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Sustainability and procurement practices in higher education institutions: Barriers and drivers

Walter Leal Filho [a], Antonis Skouloudis [b], Luciana Londero Brandli [c], Amanda Lange Salvia [c], Lucas Veiga Avila [d], Lez Rayman-Bacchus [e, *]

[a] European School of Sustainability Sciences and Research, Hamburg University of Applied Sciences and Manchester Metropolitan University, School of Science and the Environment, Chester Street, Manchester, M1 5GD, United Kingdom
[b] Department of Environment - University of the Aegean, University Hill - GR, 81132, Mytilene, Lesvos, Greece
[c] 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
[d] Federal University of Santa Maria - UFSM, Department of Postgraduate Studies in Administration, Cachoeira do Sul, RS, Brazil
[e] University of Winchester, Winchester, UK

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ABSTRACT

A review of the literature reveals the scant research on sustainable procurement in the public sector, and in particular higher education institutions (HEIs). In this context, this paper aims to contribute to an emerging stream of research on drivers and challenges which higher education institutions and the extent to which they are endorsing sustainable procurement practices. The study is based on a survey of HEIs around the world, drawn from a network of sustainability practitioners and researchers at these institutions. Design of the survey drew on existing studies of barriers and enablers, the use of vignettes to provoke ideas among the research team, and a pilot study. Crucially, the study seeks to shed light on both drivers and critical barriers affecting the implementation of sustainable procurement at universities. The results and discussion identify previously unidentified barriers and enablers, and further suggest that smaller HEI have some catching up to do. Policy recommendations are presented and approaches on how to overcome barriers to sustainable procurement are set forth. These centre on the proposal that HEIs should consider developing a reflexive strategy to procurement purchasing policy, and to ensure there are suitable means for its implementation.

1. Introduction

Sustainable procurement (henceforth SP) has become an issue of growing concern due to the increasing engagement of organisations in non-financial responsibility and sustainability agendas. SP reflects a relatively new field of sustainability transitions for both public and private organisations across the world (Walker and Phillips, 2006; Brammer and Walker, 2011; McMurray et al., 2014), particularly relevant to purchasing and supply managers seeking to demonstrate environmental and social responsibility across the nexus of their supply chain networks (Walker et al., 2012). Still, the level of engagement with SP globally leaves much to be desired. Evidence suggests that in less-developed countries, the implementation of SP practices in public organisations has considerably low penetration (Islam et al., 2017). This is despite normative assumptions that delineate the incorporation of sustainability considerations into purchasing decisions as an essential parameter in achieving long-term sustainable development (European International Contractors, 2004).

SP contributes to a resilient, healthy and just society, living within the safe operating space defined by the planetary boundaries, and promoting good governance (Walker and Brammer, 2009). Moreover, engagement with SP practices facilitates organisational efficiency and transparency as well as compliance, financial savings and a (more) productive work environment (McMurray et al., 2014). Against this background, it is essential for the public sector to procure sustainably as such an approach yields shared value over the long term, and demonstrates good stewardship of

* Corresponding author.
E-mail addresses: w.leal@mmu.ac.uk (W. Leal Filho), skouloudis@env.aegean.gr (A. Skouloudis), brandli@upf.br (L.L. Brandli), amandasalvia@gmail.com (A.L. Salvia), admlucasveiga@gmail.com (L.V. Avila), lezmichael@gmail.com (L. Rayman-Bacchus).

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natural resources and the promotion of social justice, at both micro and macro levels (Defra, 2006).

SP policies and practices are likely to place emphasis on reducing packaging and waste, assessing vendors on their environmental performance, ability to develop eco-efficient products, and performance in reducing carbon emissions associated with transport of goods (Islam et al., 2017). Indeed 'Green public procurement' has been recognized as a potentially powerful instrument towards sustainable production and consumption patterns (Bratt et al., 2013); an idea recognized by the European Commission 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).

Taking a more expanded view of the scope of SP as including social, environmental and economic aspects, Carter and Rogers (2008), Walker and Brammer (2009), and Brammer and Walker (2011),identify a number of dimensions of normative SP policies and practices pertaining to environmental management issues, employee diversity, workplace conditions and human rights, occupational health and safety, philanthropy, community engagement, as well as local purchasing and support of small-scale suppliers. However, despite the recognition of social, environmental and economic benefits from implementing SP practices, a unifying understanding and commitment remains elusive across the public sector that both policy-makers and procurement managers could build upon (Defra, 2006). Defra (2006) has pinpointed SP as 'a process whereby organisations 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' (p.10). According to Walker and Phillips (2006), SP demonstrates the pursuit of sustainable development objectives through supply and purchasing processes reflecting a balancing act of economic, environmental and social perspectives (Walker and Phillips, 2006). Such a balancing act encapsulates an overarching aim of meeting input needs in a way that achieves economic efficiency in terms of generating benefits not only to the organization, but also to society-at-large while remaining within the carrying capacity of the environment (NIGP, 2012).

The number of empirical studies of SP in the public sector, and HEIs in particular, is particularly limited. Since HEIs worldwide are largely public service institutions, studies assessing public sector SP behaviour might be expected to broadly apply to HEIs as well. Nevertheless, education, public health, and other public sector institutions have divergent missions, priorities, and challenges, thus HEIs are likely to face different sustainability challenges, and respond in ways that limit generalizations across the whole public sector. Case studies by Pacheco-Blanco and Bastante-Ceca (2016) and Bala et al. (2008) (both published in the *Journal of Cleaner Production)* along with a qualitative research on the topic performed by Young et al. (2015) are of the very few specifically focusing on SP practices among HEIs. These studies provide insights on barriers and enabling conditions for SP endorsement by HEIs. Motivated by these research endeavours, we seek to shed new light on determining factors and challenges facing HEIs implementing sustainable procurement policy and management.

