a responsible for environmental degradation in case these aspects are not introduced into procurements (Bavaresco, 2013).

In Brazil, several propositions have contributed to including sustainable criteria into public contracting, such as the Environmental Agenda in Public Administration (A3P), the sustainable procurement guide published by the Ministry of Planning, Budget, and Management (MPOG), and the plan of action that aims to promote the adoption of sustainable production and consumption in Brazil. Another example is Normative Instruction No. 01, which brought the requirement of including environmental sustainability criteria into the acquisition of goods, contracting of services or construction work by public administration (Alencastro *et al*., 2014).

Normative Instruction No. 01 (2010) (NI) directs that procurement documents should include environmental sustainability criteria that consider the processes of extraction or manufacture, use, and disposal of products and raw materials, in a way that does not frustrate competitiveness between suppliers. It also encourages the search for local development that prioritizes the use of labor, materials, technologies, and local raw materials, as well as the adoption of sustainable practices by service providers to public agencies (Alencastro *et al*., 2014).

The decade of 2010 also introduced other important legislation, such as Law No. 12.305 (2010) referring to the national solid waste policy, Law No. 12.349 (2010) on sustainable development in biddings, Decree No. 7.174 (2010), which deals with the contracting of computer goods and services, and Administrative Rule No. 02 (2010), which regulates the purchase of information technology and automation. In addition to these documents, Decree No. 7.546 (2011) was published on the margin of preference for manufactured products and national services, Normative Instruction No. 10 (2012) that mandates that the direct

administrative bodies prepare Logistics Plans, and Decree No. 7.746 (2012), which aims to promote sustainable development in contracting (Bavaresco, 2013).

Decree No. 7.746 (2012) outlines the guidelines for sustainable public procurement and elicits a series of environmental, social, and economic benefits, including the reduction of impacts on natural resources, preference for local materials and technologies, greater efficiency in resource use, increased job creation with local labor, and the origin of natural resources used in goods and services (Brito, 2014).

With these legislations, sustainability variables began to be considered in several stages of public procurement. It is known that public procurements, when considering sustainable criteria, end up influencing social, economic, political, and ethical dimensions. According to Bavaresco (2016), "a purchase can be considered sustainable when it involves the integration of environmental, social, and economic criteria throughout the course of its acquisition." Sustainable public procurement can be said to induce structural changes that affect production, consumption, and the proper disposal of waste in the environment.

In addition, government contracting plays an important role in the implementation of public policies and may encourage technological innovation, social control, and transparency. According to Stevens (2010), governments should create policies aimed at increasing the sustainability of organizations' production, both at national and international levels. There is a need to create sustainable consumption initiatives, since there is a lot of emphasis on consumption and production is neglected. This can be achieved by encouraging consumers to demand more sustainable products and demanding companies to apply innovation and more environmentally and socially appropriate technologies. Governments can also act more directly and demand more sustainable production through new regulations and increased taxes.

Thus, according to the Ministry of Planning, Development, and Management (MP) (2017), sustainable public contracting contributes to the constitutional precept that institutes the right of everyone to an ecologically balanced environment, common use to everyone and essential to a healthy quality of life. Among the reasons to include environmental criteria in public procurements is the possibility to influence the market and consumption patterns. Given that the government is responsible for 10 to 15% of the Gross Domestic Product, the inclusion of these aspects in biddings can encourage supplier companies to offer more sustainable goods and services.

Another reason to apply sustainable contracting is the fact that products with lower environmental impact represent more advantageous contracting. Even if they are priced higher

at the purchasing time, these items tend to be more economical in the long run, generating less energy and material consumption, and contributing to the creation of so-called green jobs. Finally, another factor is that the requirement of environmental, social, and economic criteria in public procurement demonstrates coherence to society. The government, in the role of public purchaser, must also pay attention to its duty of protecting the environment and fostering economic and social development (MP, 2017).

As a result, the planning of sustainable contracting should consider some important steps, including identifying the most acquired goods, services, and construction works in order to adopt sustainability requirements in future acquisitions; research on the availability of items on the market; gradual inclusion of environmental criteria in procurement bids, accompanied by precise technical specifications of sustainable products, goods, and buildings; and communication with other managers for exchanging information.

