Sustainable Procurement at Higher Education Institutions: Situation Analysis and Emerging Trends

Walter Leal Filho[1], Antonis Skouloudis[2], Luciana Londero Brandli[3*], Lucas Veiga Avila[4] & Lez Rayman-Bacchus[5]

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[1] Walter Leal Filho, Hamburg University of Applied Sciences and Manchester Metropolitan University, School of Science and the Environment, Chester Street, Manchester M1 5GD, United Kingdom. Email: w.leal@mmu.ac.uk

[2] Antonis Skouloudis, Centre for Environmental Policy and Strategic Environmental Management, Department of Environment - University of the Aegean, University Hill - GR 81100, Mytilene – Lesvos. Email: skouloudis@env.aegean.gr

[3*] Luciana Londero Brandli, Graduate Program in Civil and Environment Engineering, University of Passo Fundo, Campus I-km 171-BR 285, Bairro São José, Caixa Postal 611 – CEP 99001-970, Passo Fundo, RS, Brazil. Email: brandli@upf.br

[4] Lucas Veiga Avila, Federal University of Santa Maria - UFSM, Department of Postgraduate Studies in Administration, Cachoeira do Sul, RS, Brazil. Email: admlucasveiga@gmail.com

[5] Lez Rayman-Bacchus, University of Winchester, Winchester, UK E-mail: lezmichael@gmail.com

(*) corresponding author

Abstract

A review of the literature reveals the scant research on sustainable procurement in the public sector, and in particular higher education institutions. In this context, this paper aims to contribute to an emerging stream of research on drivers and challenges higher education institutions face in endorsing sustainable procurement practices. Crucially, the study seeks to shed light on critical barriers affecting the implementation of sustainable procurement at

universities. Policy recommendations are presented and approaches on how to overcome barriers to sustainable procurement are set forth.

Keywords: sustainable procurement, higher education institutions, social responsibility, environmental responsibility, sustainable development.

1. Introduction

Sustainable procurement has become a growing issue due to the increasing involvement of organizations in corporate responsibility and sustainability agendas. In its simplest form sustainable procurement (henceforth SP) can be understood as an environmentally and socially responsible purchasing (Walker and Phillips 2006; Brammer and Walker 2011). In line with the principles of sustainable development, the UK Sustainable Procurement Taskforce defines sustainable procurement in their report "Procuring the Future" as:

> *"[…] a process whereby organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst minimising damage to the environment." Sustainable Procurement Task Force Definition"*
>
> *(Defra 2006, p. 10).*

SP is a rapidly-expanding field of interest in private and public organizational members across the world (McMurray et al., 2014), particularly, to purchasing and supply managers seeking to demonstrate environmental and social responsibility across the nexus of their supply chains (Walker et al., 2012)**.** Evidence suggests that in developing countries, the implementation of SP practices into public organisations show little penetration (Islam et al., 2017). The need to incorporate sustainability considerations in purchasing goods and services lays in its indispensability, in both theory and practice, to achieve long-term development (European International Contractors, 2004).

SP ensures a resilient, healthy and just society, living within planetary boundaries, and promoting good governance (Walker and Brammer, 2009). Furthermore, engagement with SP practices facilitates efficiency and transparency, as well as compliance, financial savings, and a productive work environment (McMurray et al., 2014). In this respect, the public sector needs to procure sustainably as that is a viable option to offer real value for

money over the long term and demonstrate good stewardship of taxpayers' money (Defra, 2006).

Carter and Rogers (2008) as well as Walker and Brammer (2009**)** identify the following dimensions of SP practices: environmental concern, diversity, working conditions and human rights, occupational safety, philanthropy, community involvement, as well as buying locally and buying from small-scale suppliers. SP practices may include reducing packaging and waste, assessing vendors on their environmental performance, safety records, labour rights, ability to develop eco-friendlier products, and performance in reducing carbon emissions associated with transport of goods (Islam et al., 2017). However, despite the recognition of benefits from implementing SP practices, there is still no unifying definition in use across the public sector that both policy-makers and procurement managers could build upon (Defra, 2006). Green public procurement has been recognized as a potentially powerful instrument towards sustainable production and consumption patterns (Bratt et al., 2013), and defined as "…a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured." (Commission of the European Communities, 2008). Yet, SP retains an expanded scope and encapsulates concern for social, environmental and economic aspects of procurement decisions (Brammer and Walker, 2011).

Defra (2006) defines SP as 'a process whereby organizations meet their needs for goods, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst minimizing damage to the environment'. According to Walker and Phillips (2006), SP demonstrates the pursuit of sustainable development objectives through purchasing and supply processes, and involves a balancing act of environmental, social and economic perspectives (Walker and Phillips, 2006). SP allows organizations to meet their needs for goods, services, construction works and utilities in a way that achieves economic value on a whole-life basis in terms of generating benefits not only to the organization, but also to society and the economy, while remaining within the carrying capacity of the environment (NIGP, 2012).

