Sustainable Development at Saudi Arabian Universities: An Overview of Institutional Frameworks

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Received: 31 August 2020; Accepted: 24 September 2020; Published: 28 September 2020

Abstract: For the past three decades, sustainable development (SD) at higher education institutions (HEIs) has been receiving increasing global attention based on the recognition of their vital roles in fostering sustainability teaching and practices on their campuses and influencing the larger society to embrace sustainable behaviors. As one of its key dimensions, an institutional framework is a fundamental step and indicator of commitment to advancing SD at universities. However, some universities, especially in the countries of the Global South, are either missing this dimension or have inefficient institutional frameworks due to the lack of standard practice or guidance. This study assesses the extent of establishing an institutional framework for SD in Saudi Arabian universities ($n = 44$). Data were from a desk study and a survey of university websites and analyzed using content analysis and descriptive statistics. The study found that 72.7% of the universities have shown a commitment to campus sustainability by having sustainability visions; 52.3% have established a dedicated office for SD governance, 68.2% are involved in community outreach and 63.6% collaborate with external agencies in SD efforts. Although there is no evidence of specific campus sustainability plans in the universities, 45.5% of them have SD coverage in their campus development plans or strategic plans. Sustainability assessment and reporting are generally lacking. The findings can improve our understanding of the extent of the commitment of the universities to SD and how they communicate their SD efforts through their websites, which can foster engagement in campus sustainability. The study concludes that a sound institutional framework is vital to implementing SD at universities.

Keywords: campus sustainability; institutional framework; sustainable development; higher education; visions and policies; governance procedure

1. Introduction

Sustainable development (SD) has emerged as an important field within higher education governance, teaching, and research. The important role of higher education institutions (HEIs) in fostering SD has been underscored by several major international declarations and initiatives from the Stockholm Declaration of 1972, to the Talloires Declaration of 1990, and to the 2012 Rio + 20 Higher Education Sustainability Initiative [1–3]. Similarly, various conferences have been organized, including the 2014 World Conference on Education for Sustainable Development organized by United Nations Educational, Scientific and Cultural Organization (UNESCO), many high-impact specialty
journals dedicated to publishing research related to SD in higher education have been established, and numerous academic and grey literature have been published on the subject [4]. While three decades ago only a handful of HEIs considered sustainability pertinent to their campus operations and activities, presently thousands of HEIs globally consider sustainability not only relevant but even essential to their operations [5].

However, implementing SD initiatives in HEIs faces several obstacles, with one noteworthy trend being a lack of an institutional framework to guide their sustainability efforts [6–8]. An institutional framework for SD at HEIs is a system of formal policies and procedures and informal practices for achieving a sustainable university. Institutionalizing sustainability at universities involves establishing a formal vision, plan, and a dedicated office to have oversight of sustainability procedures and efforts [6]. It is a commitment to and fundamental step for advancing SD that creates more sustainability concerns in a university, promotes good sustainability governance, triggers incremental changes in and better coordination and monitoring of the progress of university sustainability efforts, ensures resource efficiency, and allows HEIs to manage challenges such as requirements for more inclusiveness, volatile economic conditions, funding strains, and sustainable use of the environment [9–11]. Indeed, the recently established sustainable development goals (SDGs) stress the need for institutional commitment to SD and increased utilization of data to assess progress [12,13]. The universities can also contribute to the implementation of the SDGs by enhancing their commitment to SD. Purcell et al. [14] asserted that universities can help achieve SD by strategically aligning their mission and activities with the SDG framework. Although the SDG4 is expected to be the main contribution of the SDGs to HEIs, attaining quality education, they can help in realizing the targets of other SDGs [15]. The incorporation of SDGs into teaching, learning, and research and the establishment of partnerships are key to achieving SDGs at universities [16].

In several countries of the Global South, SD efforts at universities are either lacking or implementing an inefficient institutional framework due to several factors such as a lack of standard practice and guidance [6]. Although some universities do implement some campus sustainability initiatives without a formal institutional framework, the process of effectively advancing campus sustainability requires coordinated effort achieved through an institutional commitment and existing governance framework [9]. In several universities, SD efforts often focus on drafting a sustainability vision and implementing some sustainability efforts without a formal structure to ensure its successful planning, implementation, and monitoring [8,17]. Achieving campus sustainability is a complex and extensive endeavor that requires a systematic and integrated approach rather than unplanned or loose initiatives [2,18]. Thus, an institutional framework for SD at universities is an important element that should be implemented as it helps in addressing the existing gaps, promoting new solutions, and innovative ways of making universities more sustainable [19,20].