This paper is organized as six sections. *Vignettes: sustainable procurement policy scripts in Higher Education,* presents six vignettes, outlining variety of commitment to, and implementation of, SP policies and procedures. These policy scripts hint at, but do not reveal, the drivers and barriers to implementing SP among HEIs, and their closer examination is warranted in light of the paucity of studies of SP and HEIs. Based on a close examination of the literature, *Barriers to, and drivers of, sustainable procurement at universities* presents six main barriers and potential drivers. This provides the basis for small-scale survey of HEIs, the procedure of which is detailed in *Method*. In *Results and Discussion* we report on the differing ways that HEIs implement SP policy focusing on drivers and enablers of SP, and barriers to SP. *Conclusions* summarise the study, including offering policy recommendations and approaches on overcoming barriers to sustainable procurement.

2. Vignettes: sustainable procurement policy scripts in higher education

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) educational institutions retain an important role (Pacheco-Blanco and Bastante-Ceca, 2016), with significant impact on the environment and society at large (Brookes et al., 2003). Further, university spend has multiplier economic impacts on other sectors of the national economy, beyond *direct* effects (i.e. operational expenditure in teaching and research), namely *indirect* followed by *induced* effects (Universites UK, 2017; Universities UK, 2019). HEI purchasing of goods and services stimulates economic activity in the supplying sectors, which in turn generate further economic activity within wider supply chains, though this latter influence is mixed with other non-HEI impacts. In order to meet their needs in 2014–15, UK universities spent £11.7bn (Universities UK, 2017), up from over £3 billion on goods and services in 2000–01 (Brookes et al., 2003). Through pursuing collaborative purchasing strategies, a continual search for efficiencies, and targeting their spending at SMEs, HEIs are not only aware of their economic impact (Rensch, 2017), but are also projecting their purchasing power (Keenan, 2019). Therefore, in conjunction with their direct impacts (teaching, research and knowledge transfer), universities' SP policies and practices carry the potential to set the pace in managing sustainability performance within their supply chains and beyond. (Adams, 2013).

HEIs around the globe have already implemented sustainable purchasing policies and procedures. In the UK and Australia, SP in HEIs tend to focus on areas such as food, stationery, waste, personnel travels and recycled materials (mainly paper) (Young et al., 2015). These authors assert that UK HEIs demonstrate a stronger commitment to SP than 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). Studies reveal that 21.5% of Spanish universities have in place differing initiatives related to environmentally responsible procurement (e.g. having a public procurement manual), and 72.5% of them have an administration office responsible for environmental issues. Universities tend to include environmental criteria in the public procurement contract specifications and regularly organise 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 developing a Green Procurement Policy and applying it to their supply contracts whenever possible (CRUE, 2005). The existence of an HEI sustainable procurement policy does of itself imply a straightforward implementation; we might expect at least a lag between promise and practice. Moreover, a straightforward assessment of the implementation challenges HEIs face is not possible, because they have differing policy ambitions, implementation methodologies, and contexts, underpinning a lack of uniformity for comparing SP policies; an obstacle

noted by Pacheco-Blanco and Bastante-Ceca (2016) in their study of Spanish Universities. The use of *vignettes* (the parsimonious but insightful portrayal of an idea or setting) of HEI SP policy ambitions is an effective method of providing a context against which to make sense of the following review and assessment of barriers to, and drivers of, HEI SP.

Vignettes have been used in combination with both quantitative (e.g. Frings et al., 2015; Biagiarelli et al., 2015), and qualitative methods (Barter and Renold, 2000; Jenkins et al., 2010; Jackson et al., 2015).They are used as stimuli (Hughes and Huby, 2004), in order to generate *clues* or traces of some phenomenon, as *microcosms* of some reality, or as *provokers* that challenge norms and boundaries (Torronen, 2018). Here vignettes are employed as clues, providing a sense of the variation among HEI sustainable procurement policy ambition and their implementation, and national context. Despite their differing policy commitments and settings, these vignettes seem to point to common challenges, including but not limited to: financial goals; the encouragement of a sustainability ethic in the workplace; working with supply chain stakeholders to effect change; and the need to communicate policies with internal stakeholders. To varying degrees these accounts articulate or imply some policy-to-implementation script (policy > procedures > guidelines). These vignettes unavoidably represent a selective slice of reality (all operate in advanced Anglo-Saxon economic cultures), but nominally they are all exposed to the same sustainability discourse and its importance to procurement policies and procedures, and they help highlight the conceptual issues under study. The following vignettes are of real institutions with published policies and international reputations to protect. They have been anonymised as their names are not relevant, and might even be a distraction.

2.1. University A, UK: sustainable procurement strategy

The Sustainable Procurement Strategy developed by University A 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. This strategic approach focuses on promoting the untapped positive impact available from the reduction of negative environmental and social externalities, and achievable through sustainability procurement practices and processes. The Strategy 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. The University provides guidance (*Practical considerations*), sensitising staff to thinking about the practicalities of implementing sustainability.

2.2. University B, UK: sustainable procurement policy

University B 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 Procurement Policy in 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 in the purchasing contracts of particular goods and service categories. The Policy provides practical advice to equip both Faculties and Professional Service purchasers with the necessary knowledge in order to fully understand and implement sustainable procurement.

2.3. University C, Canada: Policy on Environmentally Sustainable Procurement

The goal of University C's Policy on Environmentally Sustainable Procurement is to reduce the environmental impact of its operations by ensuring that all Departments follow 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.

2.4. University D, Canada: sustainable purchasing

University D intends to enhance its sustainability performance through capacity-building within the purchasing system in order to better evaluate and make sustainability-informed decisions, and also by engaging Departments and Faculties in SP. It also aims to encourage vendors and primary dining contractors to increase the purchase of food products produced in Alberta and/or food with formal sustainability certifications. 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. By way of translating these commitments into practice, the University provides workshops, green procurement principles, supplier guidelines and codes, and the creation of internal network to share experiences and good practice.

2.5. University E, USA: sustainable purchasing policy

University E'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 employs criteria that have been set forth by governmental or other widely-recognized authorities (e.g. Energy Star, EPA Eco Purchasing Guidelines). Among the factors it prescribes which should be considered in identifying environmentally responsible goods or services are: life cycle assessments of product or services, recyclability of products, and reduction of energy/water consumption.

