INTERNATIONAL UNIVERSITY RANKINGS

INSIGHTS, PROCEDURES, AND PERSPECTIVES

Office of Scientific Collaborations and International Affairs
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AGENDA

- **Participation in University Rankings: Significance**
- **What to Remember about Rankings**
- **Introduction to a number of Ranking Institutions**
  - Times Higher Education (THE)
  - Quacquarelli Symonds (QS)
  - The Academic Ranking of World Universities (ARWU)
  - Islamic World Science Citation Center (ISC)
- **A closer look at Times Impact Ranking**

UNIVERSITY RANKINGS: SIGNIFICANCE

Why do we need university rankings?

- Higher Education is becoming more globalized.
- Knowledge is the key driver of international competitiveness.
- Ranking will raise awareness of institutions universities being ranked.

UNIVERSITY RANKINGS: SIGNIFICANCE

Why do we need university rankings?

- International study trends show that worldwide demand for education is on the rise.

- Public funding is being slashed, so one source of funding is from international students…

FACTS ABOUT UNIVERSITY RANKINGS

- Ranking is normally conducted through survey processes
- The university ranking is part of human nature to set hierarchies
- It is also the nature of contemporary world functions due to the globalization impact.
- Higher education is complex, costly and important, and it always attracts attentions of politicians, employers, and potential students as well as their families.

FACTS ABOUT UNIVERSITY RANKINGS

Advantages

- Universities have Key Performance Indicators to measure their performance
- Rankings will become self-improvement tools for universities
- Rankings can foster healthy competition among
- institutions

Disadvantages

- Measurement is not necessarily based on category or university's objectives
- Results of ranking may negatively impact staff and student motivation

FACTS ABOUT UNIVERSITY RANKINGS

The Ranking Dilemma

- Ranking must be based on the same categories to be “homogeneous”

- Many ranking systems are driven by the commercial need to sell more publications

- Rankings deal with a self-fulfilling prophecy: reputation is considered a significant factor

The Ranking Dilemma

- Ranking cannot assume “one size fits all” for which norms of research universities are the gold standard.

- Ranking must not ignore universities’ missions and goals which are different between one university and another

Criticism

- **Conceptual Problems**
  - Some universities have an advantage: Anglo-Saxon, medical disciplines, focus on research, big, old, general.
  - You can’t compare whole universities
  - You can’t add up all the indicators

FACTS ABOUT UNIVERSITY RANKINGS

Criticism

- **Methodology**
  - Basis for the weight factors
  - Sensitivity for outliers: best Institute=100
  - Methodological changes in time

FACTS ABOUT UNIVERSITY RANKINGS

Criticism

- **Data**
  - Limited or no insight in the raw data

  - Data provided by institute themselves: mistakes, manipulation

TYPES OF RANKING PROVIDERS

- Media Organizations
- Government Agencies
- Independent Professional Bodies
- Accrediting Bodies
- Funding Organizations
- Individual/Group Initiatives
- Academics Themselves

