



UNIVERSITY OF BAHRAIN ENVIRONMENTAL SUSTAINABILITY RANKING SYSTEM
UOB ESHEIRS

UoB ESHEIRS

Methodology 2023

Version 1





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Introduction

Welcome to the University of Bahrain Environmental Sustainability Higher Education Institutions Ranking System Methodology guide.

Herewith a detailed description of the system's 2023 methodology. It is intended to explain the process and how the calculations of results is done.

This is the first guid related to the system as it is under process. It is based on an application of current Environmental Sustainability Higher Education Ranking System (ESHEIRS) indicators with the addition of some new. Beside the addition of new indicators, the UoB ESHEIRS customize its methodology based on the climate class of the country of residence of the university, or based on the university "location". Koppen Giger climate classification system and machine learning techniques are used in the methodology.

This document shows an overview of the ranking system, how the overall ranking is generated, followed by a section on how the ranking results is calculated.

The target is to rank universities from all ove the world transparently. Another target is to engage with universities and higher education institutions more directly. If the guidance is not clear please contact me on one of my social media account from <https://brand.page/UoBESHEIRS>

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University of Bahrain



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LIST OF TARGETS AND INDICATORS

1

IMPACT ON CLIMATE CHANGE

- Carbon policy
- Energy certifications
- Greenhouse emissions
- Greenhouse emissions per capita

ENERGY CONSUMPTION

- Sustainable management of buildings
- Energy consumed per capita
- Renewable energy
- Green energy suppliers

2

WASTE MANAGEMENT

- Waste production per capita
- Unrecycled waste
- Internal waste recycling
- External waste recycling
- Recycle toxic waste
- Sewage disposal
- Plastic consumption
- Paper consumption

3

WATER CONSUMPTION

- Water consumption reduction policy
- Water consumed per capita
- Gray water sustainability

4

5

TRANSPORTATION

- Transportation policy
- Ecological transport of employees
- Ecological transport of students

EDUCATION TO ENVIRONMENTAL SUSTAINABILITY

- Environmental sustainability education
- Events on environmental sustainability
- Research projects on environmental sustainability
- Research funds

6

7

BIODIVERSITY

- Biodiversity protection measures
- The Contribution to Biodiversity initiatives or programs
- Publish Biodiversity report
- Publish any research paper on biodiversity

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Manifesto

We use Location-based Sustainable Philosophy in our methodologies. It is built on a sustainable philosophy that takes into consideration the unique environmental, social, and economic conditions of the location where higher education institutions are located.

Milestones and Metrics

Our metric designing process uses various methods to assess the current environmental sustainability ranking systems, which we then use to inform our indicator selection. From our pre-assessment, we found that UI Greenmetric scored the highest across all of our methods, and consequently, we utilize their indicators as the foundation of our metrics. However, we have also incorporated new targets and indicators, along with an automated indicators weights setting methods. Additionally, we have implemented a location-based sustainable philosophy to ensure our metrics are tailored to the unique environmental, social, and economic conditions of the areas where higher education institutions are situated. The targets and indicators are in the infograph.

Measurement

Each indicator will be assigned a numerical score to facilitate statistical analysis of our data. These scores will be based on either a simple count of occurrences or responses on a scale. Using a numerical scoring system, we can analyze our data more effectively and gain valuable insights into the factors influencing our outcomes.

Metric Evaluation

When processing the results, we will categorize each indicator into a general target.

Methodological Monitoring

Despite our best efforts to design and implement the questionnaire, we understand that the first version will likely have flaws. As a result, we will regularly evaluate the criteria and weightings to incorporate participant feedback and get up to date with the latest developments in the field. Your comments and suggestions would be greatly appreciated.



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TROPICAL ZONE (A)

1

IMPACT ON CLIMATE CHANGE (8%)

- Carbon policy (2%)
- Energy certifications (5%)
- Greenhouse emissions (2%)
- Greenhouse emissions per capita (2%)

2

ENERGY CONSUMPTION (10%)

- Sustainable management of buildings (3%)
- Energy consumed per capita (2%)
- Renewable energy (2%)
- Green energy suppliers (1%)

3

WASTE MANAGEMENT (19%)

- Waste production per capita (2%)
- Unrecycled waste (2%)
- Internal waste recycling (3%)
- External waste recycling (2%)
- Recycle toxic waste (1%)
- Sewage disposal (4%)
- Plastic consumption (2%)
- Paper consumption (2%)