2.6. University F, Australia: procurement and purchasing guidelines

University F's standardised procurement process embodies the following principles (updated 218): (a) value for money, being the benefits achieved compared to the whole-of-life costs (eg. price, quality, reliability, service, delivery, payment terms, strategic suppliers); (b) quality, efficiency and effectiveness; (c) probity and

equity; (d) transparency; (e) effective competition, including ethical behaviour and fair dealing; (f) environmental and sustainability considerations; and (g) other risk management considerations. Sustainability considerations contribute one of the principles. Close reading of its purchasing policy, procedures, and guidelines provide no specific guidance on sustainable purchasing; the University has a sustainability policy regarding on-campus life, but none explicitly for procurement.

These vignettes of HEI procurement policy scripts of several advanced Anglo-Saxon cultures provide clues to the extent of, and variety in, their sustainable procurement policy ambition, implementation, and institutional context (historical, organisational complexity and culture). One might expect HEIs in developed economies to be taking a lead in their own sustainable procurement policies and practice, consistent with their leadership in research and teaching in sustainability.

3. Barriers to, and drivers of, sustainable procurement at universities

Barriers and drivers 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, decentralised 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, and challenges to identifying 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). While these and other studies emphasise barriers (e.g. Bala et al., 2008), Walker et al. (2008) finds there is a tendency in the literature to focus on drivers, 'perhaps through a desire to focus on the positive aspects' of SP.

For analytical purposes barriers and drivers may be usefully grouped. For example, following Tay et al. (2015), they may be *strategic* (e.g. degree of alignment of SP strategy with corporate strategy) and *functional* (e.g. influence from internal CSR policies if these exist, and the level of sustainability competencies within procurement), or as Walker et al. (2008) shows, *internal* organization related (e.g. is the strength of desire to reduce cost, level of commitment of leadership, and employee involvement) and *external* (e.g. regulatory constraints and customer demands). Reflection on the differences between barriers and drivers reveals that barriers are often undeveloped drivers, and may, given appropriate conditions, become drivers. For example, changing perceptions about true cost, shifting leadership attitudes, level of SP expertise, the balance of supplier commitment, degree of awareness of the trade-offs between purchasing policies and environmental valuations, and the degree of alignment of stakeholder agendas towards sustainability thinking, may all be nudged from being barriers to becoming drivers. We elaborate on six barriers preventing HEIs from endorsing SP policies, and as a result, holding them back from shaping sustainability-specific transitions.

3.1. 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 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 the existence of tight budget constraints, the cost-effectiveness of SP remains a particularly important barrier in purchasing (Chari and Chiriseri, 2014).

3.2. Leadership attitude and stakeholder fatigue

When financial concerns are combined with dismissive attitudes towards sustainability, SP implementation can become incredibly difficult. Some HEI stakeholders can be reluctant to prioritise sustainability initiatives over other projects and programs (Elliot and Wright, 2013) as they fail to see HEIs as responsible for promoting sustainable development. Additionally, distrust or resistance to change and stakeholder fatigue over the sustainability performance makes it even harder to stimulate and mobilise key stakeholders and groups. Some issues/projects asking for stakeholder's participation may lead to stakeholder fatigue, especially, when these processes are not run well and stakeholders perceive that their involvement gains them little reward or capacity to influence decisions (Reed, 2008; Leal Filho and Brandli, 2016).

3.3. Lack of knowledge and experience

Many public procurement functions are unfamiliar with fundamental SP principles such as full-life costing and the appraisal of externalities. In their review of the literature, Cheng et al. (2018) reported on barriers including lack of awareness at all levels of government, including unfamiliarity with national policies and guidance, related tools and technical support; a problem reinforced by limited official guidance. This situation is in flux as organisations are increasingly exposed to external debate about sustainability. Nevertheless, following Cheng et al. (2018), there remains a lack knowledge (or of readiness) of how to incorporate social and environmental criteria in tender specifications. In addition, a decentralised purchasing structure and a complex network of suppliers make it even more difficult to manage SP across a broad range of products/services.

3.4. Availability of suppliers of sustainable products and services

The limited number of suppliers of sustainable products and services is another critical SP barrier. Apart from the perceived cost-effectiveness obstacles, sustainability-favourable 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. that 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. Further, overall demand is growing faster than organic-specific agricultural production, indicating the inconsistency of the German Sustainable and Agricultural Policy. Consequently, generalizing from the case of Germany, it is likely that many economies depend on imports from other countries, accompanied by the higher carbon footprint associated with shipping. In this respect, the availability of products with environmental labels is identified as a key driver of SP (Die Bundesregierung, 2012).

3.5. Procurement evaluation criteria

As part of the decision-making that underpins procurement, purchasing teams may be unaware that there is no simple division between sustainable and unsustainable products and services. Should fruit and vegetables from the region be purchased, even though they are not produced on organic farms? What if organic

products are wrapped in plastic? How to deal with organic products supplied from distant areas and consequently with a comparatively high carbon footprint? Such intersecting and/or overlapping evaluation criteria and principles, and product characteristics may pose another set of SP barriers to organisations such as HEIs.

3.6. Diverse stakeholders

Glock and Broens (2011) identify 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 (and if so, 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 present major inhibitory factors in SP adoption.

4. Method

The research team undertook an international survey of SP strategies in HEIs by drawing on the network of universities participating in the Inter-University Sustainable Development Research Programme (https://www.haw-hamburg.de/en/ftz-nk/programmes/iusdrp.html), with the aim of accessing worldwide universities.

Around 150 universities have been contacted by email through their representatives (Rectors, Pro-Rectors, Representatives of the Sustainability Office or Environmental Management System). These universities represent an international community with a shared interest in sustainability issues. The sampling strategy is therefore best characterised as non-probabilistic, involving a combination of purposive, homogeneous, and self-selection methods (Saunders et al., 2003). This strategy directly addresses those most likely to have experience of sustainability and purchasing issues, thereby providing greater insight to our questions. This sampling method strengthens the validity of our research design and reliability of our data.