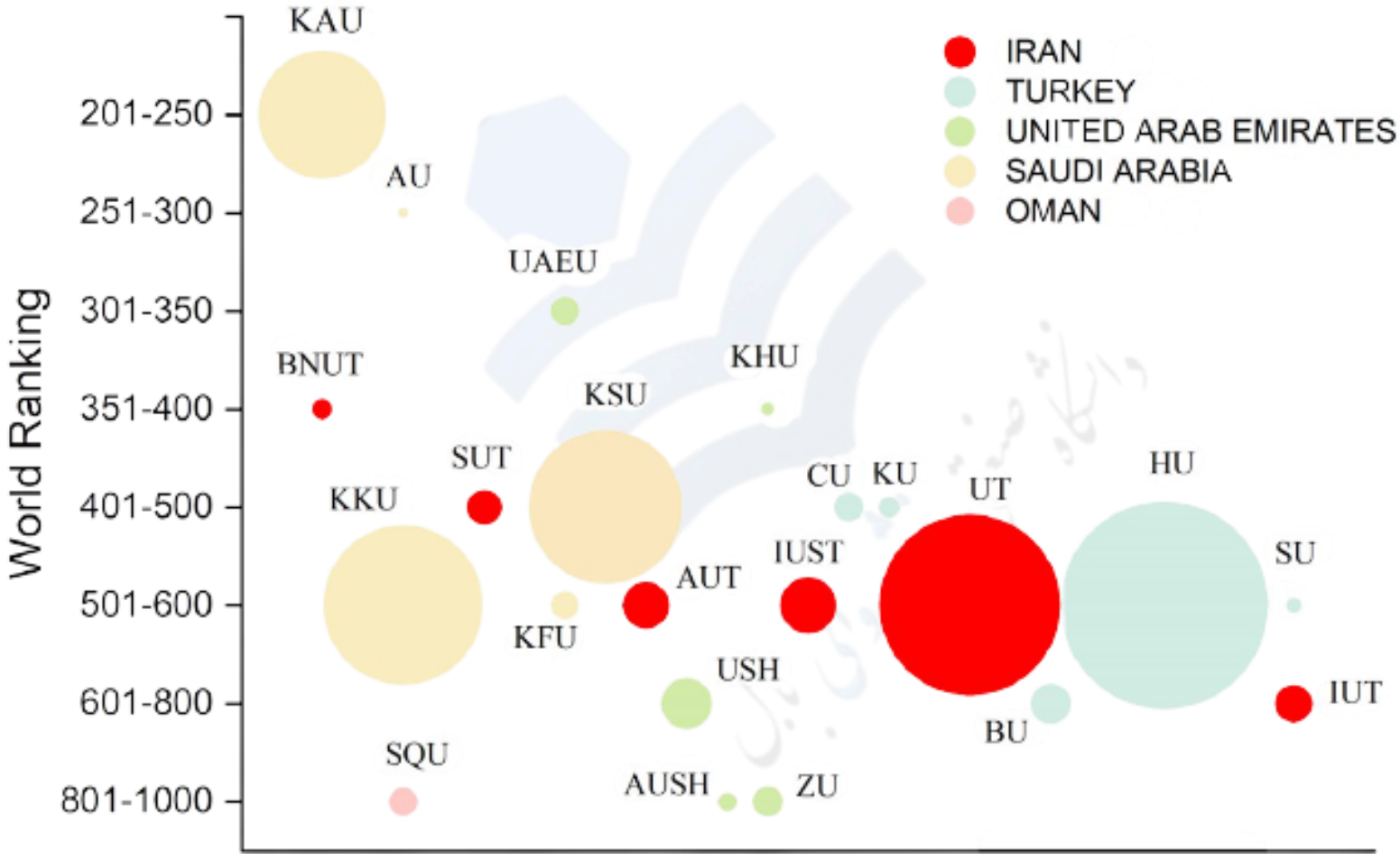
CRITERIA USED BY RANKING BODIES

CRITERIA	STANDARD INDICATORS BEING USED
Research	• Amount of research grants received • No. of research products / recognitions conferred by national and international bodies • No. of papers refereed and cited in refereed journals • No. of articles, books and publications per staff • No. of patents attained • No. of products commercialized • No. of postdoctoral
Teaching	• Ratio of academic staff to students • No. of programmes accredited by professional bodies
Infrastrucure	• % of equipment fully operational and calibrated or physical facilities that meet safety and quality standards • No. of book titles in the Library
Human Resource	• No. of academic staff with PhD or equivalent • % of results from "Peer Review"

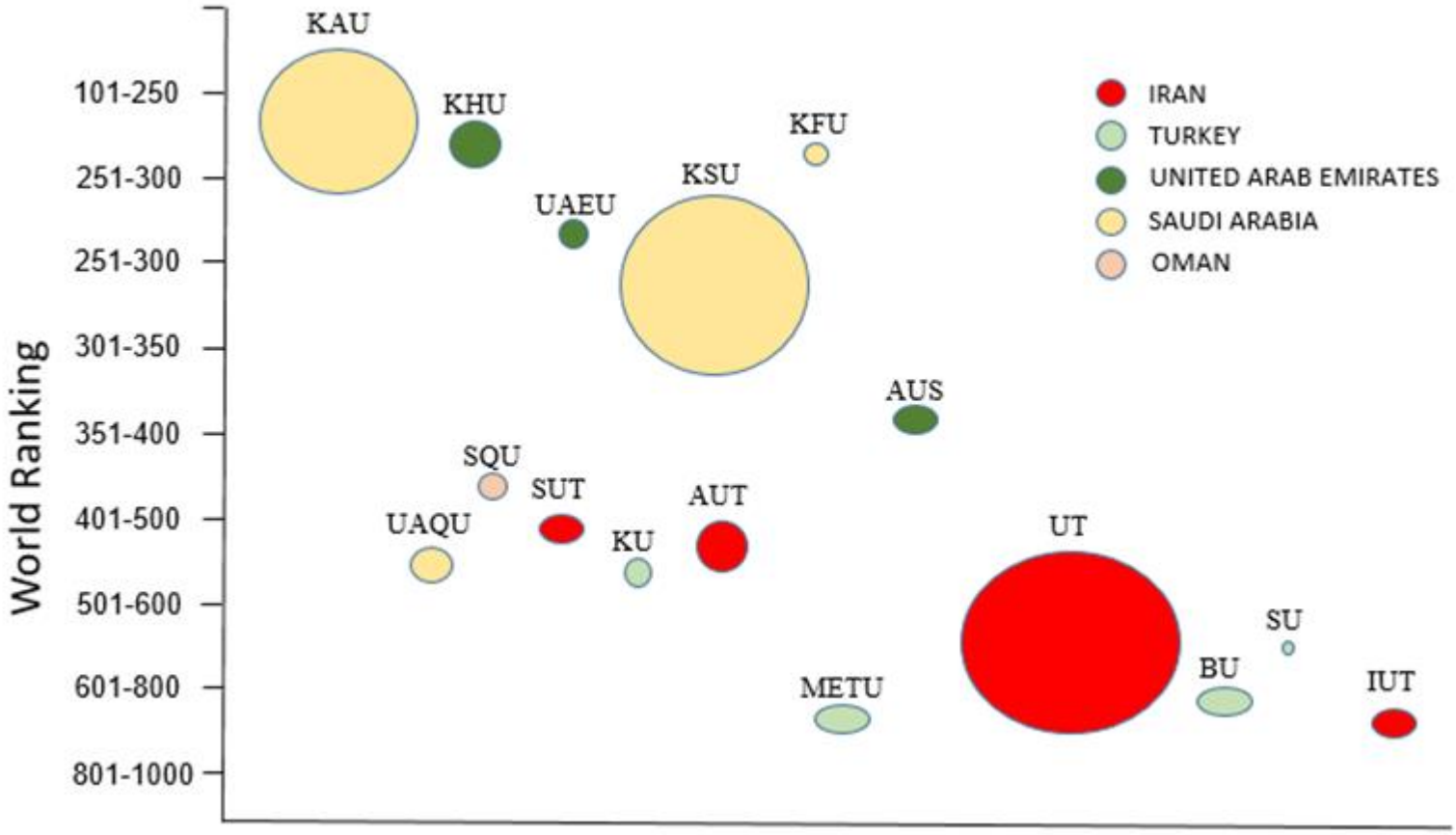
CRITERIA USED BY RANKING BODIES

CRITERIA	STANDARD INDICATORS BEING USED
Consultancy	• Income generated from consultancy activities
Internationalization	• No. of international academic staff • No. of international students
Students	• CGPA of students admitted into the University • % of graduates employed after graduation • % of results from Employer Survey • No. of University Alumni awarded "Nobel Prizes and Fields Medals" • No. of PhD students
Service Delivery	• Compliance to International Quality Standard i.e. ISO9000 QMS • % of Customer Satisfaction Index

