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What Sustainability? Higher Education Institutions' Pathways to Reach the Agenda 2030 Goals

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Abstract: Higher Education Institutions (HEIs) have the mandate of promoting sustainability through addressing the Agenda 2030. However, how this is being understood and framed in both discourse and practice by HEIs remains an underexplored issue. This article interrogates the concept of sustainability embraced by ten key HEIs networks at global and regional levels while identifying and discussing the main pathways for action displayed. We rely on HEIs networks' data from available online documents related to the Agenda 2030. "Greening" is the dominant sustainability discourse among the global and many regional HEIs networks, that is, the one that refers to the links between people, planet and profit. Two other discourses are minor and regional, "resilience" and "alternative". The "alternative" discourse is the only one entailing a critical approach to the Agenda 2030 goals. All networks promote changes in HEIs organizational culture to embed sustainability values in strategic planning, academic and managerial work. Yet there is a need for further engagement with society to readdress HEIs societal role. Deep and critical reflection of the worldviews, contradictions and tensions in the discourses and practices proposed by HEIs networks at global and regional scales is also needed to build common pathways toward sustainability.

Keywords: discourse analysis; environment; Global South; Sustainable Development Goals; universities' transformation

1. Introduction

In the last century, human activities have dramatically modified natural processes while significantly affecting social-ecological systems, leading to the current environmental crisis. In the coming decades, a "point of no return" could be reached unless greenhouse gas emissions will be reduced, and responsible environmental stewardship will be promoted at a global scale [1]. Climate action is one of the 17 Sustainable Development Goals (SDGs) of the Agenda 2030, a plan of action adopted by all United Nations member states in 2015 "to stimulate action over the next 15 years in areas of critical importance for humanity and the planet" [2]. Meeting the Agenda 2030 goals requires a political willingness to build pathways toward sustainable futures by changing the current development trends. In this regard, society can exert pressure on the governments and counteract those corporate interests defending the status quo. It becomes of paramount importance to raise public awareness and reflection on the causes and consequences of the environmental crisis, as well as to build capacities to responsibly and creatively deal with related challenges. Universities and other Higher Education Institutions (HEIs) can play a crucial role in this endeavor. In particular, HEIs can prevent students from being overwhelmed by the nihilism and hopelessness of the current dramatic situation while promoting effective skills acquisition and values of connectedness between humans and nature [3].

Indeed, HEIs have been formally working on sustainability issues since Rio's Summit in 1992 through the implementation of the Agenda 21. Its Chapters 35 and 36 already called universities to (i) improve long-term scientific assessment, (ii) build up scientific capacity and capability, (iii) reorient education towards sustainable development, (iv) increase public awareness of the interrelated nature of human activities and the environment, and (v) promote training to develop human resources and facilitate the transition to a more sustainable world [4]. Later on, in 2002, and to coordinate educational efforts of HEIs and other entities toward sustainable development, the United Nations (UN) established the UN Decade of Education for Sustainable Development 2005–2014. Overall, the Decade of Education for Sustainable Development boosted the introduction of sustainability issues into the higher education curriculum and quality systems. It also increased recognition on the value of outreach activities and attracted funding to lowering universities' ecological footprint [5]. However, progress in this regard seemed to have remained slower than desirable due to universities' resistance to adopt a whole-institution approach that can lead them to move from reductionist to more holistic and transdisciplinary perspectives [6–8]. Such transition involves moving toward collaborative work between different disciplines and proactive engagement with the society toward transformative changes [6,7].

The current Agenda 2030, through its emphasis in education, can provide further opportunities for transformative change toward sustainability for HEIs. The Agenda 2030 includes an SDG devoted explicitly to education (SDG #4: Quality Education) and a target that addresses education for sustainable development (target 4.7) while highlighting the essential contribution of sustainability education to the other 16 SDGs [9]. Moreover, the UN Global Action Program (GAP), launched at the UNESCO Conference on Education for Sustainable Development in 2014 to continue the legacy of the Decade of Education for Sustainable Development until 2019, contributed to this target through scaling-up best practices and actions of education institutions including HEIs [10]. Further, many HEIs worldwide are implementing strategies for the adoption of the Agenda 2030 and its 17 SDGs. There seems to be, however, divergent and contrasting views on the adjustments they need to do toward more sustainable futures, which are also inherent to the Agenda 2030, such as the debate between the proponents of greening the economy and those advocating for alternatives to economic growth [11]. There is evidence that these different visions also permeate the way local universities are responding to the sustainability call [12]. How the sustainability mandate of the Agenda 2030 is being understood and framed in both discourse and proposed practice by HEIs at global and regional scales remains an underexplored issue. Is there a common understanding among HEIs of what sustainability means in higher education discourse and practice at global and regional levels? Are their efforts going in the same direction? Is there anything missing? This article sheds light over these issues by comparatively examining the sustainability discourses of a sample of key global and regional HEIs networks. It also identifies the main action points these HEIs are advocating for and discusses the main trends and most fundamental tensions and gaps in promoting sustainability within higher education.

In what follows, we review frameworks that are nourishing the concept of sustainability through compiling similar and contrasting visions within and beyond the educational realm, as well as methodological approaches analyzing universities' efforts in achieving sustainability goals. Based on this review, we present the analytical framework that we used in our analysis. We then explain the selection of the main HEIs networks at global and regional levels that are leading and guiding universities toward the Agenda 2030. We describe how we analyzed sustainability discourses and practices of selected HEIs networks by relying on the analytical framework previously presented. We report our findings on HEIs in this regard while revealing and discussing general trends as well as missing issues that would need to be further addressed by HEIs to improve coherence and find common pathways toward sustainability. We also highlight further research lines in this regard.