In this paper we focus on SP at higher education institutions (HEIs). Available supply chain and sustainability literature lacks empirical findings on SP in the public sector and HEIs in particular. In this context, the study aims to contribute to current research on

drivers and challenges HEIs face in engaging with SP implementation. Crucially, the study seeks to shed light on critical barriers affecting the implementation of sustainable procurement at universities. Policy recommendations are presented and approaches on how to overcome barriers to sustainable procurement are set forth.

2. Barriers to sustainable procurement at universities

Barriers to the adoption, development and implementation of SP vary across countries and sectors (McMurray et al., 2014). The literature identifies an array of constraints to adopting SP practices: costs and resource constraints (Preuss, 2007), low levels of awareness, decentralized purchasing structures, time pressures, conflicting priorities, lack of top management commitment (McMurray et al., 2014), and a rigid leadership style of an organization's top executives (Roman, 2017)**,** availability and range of sustainably-produced goods and services, challenges to identify sustainable sources of supply (Walker and Brammer, 2009; Brammer and Walker, 2011; Young et al., 2015), lack of a common definition of the sustainable procurement term, and absence of mandatory guidelines (Gormly, 2014).

A number of barriers preventing HEIs from endorsing SP policies, and as a result holding them back from shaping sustainability-specific transitions, are identified below:

2.1 Perceived costs and budget restrictions

Products and services promoting sustainability are often perceived as being expensive or requiring considerable capital investments (Blair and Wrigh 2012) since green and socially-responsible production methods are often perceived of as being generally more expensive than conventional methods. With an overarching procurement objective of obtaining goods at the lowest possible price (Lyons and Farrington 2006) and at the same time tight budget constraints the cost-effectiveness of SP remains a particularly important barrier in purchasing (Chari and Chiriseri 2014).

2.2 Attitude and apathy

When financial concerns are combined with negative attitudes towards sustainability, SP implementation can become incredibly difficult. Some HEI stakeholders can be reluctant to prioritize sustainability initiatives over other projects and programs (Elliot and Wright, 2013) as they fail to identify HEIs' responsibility for promoting sustainable development. Additionally, distrust or resistance to change may generate apathy over the

sustainability performance of the campus which makes it even harder to stimulate and mobilize key stakeholders and groups.

2.3 Lack of knowledge and experience

Many public procures are unfamiliar with fundamental SP principles such as full-life costing and the appraisal of externalities. They lack knowledge on how to incorporate social and environmental criteria in tender specifications. In addition, a decentralized purchasing structure and a complex amount of suppliers make it even more difficult to manage SP across a broad range of products/services.

2.4 Availability of suppliers of sustainable products-services

The limited number of suppliers of sustainable products is another critical SP barrier. Apart from the perceived cost-effectiveness obstacles, sustainability-favorable goods are often supplied in relatively small quantities. For instance, it was not until 2011 that the German Council for Sustainable Development recommended a 20% target, i.e. the organic agriculture in Germany should be 20% of the total agricultural land (Die Bundesregierung 2012). In 2014, the country's harvest size of organic fruits and vegetables made up only 7% of the total harvest. The demand pattern grows faster than the organic-specific agricultural areas, indicating the inconsistency of the German Sustainable and Agricultural policy. Consequently, drawing on the case of Germany, it is evident that economies depend on imports from other countries. In this respect, the availability of products with environmental labels is identified as a key driver of SP (Die Bundesregierung 2012).

2.5 Appreciation of values

During the decision-making linked with the procurement processes, the purchaser has to weigh all available options, as not all green products cover the full range of sustainability criteria principles. Should fruit and vegetables from the region be purchased, even though are not produced in organic farms? What if organic products are wrapped in plastic? How to deal with organic products sup

lied from distant areas and consequently with a high figure of food miles? Such nexus of intersecting and/or overlapping criteria and principles may pose another set of SP barriers to organizations such as HEIs.

2.6 Various stakeholders

Glock and Broens (2011) identify the significant diversity in the scope of stakeholders' expectations and interests as another SP barrier. They denote that it is crucial to understand to which extent the various stakeholder groups (e.g. students, suppliers, regulators, HEI staff and management along with the local community) are involved in the decision-

making (Glock and Broens, 2011) and whether as well as how procurement decisions account for the diverse needs of these stakeholders (Bryson, 2004). In this respect, a lack of management support or campus sustainability champions are called to be major inhibitory factors in SP adoption.

3. Sustainable Procurement in HEIs: Some Case Studies

HEIs are increasingly encouraged to procure sustainably with the overarching goal of effectively managing their social and environmental footprint (Brammer and Walker, 2011). As consumers of products and services (Brookes et al., 2003) retain an important role in the category of education institutions (Pacheco-Blanco and Bastante-Ceca, 2016), with significant impact on the environment and society at large (Brookes et al., 2003). For instance, to meet their needs, UK universities spend on an annual basis over £3 billion on goods and services (e.g. paper, computers, furniture, water and waste services, etc.) (Brookes et al., 2003). Therefore, apart from the direct impact of teaching, research and knowledge transfer, universities are expected to act as pace-setters in accounting and managing their sustainability performance (Adams, 2013).