The weakness of this sampling method is that it relies on a sufficient number of individuals choosing to participate. The response rate was under 10%, and thus, the results and conclusions may not be representative of all HEIs internationally. Nevertheless, given our sampling strategy, this response rate still provides a basis for suggesting the existence of patterns. For this reason, the study can be considered qualitative in nature, with no ambition to claim to be comprehensive. The data collection difficulties are inherent to similar, self-funded studies. A future study would complement this research with in-depth interviews and/or case studies in order to help develop a deeper understanding of the practices, barriers and drivers of SP in HEIs.

i. **Instrument Design:** The design of the survey instrument draws on previous literature, reflection on the implementation challenges suggested by the vignettes introduced above, a pilot survey, and published practical case studies (Walker and Brammer, 2009; Pacheco-Blanco and Bastante-Ceca, 2016; McMurray et al., 2014; Meehan and Bryde, 2011). These previous works allow the framing of the main SP practices of universities worldwide. A pilot survey was conducted at the affiliated universities of the authors to ensure that all relevant issues were considered and to check redundancies or similar items, as well as to evaluate the writing and sequence of questions. The pilot enabled the questionnaire to be adjusted and redundant questions eliminated. Critical reflection on the three sources, and a pilot survey provides assurance of the construct validity of the instrument. The survey instrument (Exhibit 1 below) consists of 20 open- and close-ended questions, structured so as to gather essential information on the level of SP policy and practices, and HEIs' strengths and weaknesses in fostering SP. The language used was English.

ii. **Data collection:** The data collection was carried out by an on-line survey from January 2018 to February 2018 using google forms. A total of 40 responses were received, but only 21 were fully usable and could be included for analysis. The discarded questionnaires were those which were not fully completed because all questions were considered important for understanding the SP strategies of Universities. Consequently, the reliability of the survey is weakened, due to the (reduced size) of completed responses.

iii. **Data analysis:** Data from closed questions were performed by statistical analysis (Mean, Standard Deviation and Frequency) considering the recommendation of Hair et al. (2014), Montgomery (2001) and Morrison (1984). Data from open questions were analysed by content analysis. The technique involves the reading and interpretation of the material in a progressive and systematic way, categorizing the data (Moraes, 1999). The operationalization of the review process occurred with the support of Nvivo software, which was developed specifically to develop qualitative studies (Mozzato and Grzybovski, 2011).

5. Results and discussion

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 SP implementation; SP barriers to implementation; SP drivers able to promote SP; and a discussion on improving SP implementation.

5.1. SP implementation in HEIs

The sample reveals that almost half (47.6%) of the HEIs have up to 10.000 students, and 66.6% are public HEIs. Most of these do not have an EMS (66.6%), and of those that do have EMS in 90% of cases, it is not certified. Perhaps unsurprisingly then, some 80.5% of these HEIs also do not have a sustainable procurement coordinator. Sample characteristics of HEIs participating in the study are outlined in Table 1. In global terms, insofar as HEIs have, or are developing, SP policies (Section 2), the data from this sample suggest HEI practices to be substantially behind the policy promise.

Regarding Sustainable Procurement implementation practices, Fig. 1 shows responses to nine categories of interest. The first seven focus on products and services that form part of the everyday work environment, while the last two represent direct questions about sustainability related practices. The responses indicate the extent to which the institution implements SP, between the range 'unknown' to 'a great deal'. As the first seven categories show, sustainability criteria are largely not considered important in the procurement of a wide range of products/services, whether purchased outright or purchased as renewable service contracts (e.g. catering, gardening), or whether purchased frequently (e.g. food) or less frequently (e.g. office IT equipment, indoor lighting products). Purchases and services with the highest frequency of being informed by sustainability criteria are indoor lighting products (72%), and paper for printing and non-printing purposes (72%), and office and IT equipment (72%). Even then, of the institutions that use

Exhibit 1
International Study on Sustainable Procurement at Universities

Dear Colleagues.

A team of members of 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) is undertaking an international study on sustainable procurement among universities.

Sustainable procurement has been defined as 'a process whereby organisations 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'. It is the pursuit of sustainable development objectives through the purchasing and supply process, and involves balancing environmental, social and economic objectives. Sustainable procurement practices (SPP) may include reducing packaging and waste, assessing vendors on their environmental performance, safety record, labour rights, ability to develop eco-friendlier products, and performance in reducing carbon emissions associated with transport of goods.

As the name implies, the study will ascertain the extent to which sustainable procurement is being currently considered or practiced by universities around the world.

We would like to invite interested colleagues to take part in the study, in order to shed light on trends and developments on sustainable procurement practices (SPP) in higher education institutions (HEIs).

Thank you for your participation.

1) Total number of enrolled students:
   ( ) Up to 10,000 students ( ) Between 10 and 20 thousand students ( ) Between 20 and 30 thousand students
   ( ) Between 30 and 40 thousand students ( ) More than 40 thousand students
2) **Number of Faculties**
   ( ) Up to 5 ( ) Between 5 and 10 ( ) Between 10 and 15 ( ) Between 15 and 20 ( ) More than 20
3) Does the HEI have an Environmental Management System (EMS) in place?
   ( ) Yes ( ) No
4) If yes, is the EMS certified?
   ( ) Yes ( ) No
5) Does the HEI have a Green Purchasing Coordinator?
   ( ) Yes ( ) No
6) The university is classified as a:
   ( ) Public HEI
   ( ) Private HEI
7) Please indicate the extent to which your institution has implemented these practices using the following scale.

Categories	1 Unknown	2 None	3 A little	4 Quite a bit	5 by a significant amount
Local or organic food purchasing program					
Purchasing from and investing in environmentally and socially responsible companies					
Indoor lighting					
Office IT equipment					
Food and catering services					
Gardening product and services					
Paper/Supply of printing paper					
Cleaning products and services					
Disinfection-insect and rat removal					

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

Categories	Applies	Do not applies
Copying and graphic paper		
Indoor lighting		
Office IT equipment		
Food and catering services		
Gardening product and services		
Cleaning products and services		
Furniture		
Electric supply		
Renovation and maintenance products and services.		