2. An Analytical Framework on Sustainability Discourse and Practice

There is no questioning about the ubiquity and ambiguity of the term sustainability as a critical concept for social change across disciplines and institutions. Previous work has identified three main trajectories of sustainability that rely on different values, processes and understandings of the changes and transformations required for sustainability [11]. A first trajectory, based on the eco-modern paradigm, advocates for green economy supported by technological progress as the primary strategy to build sustainable futures. A second trajectory, relying on social transformation, which, in contrast to the former, challenges the current economic system by advocating for a radical change such as in the case of the degrowth movement. And, a third one, based on the resilience paradigm, promotes anticipating and controlling risks while finding solutions through socio-technical mechanisms. These main trajectories are, in turn, related to how the relationship between humans and nature is conceived within sustainability discourses. Epistemologically, three ways of approaching such a relationship can be identified. One is based on the reciprocal relationship between the environment and the tandem society-economy that supports economic growth. A second approach focuses on intergenerational equity and fairness that questions the current economic system. A third approach relies on forward-thinking, technology and innovation to find solutions [12]. These different discourses are also being projected in a variety of sustainability educational approaches within HEIs, which reproduce similar debates on the economic models and human-nature relationships that lead to sustainable futures. While some sectors advocate for market-driven, outcomes-oriented and standardized models of education mainly focused on competition, knowledge acquisition and technical skills, other educators and practitioners offer alternatives based on collaboration, emotions and values such as solidarity [13]. By taking positions on these discussions, HEIs navigate sustainability discursively but also practically.

Previous studies have reviewed and analyzed how universities are defining and implementing sustainability locally and discussed the links with sustainability discourses [6,14,15]. HEIs are doing multiple actions to engage in sustainability, such as integrating sustainability issues in the curricula, research, outreach and campus operations. For instance, a study surveyed 167 universities across five continents on the integration of the Agenda 2030 SGDs with sustainability teaching and found that lectures are the most common way they use to incorporating these issues [14]. However, other actions that could have a direct impact in society seem to be less common, such as those oriented to improving teachers' capacities to educate and empower students toward building sustainable futures and supporting inter- and transdisciplinary research to deal with complex challenges [6]. Researchers also note that efforts to reach sustainability in the university context are mostly focused on technological solutions and operational activities, such as the greening of university campuses. By contrast, actions addressed to promote HEIs reflection on behavioral and cultural issues within the organization itself are often absent but posed as crucial for a transition to sustainability. These authors frame such a transition in three stages that universities can navigate. In the first stage, called "operational optimization," HEIs increase the efficiency of the technical solutions they apply to deal with sustainability challenges and to comply with legal requirements. In the second stage, named "organizational transformation," HEIs actions keep a focus on infusing sustainability within the organization but also prioritize engaging with the behaviors and attitudes of students, teachers and other immediate actors. Finally, the third stage, called "systems building," involves a change in the vision and values of HEIs to create a sustainability culture. In doing this, HEIs reflect collaboratively with other actors on improving their role in society and extend actions beyond the limits of their organizations [15].

The transformative potential of the Agenda 2030 mandate in HEIs is thus subjected to these different understandings and implementation traits, which can potentially orient HEIs within contrasting transition navigation processes. Within this context, understanding how global and regional HEIs networks are building sustainability discourses and promoting their implementation in practice becomes crucial for assessing and orienting HEIs efforts in this regard. By reviewing online documents that state and describe the visions, goals and actions of ten key global and regional HEIs networks, we examine what type of discourses and actions are promoted by these networks globally as well as at

the level of each continent (except for Antarctica). To do that, and by relying on the above-described frameworks approaching sustainability discursively and in practice, we elaborate an analytical framework for the characterization of global and regional HEIs discourses and action (Table 1). Our analytical framework includes, on the one hand, the categories of analysis characterizing HEIs discourses. These categories are pre-defined based on the main traits illustrating the three sustainability trajectories and understandings previously described [11,12]. We also add a fourth discourse trait specifically addressed to capture HEIs views on the Agenda 2030. On the other hand, the analytical framework includes another set of pre-defined categories characterizing HEIs proposed practices. These categories correspond to the main traits of these practices in each of the three stages defining HEIs transition toward sustainability [15] as well as those previously identified actions in this regard [6,14].

Table 1. The analytical framework for the analysis of higher education institutions (HEIs) discourses and proposed practices to reach the Agenda 2030. Categories of analysis are marked in italics.

Categories of Analysis			
Discourse Traits	**What Does Sustainability Mean? [11,12]**		
	Ecological Modernization	**Resilience**	**Society Transformation**
Role of development and technology in the envisioned solutions to sustainability challenges	*Make it green*: becoming more active about protecting the environment with the support of technology while keeping economic growth	*Increase resilience*: confronting the vulnerabilities of the system through relying on technological progress and technocratic decision-making	*Search for alternatives*: supporting alternatives to economic growth and the global economic system while questioning the role of technology
Main strategy pushed forward to respond to risks	*Coping or adaptation*: mainly based on technical measures aiming to improve current practices	*Anticipation and control*: relying on technological solutions but focusing more on anticipating future challenges and controlling trade-offs	*Transformation*: implying a broad reflection on the organization's inherent behavioral and cultural aspects to redefine and build new practices
Nature–people relationship	*Utilitarianism*: nature understood as a resource that is at the service of people	*Objectivism*: nature seen as an object that can be controlled and shaped by people	*Spiritualism*: nature perceived at the same level than people so a convivial relationship can be established
Stance on the Agenda 2030	*Pro-Agenda*: embracing the Agenda 2030 in general terms, and/or focusing on one or several SDGs		*Debate*: questioning the Agenda 2030 vision of sustainability
Practice Traits	**How Is Sustainability Promoted in Practice? [6,14,15]**		
	Technological Optimization	**Organizational Transformation**	**Systems Building**
Focus of the practical actions promoted	*Organization improvement*: efficiency and the compliance of regulation	*Organizational culture*: changes of attitude and development of a new set of values and behaviors	*Systems' shift*: targeted aims beyond the organization
Types of collaboration fostered	*Isolated*: no collaborations fostered beyond the institution	*Academic partnerships*: networking and advocacy with other HEIs	*All types of partnerships*: academic, government, private, general public
Main actions proposed for implementation	*Technical*: curricula, research, operations, campus experiences	*Behavioral*: assessment and reporting, educators training, academic collaboration	*Systemic*: transdisciplinary, outreach and collaboration beyond HEIs, advocacy

3. Materials and Methods

3.1. HEIs Networks Leading the Agenda 2030 Mandate

We strategically focused our review on HEIs networks leading the implementation of the Agenda 2030 worldwide to ensure coherence with our research purpose and limit the scope within the vast

field of sustainability in higher education. We studied HEIs networks instead of other HEIs such as single universities or research centers because networks accelerate the dissemination of discourses and practices.