4

WATER CONSUMPTION (9%)

- Water consumption reduction policy (2%)
- Water consumed per capita (2%)
- Greywater sustainability (5%)

5

TRANSPORTATION (14%)

- Transportation policy (2%)
- Ecological transport of employees (2%)
- Ecological transport of students (6%)

6

EDUCATION TO ENVIRONMENTAL SUSTAINABILITY (17%)

- Environmental sustainability education (4%)
- Events on environmental sustainability (8%)
- Research projects on environmental sustainability (3%)
- Research funds (5%)

7

BIODIVERSITY (23%)

- Biodiversity protection measures (6%)
- The Contribution to Biodiversity initiatives or programs (6%)
- Publish Biodiversity report (5%)
- Publish any research paper on biodiversity (7%)

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Location based ranking

Our methodology involves using the Köppen-Geiger classification system to tailor the weighting of indicators. The following illustrates the weights based on the climate class with an initial difference calculated by the computer software incorporated the idea of artificial intelligence in setting the weight based on the climate class.



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ARID ZONE (B)

1

IMPACT ON CLIMATE CHANGE (8%)

- Carbon policy (7%)
- Energy certifications (3%)
- Greenhouse emissions (2%)
- Greenhouse emissions per capita (4%)

ENERGY CONSUMPTION (10%)

- Sustainable management of buildings (4%)
- Energy consumed per capita (3%)
- Renewable energy (3%)
- Green energy suppliers (2%)

2

3

WASTE MANAGEMENT (19%)

- Waste production per capita (3%)
- Unrecycled waste (3%)
- Internal waste recycling (3%)
- External waste recycling (2%)
- Recycle toxic waste (3%)
- Sewage disposal (4%)
- Plastic consumption (2%)
- Paper consumption (2%)

WATER CONSUMPTION (9%)

- Water consumption reduction policy (2%)
- Water consumed per capita (4%)
- Greywater sustainability (4%)

4

5

TRANSPORTATION (14%)

- Transportation policy (2%)
- Ecological transport of employees (3%)
- Ecological transport of students (7%)

EDUCATION TO ENVIRONMENTAL SUSTAINABILITY (17%)

- Environmental sustainability education (4%)
- Events on environmental sustainability (8%)
- Research projects on environmental sustainability (4%)
- Research funds (4%)

6

7

BIODIVERSITY (23%)

- Biodiversity protection measures (5%)
- The Contribution to Biodiversity initiatives or programs (5%)
- Publish Biodiversity report (4%)
- Publish any research paper on biodiversity (4%)

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WARM ZONE (C)

1

IMPACT ON CLIMATE CHANGE (8%)

- Carbon policy (5%)
- Energy certifications (4%)
- Greenhouse emissions (2%)
- Greenhouse emissions per capita (5%)

ENERGY CONSUMPTION (10%)

- Sustainable management of buildings (3%)
- Energy consumed per capita (3%)
- Renewable energy (3%)
- Green energy suppliers (2%)

2

3

WASTE MANAGEMENT (19%)

- Waste production per capita (3%)
- Unrecycled waste (3%)
- Internal waste recycling (3%)
- External waste recycling (2%)
- Recycle toxic waste (1%)
- Sewage disposal (3%)
- Plastic consumption (2%)
- Paper consumption (2%)

WATER CONSUMPTION (9%)

- Water consumption reduction policy (2%)
- Water consumed per capita (4%)
- Green water sustainability (4%)

4

5

TRANSPORTATION (14%)

- Transportation policy (2%)
- Ecological transport of employees (3%)
- Ecological transport of students (8%)

EDUCATION TO ENVIRONMENTAL SUSTAINABILITY (17%)

- Environmental sustainability education (4%)
- Events on environmental sustainability (8%)
- Research projects on environmental sustainability (4%)
- Research funds (2%)

6

7

BIODIVERSITY (23%)

- Biodiversity protection measures (4%)
- The Contribution to Biodiversity initiatives or programs (5%)
- Publish Biodiversity report (4%)
- Publish any research paper on biodiversity (6%)

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CONTINENTAL ZONE (D)

1

IMPACT ON CLIMATE CHANGE (8%)

- Carbon policy (2%)
- Energy certifications (2%)
- Greenhouse emissions (2%)
- Greenhouse emissions per capita (3%)