It is worth mentioning that, according to items IV, Article 9 of Decree No. 5.450 (2005), the public tender and the term of reference and I are separate documents. The public tender establishes the criteria for acceptance of proposals, whereas the term of reference is the document that clearly indicates the subject of the procurement, specifying it sufficiently and clearly, without excessive, irrelevant or unnecessary information that may limit or frustrate the competition or its execution.

This research addressed the application of sustainability criteria in the procurement processes of a university. Trigo, Lima, and Oliveira (2014) affirm that socio-environmental responsibility actions of an educational institution must permeate all sectors, including policies, processes, and programs that are integral to operations, committed to social, environmental, and ethical objectives. Likewise, Tauchen and Brandli (2006) report that universities can collaborate in developing a more just and sustainable society by incorporating sustainability principles and practices, either through an awareness raising process at all levels or by making key decisions in planning, staffing, operations, or common activities.

The next section presents the sustainability criteria used in public contracting.

Sustainability criteria

The criteria are divided into two main areas according to Alencastro *et al*. (2014): public construction work and goods and services. In the case of engineering works or services, the

criteria are mandatory and aim only at environmental sustainability. Some examples of application of the criterion in construction and engineering services are: improvement of water use; improvement of energy use; waste management, reuse, and biodegradability. The only social criterion is classified as voluntary and serves to stimulate the employment of labor, materials, and raw materials of local origin.

Normative Instruction No. 01 (2010) establishes that in the purchase of goods, some criteria can be used, such as: recycled or biodegradable material, suitable individual packaging with lower volume, goods that do not contain hazardous substances in concentrations above the recommended in RoHS (Restriction of Certain Hazardous Substances), among others.[5] For Cypreste (2013), other sustainable criteria can be adopted in the specifications of goods acquired by public organs. The author cites the analysis of the life cycle, eco-label or green seal, energy efficiency, reduction of water consumption, durability, biodegradability, recyclability, toxicity, certified wood, and product disposal.

Sustainability criteria can be included at various points in the life cycle of the goods, from the production process, through distribution, packaging, and transportation, to the final use and disposal, according to the national sustainable procurement of the Federal Attorney's Office [AGU] (2016). Table 01 details the life cycle of the asset.

Table 01 - Life cycle stages

Stage	Example
Production	Use of recycled, biodegradable, non-toxic material with wood from reforestation. Mode of production without the use of slave or child labor; with machines that reduce the generation of industrial waste.
Distribution	Local industry, local producer.
Packaging	Compact packaging
Use	Products that save energy and water, educational products that lead to environmental awareness.
Final Destination	Recyclable, biodegradable, non-toxic products, with possibility for reuse, according to Art. 5 of Normative Instruction 01/2010 of SLTI/MPOG.

Source: Prepared by the authors based on AGU (2016).

Article 5 of IN 01 (2010) sets forth the environmental criteria for the acquisition of goods. In relation to the material, the recommended specifications are that the goods must be composed, in whole or in part, of recyclable, non-toxic, biodegradable material, according to the Brazilian regulatory standards of the Brazilian Association of Technical Standards (ABNT) NBR 15448-1 15448-2 and 15448-2. It is still required that items do not contain hazardous

[5] Restriction of certain hazardous substances

substances in concentrations above the recommended in the RoHS directive. Normative Instruction No. 01 also covers specifications regarding standardization, indicating that items must follow standards of the National Institute of Metrology, Normalization, and Industrial Quality (INMETRO). In addition, NI establishes as sustainable criteria for packaging the suitability in terms of volume and impact, even if it does not present hazardous substances (Bavaresco, 2013).

According to Brito (2014), public bodies must follow Normative Instruction No. 01 (2010) and include in the product specifications the compliance with technical standards of ABNT, such as solid waste and industrial quality of INMETRO, with preference being given to the acquisition of recyclable and/or biodegradable products. Moreover, IN 01 (2010) also mandates compliance with rules defined by other regulatory and control institutes, including the National Sanitary Surveillance Agency (ANVISA) and the National Environment Council (CONAMA), which require the fulfillment of a resolution related to noise, as stated in the guide to sustainable contracting of the Labor Court of the Superior Council of Labor [CSJT] (2014).