We used a snowball sampling strategy, starting from the Global University Network for Innovation (GUNi). This global network was chosen in the first place for being the direct holder of the UN Mandate for the implementation of the Agenda 2030 across HEIs. We conducted the snowball sampling in two consecutive stages, which included HEIs at the global and regional levels, respectively. First, and from GUNi's reviewed documents, we identified a set of seven HEIs networks of relevance at the global scale (see Figure 1 for further details). We then applied the following selection criteria: (i) being currently active; (ii) having a clear focus on sustainability, (iii) being mainly addressed at universities; and (iv) having available and balanced information about the two dimensions addressed in our review (i.e., discursive and practical). As a result, we included the following three global HEIs networks in our sample: the International Association of Universities (IAU), the Global Universities Partnership on Environment for Sustainability (GUPES) and Higher Education Sustainability Initiative (HESI). Together with GUNi, these four global networks represent a set of consolidated HEIs networks with a solid trajectory, born from different branches of the UN (i.e. GUNi and IAU from UNESCO, and GUPES and HESI from UNEP) and representing more than 800 HEIs distributed across 130 countries worldwide.

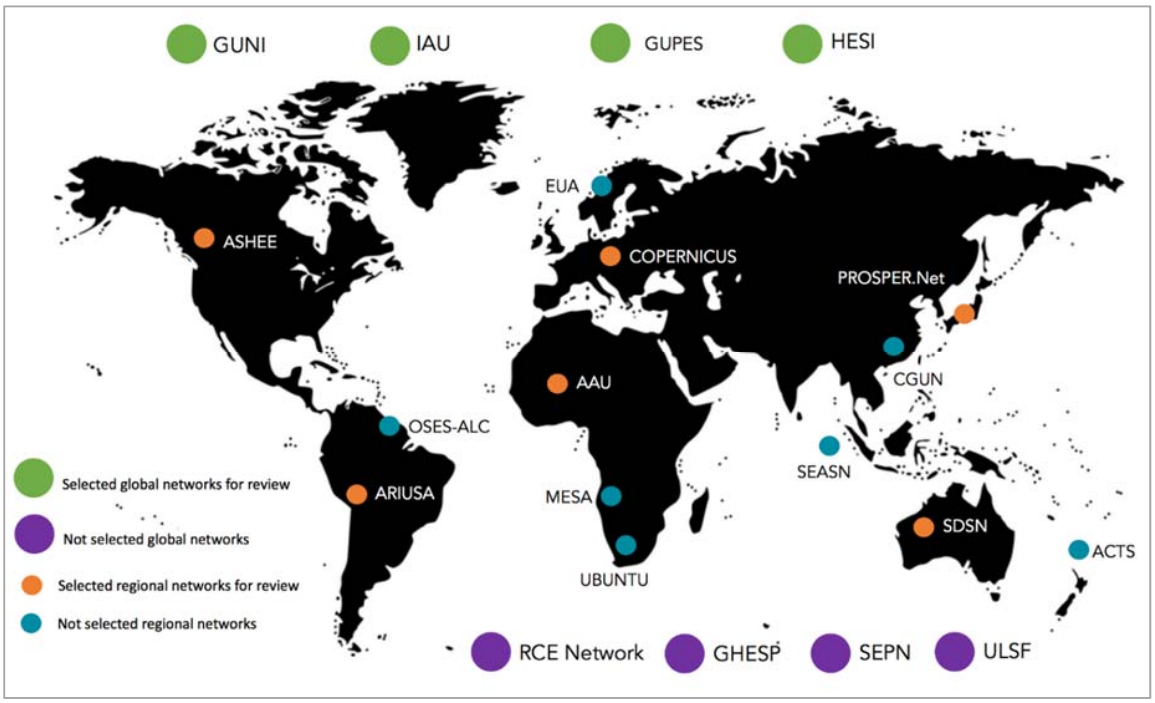

Figure 1. Global and regional networks identified in the snowball sampling. Source: own elaboration using image retrieved from Pixabay.com.

Second, from the review of the global networks, we identified 13 HEIs at the regional level. Such HEIs were distributed throughout all continents, except for Antarctica (see Figure 1). We then conducted a second screening applying the same selection criteria as in the case of the global networks and to select one network from each of the represented continents. As a result, we included six HEIs operating at the regional scale in the sample: the Association of African Universities (AAU, Africa), the Sustainable Development Solutions Network (SDSN, Australia/Pacific), the Alliance of Ibero-American Networks of Universities for Sustainability and the Environment (ARIUSA, South America), the Association for the Advancement of Sustainability in Higher Education (ASHEE, North

America), the COPERNICUS Alliance (Europe) and the Network for the Promotion of Sustainability in Postgraduate Education and Research (PROSPER.Net, Asia).

Despite not being representative of all the HEIs worldwide, the resulting final set of ten HEIs represents a coherent and geographically balanced sample of acknowledged networks, both at the continental and global scales. This sample can illustrate the main pathways currently promoted around the conceptualization and implementation of sustainability within higher education.

3.2. Data Collection and Analysis

For each of the ten selected HEIs networks, we reviewed two kinds of sources: (i) their official webpages, and most specifically, sections related to their mission and vision and their understanding of sustainability; and (ii) online documents about their links to the Agenda 2030 and/or the accomplishment of the SDGs, such as reports, declarations, charts and newsletters. Appendix A provides a list with the document types and sources reviewed for each network.

We analyzed these documents through content analysis to examine the main traits of sustainability discourses and practices promoted by the selected HEIs networks. We coded these data into the corresponding pre-defined categories of our analytical framework (see Section 2) in two ways. First, we coded data as 1=presence and 0=absence into each category. Second, we also coded data as key quotes when these reflected the meaning of the category. Even though our analytical framework was guided by the previously identified sustainability trajectories [11] and transition stages [15], this did not imply that an analyzed HEIs network should follow only one trajectory or be in a single stage. We codified the content of the reviewed documents independently by each discourse and practice trait and then grouped HEIs according to similar combinations of presence and absence into each trait to further identify the main discourses and proposed ways of action.

The two authors of this article conducted data collection and analysis. To ensure consistency of the analysis, we first analyzed two selected global networks and compared the consistency of coding among us, and then proceeded with the rest of the review.

4. Results

4.1. Main Commonalities and Differences in Global and Regional HEIs Networks' Sustainability Discourses

Three main discourses along which the analyzed HEIs networks navigate sustainability emerged from our analysis, which we have called: "resilience," "greening" and "alternative." These discourses are mainly shaped by HEIs networks' different understandings of the role of development in their envisioned solutions to face sustainability challenges and the strategies HEIs push forward to deal with risks. HEIs networks' stances on the Agenda 2030 are also crucial in defining their discourses as well as the visions on the nature–people relationship. Figure 2 includes the definitions of the identified sustainability discourses and places each network over the embraced discourse or discourses by global and regional levels.