9) Please respond to the following statements. In my institution, SPP is mostly driven by.

Categories	1 Don't know	2 Not at all	3 Partially	4 To a great extend	5 Fully
Expected-anticipated reputational benefits					
Moral/ethical motivations					
Our tendency to lead best practice					
Anticipated government legislation/regulation					
Current government legislation/regulation					
The Chancellor's/Board's vision					
Cost savings					
Demands and/or expectations expressed by HEI's stakeholders					
Third party pressure					

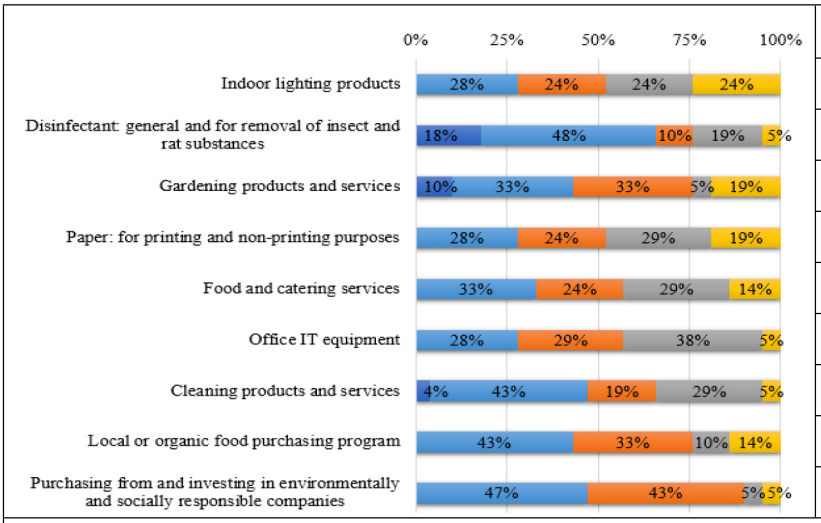
10) Situations under which SP is primarily endorsed. In my institution, SPP is primarily endorsed by:

Categories	1	2	3	4	5
Strongly disagree					
Disagree					
Neutral					
Agree					
Strongly agree					
Directions and examples set forth by the HEIs President's and/or Chancellor's Office					
Requirements defined by senior management					
Top-down initiatives by faculty members and/or senior members of the HEI's management					
Bottom-up initiatives of certain employee groups of the HEI					
Bottom-up initiatives of certain student groups of the HEI					
Individual championing efforts of HEI members					
Stakeholder pressures					
The morals of individual employees					
The personal desires of employees to do what is right					
A personal sense of obligation among employees					
The underlying values of employees					

11) Please describe the greatest strengths and weaknesses of your institution in fostering sustainable procurement.
12) Do you set quantitative targets regarding your sustainable procurement practices? How often are these targets reviewed and revised?
13) Are there planned "next steps" at your institution to strengthen your commitment to sustainable procurement?
14) Has your university formally adopted commitments to promote and implement sustainable procurement practices (SPP)?
15) What percentage of the total amount of money spent by your university last year through competitive bidding was tendered by including environmental criteria in contract documents?
16) What measures would you suggest to improve SPP at your university?

Table 1
Characteristics of the sample HEIs.

1) Total number of enrolled students	%	3) Does the HEI have an Environmental Management System (EMS) in place?	%
Up to 10,000 students	47,6	Yes	36,4
Between 10 and 20 thousand students	23,8	No	66,6
Between 20 and 30 thousand students	5		
Between 30 and 40 thousand students	10	***4) If yes, is the EMS certified?***	
More than 40 thousand students	14,6	Yes	10
		No	90
2) Number of Faculties	%	***5) Does the HEI have a Green Purchasing Coordinator?***	%
Up to 5	23,8	Yes	19,5
Between 5 and 10	28,5	No	80,5
Between 10 and 15	15,8		
Between 15 and 20	5	***6) The university is classified as a:***	%
More than 20	26,9	Public HEI	66,6
		Private HEI	36,4



	Mean*	Std. Dev.	Var.
Indoor lighting products	2.91	1.55	1.85
Disinfectant: general and for removal of insect and rat substances	2.87	1.89	3.05
Gardening products and services	2.87	1.70	2.45
Paper: for printing and non-printing purposes	2.87	1.50	1.74
Food and catering services	2.72	1.44	1.69
Office IT equipment	2.68	0.96	0.91
Cleaning products and services	2.58	1.56	1.79
Local or organic food purchasing program	2.44	1.46	1.64
Purchasing from and investing in environmentally and socially responsible companies	2.15	0.83	0.68

*Mean has been calculated according to the value attributed to score of Likert Scale: 1 unknown, 2 none; 3 a little; 4 quite a bit; 5 a great deal

*Purchasing category descriptors
Indoor lighting products: *All types of products, including ceiling, table, floor, removable, fixed, and associated fittings*
Disinfectant: general and for removal of insect and rat substances *All types of chemicals (which may or may not be toxic)*
Gardening products and services *Both electrical/battery and non-electrical items, and specialist tradespeople*
Paper: for printing and non-printing purposes *All types, for administrative and academic use*
Food and catering services *All types of packaged foods and drinks to be sold in the university's cafes and refectories/restaurants, and for preparation and cooking in the university's kitchens*
Office IT equipment *All types of computing and communications machines, to be used by academic, professional and administrative staff*
Cleaning products and services *All types of chemicals, which may or may not be toxic, and specialists*
Local or organic food purchasing program *Whether there is a policy of sourcing locally produced food, including those organically produced*
Purchasing from and investing in environmentally and socially responsible companies *Whether there is a policy of investing in, and thereby promoting, environmental and social responsibility in suppliers*

Fig. 1. SP practices implemented by the universities across product/service categories*.