ENERGY CONSUMPTION (10%)

- Sustainable management of buildings (2%)
- Energy consumed per capita (3%)
- Renewable energy (3%)
- Green energy suppliers (3%)

2

3

WASTE MANAGEMENT (19%)

- Waste production per capita (2%)
- Unrecycled waste (3%)
- Internal waste recycling (2%)
- External waste recycling (2%)
- Recycle toxic waste (3%)
- Sewage disposal (2%)
- Plastic consumption (2%)
- Paper consumption (3%)

WATER CONSUMPTION (9%)

- Water consumption reduction policy (2%)
- Water consumed per capita (3%)
- Greywater sustainability (4%)

4

5

TRANSPORTATION (14%)

- Transportation policy (2%)
- Ecological transport of employees (3%)
- Ecological transport of students (6%)

EDUCATION TO ENVIRONMENTAL SUSTAINABILITY (17%)

- Environmental sustainability education (4%)
- Events on environmental sustainability (6%)
- Research projects on environmental sustainability (3%)
- Research funds (6%)

6

7

BIODIVERSITY (23%)

- Biodiversity protection measures (5%)
- The Contribution to Biodiversity initiatives or programs (6%)
- Publish Biodiversity report (6%)
- Publish any research paper on biodiversity (5%)

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POLAR ZONE (E)

1

IMPACT ON CLIMATE CHANGE (8%)

- Carbon policy (2%)
- Energy certifications (3%)
- Greenhouse emissions (2%)
- Greenhouse emissions per capita (2%)

ENERGY CONSUMPTION (10%)

- Sustainable management of buildings (3%)
- Energy consumed per capita (2%)
- Renewable energy (3%)
- Green energy suppliers (2%)

2

3

WASTE MANAGEMENT (19%)

- Waste production per capita (3%)
- Unrecycled waste (4%)
- Internal waste recycling (2%)
- External waste recycling (2%)
- Recycle toxic waste (4%)
- Sewage disposal (2%)
- Plastic consumption (2%)
- Paper consumption (3%)

WATER CONSUMPTION (9%)

- Water consumption reduction policy (2%)
- Water consumed per capita (2%)
- Greywater sustainability (2%)

4

5

TRANSPORTATION (14%)

- Transportation policy (2%)
- Ecological transport of employees (2%)
- Ecological transport of students (5%)

EDUCATION TO ENVIRONMENTAL SUSTAINABILITY (17%)

- Environmental sustainability education (4%)
- Events on environmental sustainability (6%)
- Research projects on environmental sustainability (5%)
- Research funds (6%)

6

7

BIODIVERSITY (23%)

- Biodiversity protection measures (6%)
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- Publish Biodiversity report (5%)
- Publish any research paper on biodiversity (6%)

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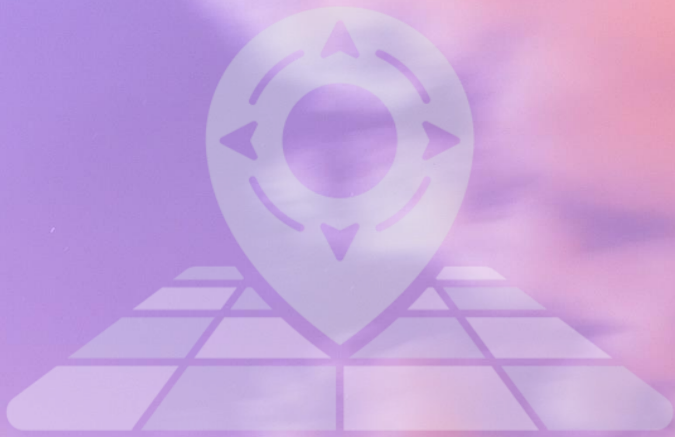
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Facilitating universities to achieve their environmental sustainability goals based on climate parameters

Achieving environmental sustainability is vital for universities to meet the global sustainable development goals (SDGs) by 2030. However, the approach to achieving these goals must be context-specific, considering the impact of location on environmental sustainability. ABC offers a framework for assessing universities' environmental sustainability based on their specific geographical location, thus enabling a fair performance evaluation. This approach allows universities to identify and prioritize sustainability initiatives that are most relevant to their context, leading to effective resource allocation and ultimately achieving the 2030 SDGs agenda.