Saudi Arabia is among the countries of the Global South that have embarked on incorporating SD into their university systems, especially in campus operations and programs to better equip students to deal with SD challenges in all life endeavors and contribute in practices with far-reaching impacts on both local and global futures [21,22]. As a high-income country with a GDP of USD 1.775 trillion in 2017 (the 16th highest in the world) [23], the country’s SD challenges include high energy and water consumption, emissions of greenhouse gases (GHGs), and sprawling urban areas with attendant rising demand for shelter, essential public services, and means of livelihood. The country’s per capita energy consumption of 6937 kg of oil equivalent in 2014 was more than three-fold the world’s average, with its per capita carbon dioxide (CO₂) emissions of 19.5 metric tons were the seventh-highest [24]. Although the country is situated in the most water-stressed region on earth, its average daily per-capita water consumption of 235 liters is higher than most cities of the Global North that have plentiful freshwater resources [25]. Thus, the country’s Vision 2030 and ninth five-year National Development Plan have reiterated the key role of HEIs in achieving SD, especially in energy and water efficiency, waste reduction, and natural resource protection [26].
Indeed, one of the ways of achieving the SD of cities and regions in Saudi Arabia is by embedding SD into universities to develop the capacity to train future decisionmakers about the importance of efficiency in economic growth, social equity, and the need to minimize natural resource depletion, environmental pollution, and ecosystem degradation [27]. Although the task of effectively integrating SD into universities requires a sound institutional framework, no prior study has ever investigated the extent to which universities in Saudi Arabia have implemented this fundamental dimension of campus sustainability. A study by Alshuwaikhat et al. [21] explored SD integration in teaching, research, campus activities, and community services in some public universities in Saudi Arabia. Abubakar et al. [22] explored the perception and roles of students in implementing campus sustainability efforts at the University of Dammam. Alsharif et al. [28] utilized rational choice theory to explore the drivers and barriers to promoting campus sustainability based on the perceptions of senior staff working in facilities and project management departments in Saudi Universities. The dearth of studies on the institutional commitments of universities to SD in Saudi Arabia is a knowledge gap that needs to be filled. Therefore, the present study aims to evaluate the existing institutional frameworks for advancing SD in Saudi universities, highlights the existing gaps, and underscores the importance of a sound governance structure for successful implementation of SD efforts at HEIs.

The remaining parts of the paper are organized as follows. The next Section reviews the role of the institutional framework in achieving SD at HEIs. While Section three describes the research methodology, Section four presents, and discusses the study findings. The paper concludes that a sound institutional framework is critical for achieving SD at universities in Saudi Arabia and other countries of the Global South.

2. The Role of the Institutional Framework in achieving SD at HEIs

An institutional framework fosters SD at universities like the acknowledged important role governance plays in the wider society in achieving sustainability [29] because universities are now considered as “mini-cities” [2]. This is buttressed by the inclusion of the components of governance or institutional framework in some campus sustainability assessment tools such as the sustainability tracking, assessment and rating system (STARS), adaptable model for assessing sustainability (AMAS), the Green Plan, assessment instrument for sustainability in higher education (AISHE) and sustainability assessment questionnaire (SAQ) [30]. James and Card [31] identified leadership and management, institutionalized sustainability assessment, and “campus-wide actions and activities” as part of the factors that drive the achievement of SD in HEIs. Accordingly, Zenchanka and Malchenka [32] posited that “good governance” is one of the key success factors to achieving SD on campuses according to the United Nations Sustainable Development Goals (SDGs). Hamon et al. [33] underscored the significance of vision and sustainability policies in fostering sustainability in HEIs in their study of two institutions in Spain. In a study of the Universiti Teknologi Malaysia, Zen et al. [34] showed how creating a sustainability office “Green Office” and the “institutionalization of waste minimization” through sustainability governance helped in reducing campus waste and enhancing the drive towards sustainability. Moreover, components of the institutional framework including the signing of a declaration, integrating sustainability into policies, and establishing a campus sustainability plan were found to have led to better implementation of SD activities [6].

Despite the noted successes of implementing SD initiatives through adequate institutional frameworks, there are challenges in extending the experiences to other HEIs, especially in the countries of the Global South. The contextual differences of HEIs make it difficult to replicate sustainability best practices. “Processes and structures for sustainability governance” cannot simply be copied without re-contextualizing them for adaptation by other university campuses [35] (p. 497). Even some of the universities that have been able to incorporate sustainability into their institutional framework have not achieved campus-wide “holistically integrated” institutionalization [6]. Some sustainability initiatives are led by SD champions, although SD needs to be “institutionally embedded” and not depend on single actors [36].
The ineffective organizational structure and culture, lack of resources especially in the countries of the Global South, lack of awareness, leadership support, and campus sustainability plan and policies have been identified as barriers to the establishment of an effective institutional framework [37–39]. Bauer et al. [40] have suggested an “equalizer approach” to the implementation of a good institutional framework where weak elements of sustainability governance should be “tuned up”. Schopp et al. [41] demonstrated the successful implementation of the “whole-institution” approach to SD at the University of Tübingen, Germany. Ramisio et al. [42] call for sustainability governance to be established by a mixed bottom-up and top-down approach. Other authors have suggested holistic institutional transformation and the enhancement of factors such as collaboration and partnership, usage of common sustainability language, and flexibility of organizational structures in fostering good sustainability governance on campuses [43–47]. This review indicates the need to explore the extent to which universities have established an institutional framework for achieving SD at their campuses and their variability, especially in rapidly developing countries of the Global South like Saudi Arabia that face immense SD challenges and HEIs are expected to contribute in addressing the challenges.

