Implementing a Sustainability Plan on a Small, Young Campus in Brazil

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1 Introduction: Sustainability in the Brazilian Public Administration

In Brazil, several instruments of command and control originated at the federal level, such as laws, rules and federal regulations, including criteria for the insertion of socio-environmental practices in public administration. A striking fact was the

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promulgation of Decree 7746 of 2012 that defines socioenvironmental guidelines to be implemented by federal institutions, and the resulting norms that establish minimum criteria and structures for the proposed instruments (Brasil 2012a). Due to this decree, the Interministerial Commission on Sustainability in Public Administration (CISAP) was created, which is the forum for discussion and proposals with a view to implement and regulate the actions that promote sustainability within the federal government (Brasil 2016).

The Decree institutionalized the Sustainable Logistics Management Plan (PLS), a planning tool to be developed by all the institutions of the Federal Public Administration (APF). The PLS works includes actions to promote sustainability and define respective goals, with deadlines, as well as monitoring and evaluation mechanisms. Thus, the PLS gives conditions for the organs and entities of the APF set their sustainability practices and rationalization of costs and processes.

In 2015, the Ministry of Planning, Budget and Management issued Ordinance 23/2015 that indicated good practices in the management of electricity and water, and their monitoring (Brasil 2015). In October of that year, three decrees were issued,[1] with a view to: (i) digitize all administrative records and information; (ii) rationalize the management and contracting of various services, from the rental of properties to the contracting of cleaning services, including dealing with surveillance and telecommunications contracts; and (iii) optimize carbon offsets for official vehicles and aerial (Brasil 2016).

In Brazil, federal public universities are considered as autarchies of the federal government, and, therefore, are subject to this legislation that becomes one of the factors that might mobilize universities for their transition to sustainability. Therefore, a movement towards sustainability is mandatory. However, federal public universities are slowly moving in such direction. With the expansion of the network of federal universities during 2003–2015 (Brasil 2010), a number of new campuses emerged which also had to follow the aforementioned regulations. In Brasília, the Planaltina campus is one of these campuses that are an extension of the University of Brasília (UnB), a federal university founded in 1960s. This young campus emerged in 2006 and consideration regarding sustainability arose in 2010 (see more details in next sections). Four undergraduate courses are offered: Environmental Management, Agribusiness Management, Natural Sciences and Rural Education. All of them with a clear relationship with environment and, therefore, with sustainability. New campuses such as this one are an opportunity to study and develop environmental practices towards the implementation of Sustainable Development Goals (SDG) at the university scale. The objective of this paper is to describe the process of implementing a sustainability plan in this small and young campus. Specific objectives were: (1) present its distinctions compared to the business sustainability model; (2) describe how such system is being developed in Planaltina campus and (3) presents the rich-learning opportunities for academic community during the whole process of understanding and developing such system.

[1] Decrees are: 8539, 8540 and 8541/2015.

2 Differences Between the Sustainability Approach at the University and Companies

In general, environmental management actions are guided by the logic of Eco-Efficiency, a perspective that was developed within the context of corporate environmentalism. Eco-Efficiency is an ecological imperative that emerged as a selection criterion amongst business environmentalism. The prevailing discourse at the time was under the influence of the ecological wave provided by Rio-92, wherein companies that did not conform to environmental constraints would perish. Since then, environmental considerations have changed from cost to investment, significantly changing corporate behavior in the face of new agendas within the business world. In view of the promises, green consumers are guiding the purchasing choices, investing in the environment has become a business opportunity, a market difference from the past (Layrargues 2000). It was in this scenario that business environmentalism and the respective green companies emerged to explore a new competitive advantage, also bringing its discursive logic in commercial advertising. From the perspective of advertising, what should be emphasized to attract the consumer is the final balance of the company's environmental investment. That is, seals of approval or certificates usually attest the commitment to results. It does not matter for the company to explain how or if it managed to produce in an ecologically sustainable manner, but only to signal that it was 'clean' production and guided by a commitment to sustainability. In other words, corporate environmental management carries a pragmatic approach and is mainly concerned with the dissemination of results.