Another aspect considered as an environmental criterion in sustainable contracting is eco-labeling or environmental labeling, which is a voluntary system of obtaining environmental compliance certification for products and services that meet certain qualitative and quantitative technical requirements (Biderman *et al*., 2008). Eco-labels or green seals allow consumers to assess the environmental impacts of these products or services as well as the sustainability criteria adopted. By making this information available, organizations allow consumers to make better-informed purchasing decisions and move to more sustainable alternatives.

Seals can be classified into two categories: a) self-declared; and (b) certified by third parties. According to Rashid, Jusoff, and Kassim (2009), the self-declared seals are those inserted by the producers or wholesalers themselves and may indicate a simple attribute or a general analysis of the product. The statement may include "environmentally friendly," "ozone-friendly," "organic," "pesticide-free," "degradable," and "recyclable." Their limitations are that they are generally not certified by a third-party organization. Seals certified by a third party are more reliable, having agreed to criteria previously established and verified independently by a competent authority. As an example of a green seal, Campos *et al*. (2012) cited the FSC (Forest Stewarship Council) seal that identifies, through its logo, products originated from good forest management.

Sustainable public procurement encourages the green market, as it stimulates supplier companies to insert sustainable practices into their production processes, and even motivates

these organizations to seek green seals and certifications. There are two trends for including sustainability criteria in public procurements: the first, which considers only environmental criteria and is known as green public procurement; and the second, which aims to judge social and environmental aspects in the procurement of public agencies (Alencastro, 2014).

In this sense, the inclusion of sustainability criteria in public procurement goes beyond the economic requirements also addressing socio-environmental aspects. According to Brito (2014), social aspects can be aggregated in bidding processes and must address social issues, such as the lack of slave labor and inhumane conditions, gender inclusion, inclusion of people with special needs, job creation, contracting micro and small businesses, among other requirements.

The guide to sustainable contracting of the Labor Court highlights some sustainability criteria for sustainable contracting related to consumer goods. Refrigerators, air conditioners, microwave ovens, fans, televisions, and lamps are required to prove compliance through the label, as these items are approved in the Brazilian Labeling Program (PBE). In the case of appliances that generate noise, such as blenders and vacuum cleaners, items with a sound power level equal to or below 88 dB (A) must be purchased, as per Inmetro Directive No. 430 (2012) and Inmetro Directive No. 388 (2013). Furthermore, items that show lower consumption and increased energy efficiency in each category must also be considered (CSTJ, 2014).

Regarding tires, registration of the manufacturer or importer is required in the Federal Technical Register of Potentially Polluting Activities and Users of Environmental Resources (CTF / APP), which is evidenced by the certificate of regularity issued by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), Ibama Normative Instruction No. 06 of 15/03/2013.

For batteries and accumulators, the requirement is related to the availability of information on the body of the product and/or packaging, warnings about risks to human health and the environment, identification of the manufacturer, guidelines for proper disposal and return to resellers and authorized network, according to CONAMA Resolution No. 401 (2008) (CSTJ, 2014).

The reverse logistics of consumer goods is also evidenced as a criterion of sustainability in public procurements. For items such as batteries, tires, fluorescent lamps (fluorescent, sodium vapor, and mercury and mixed light), lubricating oils, their residues and packaging, electrical and electronic products and their components shall be in compliance with the requirements of Law No. 12.305 ((2010), which establishes the National Policy on Solid Waste,

regulated by Decree No. 7.404 (2010). The imposition on suppliers can be made by means of clauses of obligation of collection and return to the manufacturer or importer, under the terms of reference and contracts, in order that the final destination occurs.

The collection of batteries, tires, and lubricating oils must also observe the specific resolutions of CONAMA. Regarding ink cartridges and toners, there is a need to establish a systematic collection of these items, in order that the proper disposal of waste from the supplies occurs. The reverse logistics of empty containers and respective pesticide and related caps used should meet the recommended requirements for the environmentally appropriate final destination, in accordance with Law No. 12.305 (2010).