Our results reveal that there is a major trend among the reviewed HEIs networks to concur with the "greening" discourse. In the visions, missions or reports analyzed, the four global HEIs and those regional networks in Europe, North America, Asia and Australia/Pacific refer to sustainability by highlighting the links between the dimensions of people, planet and profit. These HEIs understand that sustainability is achieved by guaranteeing economic growth while taking care of nature and people, which are interlinked challenges that need to be solved. As an example, IAU states the following in one of its publications about the Agenda 2030:

> *"Future well-being of humanity and the planet depends on successful resolution of the interconnected challenges of economic, social, cultural, and environmental sustainability"* [16] (p. 10)

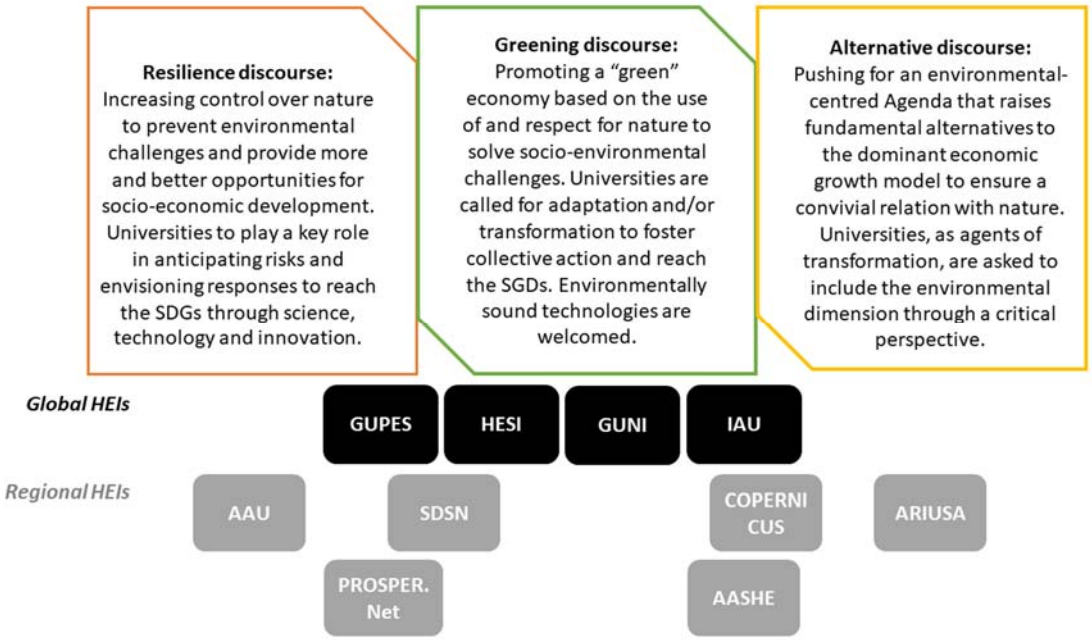

Figure 2. Main sustainability discourses identified among global and regional HEIs.

HEIs networks supporting the "greening" discourse aim to strengthen the role of universities in society as the leaders of adaptive or transformative processes toward such "green" futures through reinforcing collaboration and collective action. This approach often implies an organizational transformation within the HEIs, as we will explain in the next section. Interestingly, positions adopted on the role of technology for these sustainable futures differ among HEIs. On the one hand, IAU calls to embrace technological opportunities, ICT in particular, but also asks to analyze the potential trade-offs of these technologies. On the other hand, HESI, GUPES and COPERNICUS seem to omit this issue in their sustainability discourses. Finally, GUNi, AASHE, PROSPER.Net and SDSN emphasize the role of environmentally sound technologies in supporting sustainable development, especially in the Global South, as this quotation from GUNi shows:

> *"Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism"* [17] (p. 13)

The other two discourses, "resilience" and "alternative" are mainly held by two regional HEIs networks: AAU in Africa and ARIUSA in Latin America and the Caribbean, respectively. AAU supports a sustainable development approach based on economic growth and effective natural resource management to prevent and control environmental risks by relying on technocratic decision-making processes. Indeed, its Strategic Plan 2016–2020 directly calls for a "resilient" higher education system:

> *"The onus to guide Africa on a sustainable path lies with resilient institutions like her higher education system to develop, train and retrain the human capital available on the continent; to efficiently manage her natural resources for the benefit of current and future generations; to conduct relevant research to stimulate her industries; and to build effective partnerships with multi-stakeholders (governments, civil society, industry, donors, etc.) to facilitate the development of strong institutions that are credentials of good governance."* [18] (p. 23)

ARIUSA, in turn, poses alternative views to growth and development by putting the convivial relationship between nature and people above the interests of the global economic system. Moreover, and differently from the other HEIs networks that are embracing the Agenda 2030, ARIUSA questions

the agenda's SGDs. That is why we call this discourse "alternative." ARIUSA raises the concern about the economic growth connotations of the concept of sustainable development and the SDGs and advocates for putting the focus on taking care of the environment instead:

> *"When ARIUSA was created, almost two decades had already passed since the concept of sustainable development had been coined (...). This concept has been the object of much criticism and resistance from major sectors of the academic community in the region that, since the seventies, has been in charge of environmental matters, particularly that which is identified with the so-called "Latin American Environmental Thinking" (Ángel, 1997 and Leff, 2009). Sharing or taking into consideration these positions, when deciding on the name of its alliance of university environmental networks, the founders of ARIUSA opted for the term 'sustainability' as opposed to 'sustainable development'."* [19] (p. 68)

Finally, it is relevant to highlight that some HEIs, both at global and regional scales, move along two sustainability discourses. IAU, AASHE and COPERNICUS mainly emphasize the "greening" discourse. Still, the documents reviewed also highlight elements from the "alternative" discourse, such as the importance given to having a balanced relationship between nature and people. COPERNICUS, for example, clearly states this issue in its Chart 2.0:

> *"We pledge that the signatories, all universities and other higher education institutions, are firmly committed to playing the central role they 'noblesse oblige' are obligated to in contributing to our successful transition towards a sustainable society, which is free, just, equal, solidary and tolerant. A society which is characterized by respect for nature and our fellow humans and by shared responsibility."* [20] (p. 1)