Aligned with companies and other sectors, sustainability in Higher Education Institutions (HEIs) has become a worldwide concern for policy makers (Alshuwaikhat and Abubakar 2008). According to Kassaye (2018), universities have an ethical obligation to act responsibly towards the environment. They must be leaders in the movement for environmental protection and be protagonists in building a sustainable future, changing ways of thinking and fostering new skills, thus bringing social, economic and ecological changes. However, in the academic environment, this same environmental management process presents a different context than that of a business environment. It is precisely in this institutional distinction that marks the meaning of the academic world, that the differential of university environmental management is founded: the search for balance between the *process* and the *product*. In academia, the process covered by environmental management systems matter as much as the final product of institutional investment in the environmental cause. To the same extent that it is important to signal a commitment to sustainability through the presentation of statistics, indicators or environmental seals attesting to having achieved satisfactory results towards sustainability, it is also important for the university that the process is not reduced to a path bureaucratic and formally institutionalized, acting only in the engine room of university campuses, without appearing throughout the university community as an engaging opportunity for learning and, consequently, for changing habits. The university, as an educational space, cannot strictly follow the approach of corporate environmental management, at the risk

of wasting the opportunity to be an educational structure that brings transformative learning during the implementation of sustainability actions. Environmental management in higher education stands out for its differential in being able to expand educational processes beyond the formal scope restricted to the classroom. In this sense, Petrelli and Colossi (2006, p. 71) pointed out that "Higher Education Institutions perform a significant social function: to provide higher education to people who can influence society's development process towards the improvement of life in planet".

To accomplish this mission, universities need to transcend the proposed models for the inclusion of sustainability into public administration as well as those related to environmental business management. Furthermore, in addition to the dimensions of teaching, research and extension, and especially university administrative management itself, emerges a privileged space for participatory environmental management with the horizon of bringing together the majority of the university community. Participation is the key idea contained in university environmental management.

3 Participatory Process of Fostering Sustainability at Faculty UnB Planaltina (FUP)

The FUP campus, located in Planaltina, a city in the northeast portion of the Federal District, Brazil, is one of the four campuses that make up the University of Brasília. With an interdisciplinary organization, FUP was created in 2006 and consists of 116 professors, 137 staff, and 1355 undergraduate and graduate students. The sustainability theme is related to the courses offered by the campus and the profile of the professors who research sustainability under different approaches. Both the four undergraduate courses offered (Degree in Natural Sciences, Degree in Rural Education, Bachelor in Environmental Management and Bachelor in Agribusiness Management) and the postgraduate programs in Environmental Sciences (PPGCA), Environment and Rural Development (PPGMADER) and Sustainability of Traditional Peoples and Lands (PPGMESPT) have close connection with the theme of sustainability (Bizerril 2018).

FUP has had influences from Environmental Education in the broadest sense since it opened. This influence was maintained by successive actions of projects organized by different professors without a formal continuity between projects, but in a complementary way. Thus, in 2007 the "Nosso Campus" (Our Campus) project was implemented, which used elements of communication and cultural promotion to develop a sense of belonging and care for the campus, with special attention to selective collection (Bizerril et al. 2009). It should be noted that the development of the sense of belonging and the culture of participation has been an important management mark of FUP since its inception (Bizerril 2015).

The idea of making the FUP campus an educational structure where all spaces and processes could become elements of living and learning about the sustainability culture gained strength with the creation of the "*Esperança Verde*" (Green

Hope) project in 2009, which coincided with the completion of "*Nosso Campus*" project, representing, therefore, a continuity, with greater theoretical strength and in the complexity of its proposals (Layrargues et al. 2011). The project generated two remarkable developments for the implementation of sustainability on campus: conducting research on the internalization of environmental issues into research and extension projects, and within the curricula of undergraduate courses at FUP (Layrargues and Dourado 2011), as well as the systematic inclusion of environmental coordination amongst the campus, which was formalized by a resolution of the Faculty Council (Resolution No. 3/2010). The project also made progress in training actions on the Solidary Selective Collection with cleaning servers and the elaboration of a new extension project, aimed at recycling cigarette butts.

In 2012, sustainability was formally associated with campus policies and missions since its inclusion in the Institutional Political Pedagogical Project (Universidade de Brasília 2012). In 2015, the "*Recicla FUP*"[2] project was created for the management of solid waste on the campus, carrying out qualitative and quantitative studies on waste, implementing and structuring the solidary selective collection, agreements with cooperatives of waste pickers in the region to receive the recyclable fraction and various actions of education and community awareness about the correct disposal of waste (Gonçalves et al. 2018; Silva et al. 2019). This same group has started to perform systematic monitoring of data related to waste production, water and energy consumption on campus (Ribeiro et al. 2019). In addition, from 2016, the "Composting" project, with the participation of students, staff and professors, implemented a small system for composting organic waste generated within the campus.