Table 02 presents a summary of the sustainability criteria evidenced in the literature review and is divided into three sections of environmental, economic, and social criteria.

Table 02 - Sustainability criteria

Aspect	Sustainability criterion
Environmental	Energy efficiency
	Recycled, biodegradable, non-toxic material (ABNT)
	Adequate individual packaging, lower volume
	Dangerous substances in concentrations allowed by RoHS
	Life cycle (production, distribution, packaging, use, final destination)
	Reduction of water consumption
	Durability
	Forest certification
	Normalizations of INMETRO
	Normatizations of ANVISA
	Normatizations of CONAMA
	Brazilian Labeling Program
	Regulations of IBAMA
	Reverse logistics (batteries, lamps, lubricating oils, electronic products, ink cartridges, toners, agrochemical packaging)
	Eco-labeling, eco-labels or green seals (self-declared or certified by third parties)
Social	No slave labor and inhuman conditions
	Gender inclusion
	Insertion of people with special needs
	Job creation
	Hiring micro and small businesses
Economic	Packing of small volume
	Minimum yield according to ABNT NBR ISO/IEC 19752:2006, 24711:2007, 24712:2007, and 19798:2008

Source: prepared by the authors (2017).

The methodological procedures used for the preparation of this study will be discussed.

Methodological procedures

In this section, we describe the methodological procedures that were used in the development of this study while aiming to analyze the application of sustainability criteria in the procurement processes of a university.

As for the procedures, the research is classified as a bibliographical research and based on references already analyzed and published (Fonseca, 2002). The study can also be classified as a documentary research since the public tenders and terms of reference of the procurement processes can be considered public documents. Documentary research is very similar to bibliographic research, differing in the nature of the sources, which uses materials that have not yet received analytical treatment or be re-elaborated (GIL, 2002).

In relation to the objectives, the research was characterized as descriptive. According to Triviños (1987), this type of investigation aims to describe facts and phenomena of a certain reality and demands a series of information about the subject from the researcher. Regarding the research approach, this work has a quantitative character (Gerhardt & Silveira, 2009) using data from the public tenders of procurement processes. The results of quantitative studies can be quantified, weighting reality through raw data analysis and using mathematical language to describe the causes of a phenomenon (Fonseca, 2002).

The analyzed university was founded in 1960 and is located in Rio Grande do Sul State. According to the Management Report of 2015 of the institution, it has 115 undergraduate courses, 9 distance learning courses, 12 specialization courses, 50 master degree courses, 30 doctoral programs, and 9 other distance postgraduate courses. The staff consists of 2,752 administrative technicians in education and 1,934 faculty members. The student body is composed of 26,285 students.

The search for public tenders was done on the Federal Government Purchasing Portal (http://www.comprasgovernamental.gov.br, accessed on May 1, 2017) using the search page "*busca textual – editais.*" To select the public tenders to be analyzed, the code of the General Services Administrative Unit (GSAU) was used for the analyzed university. The GSAU shows basic information of the agencies registered in the system where the government procurement operations are carried out, allowing only the procurements of the desired public institution to be selected.

The period chosen for analysis was the years 2016 and 2017 (until the month of June). This interval was chosen in order to cover the most diverse types of acquisition of the institution. The procurement schedule of the organization could exceed the one-year periodicity

products, so it would be interesting to analyze a more comprehensive period to maximize the diversity of items analyzed.

For textual research in public tenders, the keywords that refer to consumer materials were used, being: sani*, limp*, consu*, escri* and exped*. These words were used with the intention of selecting all the public tenders of the institution that had as object the acquisition of consumables. It is worth noting that the public tenders available on www.comprasgovernamental.gov.br are stored in the PDF format. Therefore, even if it is possible to search for words in the text body through the site search tool, access to the full content is only possible by downloading the file. The terms used for the selection are shown in Table 03.

Table 03 - Textual search on the portal of government purchasing

Keywords	Returned Terms
Sani*	Sanitary, sanitary, sanitizer, and sanitizing
Clean*	Cleaning, cleaner, cleaners, and clean
Consu*	Consume, Consumables
Escri*	Office and Offices
Exped*	Office hours

Source: prepared by the authors (2017).

