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Requirements for Najran University to Transform into A Green University in Light of the Experiences of Some Arab and International Universities

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Abstract

This research paper aimed to study the most important requirements for transforming Najran University into a green university, by studying the concept of the green university and the green scale. The study used the descriptive approach to study the experiences of the most important international green universities that occupy an advanced position in the green scale of universities, then the most important Arab universities and Egyptian universities. I also presented a research paper to rank Egyptian, Arab and Saudi universities in the green scale for universities, and through these experiences I came up with a set of requirements that could contribute to the transformation of Najran University into a green university.

Keywords: Green University, Requirements, Egyptian

INTRODUCTION

We have the green university to build a university city and for this reason we seek constructive work and adaptation to construction and adaptation (Othman, 2022, 159). Colleges and universities are powerful hubs for conducting research, innovating, and teaching that leads to societal change. Additionally, they serve as important hubs for tackling global challenges. Since the early 1970s, higher education institutions have been increasingly interested in sustainability and the environment, when academics realized the continuing environmental degradation and its negative social and economic consequences. Environmental literacy and sustainability principles are taught in degree programs and courses, and multidisciplinary approaches to environment, economics, and society are becoming more common in academic study. The idea that a campus serves as a microcosm of society and that activities like waste management, the use of dangerous chemicals, and pollution of the air and water can have a substantial negative influence on the environment both on campus and off. (Jennifer Massey and Jessica Finlay, 2011, 150–151)

When transforming into a green university, one must think about three main axes. The first is to focus education and curricula on the environment, environmental protection, sustainable development, and the use of clean energy. The second axis is to make students' studies an applied behavior in various daily activities, whether within the university or within society. Thus, education is applied and influential in Our daily life and education has an important role in the development of society and the preservation of the human race. The third axis is to focus on the idea that everyone has an influence on life through the simple behaviors that he practices in his daily life, which can provide many effective opportunities for preserving the environment and sustainable development.

The Study Problem

A Group of International Universities Have Converted to Green Universities, Including

Brown University: Brown University has adopted a campaign entitled “Brown is Green” by implementing key initiatives, namely research and teaching, university engagements, and community cooperation initiatives. It has

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also promoted alternative means of transportation by offering discounts on parking for car users and shuttle service to off-campus destinations. Free entry to local public transportation, as well as bike racks to promote jogging, walking, and cycling to campus. In addition, the university implemented rainwater management, planted areas, and a water-saving system. (Jennifer Massey and Jessica Finlay, 2011, 154)

Dickinson College: The campus includes waste and vegetable oil incinerator, central energy boilers, and a converted biodiesel factory. putting in a filtration system in a swimming pool to collect and store evaporating water. Additionally, Dickinson College allocates half of its food budget to locally grown foods, such as hormone-free dairy products and vegetables and herbs from the campus farm. Luther College has implemented energy-saving measures like thermostats, electrical metering systems, energy management, and energy-efficient lighting. Since 2007, we have been detecting vending machines (sustainable giveaways) and turning spent fryer oil into fuel for certain ground equipment. The school produces its own geothermal energy, and it has transformed a sizable barn into a reuse store that holds monthly sales to offload stuff she no longer needs. (Jennifer Massey and Jessica Finlay, 2011, 154)

Canadian University of Laval: It worked to shift towards sustainability in all the university's practices and facilities and participate in the global system for tracking, evaluating and classifying sustainability. It developed periodic reports on the university's achievements in this field and developed an action plan during the period from 2015 - 2018 that includes education, research, creativity, responsible management, economic feasibility and resistance to change. Climate and sustainable transport, responsible purchasing and consumption and sustainable infrastructure. (Al-Bounani et al., 2021, 258)

Oberlin College: by 2025, aims to be carbon neutral. The college has three buildings heated by geothermal heat pump systems and two solar arrays installed. The monitoring of students' water and energy use, particularly during boarding and environmental conservation, is made possible by a system installed in ten student residences and eighteen resident halls.