In 2019 the campus benefited from policies to improve energy efficiency at the University of Brasilia by receiving a Solar Photovoltaic Plant[3] with 132 plates and a capacity to generate 44 kWp (kilowatt-peak), representing savings of around R$ 4000/month in electricity bill of the unit - which corresponds to 12% of the bill, on average.

4 The Elaboration of FUP Sustainability Plan

In early 2019, a working group started to develop a sustainability plan for FUP. The plan included a proposal to have monitoring indicators and data collection for the first campus sustainability report. All faculty and staff were invited to a meeting of the working group and, in some cases, specific invitations were sent to those who were already developing research or extension activities aimed at promoting sustainability on campus. Nine people attended the meeting: two students from the Bachelor of Environmental Management who make up the Brazilian Junior Company of Environmental Management (Embragea), one technician, and five professors (one from

[2] www.reciclafup.com.br.

[3] https://noticias.unb.br/112-extensao-e-comunidade/2961-unb-ativa-sistema-de-geracao-de-energia-solar-fotovoltaica.

the Education and Languages area, one from Human and Social Sciences, one from Applied Social Sciences and Technology and two from Life and Earth Sciences). This group discussed the bases for building a sustainable campus from two sources: the recent literature on sustainability in higher education and the Brazilian government's guidelines for the implementation of sustainability in public administration (Brazil 2016). The group also outlined a set of indicators for monitoring the sustainability on campus and presented the main ideas to the academic community at the Campus General Assembly, as a part of the campus anniversary activities. On that occasion, the principles of sustainability and the set of indicators for monitoring it were validated, in addition to incorporating other suggestions.

The group started to work with 13 indicators, specifying the tools of measurement and analysis of each (Table 1), and initiating the data collection for the first campus sustainability report[4]. These indicators relate directly or indirectly to 13 of the 17 SDGs. It is worth noting, however, that the other four SDGs that are not related to the sustainability plan, are indirectly covered by the socio-economic profile of students enrolled on campus. More than half of the students have low income and receive financial support from the university.

In the legal context, the chosen indicators are aligned with Normative Instruction IN. 10 of 2012 of the Ministry of Planning, Budget and Management (MOP) (Brasil 2012b), which sets the rules for preparation of the Sustainable Logistics Plan (PLS). According to IN 10/2012, the PLS must contain, among other items, the practices of sustainability and rational use of materials and services as well as dissemination, awareness and training activities. In addition, according to the document, sustainability practices and the rational use of materials and services should cover the following topics: I—consumable material including printing paper, disposable cups and print cartridges; II—electrical energy; III—water and sewage; IV—selective collection; V—quality of life in the work environment; VI—sustainable purchases and contracts, comprising buildings, equipment, surveillance, cleaning, telephony, data processing, administrative support and building maintenance services; and VII—displacements, considering all means of transport, with a focus on reducing costs and emissions of polluting substances. The chosen indicators for monitoring sustainability at FUP, not only meet IN 10/2012, but go beyond this by including items 9, 10, 11 and 12 in Table 1, thus highlighting the need to adapt the instrument to the reality and vocation of a higher education institution with its peculiarities.

Reinforcing the presented legal instrument, there is also the voluntary adhesion program of the Environmental Agenda of Public Administration (A3P), created in 1999 by the Ministry of the Environment (MMA). A3P is an example of an environmental public management action by the Brazilian government, with the following thematic axes: rational use of resources, adequate waste management, quality of life at work, awareness and training of workers. Again, there is an alignment of sustainability indicators selected for the FUP with this program.

[4]http://fup.unb.br/wpcontent/uploads/2020/11/Relat%C3%B3rios-de-Sustentabilidade-da-FUP.pdf

Table 1 Indicators for monitoring sustainability on the FUP campus

	Indicator	Measurable items	Relationship with the SDGs[a]
1	Rational use of electricity	Consumption, per capita consumption, cost, cost per capita, cost by building area, awareness raising	7; 11; 12
2	Rational use of water	Monthly volume, volume per capita, monthly cost, cost per capita, awareness raising	6; 12; 14
3	Streamlining the use of paper and implementing an electronic process	Monthly paper consumption, per capita consumption, cost, disposal of toner recycling, existence of electronic process, awareness raising	12
4	Waste management and selective collection	Existence of selective collection, disposal, partnership with collectors union, awareness raising. Consumption of disposable cups	11
5	Compliance with accessibility requirements	Compliance with official standards (NBR 9050) of accessibility to buildings, furniture, equipment and urban spaces	5; 8; 9
6	Sustainable buildings	Lighting, comfort (thermal, visual, acoustic, olfactory), healthiness, materials, landscaping, security, water and energy saving structures	8; 11; 12; 13
7	Sustainable public procurement	Presence of sustainability in: contracts with outsourced companies and services, processes for purchasing consumable and permanent materials, building contracts	12; 13; 17
8	Mobility and greenhouse gases	Inventory of greenhouse gases, inventories of carbon sequestration actions (green areas of the campus, public transport use)	11; 13
9	Institutional Framework	Presence of Sustainability into the mission, organizational structure, budget and monitoring	11; 16