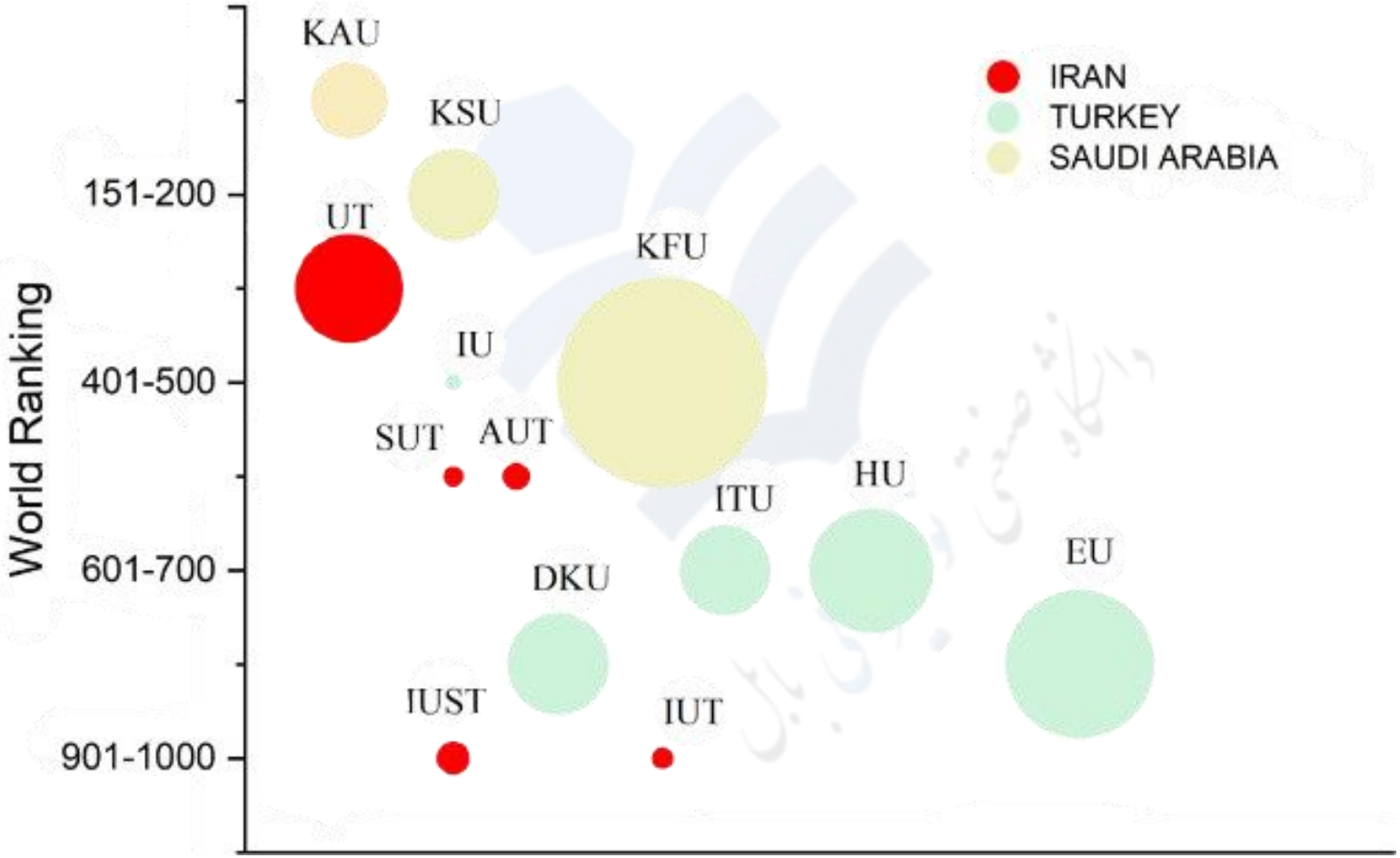
IRANIAN Universities in THE



IRANIAN Universities in QS



IRANIAN Universities in ARWU



Challenges

- Insufficient documentation, i.e. no data
- Necessity of improved collaboration among university sectors
- Contradicting data collected from different university sectors
- Insufficient evidence for submission
- No systematic policies in place for promotion

Recommendations to Schools

- Monitor the data consistently in order to be ready for the time required.

- Maintain “informed” staff in international office who are able to brief different university sectors regarding what you expect from them.

- Regularly highlight the importance of significance of ranking and its consequences for all university sectors.

A NUMBER OF NOTABLE RANKING BODIES

TIMES HIGHER EDUCATION (THE)

The only global university performance tables to judge world-class universities across all of their core missions (more than 1,500 universities across 93 countries and regions)

- Teaching
- Research
- Citation
- International Outlook
- Industry Income

www.timeshighereducation.com

TIMES HIGHER EDUCATION (THE)

Pillar	Metric	% weighting
1. Teaching (30%)	Reputation survey	15.00
	Academic staff-to-student ratio	4.50
	Doctorates awarded-to-bachelor's degrees awarded ratio	2.25
	Doctorates awarded-to-academic staff ratio	6.00
	Institutional income	2.25
2. Research (30%)	Reputation survey	18.00
	Research income	6.00
	Research productivity	6.00
3. Citation (30%)	Citations	30.00
4. International Outlook (7.5%)	Proportion of international students	2.50
	Proportion of international staff	2.50
	International collaboration	2.50
5. Industry Income (2.5%)	Industry income	2.50
		100

TIMES HIGHER EDUCATION (THE)

(Subject Ranking Methodology)

Indicator		Overall	Life Sciences	Physical Sciences	Engineering	Computer Science
C_1	Citation	30.00 %	35.00 %	35.00 %	27.50 %	27.50 %
E_1	Industry Income/Staff	2.50 %	2.50 %	2.50 %	5.00 %	5.00 %
T_1	Teaching Reputation	15.00 %	17.90 %	17.90 %	19.50 %	19.50 %
T_2	Students to Staff Ration	4.50 %	2.80 %	2.80 %	3.00 %	3.00 %
T_3	PhD/Bachelors	2.25 %	1.40 %	1.40 %	1.50 %	1.50 %
T_4	PhD/Staff	6.00 %	4.00 %	4.00 %	4.50 %	4.50 %
T_5	Income/Staff	2.25 %	1.40 %	1.40 %	1.50 %	1.50 %

TIMES HIGHER EDUCATION (THE)

دانشگاه صنعتی نوشیروانی بابل

جمهوری اسلامی ایران
وزارت علوم، تحقیقات و فناوری

(Subject Ranking Methodology)