Numerous HEIs around the globe have already implement sustainable purchasing practices at various stages. In the UK and Australia, SP in HEIs places emphasis in areas such as food, stationery, wastes, personnel travels and recycled materials (i.e. mainly paper) (Young et al., 2015)**.** Young et al. assert that UK HEIs demonstrate a stronger commitment to SP compared to those of Australia. This is primarily driven through student involvement in procurement decisions, mutually beneficial collaboration between HEIs in the form of purchasing consortiums, and a national policy agenda that prioritises sustainable procurement in universities (Young et al., 2015).

Some examples of the incorporation of SP practices into HEIs' daily operations are outlined below.

3.1 Oxford University

The Sustainable Procurement Strategy developed by the Oxford University ensures that all staff involved in the procurement of goods and services within the University routinely consider how the shared environment can be enhanced and protected, how it can contribute to the health and well-being of society and help to build a sustainable economy through procurement decisions (University of Oxford, 2013).

This strategic approach focuses in the promotion of the untapped positive impact stemming from the reduction of the negative environmental and social externalities which can be achieved through procurement practices and processes. The Strategy (University of Oxford, 2013) identifies six priority areas to be considered in all procurement decisions:

1. Optimize the consumption of natural resources in procurement decisions and throughout the University's supply chain;
2. Effectively manage waste in the supply chain;
3. Effectively manage the delivery of goods and services to the University;
4. Support the management of CO_2 emissions and the delivery of the University's Carbon Management Strategy;
5. Work with suppliers and University Departments to raise sustainability awareness and the benefits of a more sustainable economy;
6. Ensure that ethical considerations such as fair trade and living wage standards are considered in procurement practices

3.2 The case of Spanish HEIs

Studies reveal that 21.5% of Spanish universities have in place different initiatives related to green procurement (e.g. having a public procurement manual), and 72.5% of them have an administration office responsible of environmental issues. Universities tend to include environmental criteria in the public procurement contract specifications and regularly organize awareness and media campaigns (Pacheco-Blanco and Bastante-Ceca, 2016). Several universities have also joined the "Declaration of Universities about Green Procurement", through which they confirm their commitment to develop a Green Procurement Policy and apply it to their supply contracts by prioritising whenever possible (CRUE, 2005).

3.3 Nottingham Trent University

Nottingham Trent University acknowledges that its purchasing decisions have a significant impact on the local environment, society and the economy, and recognises its responsibility to reduce these impacts. The University's Senior Management Team endorsed the University's Sustainable Purchasing Policy in 2007 (Nottingham Trent University, 2017). The developed guidelines assist staff to better understand sustainability issues emerging from the purchase of necessary products and services for the University. It also highlights the sustainability-specific options embedded into the purchasing contracts of particular goods and service categories. The Policy provides practical advice to equip School and Professional Service purchasers with necessary knowledge in order to fully understand and implement sustainable procurement (Nottingham Trent University, 2007).

3.4 Trent University

The goal of the Trent University's Policy on Environmentally Sustainable Procurement is to reduce the environmental impact of its operations by ensuring that all Departments are following an 'environmentally-sustainable' approach in their purchasing decisions. The Policy defines environmentally-sustainable procurement as 'the acquisition of goods and services that strives to minimize the environmental impact of producing, using and disposing of the products and, as it applies, the delivery of services'. This includes selecting products with attributes such as increased energy efficiency, recyclability, durability, decreased maintenance periods, low levels of toxicity and minimal packaging. The Policy applies to all products and services purchased by the University for use in its owned or operated buildings as well as external spaces (Trent University, 2017).

3.5 Stanford University

Stanford University's policy on Sustainable Purchasing supports and facilitates the procurement of products and materials that minimize harmful environmental effects from their production, transportation, usage and disposal. The primary goal is to develop and establish common purchasing programs for all Stanford personnel which would support suppliers of environmentally-friendly products, services and practices. To achieve this, it is considered to employ criteria that have been set forth by governmental or other widely-recognized authorities (e.g. Energy Star, EPA Eco Purchasing Guidelines). Among the factors that should be considered to identify environmentally-preferable goods or services are life cycle assessments of product or services, recyclability of products and reduction of energy/water consumption (Stanford University, 2017).

3.6 University of Alberta

The University of Alberta intends to enhance its sustainability performance through capacity-building within the purchasing system in order to evaluate and make sustainability-informed decisions, and by engaging Departments and Faculties in SP. It also aims to encourage vendors and primary dining contractors in increasing the purchase of food products produced in Alberta and/or food with formal sustainability certifications (University of Alberta, 2017a). These goals have been defined in the 2016-2020 Sustainability Plan that takes a multi-pronged approach in how the University will take action towards sustainability endorsement (University of Alberta, 2017b).

4. .Material and methods

The research team undertook an international survey on SP in HEIs utilizing the network of universities participating in the Inter-University Sustainable Development Research Programme (https://www.haw-hamburg.de/en/ftznk/programmes/iusdrp.html) and the World Sustainable Development Research and Transfer Centre (https://www.hawhamburg.de/en/ftz-nk/programmes/wsd-rtc.html).