(continued)

Table 1 (continued)

	Indicator	Measurable items	Relationship with the SDGs[a]
10	Adherence to sustainability programs, networks and legislation	At the local, municipal, federal, international levels	17
11	Degree of internalization of environmental issues	In the curriculum, extension programs and research projects	4
12	Encouraging participation	Access to information, opinion, and decision-making processes	16; 17
13	Quality of life	Green area and constructed area ratio, green area per capita, self-community assessment	3

Management actions comprise items 1–10, and awareness and education actions include items 11–13

[a]SDGs: 1—No Poverty; 2—Zero Hunger; 3—Good Health and Well-being; 4—Quality Education; 5—Gender Equality; 6—Clean Water and Sanitation; 7—Affordable and Clean Energy; 8—Decent Work and Economic Growth; 9—Industry, Innovation and Infrastructure; 10—Reduced Inequalities; 11—Sustainable Cities and Communities; 12—Responsible Consumption and Production; 13—Climate Action; 14—Life below Water; 15—Life on Land; 16—Peace, Justice and Strong Institutions; 17—Partnerships for the Goals (UN 2020)

Rationality in the use of energy and water, as well as waste management and selective collection are consolidated items of all environmental management systems of public or private institutions, provided for in the sustainability guidelines for public administration bodies (Brazil 2016) and sustainability systems in higher education (Leal Filho 2010; Lozano et al. 2014). Accessibility and sustainable buildings have been being increasingly considered in urban planning, which results in an internal challenge for universities to apply these principles towards their own buildings. In the Brazilian case, this demand encounters barriers in the processes of public procurement of construction, as well as in the purchase, which drive the decisions towards the lowest price instead of including aspects related to sustainability. However, according to Lavor and Turatti (2018), the legal regulation for sustainable public procurement and contracting is extensive and complex. In order to make effective changes, the public manager must determine other ways of judging proposals that are not only based on price. Barki and Gonçalves-Dias (2014) affirmed that mechanisms of environmental education and awareness of civil servants must be implemented so that bidding becomes a legal instrument for the promotion of sustainability. Rec and Marini (2019) reinforce the issue of training and awareness of all those involved in the socio-environmental process of public management, so that the bureaucratic, cold and static aspects of the law and standards can be overcome and the proactive and committed posture of public managers prevails.

Brazilian university campuses tend to harbor large green areas, including parks and natural forest reserves and fragments for research and conservation. However, these

areas are under pressure from being suppressed to make room for new buildings. The consideration of green areas as having sustainability value, including carbon sequestration, implies an increase in its visibility and appreciation. The formalization of institutional commitments to sustainability through its internal documents and adherence to international agreements has been considered as an important sustainability action by universities (Lozano et al. 2014) and may help to overcome the reduced commitment of Brazilian universities to the issue (Brandli et al. 2015).

The last three indicators show the greatest differential role of promoting sustainability at a university in relation to other institutions, which is the formative function, the university's primary mission. That is why it is essential that sustainability must be present in the learning processes while, at the same time, include formative actions of research and extension, which also have an impact on society. It is known that not only the students are educated in these processes but also staff, faculty and the community who interact with the university. This reinforces the fact that participatory processes are much more efficient in promoting sustainability in higher education, as already observed in others studies (Disterheft et al. 2014).

5 Discussion: Sustainability on a Small, Young Campus

In a study on the process of institutionalization of sustainability in a Portuguese university, Bizerril et al. (2018) indicated that the way sustainability is institutionalized in universities, including the dimensions and aspects that are most highlighted, would probably be related to the perception of the theme and the concept of sustainability adopted by the process coordinators. Thus, the process could be facilitated or hindered according to the structural and cultural circumstances of the university itself, as well as the institutionalization strategies assumed. In this scenario, the sustainability at the university will be more likely to be successful if it is encouraged, planned and carried out from the conditions and characteristics of each institution, rather than merely measured or quantified for purposes of evaluation and comparison.