The sustainability discourses of the global HEIs GUPES and the regional HEIs PROSPER.Net and SDSN are also twofold: "greening" and "resilience." In the case of GUPES, this is shown by two of its objectives that call for a "green" economy and refer to the prevention of risks, respectively:

> *"To optimize development opportunities provided by ecosystem services in a sustainable manner in line with the principles of "Green Economy" and in the context of sustainable development.*
>
> *To help prepare the world for the projected impacts of global climate change, disasters and conflicts, harmful substances and hazardous wastes, as well as to assist in reversing and mitigating these and other negative environmental and sustainability trends."* [21]

4.2. Main Trends and Gaps in the Promotion of Sustainability Practices by Global and Regional HEIs Networks

This section presents the results of our analysis concerning the characterization of sustainability practices promoted by the selected HEIs networks. We identified a clear pattern followed by all these networks: they mainly focus their efforts on changing the institutions' organizational culture and behavior through the integration of sustainability values and environmental concerns in strategic planning, academic and organizational work. Such focus can be seen throughout a continuum of promoted practices: from actions aimed at the creative development and exchange of best practices (e.g., COPERNICUS, ASHEE, HESI) to the institutionalization or mainstreaming of sustainability concerns within university systems (e.g., GUPES, ARIUSA), and the promotion of HEIs responsiveness to societal needs in order to become active agents of change (e.g., GUNi, IAU, AAU, SDSN, PROSPER.Net). See, for instance, two examples from ARIUSA and SDSN:

> *"ARIUSA has been constructed as a framework for communication, coordination, cooperation and co-managerial relations between different types of university environmental networks working together to foster the institutionalization of the environmental commitments of universities and other HEIs in Ibero-America."* [19] (p. 65)

> *"Universities are increasingly re-thinking their role in the 21st century and looking to be both more responsive to societal needs and to become agents of change towards solving global challenges. (. . . .) Furthermore, given the critical role universities have in ensuring the success of the SDGs, universities have a moral imperative to embody support for the SDGs as part of their social missions and core functions."* [22] (p. 9)

The last quotation from SDSN points to questioning HEIs purpose and role in society. It emphasizes HEIs public service obligations and ethical imperative to contribute to societal changes fostering transitions toward sustainability, which denotes a shy transition from the stage of organizational transformation to the system building stage [15]. In the same line, other HEIs promote actions aligned with values such as social responsibility, commitment, collaboration, equity and inclusion (e.g., GUNi, COPERNICUS, ASHEE), platforms for multi- and interdisciplinary dialogue (PROSPER.Net), measures aimed at universities' systemic change (IAU), or efforts oriented toward ensuring the organizational capacity to deliver transformational change (AAU). All these actions are expected to benefit not only society but also HEIs by guaranteeing their own sustainability. Such an opportunity is also directly linked to the implementation of the Agenda 2030 mandate, as pointed out by GUNi:

> *"There is no doubt that HEIs have realized the importance of integrating sustainability in their strategies, both for the benefit of society and for the benefit that integrating it appears to have on the institution itself—according to SDSN, Universities benefit because they can demonstrate impact, capture more demand for SDG-related education, build new partnerships, access new funding streams, and make comparisons with other institutions via an agreed definition of a responsible university (SDSN, 2017:9). The latter is a very interesting aspect of the relationship between SDGs and HEIs."* [23] (p. 11)

HEIs networks also promote similar practices when looking at the types of collaboration they fostered. The most emphasized types of collaboration are among HEIs and commonly oriented toward academic cooperation for joint-curricula development, interuniversity training and research (e.g., joint research projects, shared capacity building, organization of conferences and meetings in a network, joint publication of journals), and exchange of best practices and resources. Collaborations with external actors are also often expressed through the establishment of partnerships, networking and advocacy. While networks often mention these collaborations in general terms, some HEIs emphasize alliances with specific actors. For instance, government organizations and development institutions (GUNi, HESI, SDSN, AAU, COPERNICUS, GUPES, PROSPER.Net), industry and private sector (SDSN, AAU, PROSPER.Net) or local communities (SDSN, AAU, COPERNICUS, PROSPER.Net). In this regard, the Agenda 2030 is identified by these networks as a strategic framework to fostering partnerships within and beyond the universities, such as in the case of SDSN:

> *"One of the strengths of the SDG agenda is that it provides a common framework for different sectors and organizations to connect and work together on shared interests. This will give universities opportunities to form new collaborations with government, industry, and the community in both research and education. Equally, the framework can help identify common interests across different areas of the university, helping to drive cross-disciplinary partnerships, collaboration, and innovation."* [22] (p. 9)

Our analysis shows, however, that engagement and critical self-reflection actions with actors beyond the academia aimed to readdress HEIs societal role are only partially mentioned by HEIs networks, or not mentioned at all, such as in the case of GUPES, HESI and ARIUSA. Although seven out of the ten networks explicitly emphasize collaborations with non-academic stakeholders (GUNi, IAU, COPERNICUS, ASHEE, AAU, SDSN, PROSPER.Net), these are often promoted in a relatively unidirectional way (e.g., HEIs as providers of input and knowledge). For instance, the GUNi network refers to the unique opportunity for HEIs, as trusted and educational institutions, to provide the skills and attitudes needed for active citizen participation but does not mention how HEIs can benefit from

citizen engagement [23]. Similarly, the HESI network highlights HEIs contributions at the policy level but not the other way around:

> *"HESI provides a unique opportunity for higher education institutions to provide input during the United Nations annual High-Level Political Forum on Sustainable Development, where Member States review progress made towards the SDGs."* [24]

Regarding the types of implementation actions proposed by HEIs networks, these include in all cases technical actions. At the same time, we find differences in some of the specific activities related to behavioral and systemic change. Concerning technical actions, all the networks reviewed include actions oriented toward learning and teaching. In this regard, all HEIs encourage curriculum change and innovation, mostly through the integration of sustainability related issues and the teaching of competences, skills and motivation to understand and address sustainability goals. Furthermore, seven out of the ten networks analyzed propose actions around campus operations and/or governance (exceptions are GUPES, AAU, PROSPER.Net). The role of research actions is also emphasized by most HEIs networks (except IAU and HESI) as key to advance knowledge and evidence-based solutions and innovations. Some networks further mention strategic actions in this regard, such as the inclusion of Responsible Research and Innovation (RRI) guidelines in research methods (GUNi).