Indicator		Overall	Life Sciences	Physical Sciences	Engineering	Computer Science
R_1	Research Reputation	18.00 %	19.30 %	19.30 %	21.00 %	21.00 %
R_2	Research Income/Staff	6.00 %	4.10 %	4.10 %	4.50 %	4.50 %
R_3	Papers/Staff	6.00 %	4.10 %	4.10 %	4.50 %	4.50 %
I_1	International Students	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %
I_2	International Staff	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %
I_3	International Collaboration	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %
Total	Income/Staff	100 %	100 %	100 %	100 %	100 %

TIMES HIGHER EDUCATION (THE)

- The essential elements in their world-leading formula is a sophisticated exercise in information-gathering and analysis

- In addition to THE World University Rankings, THE has a series of spin-off rankings:
  - **Asia University Rankings**
  - **World Reputation Rankings**
  - **Young University Rankings**

TIMES HIGHER EDUCATION (THE)

- **Asia University Rankings**
  - Focused on universities in Asia.
  - More weight to knowledge transfer, research income and research productivity.
  - Teaching and research reputation count for less.

TIMES HIGHER EDUCATION (THE)

- **World Reputation Rankings**
  - Explores the reputation of the world's leading universities
  - Invitation-only academic opinion survey

TIMES HIGHER EDUCATION (THE)

- **Young University Rankings**
  - Universities aged 50 years and under.
  - Reflects the special characteristics of younger universities:
    - Less weight to subjective indicators of academic reputation.

TIMES HIGHER EDUCATION (THE)

- **Impact Ranking**

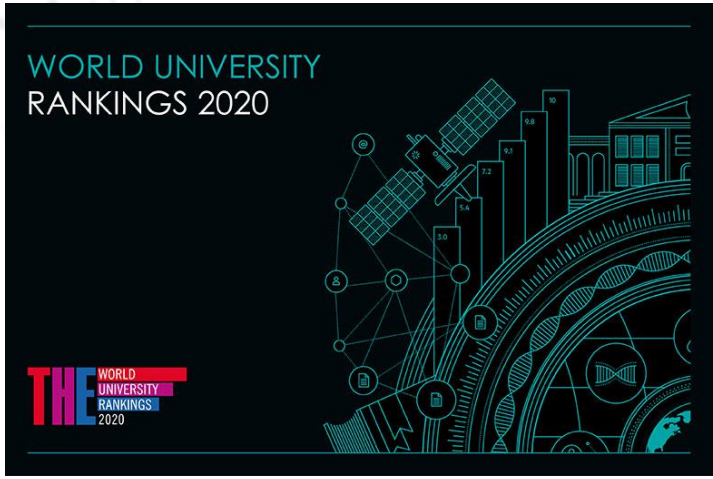
  - The only global league table that assess universities against the United Nations' Sustainable Development Goals (SDGs).
  - 17 tables showing universities' progress towards delivering each of the SDGs.

TIMES HIGHER EDUCATION (THE)

- **Impact Ranking**
  - Indicators are calibrated to provide comprehensive comparisons across four broad areas:
    - Research
    - Outreach
    - Stewardship
    - Teaching

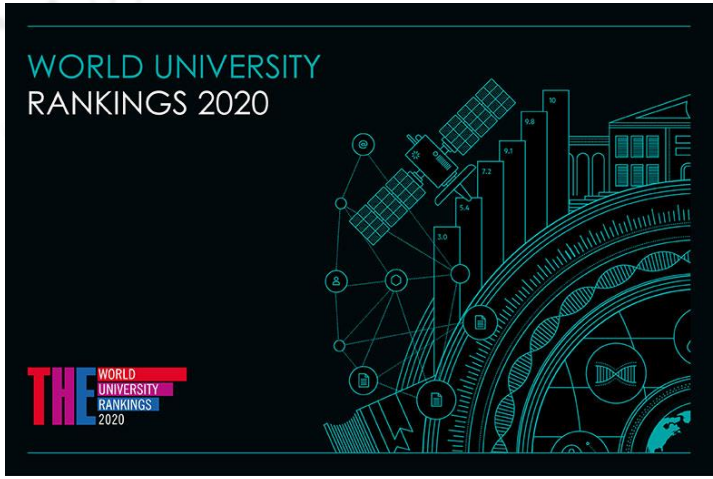
TIMES HIGHER EDUCATION (THE)

- **World University Rankings by subject**
  - THE also has provided a category in which universities are ranked based on the subjects.
    - Art & Humanities
    - Business and Economics
    - Clinical, Pre-clinical & Health
    - Computer Science
    - Education



TIMES HIGHER EDUCATION (THE)

- **World University Rankings by subject**
  - THE also has provided a category in which universities are ranked based on the subjects.
    - Engineering & Technology
    - Law
    - Life Science
    - Physical Sciences
    - Phycology
    - Social Sciences



TIMES HIGHER EDUCATION (THE)

- **How To Participate?**

  - **Three key criteria to be included in the ranking:**

    1. Publish a sufficient number of academic papers over a 5-year period –currently set at 1,000 papers
    2. Teach undergraduates
    3. Work across a range of subjects