3. Materials and Methods

3.1. Background of Saudi Higher Education System

According to 2020 estimates, there are 34,173,498 people in Saudi Arabia, 84.3% living in urban areas, and the population is estimated to reach 37.6 million by 2025 based on the average growth rate of 1.63% per annum [23]. The country has a mean population density of 12.8 persons/km², an urbanization rate of 2.17%, literacy rate of 95.3%, and about half of the population below the age of 30 years [48], indicating that HEIs are thus important avenues for shaping the behavior of the youth and inculcating in them the values of sustainable living.

As such, within the last three decades, the government has prioritized higher education in its national development plans and Vision 2030. Table 1 shows a more than six-fold increase in the total universities from only seven in 1990 to 44 in 2020. While the national population grew by 110% in the last thirty years, the number of universities has increased by 528%, due to the oil boom of the late 1980s, in response to the rising demographic trend (40.2% of the population are under the age of 25 [49]), as well as the massive investment in universities towards creating a knowledge-driven economy as enshrined in the country’s Vision 2030 [27]. Within the last decade, the number of public universities grew by 20%, whereas that of private universities increased by 75%, indicating a growing role of the private sector in education delivery (Table 1). The highest (230%) increase in the number of universities was recorded from 2000 to 2010, which can be attributed to the government’s licensing the operation of private universities in 2000. Moreover, the public expenditure on education grew from 14.71% of the total national budget in 1991 to 17.84% in 2000 and 21.60% in 2006, about a quarter of which was spent on higher education [12].

Table 1. Development of higher education institutions (HEIs) in Saudi Arabia, 1990–2020 [49].

<table>
<thead>
<tr>
<th>Year</th>
<th>Population Number</th>
<th>Increase (%)</th>
<th>Public %</th>
<th>Private %</th>
<th>Total Universities</th>
<th>Increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>16,326,815</td>
<td>-</td>
<td>7 (100%)</td>
<td>0</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>20,764,312</td>
<td>27.2%</td>
<td>8 (80.0%)</td>
<td>2 (20.0%)</td>
<td>10</td>
<td>42.9%</td>
</tr>
<tr>
<td>2010</td>
<td>27,563,432</td>
<td>32.7%</td>
<td>25 (75.8%)</td>
<td>8 (24.2%)</td>
<td>33</td>
<td>230.0%</td>
</tr>
<tr>
<td>2020</td>
<td>34,218,169</td>
<td>24.1%</td>
<td>30 (68.2%)</td>
<td>14 (32.8%)</td>
<td>44</td>
<td>30.3%</td>
</tr>
</tbody>
</table>

3.2. Data Collection and Analysis

To explore the extent to which universities in Saudi Arabia implement an institutional framework for SD, the desktop research method was employed. First, a review of the key literature related to the research topic and secondary analysis of documents was conducted. The Google Scholar
search engine was used to identify relevant the English literature using search terms such as SD at universities, green campus initiatives, campus sustainability policies, the institutional framework for SD at universities, campus sustainability reporting, and communication, sustainability vision and missions, and declarations at universities, campus sustainability governance. Several resources including academic and grey literature such as official reports and website contents were collected from the Internet. For example, statistics about the distribution of HEIs, the number of faculty and enrolled students were obtained from the MoE website [49]. This provided secondary data, the context of this research, and its relationship with the worldwide literature on SD at HEIs and the identification of an appropriate analytical framework to be used in the present study. The present study adopts an institutional framework for SD at universities developed by Lozano et al. [6], which consists of the following key elements: missions/visions; plans and policies; office; signing a declaration; and networking. This framework was adopted because it is highly cited by scholars worldwide.

Second, a website survey was conducted to collect data about the institutional framework of SD at Saudi universities and the systematic storage of information to facilitate the analysis, following the methods used in similar prior studies [50,51]. The websites of all 44 universities in the country were thoroughly searched by the authors to identify and retrieve information about the existing sustainability efforts, SD policies and visions, dedicated office/department responsible for coordinating and governing SD efforts, structures, and procedures regarding the institutionalization of SD in the universities and other relevant information [6,9,52–54]. The survey was conducted from August to December 2019 with data updates and revision in July 2020. The purpose of the website survey was to assess the extent of implementing an institutional framework for SD at Saudi universities given that universities communicate their SD efforts online, which is a common practice among HEIs worldwide [55,56].