The design of the survey instrument relied on previous literature and practical case studies (Carter and Jennings, 2004; Salam, 2009, Brammer and Walker, 2007; 2011, Walker and Brammer, 2009; Pacheco-Blanco and Bastante-Ceca, 2016; McMurray et al., 2014; ULSF, 2001; Meehan and Bryde, 2011). These previous works allowed framing the main SP practices of universities worldwide. The survey instrument consisted of 20 open- and close-ended questions, structured in a way that it could gather essential information on the level of SP policy and practices, HEIs' strengths and weaknesses in fostering SP. Likert-type scales were employed in order to measure the level of agreement of respondents to SP which were then grouped into a 'survey scale' (Sullivan and Artino, 2013); total and mean scores, standard deviation and variance were calculated for scale items. Data analysis was performed in the Statistical Package for the Social Sciences (SPSS) following Hair et al. (2014), Montgomery (2001), Morrison (1984) and Pereira (1999). All survey questions allowed respondents to add comments in support of their answer. These gathered qualitative data were processed content analysis with the software NVivo.

A pilot survey was conducted at the authors' affiliated universities in order to ensure that all relevant questions were considered and check for redundancies or similar items, as well as to evaluate the wording and the sequence of questions. Following the pilot testing, between January 2018 and February 2018, the survey instrument was distributed by email to HEI representatives. During that period, follow-up emails were sent to participate in the study. In total, 40 questionnaires were returned, but only 21 were fully usable and could be included for analysis. Sample identification of HEIs participating in the study is outlined in Table 1.

Table 1 – Characteristics of the sample HEIs.

1) Total number of enrolled students	**%**
Up to 10,000 students	47,6
Between 10 and 20 thousand students	23,8
Between 20 and 30 thousand students	5
Between 30 and 40 thousand students	10
More than 40 thousand students	14,6

2) Number of Faculties	%
Up to 5	23,8
Between 5 and 10	28,5
Between 10 and 15	15,8
Between 15 and 20	5
More than 20	26,9

3) Does the HEI have an Environmental Management System (EMS) in place?	**%**
Yes	36,4
No	66,6

4) If yes, is the EMS certified?	
Yes	10
No	90

5) Does the HEI have a Green Purchasing Coordinator?	%
Yes	19,5
No	80,5

6) The university is classified as a:	%
Public HEI	66,6
Private HEI	36,4

5. Results & discussion of findings

This section outlines the descriptive analysis of the survey findings as well as the statistical tests performed. It is structured on key elements of the survey: general characteristics of SPP implementation, SP barriers along with drivers-mechanisms able to promote SP at HEIs.

5.1 SP implementation in HEIs

The SP practices implemented at sample HEIs are presented in Table 2 and Figure 1 respectively. The value obtained in the mean statistic indicates the extent to which the institution implements SP in terms of practices indicated. Sustainable procurement practices in HEIs are found to be a measure adopted towards more appropriate purchases that adhere to best practices, techniques, regulations and guidelines adopted by industries or companies. The aspects with the highest frequency of implementation of sustainable procurement practices are indoor lighting, gardening products and services and paper/supply of printing paper. The responses also indicate that in most HEIs there is a tendency for SP to be partially implemented for certain products and materials, and there are only some sustainability-oriented actions aimed at purchasing them. Other SP practices implemented by the sample HEIs also include: the inclusion of purchases from local suppliers, especially from small enterprises, the construction of green buildings (e.g. with

LEED certification), the minimization of plastic cups, paper consumption and related waste (with the use of ceramic cups); purchasing of inverter air conditioners and LED lamps; energy consumption from renewable sources; implementation of projects in the fields of energy (solar panels), water and sewage (water reuse), mobility (bicycle and roads, car sharing) and waste (chemical waste); the acquisition of sustainable laboratory materials.