The search showed sixty-six public tenders for the year 2016 and thirty-two for the year 2017, totaling ninety-eight notices. After a preliminary analysis, forty-four public tenders were excluded and fifty-four remained. The exclusion was motivated by the fact that the textual research had published public tenders with words out of the desired context. In addition, public tenders that referred to food, human medicines, and veterinary drugs were excluded, as these items have specific legislation and descriptions that would make it impossible to carry out this study because of the short period.

The selected public tenders were analyzed with the objective of identifying the required sustainability criteria for the procurement items, as well as the frequency of occurrence. The analysis of the public tenders was made through the careful reading of each of the public tenders. The sustainability criteria were registered in a spreadsheet as they were being identified. The worksheet consisted of the registration of the procurement year, number of the public tender, the item number, and the criterion that should be met.

Of the fifty-four public tenders analyzed, no sustainability criteria were identified in sixteen. The remaining thirty-eight public tenders contained at least one criterion for one of the items presented in Table 02. In other cases, there were items with more than one sustainability

criterion being required. In this way, the number of sustainability criteria exceeded the total number of items identified. The summary of the information collected can be verified in Table 01.

Notably, the mandatory criteria and proof of the regularity of the company in relation to public bodies were not considered. In these cases, non-compliance with the criterion would hinder the continuity of contracting. For instance, it is possible to cite the obligation of the bidding company to submit a letter of declaration of compliance with item XXXIII of Article 7 of the Brazilian Constitution (1988), which certifies that the company does not employ minors (below 18 years of age) in dangerous, unhealthy or night-shift work and does not employ minors below 16 years of age, with exception of those as of 14 years of age in the condition of lesser apprentice. This criterion could have been framed in the social dimension to protect the rights of children and adolescents, although they were not considered.

Table 01 - Summary of information collected

Description	Quantity
Localized public tenders	98
Deleted public tenders	44
Analyzed public tenders	54
Public tenders containing sustainability criteria	38
Items contained in the public tenders analyzed	8838
Items requiring sustainability criteria	636
Total sustainability criteria found	851

Source: Prepared by the authors (2017)

It was possible to compile the data at the end of the analysis of all public tenders and identify the frequency of each sustainability criterion. Finally, the criteria were classified according to the aspect in which they fit and separated into environmental, economic or social aspects. The results of the study are shown in the next section.

Analysis and discussion of results

With the analysis of the data, it was possible to verify that the environmental dimension was the most common in the criteria in the public tenders. Table 02 shows the social dimension, in which only one criterion "Margin of preference for national product" was identified. This criterion is based on Law No. 12.349 (2010), which makes it possible to determine a margin of preference for manufactured products and national services that meet Brazilian technical standards.

Table 02 - Relation of social sustainability criteria

Social criteria:	**Frequency**
Margin of preference for national product	134
Total sustainability criteria	**134**
Total items with descriptions requiring sustainability criteria	**134**

Source: Prepared by the authors (2017)

According to Table 03, the economic dimension can be related to the criteria "small volume packaging" and "minimum efficiency according to ABNT", both of which occurred eleven times each. This last criterion deals with the yield of printer cartridges and toners and seeks to guarantee the specified performance through certifications of mentioned quality. The minimum income promotes the good use of public resources and at the same time prevents the need to substitute inputs prematurely, thus saving the use of natural resources.

Table 03 - Relation of the criteria of economic sustainability

Economic criteria:	**Frequency**
Small volume packaging	11
Minimum yield according to ABNT NBR ISO/IEC 19752:2006, 24711:2007, 24712:2007, and 19798:2008	11
Total sustainability criteria	**22**
Total items with descriptions requiring sustainability criteria	**22**

Source: Prepared by the authors (2017)

Table 04 shows the environmental dimension in which sixteen sustainability criteria were identified.