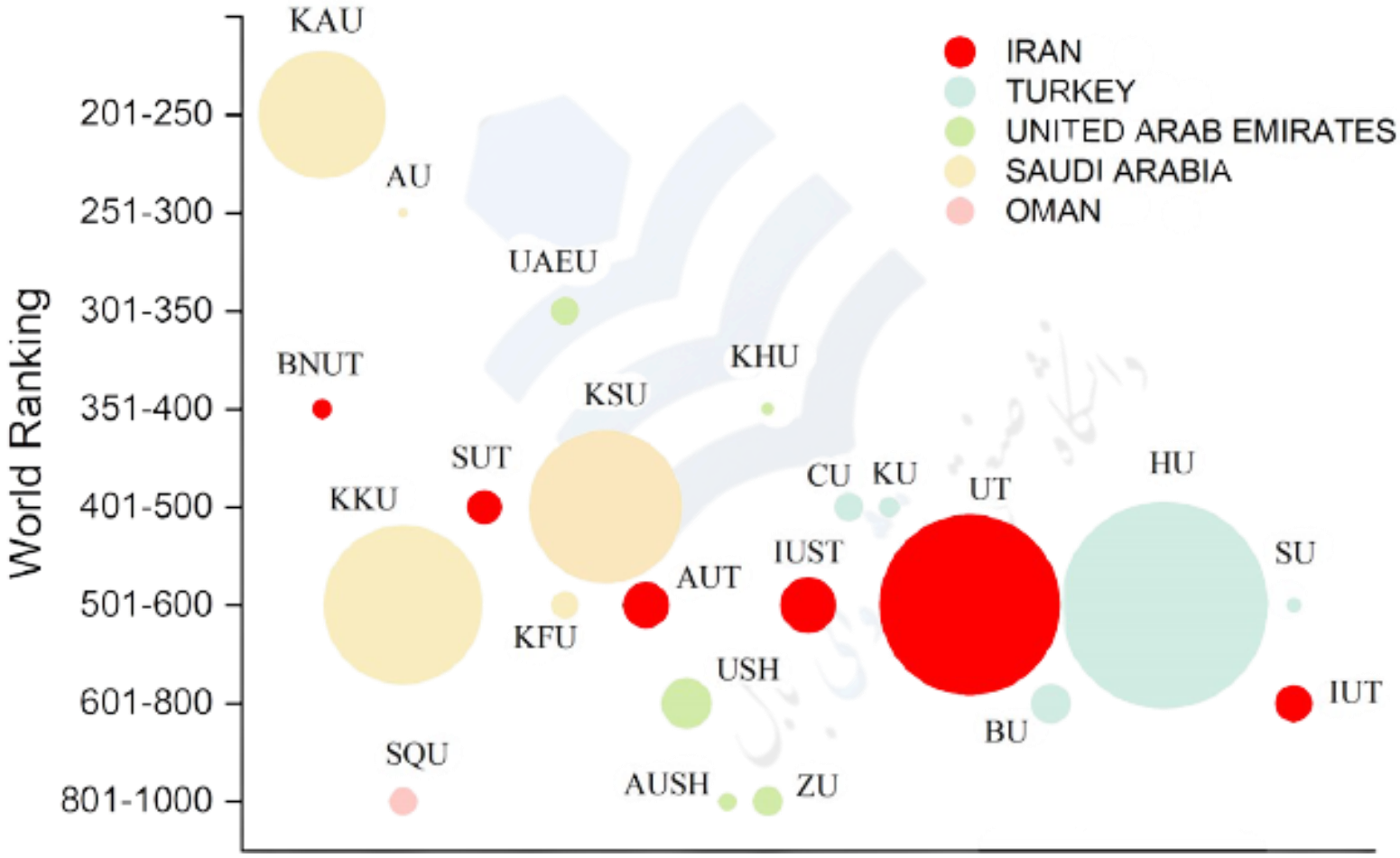
TIMES HIGHER EDUCATION (THE)

- **How To Participate?**
  - Data Submitted by the institutes:
    - Number of students/faculty/staff
    - Number of international students/staff
    - Research Income
  - Citation data are obtained from SCOPUS Database

TIMES HIGHER EDUCATION (THE)

- **Criticism**
  - Bias towards “hard” science, i.e. Engineering and Science
  - Universities with social science disciplines are at a disadvantage

IRANIAN Universities in THE



Ranking Bodies

- **Quacquarelli Symonds (QS)**
- Originally released in collaboration with Times Higher Education (THE) from 2004 to 2009 as the THE-QS World University Rankings
- Collaboration terminated in 2010, with the resumption of publishing by QS using the pre-existing methodology

www.topuniversities.com

Quacquarelli Symonds (QS)

- reveals the top 1,000 universities from around the world, covering 80 different locations across 4 broad areas of interest to prospective students:
  - Research Quality
  - Graduate Employability
  - International Outlook
  - Teaching Quality

Quacquarelli Symonds (QS)

- These four key areas are assessed using six indicators, each of which is given a different percentage weighting

- Four of the indicators are based on ‘hard’ data, and the remaining two on major global surveys

  (one of academics and another of employers)

Quacquarelli Symonds (QS)

Ranking Criteria & Weights

Criteria	Indicator	Brief Description	Weight*
Research Quality	Peer Review	Composite score drawn from peer review (which is divided into five subject areas). 3,703 responses.	40%
	Citations per Faculty	Score based on research performance factored against the size of the research body	20%
Graduate Employability	Recruiter Review	Score based on responses to recruiter survey. 738 responses	10%
International Outlook	International Faculty	Score based on proportion of international faculty	5%
	International Students	Score based on proportion of international students	5%
Teaching Quality	Student Faculty	Score based on student/faculty ratio	20%

Quacquarelli Symonds (QS)

QS's rankings portfolio currently includes:

- QS World University Rankings®
- QS University Rankings: Asia
- QS University Rankings: Latin America
- QS World University Rankings by Subject
- QS Best Student Cities
- QS 50 under 50 (years of existence of the institution)

Quacquarelli Symonds (QS)

- Complied by the QS Intelligence Unit in consultation with the QS Global Academic Advisory Board.

- Bibliometric data required in the citation score is supplied by **Scopus.**

Quacquarelli Symonds (QS)

QS-Asia:

- Somewhat different methodology from that for the QS World University Rankings®
  - Academic Reputation From Global Survey (30%)
  - Employer Reputation From Global Survey (10%)
  - Faculty Student Ratio (20%)

Quacquarelli Symonds (QS)

QS-Asia:

- Citations Per Paper From SciVerse Scopus (15%)
- Papers Per Faculty From SciVerse Scopus (15%)
- Proportion of International Faculty (2.5%)
- Proportion of International Students (2.5%)
- Proportion of Inbound Exchange Students (2.5%)
- Proportion of Outbound Exchange Students (2.5%)

Quacquarelli Symonds (QS)

- **How To Participate?**

  - **To be eligible to participate in the ranking:**

    1. Teach at multiple study levels (i.e. both undergraduate and postgraduate)

    2. Conduct work in at least two of five possible faculty areas

Quacquarelli Symonds (QS)