Pomona College, California: strongly encourages the use of alternate modes of transportation by way of a student-run bike store that gives away 60–80 bikes to students for the duration of a semester and provides free maintenance and repairs. Carpool groups are organized via a website, and employees are given financial incentives to commute in an eco-friendly manner. Pomona's fleet consists of more than half all electric cars. (Jennifer Massey and Jessica Finlay, 2011, 155).

There are many Arab studies and research on green university companies in terms of the foundations of their branches, their impact on society and their development, including the following:

A study (Moussa, 2020) , which aimed to identify the level of work pressures that faculty members are exposed to at Al Qasim Green University and its impact on university performance. It used the descriptive approach and conducted a survey study to identify the sources of these pressures in order to develop successful solutions, proposals and recommendations to overcome them. On these pressures and hiding from them, the study found that a large part of the pressures affect their family obligations, and that faculty members work under conflicting policies and guidelines, which is one of the most important sources of pressure on them.

The study (Al-Safti, 2020) aimed to present a proposed vision for education for a green environment in universities, and dealt with the concept of the green environment in universities and ways for the university to achieve the principles of sustainability that constitute the green environment. It also monitored some global manifestations of education for a green environment in international universities from In order to benefit from it in building the current vision.

As for the study (Walter Leal Filho et al., 2019), it addressed the role of green offices in higher education institutions in promoting sustainability, as they help support the implementation of sustainability initiatives on campus and develop these initiatives among students and employees, and through a large study on a sample of 70 There are institutions of higher education that have proven the effectiveness of these offices, but their use is not widespread, and these offices also work to reduce the negative effects that harm the environment. As for the study (Jun Tu, 2018) studied the impact of the green university on economic development, in which students are directed to the green economy, increasing knowledge in the direction of sustainable development,

and establishing industrial clusters interconnected with universities that seek to protect the environment and sustainable development.

The Study Problem

In light of the previous studies and literature on green universities, the problem of the study becomes clear in the following main question:

What are the most important requirements for Najran University to transform into a green university in light of the experiences of some Arab and international universities?

- The following sub-questions branch out from it:
- What are the most important experiences of international universities in converting to green universities?
- What are the most important experiences of Arab universities in converting to green universities?
- The most important requirements for developing Najran University in light of the green university?

Research Objectives

This research paper aims to achieve the following:

- 1- Studying the most important international experiences in the transformation of universities towards green universities.
- 2- Studying the most important Arab experiences in transforming universities towards green universities.
- 3- Studying the most important indicators of the green scale for the transformation of universities towards green universities.

The Importance of Studying

The importance of the study stems from the following:

A- Theoretical importance: Through this paper, the most important international and Arab experiences in converting universities to green universities are identified, as well as the requirements for converting Najran University to a green university, which brings economic, societal and environmental benefit to the university community and the Najran community.

B- Applied importance: Through this paper, we study how Najran University can transform into a green university, which is beneficial in changing the values of students and faculty members in moving towards protecting the environment from the harms of climate change, through academic courses and applied research conducted by students and faculty members.

RESEARCH METHODOLOGY

In light of the objectives of the paper, the study uses the descriptive approach in order to suit the subject of the study, by studying the most important international experiences in transforming universities into green universities, as well as studying the most important Arab experiences in transforming universities into green universities according to the green scale, and coming up with the most important requirements necessary for Najran University to transform into a green university.

Green Universities

A term given to universities that are able to achieve the requirements of sustainable development and employ them on campus. These are environmentally friendly universities that ensure that the campus becomes clean and maintains environmental standards and green color by achieving environmental sustainability and energy consumption, supporting education and environmental research, and implementing waste recycling systems. On campus and organizing its activities to increase public awareness of environmental issues (Othman, 2022,

167) The phrase "green university" also describes the work that universities do to promote sustainable development, the significant duties that they carry out to advance society and lessen the effects of environmental issues on campus and in the community, as well as the necessity of making universities environmentally friendly establishments and the creation of new, specialized institutions. Wu, Chia-Huei (2021, 76).