In the case of FUP, size and age appear to be key elements facilitating the process, since it avoids the danger of "crystallization" of campus culture and dynamics. The small size, combined with the absence of departments, reduce the decision-making bodies providing greater monitoring and community control over the actions of the campus directors. It is also a facilitator of change and adjustment in management, as is the case of an implementation of a sustainability policy. In the case of the sustainability policy, the size reduces the distance between the community and the coordinating group of sustainability actions. Additionally, a young campus is more likely to deal positively with new management proposals than more traditional institutions.

Disterheft et al. (2012) analyzed European universities that had some kind of environmental management system and concluded that the participatory approach appears to be more comprehensive than a top-down process. This is because participatory approaches not only improve the environmental performance of the institution, but also more effectively incorporate sustainability in all the university's performance

levels, especially in the training of students to address the issue in society. The need for an internal debate on sustainability also stood out in the opinions of the academic community in the study cited about the case of a Portuguese university (Bizerril et al. 2018).

Thus, although there are monitoring systems options applicable for universities, the discussion of the indicators to be adopted for the campus is itself a key stage of development of the understanding of the concept of sustainability to be built for the campus. Not least because the university needs to permanently exercise its role as a "laboratory of current reality", as suggested by González-Gaudiano et al. (2015, p. 71). Such is the case in rethinking the local application of concepts produced in the global context.

Even if participation is not widespread at first, it is important that it is qualified and representative so that bottom-up initiatives could be incorporated in the future, as noted in the present case. Indeed, pioneering sustainability projects on campus has a natural approach, and are essential to the establishment of an initial critical mass to conduct the work of the sustainability plan for the campus. However, the gradual engagement strategies of the academic community need to be addressed and strengthened. It should be expected that increased participation may imply changes in the indicators based on new suggestions, which is positive for the process, but care must be taken to respect the holistic/complex concept of sustainability assumed in initial stages.

Sustainability in higher education cannot be promoted only by top-down actions, as it shall not be an action of a management mandate but an institutional goal through internally approved legal provisions. For this reason, the FUP campus has advanced in the formalization of an environmental advisory, a sustainability policy, and now in the instrument for monitoring sustainability.

Another aspect already mentioned that seems to be strategic for sustainable universities is the sense of belonging of the academic community in relation to campus. That feeling certainly results in increased care with something that is not a private good. Rather, as in the case of Brazilian federal universities as public entities, it is a direct component in the formation of an environmental citizenship. The promotion of sense of belonging goes through various educational activities, but one aspect that has been strengthened in the FUP concerns the quality of the environment. Examples include: landscaping, the application of colors and drawings on the walls, the presence of animals (associated with responsible care projects for them), the expansion of conviviality and rest spaces. All of these are aspects that enhance the feeling of comfort and pleasure in being on campus, which, although there is a lack of empirical evidence, suggest establishing the conditions for the promotion of the sense of care and responsibility.

The existence of celebrations, strengthening democracy and happiness make up another aspect suggested by Disterheft et al. (2016) as determinants for sustainability in universities. In this sense, FUP has been practicing a schedule for years that includes regular general meetings with the academic community, and celebrations as the FUP's birthday, the June Festival (traditional Brazilian party), the University Week (with diversified activities for the whole academic and external community),

as well as small gatherings dispersed throughout the year. It can be said that the small size of the campus intensifies the positive impact of these actions, bringing people together and creating a culture of engagement that can influence those who will integrate the campus over time.

These observations corroborate recent studies such as that of Caeiro et al. (2020), who analyzed the wide range of sustainability assessment tools available and, when studying cases from Portuguese and Spanish universities, conclude that it is necessary to emphasize the development of indicators that consider non-traditional aspects of sustainability and that represent little tangible aspects of society.

6 Conclusions

The Planaltina campus is developing a sustainability assessment tool that dialogs with the guidelines of the Brazilian public administration and recent debates on sustainability in higher education. This tool excels in considering the complexity of the understanding of sustainability, including the Sustainable Development Goals, but also the main responsibilities and possibilities of the university as an educational institution and a reference for society.

In the studied case, the academic profile, the size and age of the campus were key elements facilitating the process. In fact, given the differences between universities, we infer that it is not possible to standardize the sustainability actions that each institution is able to develop at first. Therefore, when creating the sustainability plan, the people profiles and the vocation of each campus must be considered.

Although there were options of environmental monitoring systems applicable to universities, the participatory discussion of the indicators that would be adopted on campus was, in itself, a fundamental step in developing an understanding of the concept of sustainability that would guide future actions on campus.

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