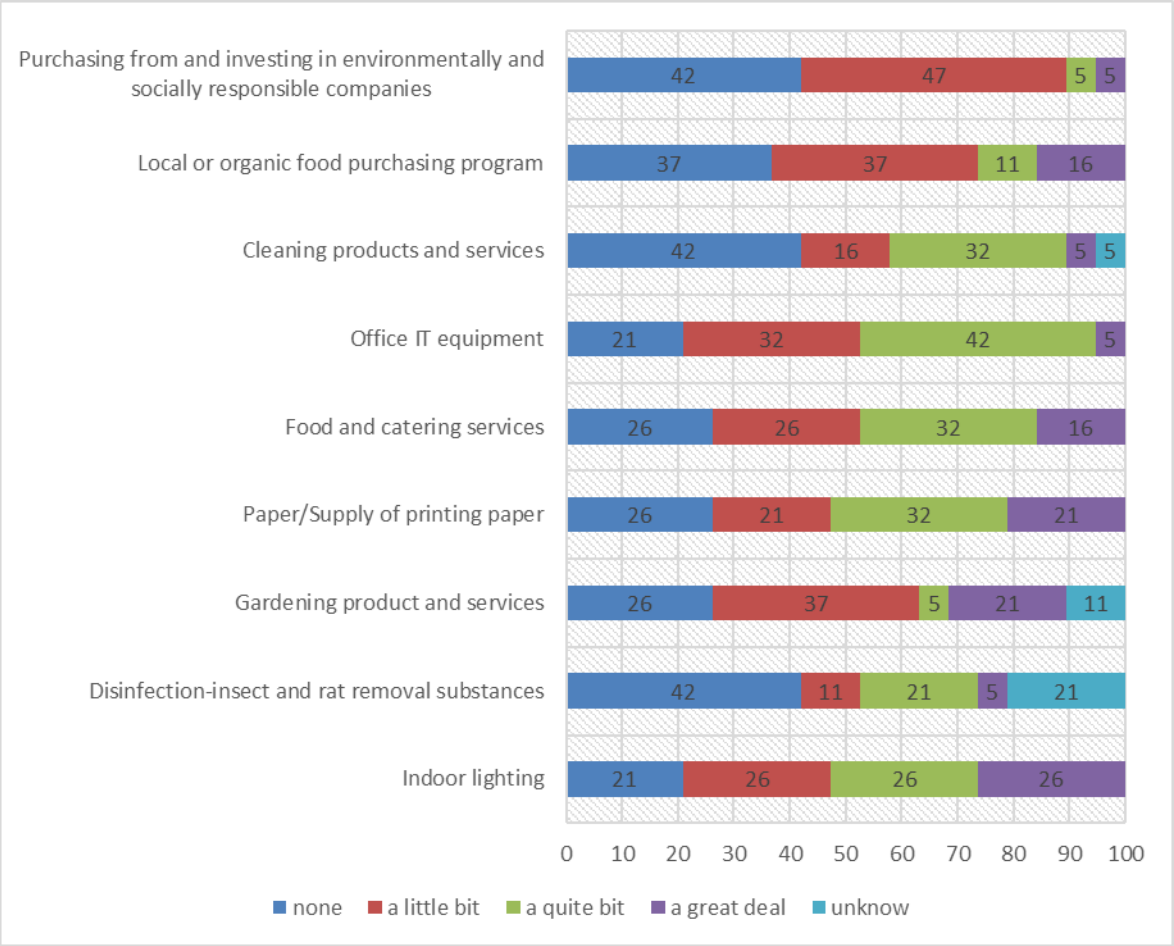
Table 2

Practices implemented by the SPP at the Universities

Categories	**N**	**Range**	**Min**	**Max**	**Sum**	**Mean***		**Std. Dev**	**Variance**
Indoor lighting	21	4.00	1.00	4.00	44.00	2.91	0.30	1.55	1.85
Disinfection-insect and rat removal substances	21	4.00	1.00	4.00	50.00	2.87	0.39	1.89	3.05
Gardening product and services	21	4.00	1.00	4.00	50.00	2.87	0.35	1.70	2.45
Paper/Supply of printing paper	21	3.00	1.00	4.00	35.00	2.87	0.30	1.50	1.74
Food and catering services	21	3.00	1.00	4.00	41.00	2.72	0.28	1.44	1.69
Office IT equipment	21	3.00	1.00	4.00	46.00	2.68	0.26	0.96	0.91
Cleaning products and services	21	3.00	1.00	4.00	47.00	2.58	0.30	1.56	1.79
Local or organic food purchasing program	21	3.00	1.00	4.00	50.00	2.44	0.28	1.46	1.64
Purchasing from and investing in environmentally and socially responsible companies	21	3.00	1.00	4.00	51.00	2.15	0.22	0.83	0.68

*Mean has been calculated according the value attributed to score of Likert Scale: 1 none; 2 a little; 3 quite a bit; 4 a great deal

Figure 1 - Practices implemented at the universities



Respondents stated that 84% of sample HEIs were actively engaged in the incorporation of energy efficient techniques and technologies into rehabilitation, renovation and maintenance of buildings and 47% in the incorporation of social and/or environmental criterial technical and administrative contract requirements. Likewise, 42% of the HEIs promoted fair trade and responsible consumption by incorporating ethical and social criteria into public procurement and contracting, 37% has dissemination and awareness-raising actions among the HEI community on the SP benefits and impacts and 37% placed emphasis on the prioritization of purchasing a product with ecolabel(s) or locally-produced.

Table 3 and Figure 2 present the responses on the products or services to which HEIs apply environmental-sustainability criteria. The topics most often recognized by respondents included building facilities, office IT equipment and indoor lighting. The themes least mentioned pertained to actions related to furniture and cleaning products-services.