- **How To Participate?**
  - Five possible faculty areas
    - Arts and humanities
    - Engineering and technology
    - Social sciences and management
    - Natural sciences
    - Life sciences and medicine

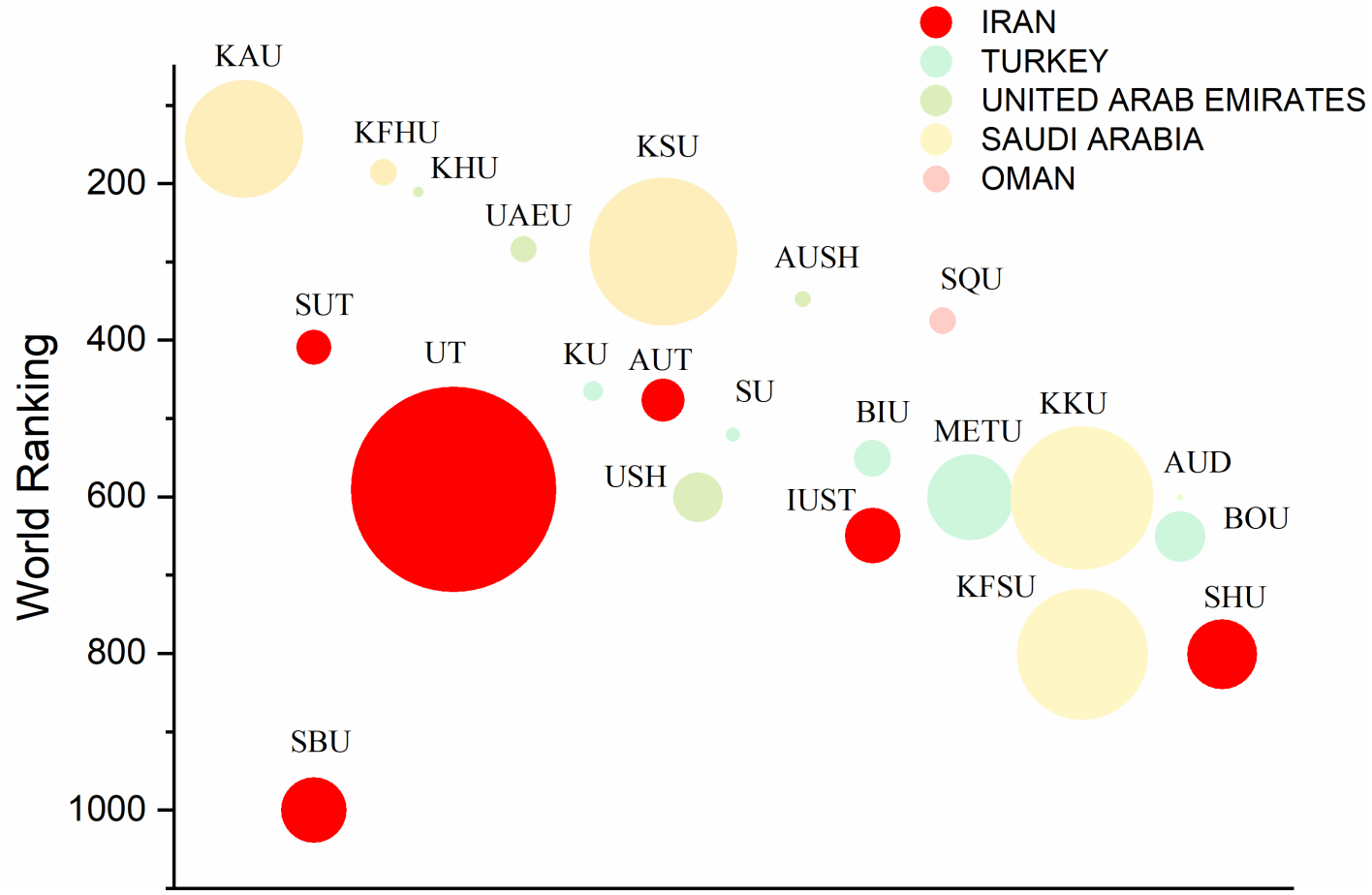
Quacquarelli Symonds (QS)

- **The PEER Review Survey**
  - Using a combination of purchased mailing lists and applications and suggestions
  - Asking active academicians across the world about the top universities in their specialist fields.
  - Participants can nominate up to 30 universities, but are not able to vote for their own.

Quacquarelli Symonds (QS)

- **Criticism**
  - Significant reliance on subjective indicators
  - Fluctuations in reputation surveys, which tend to fluctuate over the years
  - Concerns regarding the global consistency and integrity of the data

IRANIAN Universities in QS



Ranking Bodies

The Academic Ranking of World Universities (ARWU)

- Originally conducted by researchers at the Center for World-Class Universities of Shanghai Jiao Tong University (CWCU)
- Now published and copyrighted by Shanghai Ranking Consultancy, an independent organization on higher education information
- Not legally subordinated to any universities or government agencies
- 1,800 out of 4,000 universities across 93 Countries and regions

www.shanghairanking.com

SHANGHAI Ranking

- ARWU uses six (6) objective indicators to rank world universities
  - Nobel Laureates
  - Fields Medalists
  - Highly Cited Researchers
  - Papers published in Nature or Science
  - Papers indexed by Science Citation Index-Expanded (SCIE)
  - Social Science Citation Index (SSCI)