The qualitative data extracted from the websites were analyzed using a content analysis technique where the gathered data were processed via three iterative steps [55]. Firstly, the collected documents were sorted in separate folders based on search terms mentioned above and for each university, even though a few of them belong to several categories. Secondly, themes were developed according to the identified elements of an institutional framework mentioned above. Subsequently, each document was thoroughly and repeatedly searched to corroborate the emerging themes or uncover new viewpoints until no new information materialized. Finally, the developed themes were synthesized by recognizing their similarities, differences, and interactions. The quantitative data analysis involved tabulating the findings against each university and analyzing them using descriptive statistics including percentages and averages.

4. Results

According to the UNESCO, education for SD at HEIs “fosters a process of learning how to make decisions that consider the long-term future of the economy, ecology, and equity of all communities” [57]. For higher education to play this vital role, first, there is the need to consider the number and spatial distribution of HEIs in the community to guarantee equitable access. Second, SD should be an integral part of the mission of HEIs in the community. This section, therefore, assesses (a) the distribution of universities in Saudi Arabia and (b) the extent to which the universities have an institutional framework to guide and foster their SD efforts: SD visions/missions and plans; SD governance; SD guidelines, assessment, and reporting; and networking and partnerships for SD.

4.1. Distribution of Universities, and University Students and Faculties in Saudi Arabia

Universities worldwide are becoming more proactive in promoting SD on their campuses and exporting sustainability practices to the wider society [2]. Playing this active role, however, requires a country to have adequate universities that are equitably distributed, and with acceptable student–faculty ratios to effectively shape the knowledge and values required to develop sustainable societies [1]. Figure 1 shows that the distribution of Saudi universities is uneven throughout the
country’s 13 administrative provinces, with the highest concentration of universities (31.8%) in the Riyadh Province, followed by Makkah Province (20.5%), Sharqiya (Eastern) Province (11.4%) and Madinah Province (6.8%). These four provinces are home to 72.5% of the Saudi population and 45.5% of the total universities. The provinces of Qassim, Asir, and Tabuk have two universities each, while each of the remaining six provinces have one public university.

![Figure 1. Distribution of universities in Saudi Arabia by province, 2020](image)

Regarding the distribution of private universities, six out of 14 (42.9%) are hosted in Riyadh Province and precisely in the Riyadh metropolis: the national capital with a population of about 7.3 million. Three out of the 14 private universities are found in Makkah Province, while the Eastern, Madinah, Qassim, and Tabuk Provinces each have one public university. When Figure 1 and Table 2 are juxtaposed, one can observe that the provinces with a higher number of universities are also those with larger populations compared to others and vice-versa. Although Makkah and Riyadh provinces have almost equal populations (~8 million), there are more universities in the latter compared to the former (14 versus nine). This disparity is largely due to the presence of six private universities and large expatriate populations in Riyadh. In total, the distribution of universities in Saudi Arabia largely reflects the population distribution.