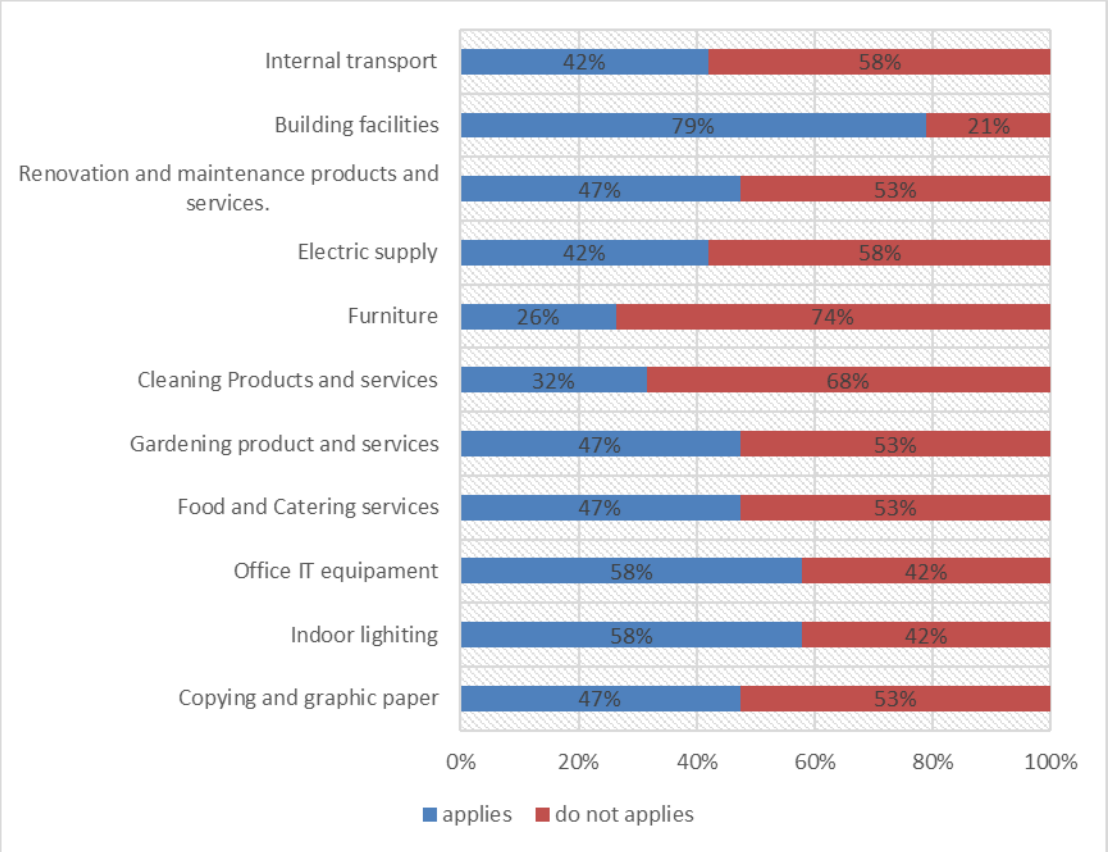
Table 3

Products or services to which universities apply environmental-sustainability criteria to generate administrative and/or technical specifications for an SP policy

Categories	N	Range	Min	Max	Mean*		Std. Dev	Variance
Cleaning products and services	21	1.00	1.00	2.00	1.76	.095	.436	.190
Furniture	21	1.00	1.00	2.00	1.76	.095	.436	.190
Electric supply	21	1.00	1.00	2.00	1.61	.108	.497	.248
Food and catering services	21	1.00	1.00	2.00	1.60	.112	.502	.253
Gardening product and services	21	1.00	1.00	2.00	1.57	.110	.507	.257
Renovation and Maintenance products and services.	21	1.00	1.00	2.00	1.57	.110	.507	.257
Internal transport	21	1.00	1.00	2.00	1.57	.110	.507	.257
Copying and graphic paper	21	1.00	1.00	2.00	1.52	.111	.511	.262
Indoor lighting	21	1.00	1.00	2.00	1.47	.111	.511	.262
Office IT equipment	21	1.00	1.00	2.00	1.47	.111	.511	.262
Building facilities	21	1.00	1.00	2.00	1.28	.101	.462	.214

*Mean has been calculated according the value attributed to score of Likert Scale: 1 applies; 2 does not applies.

Figure 2 - Products or services with environmental-sustainability criteria



5.2 SP characteristics in HEIs

To better understand the process of SP at HEIs, the respondents were asked about the level of agreement in some statements. The aim of the questions was to identify the main drivers for the implementation of SP and how it is primarily endorsed.

Table 4 presents drivers for SP. It should be noted that the respondents recognized that the moral/ethical motivations are the main reason to implement SP, followed by cost savings, a tendency to adopt best practices, the anticipated government legislation on sustainability endorsement as well as the anticipated reputational benefits. Third-party pressures or demands and expectations from stakeholders were not found to be critical drivers of SP implementation.

Table 4 – Drivers for SPP

Categories	**N**	**Range**	**Min**	**Max**	**Mean**		**Std. Dev**	**Variance**
Moral/ethical motivations	21	4.00	1.00	5.00	3.14	.221	1.01	1.02
Cost savings	21	3.00	1.00	4.00	3.09	.217	.995	.990
Our tendency to adopt best practices	21	4.00	1.00	5.00	3.09	.275	1.26	1.59
Anticipated government legislation/regulation	21	4.00	1.00	5.00	2.90	.247	1.13	1.29
Expected anticipated reputational benefits	21	4.00	1.00	5.00	2.80	.224	1.03	1.06
Current government legislation/regulation	21	4.00	1.00	5.00	2.71	.240	1.10	1.21
HEI's stakeholder demands and/or expectations	21	3.00	1.00	4.00	2.66	.232	1.06	1.13
Third-party pressures	21	3.00	1.00	4.00	2.42	.176	.810	.657
*Mean has been calculated according the value attributed to the Likert scale: 1 don't know; 2 not at all; 3 partially; 4 to a great extend; 5 fully.								