Table 04 - List of environmental sustainability criteria

Environmental criteria	**Frequency**
Certificate of approval from the Ministry of Labor for personal protective equipment (PPE)	158
Company product registered in ANVISA	102
Collection of cartridges, toners, lamps, and batteries according to Law No. 12.305/2010	90
Registration or notification of the product (alcohol, sanitizer, and cosmetic according to the object risk classification)	88
Reverse packaging logistics for agrochemicals	87
Reverse tire logistics according to Law No. 12.305/2010	43
Registration for the commercialization of pesticides	28
Technical Responsibility Note - ART	28
INMETRO certification	11
Recyclable packaging	11
Degradable or renewable source housing according to NBR No. 15448-1 and 15448-2	11
INMETRO certification of sustainable product or low environmental impact	11
State or municipal health permit	11
RoHS Directive for Electronics	8
Ministry of Health registration/ANVISA	7
Certificate of registration ANP 1532	1
Total sustainability criteria	**695**
Total items with descriptions requiring sustainability criteria	**546**

Source: Prepared by the authors (2017)

The main requirements refer to questions of reverse logistics of products with high potential of environmental pollution and the registration and certification of products or the company in front of the responsible bodies. The most relevant control bodies are the Ministry of Labor, the National Health Surveillance Agency (ANVISA), and the Regional Engineering Councils (CREA). INMETRO appears as the body responsible for conformity certification of some of the criteria mentioned.

Despite the obligation of the products classified as PPE to have the approval certificate (AC) of the Ministry of Labor, the lack of this requirement in the descriptions of the items tendered does not impede contracting. Thus, the intention to acquire products with quality certified by the supervisory body is explicit, that is, the equipment is able to protect the safety and health of workers who use it. The Ministry of Labor can compare this criterion to the INMETRO certification as it is the institute itself that tests product quality before receiving the AC by the CA by the Ministry of Labor.

Regarding the limitations of the survey, there was a certain difficulty in crossing the data of the public tenders and the sustainability criteria of the literature review. The terms used are sometimes different, which prevented the possibility of filtering the data automatically. As a result, it was necessary to analyze the public tenders one by one in order that no relevant data were lost. However, after analyzing some tenders, it was possible to identify an inclusion pattern of the information in the sections of the public tenders, thus facilitating the process of identifying the criteria.

Still in relation to this question, it is assumed that this specificity is repeated in other public agencies, that is, each one elaborates its public tenders in its own way, using non-standard terms. The information is scattered throughout the documents and, in some cases, a document refers to the information described in the other document (public tender and term of reference). This makes it difficult to analyze data on more than one organ at a time.

Another difficulty found was that, in the case of this institution, many criteria of sustainability were mentioned in the body of the public tenders, making use to several items of the term of reference. In the reference term, where the items and their respective specifications appear, these criteria did not appear, being the responsibility of the interested party to seek the information in the public tender. This practice, while facilitating the elaboration of specifications and avoiding the replication of information, may lead to difficulties in interpreting the requirements of what is being tendered, which could generate problems in the economic dimension.

For the execution of this study, it was necessary to opt for one of the types of documents, which was the public tender. The terms of reference were not analyzed, since the public tenders were identified as more information rich in terms of sustainability criteria. However, it should be noted that, under the terms of reference, some descriptions could be considered in terms of sustainability criteria. In other cases, it was not possible to identify the sustainability criteria only by the description specified in the terms of reference. Even so, due to the type of object tendered, one could not rule out the possibility of being offered items that met some criteria, taking into account the diversity of items procured.

As an example, computer materials or components of computer products can be cited. In many cases, the RoHS directive for electronics was not mentioned in the descriptions. Nevertheless, we can consider the possibility that the big suppliers in Brazil meet this criterion.

This finding is relevant because the information collected from the public tender documents do not represent the final products purchased by the agency, but rather the minimum criteria to be met by the products supplied. This issue is one of the main limitations of this study, since it is unfeasible to access all the information of all public tenders and know what the exact product that was accepted by the organ for a certain specification. Much of this information would only be possible to verify if there is access to the product itself in order to analyze the information contained in the packaging, manuals or other sources of product information.

However, it is understood that the more detailed the descriptions in the announcements are, the greater the minimum requirements that the products will have to adapt to, promoting the search for sustainable certifications and benefiting those companies that already have them.