<table>
<thead>
<tr>
<th>Province</th>
<th>2016 Population [48]</th>
<th>Land Area (km²) [48]</th>
<th>Population/University</th>
<th>Number of Students [49]</th>
<th>Number of Faculty [49]</th>
<th>Students/ Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makkah</td>
<td>8,338,321 (26.2%)</td>
<td>153,128 (7.7%)</td>
<td>926,490</td>
<td>419,819 (25.0%)</td>
<td>20,036 (23.9%)</td>
<td>21.0</td>
</tr>
<tr>
<td>Riyadh</td>
<td>8,014,679 (25.2%)</td>
<td>404,240 (18.8%)</td>
<td>572,477</td>
<td>386,410 (23.0%)</td>
<td>24,163 (28.8%)</td>
<td>16.0</td>
</tr>
<tr>
<td>Sharqiya</td>
<td>4,787,375 (15.1%)</td>
<td>672,522 (31.3%)</td>
<td>957,475</td>
<td>323,662 (19.3%)</td>
<td>9942 (11.9%)</td>
<td>32.6</td>
</tr>
<tr>
<td>Asir</td>
<td>2,166,983 (6.8%)</td>
<td>76,693 (3.6%)</td>
<td>1,083,492</td>
<td>97,947 (5.8%)</td>
<td>5030 (6.0%)</td>
<td>19.5</td>
</tr>
<tr>
<td>Jazan</td>
<td>1,535,167 (4.8%)</td>
<td>167,015 (7.7%)</td>
<td>1,315,167</td>
<td>67,426 (4.0%)</td>
<td>3115 (3.7%)</td>
<td>21.6</td>
</tr>
<tr>
<td>Madinah</td>
<td>2,083,326 (6.6%)</td>
<td>151,900 (7.1%)</td>
<td>694,442</td>
<td>108,213 (6.4%)</td>
<td>5637 (6.7%)</td>
<td>19.2</td>
</tr>
<tr>
<td>Qassim</td>
<td>1,589,929 (4.4%)</td>
<td>58,046 (2.7%)</td>
<td>694,257</td>
<td>86,313 (5.3%)</td>
<td>5288 (6.2%)</td>
<td>17.0</td>
</tr>
<tr>
<td>Tabuk</td>
<td>891,813 (2.8%)</td>
<td>146,072 (6.8%)</td>
<td>445,907</td>
<td>41,814 (2.5%)</td>
<td>2187 (2.6%)</td>
<td>19.1</td>
</tr>
<tr>
<td>Hail</td>
<td>685,423 (2.2%)</td>
<td>103,887 (4.8%)</td>
<td>685,423</td>
<td>42,021 (2.5%)</td>
<td>2172 (2.6%)</td>
<td>19.3</td>
</tr>
<tr>
<td>Al-Baha</td>
<td>466,946 (1.5%)</td>
<td>9921 (0.5%)</td>
<td>466,946</td>
<td>29,916 (1.8%)</td>
<td>1715 (2.0%)</td>
<td>17.4</td>
</tr>
<tr>
<td>Al-Jawf</td>
<td>498,081 (1.6%)</td>
<td>101,212 (4.7%)</td>
<td>498,081</td>
<td>33,538 (2.0%)</td>
<td>1682 (2.0%)</td>
<td>19.8</td>
</tr>
<tr>
<td>Najran</td>
<td>569,875 (1.8%)</td>
<td>149,511 (6.5%)</td>
<td>569,875</td>
<td>23,661 (1.4%)</td>
<td>1775 (2.1%)</td>
<td>13.3</td>
</tr>
<tr>
<td>Northern Border</td>
<td>359,663 (1.1%)</td>
<td>111,797 (5.2%)</td>
<td>359,663</td>
<td>18,453 (1.1%)</td>
<td>1222 (1.3%)</td>
<td>15.1</td>
</tr>
<tr>
<td>National</td>
<td>31,797,560</td>
<td>2,149,690</td>
<td>722,445</td>
<td>1,640,913</td>
<td>83,894 (20.0)</td>
<td></td>
</tr>
</tbody>
</table>

On average, there is one university per 0.72 million people in Saudi Arabia as of 2017, with the highest ratio of one university per 1.5 million people in Jazan Province and the lowest ratio in the Northern Border province which is also the least populated. Nine provinces have ratios below the national average, while Jazan, Asir, Eastern, and Makkah provinces have ratios above the national
average. However, there is no observable relationship between land area and distribution of universities (Table 2). This is not unexpected given that in desert environments regions can contain empty or sparsely populated areas and hence spatial coverage of universities reflects more on the population than land size.

Student enrollment indicates the extent of investments in the future workforce and decision-makers on sustainability-related matters. According to Saudi Arabia’s Ministry of Education (MoE), in the 2017/2018 session, about 1.68 million students (52.3% female) were enrolled in bachelor and graduate programs, 84.81% of which were attending public universities [49]. Table 2 indicates that about half (48%) of the total students were studying in Makkah and Riyadh provinces, and about one-fifth (19.3%) in the Eastern Province. Thus, a direct link between population distribution and student enrollment in the provinces exists.

Furthermore, there is an average of 20 students for every faculty in Saudi universities and all the provinces except Eastern and Makkah provinces have student–faculty ratios below the national average. The Eastern Province has a disproportionately very high (32.6) student–faculty ratio, which is 1.5 times the national average, while Makkah province has a ratio (21.0) that is slightly higher than the national average. The average of 20 students to faculty ratio at Saudi university is close to the mean ratio of 18 students to a faculty in the USA. The student–faculty ratio proxies the quality of education delivery and universities are expected to actively contribute to national development by improving students’ theoretical and practical skills to tackle the environmental and societal challenges associated with rapid urbanization and climate change.

4.2. Vision/Missions, and Policies for SD at Saudi Universities

Developing an SD vision/mission, which describes what an institution strives to achieve in the future, is a key indicator of a university’s commitment to sustainability. In Saudi universities, SD visions/missions can be classified into those explicitly or implicitly mentioned at the university level or the division responsible for SD. The study found that 72.7% of the universities have shown a commitment to campus sustainability by having sustainability visions and/or visions that are explicitly or implicitly stated (Table 3). Some examples of explicitly stated SD vision/missions include the SD vision of Imam Abdulrahman Bin Faisal University in Dammam to “achieve a sustainable built environment, promote community responsibility and partnership and achieve financial sustainability of University resources.” Similarly, Qassim University has a vision of becoming a “smart sustainable university.”