As regards primary movers towards the endorsement of SP implementation, two key groups of parameters seem to be essential. The first refers to senior management requirements, top-down initiatives and supporting directions set forth by the HEI's President and/or the Chancellor's Office of HEIs. The second pertains to the engagement and awareness of faculty members, HEI employees with along with their values, personal desires and sense of obligation (Table 5).

Table 5 - SPP is primarily endorsed by the following situations.

Categories	N	Range	Min	Max	Mean		Std. Dev	Variance
Requirements defined by senior management	21	3.00	2.00	5.00	3.52	.190	.872	.762
Top-down initiatives by Faculty members and/or senior members of the HEI's management	21	4.00	1.00	5.00	3.47	.235	1.07	1.16
Directions and examples set forth by the HEIs President's and/or Chancellor's Office	21	4.00	1.00	5.00	3.42	.224	1.02	1.05
The underlying values of employees	21	4.00	1.00	5.00	3.42	.202	.925	.857
Bottom-up initiatives of Certain employee groups of the HEI	21	3.00	1.00	4.00	3.33	.199	.912	.833
The personal desires of employees to do what is right	21	3.00	1.00	4.00	3.33	.186	.856	.733
Bottom-up initiatives of certain student groups of the HEI	21	4.00	1.00	5.00	3.28	.230	1.05	1.11
Individual championing efforts of HEI members	21	4.00	1.00	5.00	3.23	.217	.995	.990
A personal sense of Obligation among employees	21	3.00	1.00	4.00	3.23	.181	.830	.690
The morals of individual employees	21	4.00	1.00	5.00	3.23	.205	.943	.890
Stakeholder pressures	21	4.00	1.00	5.00	2.71	.250	1.14	1.31
*Mean has been calculated according the value attributed to the Likert scale: 1 strongly disagree; 2 disagree; 3 neutral; 4 agree; 5 strongly agree.								

5.3 Barriers to the Implementation of SPP

The respondents revealed the strengths and weaknesses of their institutions when fostering sustainable procurement. The main aspect that strengthens SP refers to the Institution's Management Commitment**,** in consonance with McMurray et al (2014) and Roman (2017), as shown in the following statements from the respondents.

- *"Strategic alignment with purchase commitments included in the university's key strategy."*
- *"EMS is being implemented by the University's Strategic Planning Division, and there is a connection between all areas of the institution with the plan."*

- *"The institution's desire to promote sustainability."*
- *"The university has implemented EMAS (Eco Management and Audit Scheme) as our environmental management system. We are publishing an environmental report every year and we try to reduce negative environmental impact. The main indicators are electricity, water, waste, emissions."*

Other positive aspects reported were awareness/attitude and existence of networks**,** in line with Young et al (2015). The SP strategy is facilitated when the university has a purpose and ethical behavior and when their stakeholders are critical about the sustainable way of operating. The work with colleagues from across the HEI, including Estates, Environmental Team, other HEIs etc. also corroborates SPP.

On the other hand, the weaknesses to implement SPP have also been pointed out by many institutions and corroborate with the barriers found in the literature review. Table 6 shows the barriers, the statements of the respondents and the associated authors of the literature review.

Table 6 – Barriers to implement SPP at Universities

Barriers	Answers of survey respondents	Authors
Bureaucractic barriers	*The practice of the SPP is part of the IES 2013-2020 strategic plan, the absence of a green purchasing coordinator, and bureaucratic barriers between departments are the main weaknesses in promoting SPP practices*	Roman (2017)
Decentralized purchasing structures	*Absence of legal leadership and unwillingness of the authorities whose management of their institutions is incumbent* *There is no department or section related to the sustainability policy.* *Autonomy of restaurants in the purchase of food, difficulty for suppliers to adhere to sustainable practices*. Lack of coordination	McMurray et al. (2014)
Lack of policy and guidelines for SPP	*The policy is not formalized and there is no adequate coordination within the organization.* *There is no defined guideline* *Lack of management guidelines;*	Gormly (2014).
Lack of awareness	*A great weakness is that not every teacher and*	McMurray et al., (2014)

	his division of chair are equally interested in sustainability *Lack of awareness about sustainable purchases;* *Lack of involvement with sustainable practices in different areas of the university*	
Lack of resources available and cost of sustainable goods	*There is a lack of resources available for investment, which limits the program.* *Higher cost of sustainable goods*	Preuss (2007)
Lack of evaluation and recognition	*Departments are encouraged, but unfortunately are not needed, to improve their environmental performance through sustainable procurement and reduced use of resources*	-
Lack of knowledge of options	*Lack of transparency in the supply chain in many categories, an extremely diversified supply base.*	Walker and Brammer (2009), Brammer and Walker, (2011); Young et al., (2015)