Green universities also have environmental programs that reduce energy consumption and waste on campus, what is known as greening the curriculum, by expanding e-learning as it reduces the infrastructure and activities used in traditional learning. Fuel consumption can also be reduced for students and staff because they do not need to access the campus and reduce student housing, libraries and laboratories. Working and studying on campus also increases the increasing consumption of energy and resources and generates emissions and waste. The total energy used in university buildings in the United Kingdom in 2002/2003 was 7.4 terawatt hours, which is equal to 1.6 percent of the energy of the industrial, commercial and public sectors in the United Kingdom. (Keoy Kay Hooi et al.,2012,527)

Theoretical Study

Universities in countries of the world represent the source of change, creativity, and development in the societies in which they are located. The intellectual output achieved by universities must find an appropriate echo in field application. From this standpoint, universities in countries of the world have adopted a strategic approach in dealing with the environment, sustainability, and the green orientation in The course of its work, and from this trend, there became an approved standard and standards for measuring the green trends of universities, and through their various practices that are subject to examination and evaluation to obtain a competitive position with other universities in the world, so a global green scale for universities was built (GreenMetric World University Rankig (GMWUR)). It can bring competitive advantages to the universities that adopt it. (Al-Bakri, 2017, 20)

Green University Evaluation Criteria:

In recent years, the notions of environmental sustainable development and green universities—also known as sustainable universities—have gained recognition from experts and scholars across a range of disciplines. As a result, key evaluation criteria for green universities have been developed, and they include:

- Ecosystem: with regard to campus air quality, smoking pollution control, planning for transportation, and basic greening.
- Resource recovery (recycling), trash sorting, and energy conservation are examples of environmental management.
- Environmental education: in-depth environmental education, study of sustainability. (Wu, Chia-Huei (2021), 77–78)

Sustainability scale for the global university rankings UI Green Metrie:

The University of Indonesia developed a global classification of university sustainability as a goal to measure the various efforts of the university. The primary purpose was to conduct a survey on the Internet to present sustainable programs and policies in global universities. This was in the year 2010 AD, and 95 universities from 35 countries participated in it, and in the year 2016 AD 515 universities joined the classification. From 75 countries around the world, it has become the first and only sustainability measure in ranking universities around the world in terms of sustainability. The scale should be a tool for self-evaluation of campus sustainability for higher education institutions around the world. (University of Indonesia, 2017, 3)

Benefits of Participating in the UI Green Metrie Sustainability Benchmarking

Universities participating in the sustainability scale enjoy many benefits, including: (Boutura, Al-Wafi, 2020, pp. 845-846)

-Internationalization and university recognition: By gaining sustainability initiatives on the ground, participating in the sustainability measure for universities advances the university's efforts in internationalization and recognition. It also boosts traffic to the university's website and other sustainability-related websites, fosters stronger relationships with other interested institutions, and increases participation.

-Rising awareness of sustainability issues: As the world confronts previously unheard-of civilizational challenges like population trends, global warming, resource exploitation, oil-based energy, and water and food shortages, participation helps raise awareness of sustainability issues both within and outside the university. The role of higher education in tackling these issues and increasing public consciousness through assisting in the assessment and comparison of initiatives undertaken in the areas of field social awareness, environmentally friendly campus development, sustainable research, and education for sustainable development.

-Social change and action: If we wish to address global concerns, we must translate our understanding of reality into action. This is why the sustainability scale is helpful in promoting awareness and adjusting it to foster actual change.

-Communication: For university rankings, all scale participants instantly join the Global Sustainability Scale network. By attending the annual workshops of the International Sustainability Scale as well as regional or national workshops, participants can also share best practices about the sustainability program and interact with people worldwide. Participants can set up technical seminars on sustainability indicators at their own universities, which are hosted by certified host universities. The University of Indonesia oversees this network as a platform custodian for the implementation of sustainability plans, and coordinators, nationals, and the Steering Committee of the Sustainability Scale Secretariat suggest and decide on programs and orientations.