<table>
<thead>
<tr>
<th>Universities</th>
<th>Sustainable Development Vision or Mission</th>
<th>Campus/Strategic Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>22 (50.0%)</td>
<td>18 (40.9%)</td>
</tr>
<tr>
<td>Private</td>
<td>10 (22.7%)</td>
<td>2 (4.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>32 (72.7%)</td>
<td>20 (45.5%)</td>
</tr>
</tbody>
</table>

There are some universities where SD is not specifically referred to in their vision or mission, but it is mentioned in the description of the responsibilities of SD offices or the introductory speech of the head of the office in charge of sustainability. At King Saud University, for instance, the Dean of Development and Quality that is responsible for SD governance described their mission as to “enhance environmental quality and sustainable development.” The King Abdullah University of Science and Technology (KAUST) seeks to be “a leader among the top tier higher education institutions and communities in environmental protection and sustainability.” These implicit vision/mission statements can help communicate the SD goals of the universities.

Concerning the presence of specific SD plans as obtained in several universities of Western countries, we found no evidence of a specific campus sustainability plan in any of the surveyed universities. However, campus master plans and strategic plans of 20 universities (45.5%) have sustainability
coverage. For example, as part of its strategic plan, the University of Bisha has a provision for income diversification to achieve economic sustainability. The KAUST has sustainable site planning as part of its campus plan. Majma’ah University has the policy to ensure that campus development meets the university’s “sustainable development requirements.” King Saud University (KSU) has a strategic plan entitled “KSU2030” for improving its global status and attaining resource sufficiency.

4.3. Campus Sustainability Governance

Achieving SD at HEIs can be facilitated by establishing a dedicated SD office with a personnel, budget, and responsibilities for SD governance. In Saudi Arabia, the present study finds that SD governance structures vary substantially and can be classified into three groups. First, half (52.3%) of the universities have established a dedicated office responsible for SD governance (Table 4). For example, at the University of Jeddah, SD is under the office of Vice President for Development and Sustainability. At King Fahd University of Petroleum and minerals (KFUPM) in Dhahran, SD is the responsibility of the Environment, Health, and Safety Department to “ensure the healthy working environment by assessing regularly the current environmental conditions and implement recommendations, develop and implement programs to make the university green, and develop and implement programs for waste disposal and recycling.” In Taif University and Imam Abdulrahman Bin Faisal University (IAU) in Dammam, SD is governed under the Deanship of Community Services and Sustainable Development. The IAU established the Deanship in 2012 to improve campus environmental sustainability, motivate faculty members to research SD issues, support community services, and build strategic partnerships with the public and the private sectors to promote the SD of the country [18].

<table>
<thead>
<tr>
<th>Universities</th>
<th>Office/Department/Unit</th>
<th>Staff/Student Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>20 (45.5%)</td>
<td>15 (34.1%)</td>
</tr>
<tr>
<td>Private</td>
<td>3 (6.8%)</td>
<td>4 (9.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>23 (52.3%)</td>
<td>19 (43.2%)</td>
</tr>
</tbody>
</table>

The second kind of governance structure is where SD activities are managed under either the project office, maintenance department, or facilities and housing department, and this is the structure that exists in most of the Universities. For example, SD is governed under the University Project office at Qassim University, General Administration for Projects and Maintenance at Taibah University, and the Vice Presidency for Project Management office at King Khaled University. At Umm Al-Qura University in Makkah, SD is the responsibility of the Sustainability Unit under the Operations and Maintenance Department, while it is under the Relations and Community Outreach office at the University of Hafr Batn.

Third, there are instances where SD is the responsibility of more than one agency. For example, at the Islamic University of Madinah, SD activities are shared by the General Management for Sustainability office, which is under the Vice Presidency for Development as well as the Deanship of Community Service. However, there is no evidence of SD governance in the remaining 21 universities. Moreover, about one-third of the SD offices engage their faculty and students in sustainability-related activities such as community outreach and collaboration. Only three out of 14 private universities have dedicated SD offices, most likely because they were established after the year 2000.

4.4. Collaboration and Community Outreach

Achieving SD at HEIs entails multi-stakeholder collaboration including the community, the public, private and nonprofit sectors for mutual practical and research benefits. HEIs increase their prestige and commitment to SD when leading the efforts toward developing sustainable communities. This study found that community outreach is the second most visible institutional element of SD (68.2%) among Saudi universities after the SD vision/mission (Table 5). For example, Taif university, has a collaboration...
with the ministry of education, the municipality, traffic department, the private sector, and NGOs on SD practices, as well as community outreach programs including public lectures on urban greening, heritage conservation, and raising awareness about cancer, obesity, and women’s rights.