Also related to research, some HEIs networks go beyond technical actions to promote behavioral initiatives oriented to change HEIs organization, such as the combination of traditional disciplinary approaches and newer interdisciplinary and transdisciplinary ones (SDSN, PROSPER.Net). Within such behavioral approaches, assessment and monitoring of HEIs progress are proposed by six of the analyzed networks (ARIUSA, GUNi, SDSN, IAU, CORPERNICUS, ASHEE). They acknowledge these practices as critical in any strategic action plan that expects to have an impact on the achievement of the SDGs, as ARISUA highlights:

> *"One of the first steps needs to be the establishment of a baseline or assessment of the initial status of the process of associating higher education institutions to the achievement of the Sustainable Development Goals. Knowledge of this process is even more nascent and differentiated for the different aspects of economic, social and environmental sustainability to which universities contribute. To overcome this situation, there is a need to construct a basic system of indicators to be able to assess the contribution made by HEIs to the goals of the 2030 Agenda."* [19] (p. 72)

Steaming from this need, some networks at both global and regional scales propose specific monitoring systems and research projects. HESI's online self-evaluation tool (i.e., the Sustainability Test) focuses on sustainability literacy issues and is addressed to individuals, universities and organizations. ASHEE's self-reporting tool, named STARS, measures sustainability performance of universities. SDSN proposes a monitoring framework with 100 indicators for the SGDs. ARIUSA's research project, called RISU, develops indicators to assess the implementation of sustainability policies in Latin American universities. Other behavioral actions are oriented toward supporting capacity building to contribute to educators' development of leadership skills and further abilities required to teach sustainability issues and change HEIs learning environments. This is the case, for instance, of the PROSPER.Net "Leadership Programme," a training addressed to early career researchers and young professionals from diverse sectors (e.g., local communities, public officials, private sector) to explore together how partnerships can be fostered toward more sustainable practices across a variety of fields. Reviewed HEIs also include behavioral actions related to academic collaborations, such as the development of conferences and seminars for sharing practices and knowledge and to foster debate and collaboration, like the International Conference on Sustainable Development Goals: Actors and Implementation, organized by GUNi, or the National and Latin American Forums of Universities and Sustainability organized by ARIUSA.

Finally, systemic actions are proposed by most reviewed networks (all except ARIUSA) but are less present in emphasis. AAU, HESI, COPERNICUS, IAU, SDSN and PROSPER.Net explicitly include advocacy-related actions, emphasizing the political dimension of SDGs and the interaction with actors beyond academic ones. For instance, advocacy for achieving sustainable outcomes is outlined by AAU as one of the four core elements of its programmatic approach:

> *"Our programmatic approach consists of a coherent package of service delivery and advocacy activities delivered in partnership at all levels—from community to national, regional and international levels. In the context of AAU, this is based on a critical analysis of HEIs in the specific context of each country and across countries."* [18] (p. 17)

Actions proposed within the systemic approach also include applied research collaborations with private companies and development institutions working on SDGs (AAU, SDSN, GUPES, PROSPER.Net) and the evaluation and follow-up of broader policies (i.e., beyond educational ones) created by policy makers to address SDGs (e.g., GUNi).

All in all, through this diversity of proposed actions (teaching, research, assessment, dissemination, advocacy, etc.), all the reviewed networks go beyond SDG#4, Quality Education, perceiving the Agenda 2030 as a strategic and holistic framework for broad transversal action. Some networks are also emphasizing other SDGs in the reviewed documents. This is the case, for instance, of GUNi that has created a line of strategic work steaming from SDG#17. This line of action aims at sharing and building on expertise to reflect about opportunities and obstacles to foster effective and inclusive multi-stakeholder partnerships as a keystone for the achievement of SDGs within higher education [17]. Similarly, IAU addressed SDG#5 and the mandate of HEIs to bring women into higher levels of institutional leadership worldwide. IAU advocates for the anchoring of gender equity within the whole institution through the implementation of strategies that value diversity and contribute to the opportunities for women to access the highest positions and to move beyond the glass ceiling [16].

Table 2 summarizes the main traits of each network according to the focus of the promoted actions, the types of collaborations fostered and the main actions proposed.

Table 2. Main traits of sustainability practices promoted by selected global and regional HEIs.

HEIs Network	Focus of the Practical Actions Promoted	Types of Collaborations Fostered	Main Actions Proposed
GUNi	Integration of sustainability and social values in HEIs strategies to strengthen their critical role within society and academic diplomacy to achieve partnerships and collaborations	Networks, resources exchange, values promotion, knowledge co-production and capacity building among HEIs and with other stakeholders	Inclusion of the concept of sustainability within HEIs research, education and training; Campus operations & governance; Sustainability assessment and follow-up of policies
IAU	HEIs systemic change to embed SDGs in strategic planning, academic and organizational work	Interdisciplinary research among HEIs and transdisciplinary work with other stakeholders	Curricula development and training; Outreach and networking (women leaders); Assessment and monitoring
GUPES	Mainstreaming of environment and sustainability concerns into university systems; interaction between UNEP and universities	Networks and resources exchange	Education and training; Applied research; Networking
HESI	Provision of a platform for HEIs to engage and contribute to the SDGs and exchange best practices	Exchange platforms and advocacy	Integrating SDGs within teaching, research and dissemination; Greening campuses; Support local sustainability efforts and explore innovative practices from other sectors; Engage with international networks; Outline an advocacy agenda
COPERNICUS	HEIs improvement by creatively developing and implementing comprehensive and integrated sustainability actions	Networks, joint knowledge production, and active engagement among HEIs and with other stakeholders	Curriculum change and capacity building within HEIs; Change quality assessments and assurance systems; Outreach and dissemination actions; Advocacy for HEIs for SD in Europe
AASHE	Improvement of HEIs practices toward the integration of sustainability	Networks among HEIs, partnerships with other actors	Training to teachers and students; Campus sustainability hub; Outreach and networking; Self-assessment; Partnerships with private, public and civic sectors
ARIUSA	Institutionalization of HEIs engagement toward environmental and sustainability issues and cooperation and coordination of actions between HEIs	Networks, academic cooperation and co-management among HEIs	Outreach events; Development of educational programs and research projects; Diagnosis and assessment
AAU	Capacity building of member institutions to address societal needs and to deliver transformational change	Partnerships with national and international actors in development and engagement with local communities	Training & research; Partnerships with other stakeholders; Community action
SDSN	HEIs responsiveness to societal needs to become agents of change toward solving global challenges	Inter and cross-disciplinary work at universities, partnerships with other actors	Learning and teaching; Research; Organizational governance, culture and operations of the university; External leadership
PROSPER.Net	Contributing to societal transformation for sustainable development, through transforming knowledge institutions and training future leaders	Sharing of resources and expertise among HEIs and similar networks, partnerships with other actors such as public officials, the private sector and local communities	Integration of sustainable development into curricula and research; Promotion of sustainability-oriented experiences between researchers and practitioners; Policy advocacy in higher education