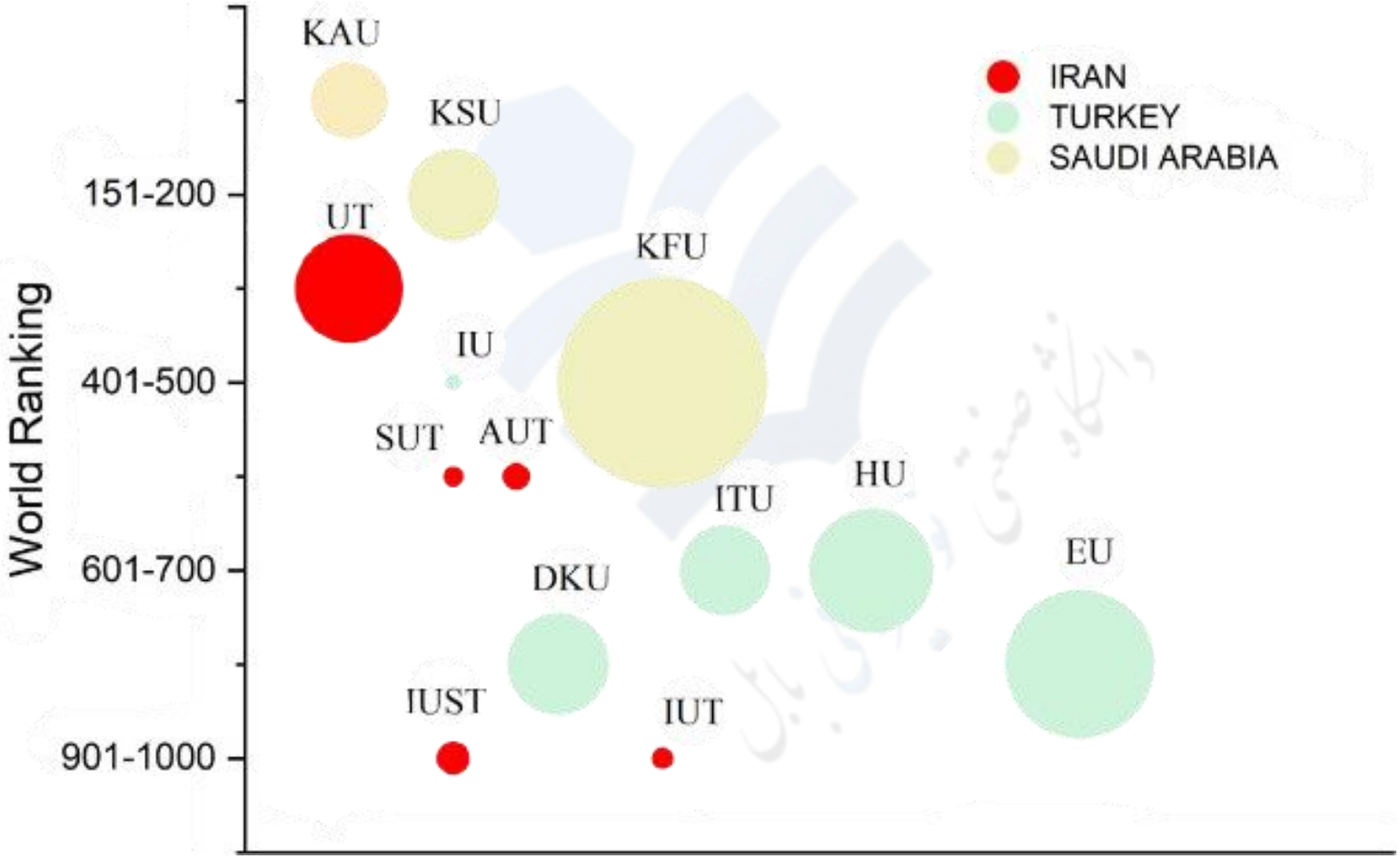
Ranking Criteria and Weights

Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly Cited Researchers	HiCi	20%
Research Output	Papers published in *Nature* and *Science**	N&S	20%
	Papers indexed in Science Citation Index-Expanded and Social Science Citation Index	PUB	20%
Per Capita Performance	Per capita academic performance of an institution	PCP	10%
Total			100%

SHANGHAI Ranking

- **Criticism**
  - Significant reliance on award factors
  - Not adjusting for the size of the institution, thus larger institutions tend to rank above smaller ones.

IRANIAN Universities in ARWU



UI GreenMetric

The philosophy

- It is based on a broad philosophy that encompasses the three Es: Environment, Economics and Equity
- It is open to global participation
- It is accessible to HEIs in both the developed and developing world

UI GreenMetric

The philosophy

- It should contribute to academic discourse on sustainability in education and the greening of campuses

- It should encourage university-led social change with regard to sustainability goals.

UI GreenMetric

Aim of the Ranking

- Encouraging universities in the world to look and self asses their policies and direction in relation with the effort to:
- Combat global climate change
- Reservation of energy
- Water
- Waste recycling program
- Transportation

Aim of the Ranking

- Education
- Keeping the campus green
- Involving all stakeholders to change their behavior in order to keep a sustainable environment

Methodology

- Collection of a basic profile of the size of the university and its zoning profile, whether urban, suburban, rural (degree of green space)
- Electricity consumption (link to carbon footprint)
- Transportation, water usage, waste management, setting & infrastructure, energy & climate change, and education & Research

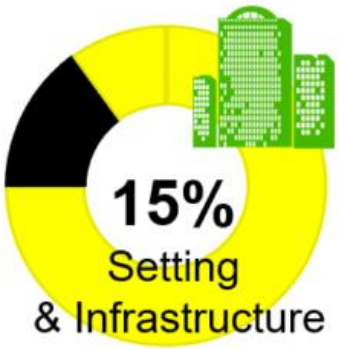
Methodology

- Beyond these indicators, this ranking wants to get a picture about how the university is responding to or dealing with the issues of sustainability through:
- Policies
- Actions
- Communication

UI GreenMetric

Criteria & Indicators

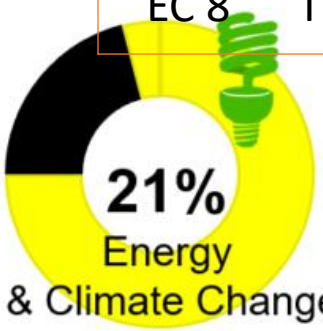
No	Categories & Indicators	Points
1	**SETTING & INFRASTRUCTURE**	**15%**
SI 1	The ratio of open space area towards total area	300
SI 2	The total open space area divided by total campus population	300
SI 3	Area on campus covered in forest	200
SI 4	Area on campus covered in planted vegetation	200
SI 5	Area on campus for water absorbance	300
SI 6	University budget for sustainable effort	200