### Table 5. Collaboration/partnerships and community outreach.

<table>
<thead>
<tr>
<th>Universities</th>
<th>Collaboration and Partnerships in SD</th>
<th>Community Outreach in SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>21 (47.7%)</td>
<td>24 (54.5%)</td>
</tr>
<tr>
<td>Private</td>
<td>7 (15.9%)</td>
<td>6 (13.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>28 (63.6%)</td>
<td>30 (68.2%)</td>
</tr>
</tbody>
</table>

Furthermore, 63.6% of the universities collaborate with external agencies in SD efforts including research and sustainable city planning and management. These agencies include planning, transport, and waste management agencies, other HEIs, environmental protection/conservation agencies, hospitals, as well as the private sector and non-governmental organizations (NGOs). For example, KFUPM has a research collaboration with Massachusetts Institute of Technology on clean water and renewable energy, Prince Sattam University in Al-Kharj has an SD research partnership with Kyoto University, and King Saud University is networking with industries and the public sector in achieving its SD mission and objectives. In King Abdulaziz University, the Center of Excellence in Environmental Studies provides outreach services related to environmental awareness and SD, which include workshops, exhibitions, and community awareness campaigns. The University’s Prince Turki Bin Nasser Chair for SD also collaborates with other HEIs in scientific research related to SD. Similarly, Dar Al-Hekma University is a private university that has SD research collaboration with the Texas Global Livingston Institute.

### 4.5. Sustainability Ranking and Networking

Several universities committed to achieving sustainability do participate in SD ranking, accreditation, and certification, as well as local and international green campus networks/associations [58]. Ranking and rating systems evaluate the university’s operations, programs, and research to determine the extent to which SD standards and targets are met, while networking allows the exchange of ideas and best practices [59]. As such, some widely used sustainability ranking/rating, award, and certification systems are used to assess the participation of Saudi universities in these systems (Table 6). These systems allow for a comparison of universities’ sustainability performance and are globally deemed as good arbiters of a university’s commitment to SD.

### Table 6. Saudi university participation in SD ranking, rating, award, and certification system.

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Category</th>
<th>No of Universities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>University of Indonesia Green Metric [60]</td>
<td>Ranking</td>
<td>6 (13.6%)</td>
</tr>
<tr>
<td>2020</td>
<td>Times Higher Education Impact Ranking [61]</td>
<td>Ranking</td>
<td>5 (11.4%)</td>
</tr>
<tr>
<td>2010</td>
<td>International Sustainable Campus Network [62]</td>
<td>Award</td>
<td>1 (2.3%)</td>
</tr>
<tr>
<td>2012</td>
<td>Sustainability Tracking, Assessment, and Rating System [63]</td>
<td>Rating</td>
<td>2 (4.5%)</td>
</tr>
<tr>
<td>2018</td>
<td>Leadership in Energy and Environmental Design [64]</td>
<td>Certification</td>
<td>5 (11.4%)</td>
</tr>
</tbody>
</table>

Six Saudi universities (14.3%) were ranked in the 2019 University of Indonesia (UI) Green Metric ranking of green campuses, with King Abdulaziz University becoming the first in the country and 44th in the Globe, followed by Princess Nourah Bint Abdulrahman University (138th globally). Similarly, only five universities featured in the 2020 Times Higher Education Impact Ranking, which is an assessment of universities against the SDGs based on research, outreach, and stewardship. Only KAUST and Prince Muhammad University (PMU) have registered to use the Sustainability Tracking, Assessment, and Rating System (STARS) reporting tool but are not yet rated based on the rating system (platinum, gold, silver, bronze, or reporter). Through the STARS system, at least 1007 HEIs
have registered to use the tool to assess their sustainability accomplishment through a self-reporting rating process. Another sustainability certification system focusing on buildings and infrastructure is the Leadership in Energy and Environmental Design (LEED). Five Saudi universities have so far registered their buildings for LEED certification, but only KAUST’s four buildings are LEED-certified. Lastly, the International Sustainable Campus Network (ISCN) is a network for exchanging knowledge, ideas, and best practices for fostering SD at HEIs, and the forum gives awards to indicate the degree of a university’s commitment to SD. Currently, only KAUST among Saudi universities got an award from ISCN.

Another important commitment to SD at HEIs is the signing of an international charter or declaration. However, our study found no evidence of any Saudi university signing any declaration or charter for SD. Lozano et al. [6] found a strong relationship between signing a charter or declaration and the implementation of SD initiatives on campuses.

4.6. Campus Sustainability Assessment and Reporting

Sustainability assessment and reporting are important dimensions of SD at HEIs and key elements of a sound institutional framework. They involve setting specific SD guidelines and procedures as well as conducting periodic sustainability assessments and reporting the outcome, which are preconditions for more effective campus sustainability efforts [5]. In the present study, we found no evidence of any university assessing its sustainability status and reporting the outcome, which would enable it to identify gaps and propose remedial action. Thus, this is the element of SD governance that needs more attention among Saudi universities compared with those earlier discussed.