Final considerations

In this final section, we present the main conclusions of the study, whose objective was to analyze the application of the sustainability criteria in the procurements of a university. The work was able to identify the main criteria that characterize the purchase of sustainable materials in the Brazilian public sector categorizing based on the sustainability dimensions. The documentary survey of consumer materials purchased by the institution between January 2016 and June 2017 resulted in 54 public tenders, totaling 8,838 items. We opted for the analysis of

the sustainability criteria described in the public tenders, highlighting the information contained in the terms of reference.

The results show that the bidding processes are mainly concerned with meeting explicit sustainability criteria in the specific legislation for the acquisition of products. However, few initiatives of the institution were identified regarding the acquisition of sustainable products. The description of the objects of the procurements and public procurement process were shown to be still mainly concerned with the issues related to the expected performance of the products and that their acquisition is carried out at the lowest possible price.

The work contributed to the development of the thematic in a way that it was able to extract the desired information from the public tenders available in the federal government procurement portal. Although much of the work was done without the use of analysis software, it is necessary to understand how the information is set out in the public tenders or the terms of reference of the procurement processes and the difficulty in crossing the terms used in the works and terms of the documents. This question made it necessary to understand what the literature considered as criteria of sustainability in order that the reading of the documents and interpretation of what fit those criteria would be carried out.

As a suggestion, the best way to present the object of a procurement is to include all of its characteristics in the body of the term of reference, centralizing all the information. The products purchased by the institution should be divided into broad categories and thus facilitate the standardization of more sustainable specifications. Searching for information on the portal itself could help identify specifications for sustainable items in other government bodies.

With regard to the acquisition of more sustainable products, it is very complex to take into account all possibilities regarding the issue. The simple visual examination of the characteristics of a product does not make it possible to conclude whether it has been produced in a sustainable manner or if it has been produced in an environmentally harmful manner, even if the raw material of the product is sustainable. In this perspective, the requirement of green seals increases the probability of excluding these products from the procurement processes.

The www.comprasgovernamental.gov.br portal is a freely accessible database and contains the information of all the electronic precincts executed by all organs of the Brazilian federal administration, being a very rich source of data for documentary research. Future works may contribute to refining methods of filtering information, either directly on the purchasing portal or through the analysis of available documents.

References

Advocacia Geral da União. (2016). *Guia Nacional de Licitações Sustentáveis. Recuperado em 10 junho, de 2017, de <http://*www.agu.gov.br/page/download/index/id/33733269>.

Alencastro, M. A. C.; Silva, E. V. & Lopes, A. M. D. (2014). Contratações sustentáveis na administração pública brasileira: a experiência do Poder Executivo federal. Revista de Administração Pública, 41(1), 207-235.

Bavaresco, A. D. (2013). Proposta de implantação do Sistema de Compras Públicas em uma Instituição Federal de Ensino Superior. Dissertação de mestrado, Universidade Federal de Santa Maria, Santa Maria, RS, Brasil.

Biderman, R. et al. [Orgs.]. (2008). Guia de compras públicas sustentáveis: uso do poder de compra do governo para a promoção do desenvolvimento sustentável. (2a ed.). Rio de Janeiro: Editora FGV.

Brito, C. M. (2014). Compras públicas sustentáveis no Brasil: a percepção dos gestores e as perspectivas do programa. Dissertação de mestrado, Universidade de Brasília, Brasília, DF, Brasil.

CAMPOS et al. (2013). A comunicação verde fala por si? Efeitos na identidade corporativa e propensão de compra. Recadm: Revista Eletrônica de Ciência Administrativa, 12(2), 191-204.

Conselho Superior da Justiça do Trabalho. 2014. Guia de Contratações Sustentáveis da Justiça do Trabalho. (2a ed.). Brasília. Recuperado em 12 junho, de 2017, de <http://www.csjt.jus.br/>.

Constituição da República Federativa do Brasil de 1988. Recuperado em 15 junho, de 2017, de <http://www.planalto.gov.br/ccivil_03/constituicao/principal.html>.