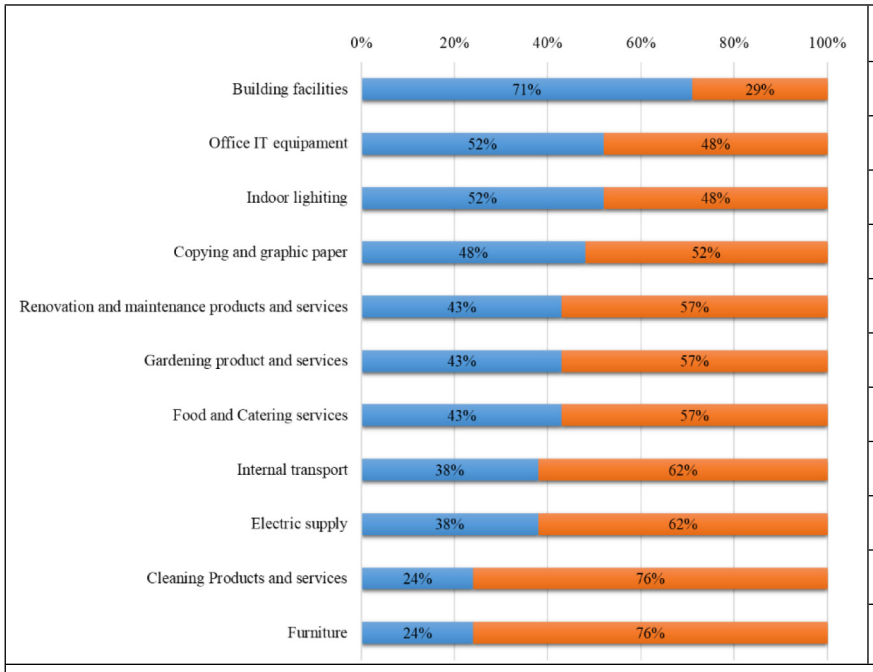
sustainability criteria 'a great deal' only 24% apply it to indoor lighting products, 19% apply it to paper, and 5% apply it to IT equipment. A very small proportion of institutions apply sustainability criteria 'a great deal' in the other categories: disinfection 5%; cleaning products 5%; food and catering 14%; paper; gardening products 1%.

Categories eight (Local or organic food program), and nine (Purchasing from and investing in environmentally and socially responsible companies) ask directly about sustainable purchasing, cutting across the focus of the preceding purchasing categories, and provides a cross-check of the extent to which HEIs are committed to sustainable purchasing practices. Purchasing decisions across the first seven categories are weakly informed by sustainability criteria. This is consistent with the responses to categories eight and nine, which show a clear tendency to ignore sustainability criteria, in procuring locally produced food (43%), and in the assessment of suppliers (47%). Even where institutions do employ sustainability criteria 'a great deal', only 14% do so in the purchasing of local or organic food, and only 5% consider it in assessing the suitability of suppliers.

Of the HEI that do implement SP policies, results presented in Fig. 2 show that in the incorporation of social and/or environmental criteria in technical and administrative contract requirements, 71% (Building Facilities) of HEIs are actively engaged in the incorporation of energy efficient techniques and technologies, and 52% in both Office IT equipment and Indoor lighting. Further, forty-eight per cent of these HEIs apply sustainability criteria to purchasing copying and graphic paper. Purchasing decisions where sustainability criteria seem least applied are furniture and cleaning products and services, both with 24%.

5.2. Drivers and endorsement of SP in HEIs

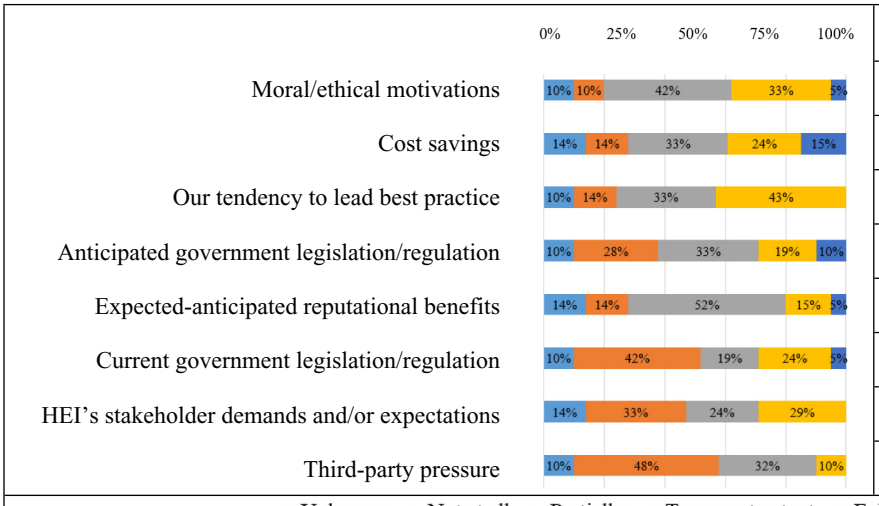
Respondents were asked to identify the main drivers for the implementation of SP (Fig. 3), and how these are primarily endorsed (Fig. 4). Respondents identify moral/ethical motivations are the main reason to implement SP, followed by cost savings, a tendency to adopt best practices, the anticipated government



	Mean*	Std. Dev.	Var.
Building facilities	1.28	.462	.214
Office IT equipament	1.47	.511	.262
Indoor lighiting	1.47	.511	.262
Copying and graphic paper	1.52	.511	.262
Renovation and maintenance products and services	1.57	.507	.257
Gardening product and services	1.57	.507	.257
Food and Catering services	1.60	.502	.253
Internal transport	1.57	.507	.257
Electric supply	1.61	.497	.248
Cleaning Products and services	1.76	.436	.190
Furniture	1.76	.436	.190

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

Fig. 2. Products or services to which universities apply environmental-sustainability criteria to generate administrative and/or technical specifications for an SP policy.