5. Discussion and Conclusions

This research has explored how the sustainability mandate of the Agenda 2030 is being understood and framed in both discourse and proposed practice by HEIs networks at global and regional levels. Our findings show that in most cases HEIs networks' pathways toward sustainability are framed within a "greening" discourse that aims at improving nature and people's wellbeing through relying on less environmentally damaging forms of economic growth, as being in line with the Agenda 2030 goals. In doing this, these networks promote the integration of sustainability values in HEIs strategic planning, academic and organizational work, emphasize the need for partnerships and support actions mainly oriented to learning and teaching. This "greening" discourse is embraced by the four global networks reviewed (GUNi, IAU, HESI, GUPES) and four out of the six analyzed HEIs networks at the regional level (COPERNICUS, ASHEE, SDSN, PROSPER.Net). Our findings also show two minority sustainable pathways that only a couple of HEIs networks are following. On the one hand, the understanding of sustainability by the African network (AAU) relates to a "resilient" discourse that is based on increased control over nature and the use of technological solutions to reach the Agenda 2030 goals. Through promoting HEIs organizational change, this network aims to make them become active agents of change and provide sound responses to societal needs, with community action being one of its main supported activities. On the other hand, the Latin America network (ARIUSA) builds its understanding of sustainability on an "alternative" discourse that calls for prioritizing nature and human well-being over economic growth and, in doing this, questions the sustainable development approach of the Agenda 2030. Differently than the other cases, the main focus of this network is to foster HEIs organizational change through the institutionalization of sustainability concerns within university systems, with academic collaborations being a pivotal action to be enforced.

Before going into the discussion of relevant results on current potentials and gaps in the promotion of sustainability within higher education, we note some methodological limitations of our study. Findings described in the previous section need to be interpreted with caution, and broad generalizations on the identified sustainability discourses and practices among HEIs should be avoided because of two main reasons. First, it was not our intention to provide a single snapshot of the whole community of universities and other HEIs in terms of their approaches and actions toward sustainability and the SDGs. Other literature is already taking care of some of these issues [14]. Instead, we aimed at identifying commonalities and divergences across sustainability understandings and practices within the higher education system at both global and regional levels, as well as finding out the main gaps in this endeavor. To do that, we focused on HEIs networks as accelerators in the dissemination of discourses and practices, analyzing only those identified as actively working in promoting sustainability among universities and other HEIs worldwide or regionally. Therefore, our findings on identified HEIs efforts and gaps in navigating sustainability should be confined to these cases. Second, in general, we have found limited data on HEIs conceptual approaches to sustainability and the Agenda 2030. Our analysis has been based on the information and documents available at HEIs websites, so we may have missed other approaches to sustainability that are not public, are uploaded at other platforms or are still a work in progress. In this last regard, it is also possible that the reviewed HEIs are currently modifying their discourses or adopting new practices in the way they are embracing the different SDGs, which go beyond our analysis.

This said, our findings are valuable for both addressing the aim of the study and reflecting on the main points of discussion derived from relevant insights. On the one side, as mentioned above, results show that the sustainability discourses of the global HEIs networks are mainly placed within the "greening" discourse. In contrast, there is more diversity at the continental scale. It seems that the analyzed regional HEIs networks move along a gradient of acceptance of the sustainable development paradigm, being AAU in Africa and ARIUSA in Latin America and the Caribbean in the two opposite poles by embracing "resilient" and "alternative" discourses, respectively. While AAU supports technocratic decision-making processes to increase the effectiveness of current development approaches, ARIUSA poses alternative views to economic growth and the global economic system.

Differences in approaching sustainability between these regional HEIs could be related to the historical development of the field within each context. Differently than in Africa, in Latin America and the Caribbean the integration of sustainability within the higher education system is a result of an active tradition in environmental education that began with universities offering technical and vocational training on natural resource use and conservation in the 1950s [25]. Besides, there is another tradition in this field, that of questioning the term "sustainable development." It is argued that sustainable development is directly related to continuous growth that implies the accumulation of wealth by the rich in detriment of the poor in a context of limited natural resources, increasing social inequalities between the Global North and South. It is also argued that the concept of sustainable development omits the historical dominance and exploitation of both natural resources and human labor suffered by Latin America, and the Global South in general. Consequently, this concept cannot be transferred to new generations without a critical approach [26]. As our findings suggest, this might have implications for the adoption of the Agenda 2030 and the SDGs. Taking into account the links between environmental degradation and political and socio-economic backgrounds, as well as relevant socio-cultural issues in each region when promoting HEIs efforts toward sustainability, this could be one of the steps to resolve such a deadlock. This has been, so far, often neglected by universities [12] and it also seems to be omitted in the analyzed global HEIs discourses.

On the other side, and similarly to discourses, actions promoted by HEIs also follow a gradient of practice traits. Our findings suggest that all reviewed networks commonly assume technical solutions and compliance with the law. Moreover, there seems to be an emphasis in the promotion of actions aimed at changing the values, behaviors and attitudes of the organizations to create a sustainability culture within HEIs (e.g., organizational transformation stage). Many of the reviewed HEIs networks also propose collaborations beyond the educational sector to shift change to the whole system, in line with systems building, which is the last stage of the continuum of sustainability transition stages [15]. This emphasis on changing values and fostering non-academic collaborations highlighted by HEIs networks suggest certain progress in comparison to previous reviews in which operational efficiency was promoted in detriment of an organizational change [6]. Further research should analyze and assess the impact of HEIs actions in terms of operational transformation and systems building during the mandate of the Agenda 2030.