(Criteria and Indicators) of UI Green Metric : (Guideline Ui Green Metric Worlded rankings 2022)

Table (1) Number of Arab universities classified within the green scale for the year 2023

Rank	Country	The number of universities classified within the green scale
1	Iraq	74
2	Egypt	26
3	Palestine	12
4	Jordan	10
5	Saudi Arabia	8
6	Syria	6
7	Tunisia	5
8	The United Arab Emirates	4
9	Bahrain	3
10	Lebanon	3
11	Morocco	2
12	Kuwait	1
13	Sultanate of Oman	1

Source: Green Scale website (<https://greenmetric.ui.ac.id>)

It is noted from the previous table that there are 13 Arab countries out of a total of 22 Arab countries that have universities classified within the green scale for universities, and their number is (1183) universities from 84 countries around the world. Iraq recorded the largest Arab country that has a university classified within the green scale with a group of 74 green universities, followed by Egypt has a total of 26 green universities, then Palestine has a total of 12 green universities, then Jordan has a total of 10 green universities, then Saudi Arabia has a total of 8 green universities, and Kuwait and the Sultanate of Oman recorded one green university. The working paper presents a classification of Egyptian and Saudi universities within the green scale, as Saudi Arabia is the country of study. In which Najran University, the subject of the study, is located, Egypt represents a country with diverse universities, including governmental, private, and international.

Table (2) Classification of Egyptian and Saudi universities within the green scale for the year 2023

Rank 2023	University	Country	Total Score
62	Qassim University	Saudi Arabia	8575
175	American University in Cairo	Egypt	7970
207	Alexandria University	Egypt	7765
209	Benha University	Egypt	7750
236	Imam Abdulrahman Bin Faisal University	Saudi Arabia	7610
270	King Faisal University	Saudi Arabia	7450
290	Cairo University	Egypt	7335
301	Beni-Suef University	Egypt	7265
304	Ain Shams University	Egypt	7255
306	Kafrelsheikh University	Egypt	7250
320	Sohag University	Egypt	7185
341	October 6 University	Egypt	7095
465	Tanta University	Egypt	6510
470	New valley university	Egypt	6500
474	Minia University	Egypt	6480
479	Zagazig University	Egypt	6390
524	King Khalid University	Saudi Arabia	6310
554	Damietta University	Egypt	6210
564	Nile University	Egypt	6155
612	Assiut University	Egypt	5975
725	Badr University in Cairo	Egypt	5355
751	Alamein International University	Egypt	5235
756	Al-Azhar University	Egypt	5205
765	University of Sadat City	Egypt	5130
817	Mansoura University	Egypt	4865
820	King Saud bin Abdulaziz University for Health Sciences	Saudi Arabia	4840
833	Imam Mohammad Ibn Saud Islamic University	Saudi Arabia	4750
855	Arish University	Egypt	4620
871	Egyptian Russian University	Egypt	4545
878	Menoufia University	Egypt	4475
899	Aswan University	Egypt	4285
939	Prince Sattam bin Abdulaziz University	Saudi Arabia	4020
979	South Valley University	Egypt	3765
1090	AlMaarefa University	Saudi Arabia	2830

Source: Green Scale website (<https://greenmetric.ui.ac.id>)

It is noted from the previous table that the number of Egyptian universities classified within the green scale reached 26 universities, and the number of Saudi universities reached 8 universities, and the university with the highest ranking, and among the top 100 ranked universities, was Qassim University, which ranked 62nd, followed by the American University in Cairo, which ranked 175th. It is noteworthy that there is diversity. Egyptian universities are classified among old universities, such as Cairo University, ranked 290, and Al-Azhar University, ranked 756, and modern universities, such as El Alamein University, ranked 751. This shows the diversity of these universities' experiences in transforming into green universities. This paper confirms that newly established universities are easy to To follow the standards and indicators of the green standard, as for old universities, it is difficult for them to transform and achieve the requirements of becoming a green university.

The working paper will attempt to shed light on some of these experiences to obtain experience that contributes to providing the necessary requirements for the transformation of Najran University into a green university .