	Mean*	Std. Dev.	Var.
Moral/ethical motivations	3.14	1.01	1.02
Cost savings	3.09	.995	.990
Our tendency to lead best practice	3.09	1.26	1.59
Anticipated government legislation/regulation	2.90	1.13	1.29
Expected-anticipated reputational benefits	2.80	1.03	1.06
Current government legislation/regulation	2.71	1.10	1.21
HEI's stakeholder demands and/or expectations	2.66	1.06	1.13
Third-party pressure	2.42	.810	.657

*Mean has been calculated according to the value attributed to the Likert scale: 1 unknown; 2 not at all; 3 partially; 4 to a great extent; 5 fully.

Fig. 3. Drivers for SP.

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. Our first contribution is to bring to attention drivers particular to HEIs, beyond those identified by Young et al. (2015) and Bala et al. (2008).

Fig. 4 shows the primary movers of the endorsement of SP implementation. The highest level of agreement was observed for endorsements connected to requirements defined by senior management, top-down initiatives by faculty members or senior members of HEIs management, directions and examples set forth by the HEIs President's or Chancellor's Office and the underlying values of employees.

Respondents revealed the strengths and weaknesses of their institutions when fostering sustainable procurement. In consonance with McMurray et al. (2014) and Roman (2017), the main aspect that strengthens SP is the institution's management commitment, as shown in the following respondent statements.

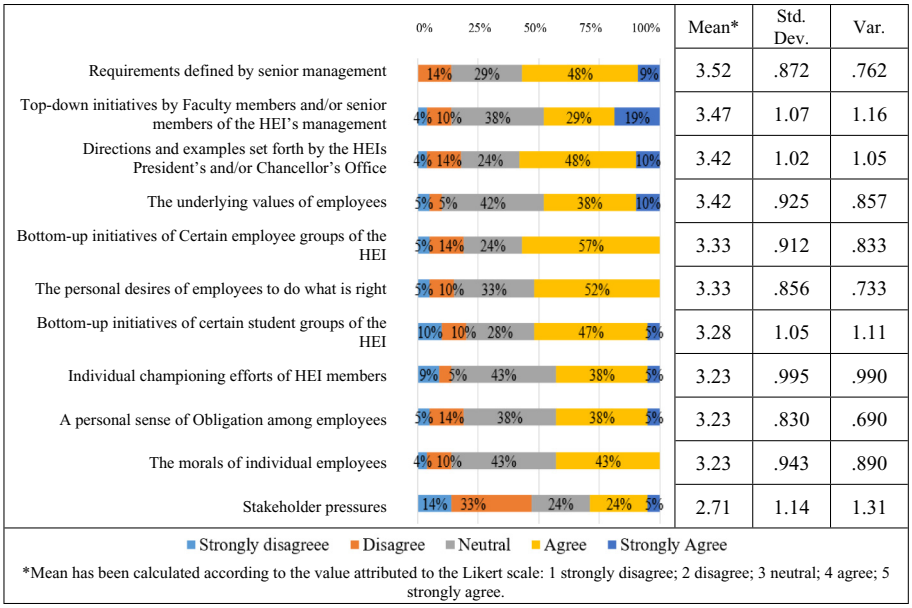


Fig. 4. Situations under which SP is primarily endorsed.

- "Strategic alignment of 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 sustainability purpose and promotes ethical behaviour, and when their stakeholders are critical about the institution's [un]sustainable ways of operating. External professional staff networks across HEIs, and internal communication between departments, including Estates, Environmental Team, and others also help support commitment to the development of SP policy.

5.3. Barriers to the implementation of SP policy

On the other hand, respondents also highlighted the barriers to implementing SP policies (Table 2). With the notable exception of one barrier identified in this study (Lack of evaluation and recognition), the results confirm barriers reported by Young et al. (2015), and the literature on public sector SP. Our second contribution is to confirm that many barriers found in public sector research on SP also apply to HEIs (Table 2) and that their variety goes beyond those identified in studies by both Young et al. (2015) and Bala et al.

Table 2
Barriers to implement SP at Universities.

Barriers[a]	Respondent statements
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".*
Bureaucratic barriers Roman (2017)	*"The practice of the SP 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 SP practices".*
Decentralised purchasing structures McMurray et al. (2014)	*"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".*
Lack of policy and guidelines for SP Gormly (2014)	*"The policy is not formalized and there is no adequate coordination within the organization.'* *"There is no defined guideline."* *"Lack of management guidelines."*
Lack of awareness McMurray et al. (2014)	*"A great weakness is that not every teacher and 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 Preuss (2007)	*"There is a lack of resources available for investment, which limits the program."* *"Higher cost of sustainable goods".*
Lack of knowledge of options Walker and Brammer (2009), Brammer and Walker (2011); Young et al. (2015)	*"Lack of transparency in the supply chain in many categories, an extremely diversified supply base."*

[a] All except Young et al. (2015) are studies of public sector SP.

(2008).

As already noted, 80.5% of HEIs in this study do not have a sustainable procurement coordinator (Table 1). The reason for this high value could be due to the lack of formal SP policy to deal with specific issues about products and services, or the HEI has an SP policy but the practice is limited and unsystematic. As several respondents said:

> "Very few SP practices have specific planning and monitoring criteria and, in general, their realization depends on individual members."
>
> "In fact, the quantitative scope of SP 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 SP."

Our evidence suggests that an ineffective SP policy may result from lack of engagement (both internal and external), the narrow scope of SP focusing on a small number of aspects (operational rather than strategic). Overall, while SP is a factor in some purchasing decisions, we agree with Young et al. (2015) that the most influential factor is still the price of products or services and the budgetary constraints of divisions.

5.4. Measures to improve SP at HEIs

Apart from an institutional environmental policy, SP is considered one of the most visible ways of demonstrating commitment to campus sustainability (Leal Filho et al., 2018). Chari and Chiriseri (2014) provide recommendations for endorsing SP including the need for clear legislative and regulatory support for SP, sufficient budgetary flexibility for HEIs to make investments in SP policies, and better collaboration in the procurement process alongside other supporting initiatives. Furthermore, as a public institution with significant purchasing power, HEIs are in a position to encourage suppliers to develop sustainable policies, practices, and products, thereby helping transform supply chain practices. Crucially, Chari and Chiriseri (2014) stress that SP should be simplified as much as possible. In order to address barriers such as those identified in this study, respondents made various suggestions (Fig. 5).