5. Discussion and Conclusions

The adoption and implementation of SD in teaching, research, campus operations, and community have risen with increasing institutional commitments through the voluntary decision of university administrators, signing of declarations, government regulations, and advocacy from environmental groups, scholars, students, media, and citizens [65–67]. An institutional framework for SD at HEIs consists of a vision/mission, dedicated office, policy/plan, collaboration, and outreach for implementing, managing, and coordinating sustainability efforts on campus [6]. It is an important dimension for fostering SD at HEIs and for exporting sustainability commitments, policies, and practices to the larger society [9].

In Saudi Arabia, the present study found that SD visions and/or visions are the most visible element of an institutional commitment to SD in close to three-quarters of the universities. This is flowed by community outreach to export the concept and practice of SD to the larger society, establishing a dedicated office for SD governance, and collaborating with external agencies in SD efforts. Few universities participate in SD ranking, rating, award, and certification systems, which are established for promoting sustainability best practices and encouraging networking among HEIs worldwide. Previous studies found that signing declarations without accountability is found to insignificantly contribute to making progress towards implementing SD initiatives in a university [68], indicating the importance of other elements of an institutional framework such as using a systematic approach [69] and improving the existing organizational culture [70,71].

Although there is no evidence of specific campus sustainability plans in the universities, a little less than half of the universities have SD coverage in their campus development plan or strategic plans. Private universities have more strength in mission/vision and collaboration elements compared to establishing SD office and incorporating SD into campus development and strategic plans, likely because of their infancy. Sustainability assessment and reporting are lacking in both the public and private universities. Similarly, the present study could not find any evidence of signing a declaration or charter in any of the studied universities. Because campus operations and activities pose substantial negative impacts on the environment, more than 31 declarations for the need to incorporate sustainability in HEIs have been made and signed by more than 1400 universities worldwide [46].
Institutional vision/mission statements for SD and a dedicated office and staff responsible for SD governance are important steps to transforming the visions into reality by developing a campus SD plan towards sustainable campus. Therefore, every Saudi university should develop an SD plan as a road map for coordinating and guiding learning and research to be sustainability-oriented, minimizing the negative impact of campus operations, facilitating community outreach, partnerships, and environmental stewardship. Formulating and implementing SD objectives of the plan that are specific, measurable, achievable, relevant, and time-bound is important [37]. Moreover, indicator-based sustainability assessment can help the universities to track progress, identify, and document strengths, weaknesses, obstacles, and threats to promoting SD [30].

These recommendations are important because the Saudi government through its Vision 2030 is focusing on utilizing universities as agents of change in fostering the SD of the country and economic diversification. The effort involves restructuring the universities’ curricula, research programs, and community services with more emphasis on SD, empowering students to be entrepreneurial and to advance their sustainability literacy as the country’s median age is 30.8 years. Because SD challenges confronting the country such as high per capita water and energy consumptions, climate change challenges such as water stress [72–74], a spread effect of HEIs can motivate the society to embrace sustainable behaviors and lower their footprint on the environment [75] and achieve low-carbon communities [76].

In conclusion, an institutional framework commits a university and its stakeholders to a more effective path to SD. With an effective institutional framework, there would be more commitments and initiatives to integrating sustainability in teaching, learning, and research which are the core businesses of HEIs [9,12]. It also helps systematically organize and prioritize operational issues, integrate financial, resource, environmental, ethical, and social responsibility within HEIs and beyond. An institutional commitment to SD helps promote university-community partnership, outreach, and awareness campaigns, and can advocate public regulations and policies to tackle local, regional, and global sustainability challenges. As institutional role models to society, HEIs can influence decision-makers and facilitate a partnership among various societal stakeholders to plan and act towards creating a sustainable future.

The use of website data might have some limitations because the source is based on self-reported data, which are likely to report successes than difficulties and failures. This research has also been limited by a lack of information from the websites of some universities. Despite this, it is the only research on this issue ever performed in Saudi Arabia and among the few in the countries of the Global South. Future research is needed to survey the opinions of the staff of the SD office about the extent of implementing the existing institutional framework and its importance in achieving SD at HEIs. For an in-depth understanding of the challenges of implementing an institutional framework for SD at universities, there is the need for a study to interview the representatives of the universities and of the ministry of education that are directly and indirectly involved in the design and implementation of sustainable development plans for the universities.

Author Contributions: Conceptualization, I.R.A., Y.A.A and H.M.A.; methodology, I.R.A. and Y.A.A.; formal analysis, I.R.A.; resources, H.M.A.; data curation, I.R.A. and Y.A.A.; writing—original draft preparation, I.R.A. and Y.A.A.; writing—review and editing, I.R.A. and Y.A.A.; project administration, H.M.A.; funding acquisition, H.M.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research and the APC were funded by the National Plan for Science, Technology and Innovation (MAARIFAH), King Abdulaziz City for Science and Technology through the Science & Technology Unit at King Fahd University of Petroleum & Minerals, Saudi Arabia (Award number: 14-BUI109-04).

Conflicts of Interest: The authors declare no conflict of interest in the conduct of this study.

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