Qassim University (Qassim University website):

The university topped the Saudi and Arab universities in the International Green University Rankings 2023, out of 8 Saudi universities that qualified for the competition. The university also ranked second in the Arab world and 62nd globally out of 1,183 classified universities from all over the world, advancing more than 90 places after it was ranked 153 last year. This achievement comes as a continuation of Qassim University's excellence locally, regionally and globally, and as a result of its achievement of sustainability standards in indicators of scientific research, the educational process, infrastructure, and student activities, and its activation of environmental initiatives such as afforestation, water treatment, and energy efficiency. The university continues to advance in this classification at an accelerated pace over the past years, It started in 2019 ranked 342nd globally, then reached 293rd globally in 2020, advanced to 151st globally in 2021, and last year 2022 it ranked 153rd globally out of 1050 international universities.

-South Valley University (South Valley University website):

South Valley University was classified among the green and environmentally friendly universities and was listed in 979th place in the world in the UI Green Metric global classification for the year 2023. The classification included 1,183 universities this year compared to last year, in which 1,080 universities from various countries of the world participated. This classification also measures the extent of the university's participation in developing environmentally friendly infrastructure, and this classification works to rank universities according to their achievement of sustainable development goals and the extent of their commitment to clean environment standards, The classification also evaluates the internal environment of the university campus as a green and sustainable environment through six criteria and 39 indicators for confronting climate change and preserving materials such as energy, water and food. This classification is also based on several main criteria: green infrastructure, green growth at the university (15%), energy and climate change. Preserving energy consumption in university buildings (21%), contributing to waste recycling (18%), conserving water use (10%), reducing vehicles on campus, and using bicycles to reduce carbon and emissions (18%), and supporting a sustainable educational and research environment (18%). Each standard includes a set of indicators related to sustainable development.

-Benha University (Abdel Wahab, 2021, 194-198):

Banha University represents one of the regional Egyptian universities and is making strides towards achieving achievements in various fields. It has prepared a strategic plan for 2017-2022 to include all functional axes of teaching and learning, postgraduate studies, scientific research, community service and environmental development. It has also achieved good communication with the community in many medical and veterinary fields. Agricultural, legal, cultural, artistic, sports, recycling solid waste, treating some agricultural diseases, combating corruption and violence against women , The university has adopted development approaches towards transforming into a green university with its qualifications and capabilities in all fields of research and teaching, preserving the environment and natural resources, and supporting human outputs with sustainable thinking and in light of global standards of sustainability.

Benha University joined the International Classification of Green Universities (UI Green Metrics) in the year 2019 and was ranked 222 globally out of 778 universities around the world and locally at 3. Benha University took steps towards achieving the standards and indicators of the green scale in order to achieve sustainable development and to advance the scale as it ranked Ranked 209th in 2023 and ranked third among Egyptian universities.

Through what was presented in this paper, this paper attempts to shed light on the most important requirements for transforming Najran University into a green university.

Requirements for Turning Najran University Into A Green University

In the beginning, a higher committee must be formed at the university specialized in the process of planning and implementing the program to transform into a green university. It must be taken into account that this committee includes members from all academic disciplines, and is represented by students, employees, and members of the local community, so that the committee's decisions are inclusive of all the opinions and ideas of human resources.

The various requirements that contribute to the transformation of Najran University into a green university will be presented, through the findings of previous studies and the experiences presented in this paper:

- Converting university buildings into energy-efficient buildings.
- Implementing sustainable environmental laws and rules.
- The university provides transportation to and from the university city and within the university city.
- Relying on administrative electronic transactions to reduce spatial relocation to complete administrative transactions.
- Providing places for walking between university buildings and for cycling.
- Providing courses related to environmental education and sustainable development.
- Using energy-saving devices in teaching processes.
- Providing introductory meetings for students, employees, and faculty members to raise awareness about the transition to a green university.
- Linking students' graduation projects to environmental sustainability and green transformation.
- Supporting research projects on environmental sustainability.
- Providing community convoys to raise awareness of environmental sustainability and green transformation.
- Linking the goals of the university's strategic plan to the development goals of sustainability and green transformation.
- Use energy-efficient lighting systems.
- Using water treatment technology used within the university.
- Using waste sorting and recycling technology.

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