In line with these statements and the barriers identified in the literature, we propose the following recommendations to improve SP in HEIs. A formal, structured yet flexible SP process could be implemented with the aim of managing the purchase of materials and services. Crucially, the process requires at least one driver to kick-start the process, typically government legislation or HEI leadership determination, but employee or student activism are also important driving forces. There are many frameworks appropriate for HEIs, such as that offered by Defra (2011). The framework should reflect that introducing SP is a journey and a learning process: moving from introducing the basics (e.g. training), through developing and embedding good practice, to enhancing policies and practices, and eventually being recognized as a leader of best practice. Developing such an appropriate framework would encompass four stages, as shown in Table 3:

6. Conclusions

This study seeks to contribute to the existing understanding of the drivers and barriers HEIs face in pursuing sustainable procurement policies. The research design involved a survey of universities participating in the Inter-University Sustainable

- Strong direction from the top;
- One possible way to improve SP is to reduce stress in each division's budget, giving bonuses if the SP 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;
- We are already doing a little about the 'green revolution' and, therefore, it is easier - to adopt SP;
- Include some sustainable criteria in the acquisitions, not only go for 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 lead the promotion of awareness of SP 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 environmental, social, and ethical performance in our publications.

Fig. 5. Respondent suggestions for improving SP at HEIs.

Table 3
Stages for a framework to improve SP at HEIs.

Stage 1 – Analysis of the current situation of the individual HEI with regard to SP capabilities. This requires an initial examination of existing:
• institutional practices, with particular focus on both environmental and social valuations deployed in everyday practices, including an assessment of barriers to change and drivers for change;
• gaps and weaknesses in terms of sustainability and corporate responsibility thinking within the HEI's wider strategic plan;
• weaknesses in the institution's alignment with national sustainability and corporate responsibility guidelines and legislation;
• weaknesses in the institution's support for wider sustainability initiatives (e.g. climate change challenge, fair trade, natural resource stewardship councils, sustainable development goals)
Stage 2 - Planning – Development of a structure for implementing SP. Specific aspects to be addressed:
• inclusion of SP strategy within the HEI's wider strategic plan;
• addition to board of trustees responsibilities: routine inclusion as governance issue;
• definition of sustainable criteria for acquisition of products and services;
• develop targets and framework for ongoing review: extending the scope of SP through learning including evaluation of SP performance (departmental, institutional, sector benchmarking);
• develop performance and reward framework for changing staff behaviour;
• develop an authority framework of champions for pushing appropriate change down to local levels;
• consideration and evaluation of budgetary constraints vis a vis the sustainability imperative;
• development of strategies for internal and external stakeholder's engagement.
Stage 3 - Implementation of plans established in the first phase. Specific aspects to be addressed include:
• empowerment of local champions (cross- departmental);
• development and codification of sustainable purchasing best practices;
• incorporate appropriate SP practices criteria within annual staff performance reviews;
• join an HEI SP purchasing consortium,
• join an HEI sustainability practitioner networks;
• communication of performance internally (with both academics and professional staff) and externally (publish performance reports).
• SP awareness raising programs across campus sites.
• embedding of targets/performance indicators in supplier contracts.
Stage 4 - Evaluation – This involves an ongoing focus on monitoring and evaluation of SP, including: oversight of the analysis, planning and implementation processes, drafting of publishable reports about the HEI's sustainability performance, maintenance of a register of HEI regulatory compliance requirements (regulations, codes of practice), and maintenance of a register of certified sustainability suppliers. Additional tasks include:
• routine and periodic reviews of monitoring criteria for sustainability policies and practices;
• publication of sustainability performance data, including areas for improvement;
• evaluation and recognition of environmental and social performance of suppliers;
• monitoring supplier contract performance.

Development Research Programme and the World Sustainable Development Research and Transfer Centre. The questionnaire invited both quantitative and qualitative responses. The survey reveals that among (smaller) HEIs, there is much work to be done in encouraging the uptake of SP policies and practices, across all functions and areas of everyday organization work. Indoor lighting and building facilities seem to attract the most attention and investment but even in these two areas there remain much scope for improvement.

The findings and analysis of this study lead to two contributions. First, we highlight a range of drivers (external and internal) hitherto not accounted for in HEIs. Second, we confirm that many barriers found in public sector research on SP also apply to HEIs, and that their variety goes beyond those identified in studies on HEI SP, encompassing strategic, operational, and functional areas of responsibility.

Drawing together the findings of this study, combined with ideas from the literature and reflecting on the vignettes, leads to a suggestion that a reflexive planning, implementation, monitoring & evaluation framework would help these HEIs along the journey of SP, allowing HEIs to learn by doing. Whatever framework emerges needs to be flexible, to recognize that embracing SP is a developmental journey, and should seek to engage stakeholders, both internal (all staff) and external (i.e. suppliers).

The implications of this study are twofold. Firstly, it shows that the adoption and implementation of sustainable procurement policies by HEIs offer substantial opportunities to reduce the adverse environmental and social impact of their business operations. Secondly, apart from the tangible and immediate benefits in respect of saving money and resources, it may contribute to raising the awareness and commitment among staff and students. As public organisations, universities are well placed to address the challenge of sustainability: through integrating sustainability concepts in their operations; their procurement practices, operating as part of procurement groups placing pressure on suppliers to adopt sustainability practices and through their curricula.

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 contribute to this direction. Instead of a “one-size fits all” approach, a localised 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. Indeed many barriers are undeveloped drivers. Creating incentives seem to be key in encouraging HEIs to overcome barriers, at both institutional level (e.g. mitigating regulatory and reputational risks), and individual level (e.g. through pay and reward schemes). There is enough reason to remain hopeful as many universities have already recognized their responsibility in promoting a sustainable turn.

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