Moreover, to what extent these projected actions are being implemented remains an issue to be explored in further research. However, our findings already suggest tensions in this regard. As prior research points to, despite years of international agreements, calls for action and guides for good practices, the implementation of sustainability is still not mainstream within academia [27,28]. Indeed, transforming HEIs toward sustainability has encountered resistance to change pre-established systems due to universities' complex bureaucracy and rigid structures, among others [28]. Furthermore, the dominance of competition and disciplinary based culture within academia limits and slows efforts in this direction [27,29]. It is argued that HEIs should question these constraints to be able to transform their value systems and worldviews. Such questioning should be done within the institutions by reflecting on the values that are deterring academics from redesigning their disciplines and appreciating the epistemology and multicultural vision of sustainability [7]. In this regard, being aware of the institution's cultural predispositions and willingness to transform is critical for enhancing HEIs sustainability governance [30]. These studies already point to the crucial action of the human factor and the underlying worldviews and value systems within HEIs as barriers to change in some cases, or drivers of change in others [7,30]. Further research is needed to better understand the relation between HEIs institutional cultures and sustainability transformations. As the Rio+20 Treaty on Higher Education (2014) highlights, "to be transformative, higher education must transform itself" [31].

In this context, the efforts to embrace change posed by the reviewed HEIs networks should be interpreted positively as a step required for transformation. At the same time, it calls for caution as, to have a real impact, this change should be accompanied with an aligned practical implementation aimed at truly transforming HEIs organizational values by adopting a whole-institution approach [8].

Some of our findings point to gaps in this regard. First, although almost all HEIs networks mentioned collaborations with external actors, these collaborations are expressed mostly through providing input to change other sectors (e.g., advocacy, partnerships with private companies, or assessment of public policies). By contrast, allowing different actors' practices to permeate universities and engage in collaborations to actively rethink their role in society are actions poorly endorsed in the documents reviewed. This absence might also reveal a lack of reflective practices to go further in the transformation of HEIs themselves. Second, and connected to this, our findings show that most of the external collaborations are called to take place with institutional and governmental actors. Among other reasons, this trend might be due to the prominent role that governmental support has in encouraging the integration of sustainable practices within HEIs [28]. Such a focus contrasts, however, with the recognition for local partnerships as a prime way to tackle the need of interconnected governance responses demanded by the Agenda 2030 multidisciplinary approach [32,33]. Many universities have been compelled for more than 25 years now to develop community engagement work toward sustainable development (see for instance the COPERNICUS Charter, signed by more than 300 HEIs in Europe) [34]. Yet, our findings show that partnerships with local actors still represent a gap in HEIs external collaborations. Given that HEIs work and decisions may affect the economic, social and environmental aspects of local communities and regions [35], it should be highlighted the urgency of boosting the inclusion of local actors in HEIs actions. By establishing bidirectional communication channels and mechanisms for mutual learning, HEIs could also benefit from local actors' knowledge and ideas to navigate sustainability locally.

To conclude, our findings suggest that linking values and ontologies behind HEIs networks' sustainability discourses with their promoted actions might not always be taking place, although it is a required exercise for guaranteeing coherence. The development of robust and reflective assessment approaches, which is a line of action already promoted by several of the HEIs networks reviewed, seems an opportunity to work in this direction. The inclusion of external actors, and especially local communities, in processes of critical self-reflection could bring the chance to assess whether discourses and actions are aligned or not and how to improve progress in this regard. There is a perceived need to foster more integrative forms of societal and academic collaboration in the approach of HEIs to sustainability, whereby the combination of inputs from diverse fields may contribute to a better understanding of what sustainability is and means to people [27,32]. This progress might imply a turn of the dominant sustainability paradigm (i.e., "greening") toward a more humanistic approach, which is framed around convivial relationships between nature and humans and sees sustainability as a process rather than just an outcome [36]. Such an alignment will not be possible without a deep and critical reflection of the worldviews, contradictions and tensions in the discourses and practices proposed by HEIs networks at global and regional scales so to build common pathways. Further efforts in higher education research and policy development could take these elements into account to boost the envisioned societal transformations.

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Appendix A

This appendix includes a table compiling the reviewed online documentation of each selected HEIs network for the analysis.

HEIs Network	Reviewed documents
GUNi	Website http://www.guninetwork.org/mission-and-objectives (Vision/Mission) Implementing the 2030 Agenda at Higher Education Institutions: Challenges and Responses. 2019. http://www.guninetwork.org/publication/implementing-2030-agenda-higher-education-institutions-challenges-and-responses Approaches to SDG17: Partnerships for the Sustainable Development Goals (SDGs) http://www.guninetwork.org/publication/approaches-sdg-17-partnerships-sustainable-development-goals-sdgs Sustainable Development Goals: Actors and Implementation. A Report from the International Conference http://www.guninetwork.org/files/guni_sdgs_report_0.pdf
IAU	Website http://www.iau-hesd.net/en/contenu/139-iau-action.html (Mission and HESD strategy) IAU Horizons, 24(1), April 2019. In focus: Universities and Agenda 2030: Engaging with the SDGs https://iau-aiu.net/IMG/pdf/iau_horizons_vol.24.1_en_light_.pdf
GUPES	Website http://gupes.org/index.php?classid=3244 (Overall goal & objectives, pillars)
HESI	Website https://sustainabledevelopment.un.org/sdinaction/hesi Brochure https://sustainabledevelopment.un.org/content/documents/16065HESI_info_July3_v2.pdf
COPERNICUS	Website, Charts, Action Plan https://www.copernicus-alliance.org/about
AASHE	Website and Annual reports 2018, 2017, 2016, 2015 https://www.aashe.org/
ARIUSA	Website https://ariusa.net/es/ariusa Primera década de la Alianza de Redes Iberoamericanas de Universidades por la Sustentabilidad y el Ambiente (ARIUSA 2017) https://ariusa.net/es/primera-decada-de-la-alianza-de-redes-iberoamericanas-de-universidades-por-la-sustentabilidad-y-el-ambiente-ariusa-2 Alliance of Networks for the Environmental Sustainability of Higher Education Institutions in Ibero-America (2018, pp. 60–74) http://www.guninetwork.org/publication/approaches-sdg-17-partnerships-sustainable-development-goals-sdgs
AAU	Website and AAU Strategic Plan 2016–2020 https://www.aau.org/about/
SDSN	Website Regional Network Australia, New Zealand and the Pacific https://www.unsdsn.org/newpageca2aed64 Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector http://ap-unsdsn.org/about/
PROSPER.Net	Website https://prospernet.ias.unu.edu/ ProSPER.Net Strategies and Roadmap https://prospernet.ias.unu.edu/wp-content/uploads/2016/02/ProSPER.Net-Strategies-and-Roadmap_revised.pdf

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