As far as SP policies are concerned, 71% of the respondents reported that they are not aware of SS polices at their universities. The reason of this high value could be linked to the lack of formal policy to deal with specific issues about products and services or when the HEI has a policy but with a limited scope for SP practice. The following respondents' statements providing supporting evidence for this claim:

> *"Very few SPP practices have specific planning and monitoring criteria and, in general, their realization depends on the criteria of individual members."*
> *"In fact, the quantitative scope of SSP practices is not clearly known."*
> *"At present, only a few policies are effective. Because of the lack of engagement, an important part of these policies is not adequately exploited."*
> *"The main focus is waste management and carbon footprint measurement, but there are limited efforts to improve SPP."*

The factors that lead to an ineffective SP policy are linked to the lack of engagement, the narrow scope of SP focusing on a small number of aspects, and, although SPP is a factor for purchasing decisions, the most influential factor is still the price of products or services or the budgetary constraints of divisions.

5.4 Measures to improve SP at HEIs

Apart from an institutional environmental policy, SP is considered as one of the most visible ways to commit to campus sustainability (Leal Filho et al., 2017). Chari and Chiriseri (2014) provide recommendations for endorsing SP indicating the need for a clear legislative and regulatory support for SP, sufficient budgetary flexibility for HEIs to make investments in SP policies, better collaboration in the procurement process and supporting initiatives. Furthermore, suppliers should be encouraged to develop sustainable products, so that there is an adequate supply of green/sustainable goods. Crucially, Chari and Chiriseri (2014) stress that SP should be simplified as much as possible.

To address barriers such as those pointed out in the previous section, some measures were suggested by the respondents (see Figure 3). In line with these statements and the barriers identified in the literature, we propose the following recommendations to improve SP in HEIs:

A formal and structured process of SP practices to be implemented with the aim of managing the purchase of materials and services. This process would encompass three phases:

Phase 1 - Planning – This step must plan the structure to implement SPP, with its scope and clear definition of SPP policy. Some aspects must be addressed:

- definition of sustainable criteria for acquisition of products and services
- consideration of budgetary constraints
- structure with purchasing priorities
- internal and external stakeholder's engagement

Phase 2 - Implementation – This phase develops the plans established in the first step. Some aspects must be addressed:

- definition of sustainable routine practices,
- extension of the scope of SPP,
- SPP communication among the academic community and external community.
- SPP awareness programs.

Phase 3 - Evaluation – This phase must monitor and evaluate SPP and publish reports about the environmental performance and database of suppliers. Some aspects must be addressed:

- Monitoring criteria for sustainability aspects
- Publication of the available data.
- Evaluation and recognition of environmental performance
- SPP reports.

Figure 3 - Suggestions to improve SP at HEIs indicated by the study's respondents.

- Strong review of the top;
- One possible way to improve SPP is to reduce stress in each division's budget, giving bonuses if the SPP is used as an important factor for the purchase decision;
- Greater involvement of stakeholders;
- Adopt specific planning and monitoring criteria at the senior management level;
- Everything needs to be implemented;
- For main power. We are already doing a little about the 'green revolution' and, therefore, it is easier - to adopt the SPP;
- Include some sustainable criteria in the acquisitions, not only the lowest price;
- Ghana practices top down approach. Unless sustainability is a national policy, it will not reach the local level;
- Integrate the application as the main concern when it comes to procurement processes;
- Careful analysis of the lifecycle cost for plant upgrades to show how the most expensive item can actually save on long-term costs;
- Introduce the Minimum Environmental Criteria;
- Formalization of the process, including specific evaluation criteria for sustainability aspects;
- Senior management should become aware of the SPP and further integrate it into the existing campus sustainability program;
- Management awareness programs;
- More data available and structure with purchasing priorities;
- The main suggestion is improved communication, both in terms of leadership engagement and in terms of sustainable routine practices;
- Incorporate the environmental (social and ethical in the publication procedure).

6.Concluding remarks

The preliminary evidence of this study paves the way for more in-depth examination of SP implementation in HEIs. A comprehensive analysis of the SP policy frameworks in a

larger sample of HEIs would indeed contribute to this direction. Instead of a "one-size fits all" approach a localized approach would be more appropriate in addressing challenges, barriers and incentives, as each campus is a unique micro-environment which is individually impacted by a certain nexus of factors.

Although many barriers do exist and will continue to be difficult to overcome, they are not insurmountable. Creating incentives seem to be a key point in encourage HEIs to overcome the barriers. There is enough reason to remain hopeful as society and universities have already recognized their responsibility in promoting a sustainable turn.

The adoption and implementation of sustainable procurement policies by organizations offers substantial opportunities to reduce the adverse environmental and social impact of business operations (McMurray et al., 2014). Among the benefits are increased awareness of environmental issues, increased equality, saving of money and resources, development of innovations, lower prices for eco-products and etc. (National Agency for Public Procurement, Sweden, 2015). Universities address the problem of sustainable procurement through education, procurement groups place pressure on universities to integrate sustainability concepts into the business curriculum (Goldschmidt et al., 2013), and through their daily operations as public organisations.

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