Cypreste, A. S. T. (2013). Licitações sustentáveis – Instrumento legal de promoção da sustentabilidade: um estudo da aquisição de bens na universidade federal do Espírito Santo – UFES. Tese de doutorado, Universidade Federal do Espírito Santo, Vitória, ES, Brasil.

Decreto 7.174, de 12 de maio de 2010. Regulamenta a contratação de bens e serviços de informática e automação pela administração pública federal, direta ou indireta, pelas fundações instituídas ou mantidas pelo Poder Público e pelas demais organizações sob o controle direto ou indireto da União.

Decreto 7.546, de 02 de agosto de 2011. Regulamenta o disposto nos § 5º a 12 do art. 3º da Lei nº 8.666, de 21 de junho de 1993, e institui a Comissão Interministerial de Compras Públicas.

Decreto 7.746, de 05 de junho de 2012. Regulamenta o art. 3º da Lei nº 8.666, de 21 de junho de 1993, para estabelecer critérios, práticas e diretrizes para a promoção do desenvolvimento nacional sustentável nas contratações realizadas pela administração pública federal, e institui a Comissão Interministerial de Sustentabilidade na Administração Pública – CISAP.

FONSECA, J. J. S. (2002). Metodologia da pesquisa científica [apostila]. Fortaleza: Universidade Estadual do Ceará.

Gerhardt, T. E. & Silveira, D. T. [orgs.]. (2009). Métodos de pesquisa. Porto Alegre: Editora da UFRGS.

Gil, A. C. (2002). Como Elaborar Projetos de Pesquisa. (4a ed.). São Paulo: Atlas.

Instrução Normativa 10, de 14 de novembro de 2012. Estabelece regras para elaboração dos Planos de Gestão de Logística Sustentável de que trata o art. 16, do Decreto n.º 7.746, de 5 de junho de 2012, e dá outras providências.

Instrução Normativa 01, de 19 de janeiro de 2010. Dispõe sobre os critérios de sustentabilidade ambiental na aquisição de bens, contratação de serviços ou obras pela Administração Pública Federal direta, autárquica e fundacional e dá outras providências.

Lei n.º 12.349 de 15 de dezembro de 2010. Altera as Leis n.º 8.666, de 21 de junho de 1993, 8.958, de 20 de dezembro de 1994, e 10.973, de 2 de dezembro de 2004; e revoga o § 1º do art. 2º da Lei n.º 11.273, de 6 de fevereiro de 2006.

Lei n.º 8.666, de 21 de junho de 1993. Regulamenta o art. 37, inciso XXI, da Constituição Federal, institui normas para licitações e contratos da Administração Pública e dá outras providências.

Lei nº 12.305, de 02 de agosto de 2010. Institui a Política Nacional de Resíduos Sólidos, altera a Lei n.º 9.605, de 12 de fevereiro de 1998, e dá outras providências.

MINISTÉRIO DO PLANEJAMENTO, DESENVOLVIMENTO E GESTÃO. (2017). Disponível em: http://www.planejamento.gov.br/. Acesso em 02 de jun. de 2017.

Pestana, M. (2013). Licitações públicas no Brasil: exame integrado das Leis n.º 8.666/1993 e 10.520/2002. São Paulo: Atlas.

Rashid, A. N. R. N.; Jussoff, K; Kassim, K. M. (2009). Eco-labeling perspectives amongst malaysian consumers. Canadian Social Science, 2(5), 1-10.

Stevens, C. (2010). Linking sustainable consumption and production: The government role. Natural Resources Forum 34. 16–23.

Tauchen, J.; Brandli, L.L. (2006). A gestão ambiental em instituições de Ensino Superior: modelo para implantação em Campus Universitário. Gestão e Produção. V. 13, n. 3, 503-515.

Trigo, A. G. M.; Lima, R. S. X.; Oliveira, D. M. (2014). Índice de sustentabilidade socioambiental no ensino. Revista de Administração UFSM, Santa Maria, V. 7, Edição Especial, 07-22.

Triviños, A. N. S. (1987). Introdução à pesquisa em Ciências Sociais: a pesquisa qualitativa em educação. São Paulo: Atlas.