UI GreenMetric

Criteria & Indicators

No	Categories & Indicators	Points
2	**ENERGY & CLIMATE CHANGE**	**21%**
EC 1	Energy efficient appliances usage	200
EC 2	Smart building implementation	300
EC 3	Number of renewable energy sources in campus	300
EC 4	The total electricity usage divided by total campus population	300
EC 5	The ratio of renewable energy produced towards energy usage	200
EC 6	Element of green building implementation	300
EC 7	Greenhouse gas emission reduction program	200
EC 8	The ratio of total carbon footprint divided campus population	200



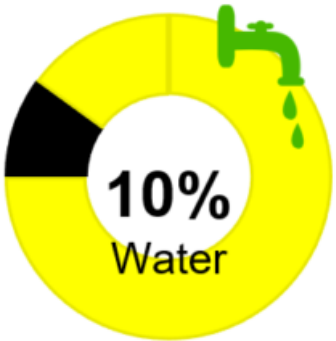
UI GreenMetric

Criteria & Indicators

No	Categories & Indicators	Points
3	**WASTE**	**18%**
WS 1	Program to reduce the use of paper and plastic in campus	300
WS 2	Recycling program for university waste	300
WS 3	Toxic waste handled	300
WS 4	Organic waste treatment	300
WS 5	Inorganic waste treatment	300
WS 6	Sewerage disposal	300

Criteria & Indicators

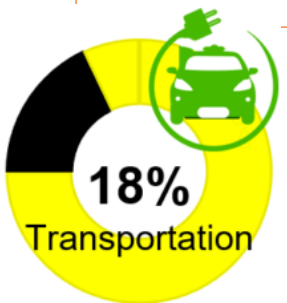
No	Categories & Indicators	Points
4	**WATER**	**10%**
WR 1	Water conservation program implementation	300
WR 2	Water recycling program implementation	300
WR 3	The use of water efficient appliances (water tap, toilet flush etc)	200
WR 4	Treated water consumed	200



UI GreenMetric

Criteria & Indicators

No	Categories & Indicators	Points
5	**TRANSPORTATION**	**18%**
TR 1	The ratio of total vehicles (cars and motorcycles) divided by campus population	200
TR 2	Zero Emission Vehicles (ZEV) policy on campus	200
TR 3	The ratio of Zero Emission Vehicles (ZEV) divided by total campus population	200
TR 4	Ratio of parking area to total campus area	200
TR 5	Transportation program designed to limit or decrease the parking area on campus for the last 3 years	200
TR 6	Number of transportation initiatives to decrease private vehicles on campus	200
TR 7	Shuttle service	300
TR 8	Pedestrian path policy on campus	300



UI GreenMetric

Criteria & Indicators

6	EDUCATION & Research	18%
ER 1	The ratio of sustainability courses towards total courses/modules	150
ER 2	The ratio of sustainability research funding towards total research funding	75
ER 3	Number of scholarly publications on environment and sustainability published	300
ER 4	Number of scholarly events related to environment and sustainability	300
ER 5	Number of student organizations related to environment and sustainability	300
ER 6	Existence of a university-run sustainability website	200
ER 7	Existence of published sustainability report	100

UI GreenMetric

Benefits of Participating

- It can help the university's effort at internationalization and recognition by getting its sustainability efforts on the map
- It can help to raise awareness in the university and beyond about the importance of sustainability issues.
- GreenMetric is primarily about awareness-raising, but in the future it will be adapted to encourage real change.
- Automatically be a member of UIGWURN (UI GreenMetric World University Ranking Network)

Things to Remember

Universities must be aware that without filling the following information, they can not enter in GreenMetric Ranking

- Information about accessible university spaces
- Information about energy consumption and generation
- Information about recycling of wastes
- Information about CO_2 emission

Webometrics

What is Webometrics?

- A set of quantitative techniques for tracking and evaluating the impact of web sites and online ideas
- The information science research field that developed these ideas
- 30586 HEIs from more than 200 countries

Webometrics
RANKING WEB
OF UNIVERSITIES

Webometrics

What is Webometrics?

- Ranking Web started in 2004 (current is the 18th year of publication) with the aim of offer full coverage of Higher Education Institutions whatever the country or discipline involve. Currently ranked 30 000 HEIs from more than 200 countries

- Editors of the Ranking Web are scientists working at one world-class public research institution with long experience in metrics-guided evaluation

Webometrics

Philosophy of Webometrics?

- Webometrics is a ranking of all the universities of the world, not only a few hundred institutions from the developed world. Of course, “World-class” universities usually are not small or very specialized institutions.

- It measures considers not only the scientific impact of the university activities, but also the economic relevance of the technology transfer to industry, the community engagement (social, cultural, environmental roles) and even the political influence.

Webometrics

Philosophy of Webometrics?

- Reflects better the whole picture, as many other activities of professors and researchers are showed by their web presence.
- Covers not only formal (e-journals, repositories) but also informal scholarly communication
- Web publication is cheaper, maintaining the high standards of quality of peer review processes

Webometrics

Philosophy of Webometrics?

- Reach much larger potential audiences
- Offering access to scientific knowledge to researchers and institutions located in developing countries and also to third parties (economic, industrial, political or cultural stakeholders) in their own community.

Webometrics

Objectives of the Webometrics

- Promoting Web publication
- Supporting Open Access initiatives
- Electronic access to scientific publications and to other academic material

Webometrics

Advantages

- Coverage

  Webometrics is the largest ranking by number of HEIs analyzed, but there is no classification of the different institutional types, so research-intensive universities are listed together with community colleges or theological seminaries

- University missions

  Webometrics rank indirectly this mission using web presence as an indicator of the commitment of the scholars with their students. It is not perfect, but the future of this mission is clearly in the web arena and any institution or individual not realizing that is losing ground very fast

Webometrics

Shortcomings

- Big numbers

  Quality of the data does not only depend of the source used, but also of the numbers involved. For example, the number of universities with more than one Nobel Prize is probably lower than 200 that makes very difficult to rank them correctly.

- Size-dependent

  The most popular rankings, including Webometrics, are size dependent, although size does not refer to number of scholars or students (Harvard or especially MIT are not large in that sense) but probably to resources (current funding, past funding reflected in buildings, laboratories or libraries)

Shortcomings

- Bad naming practices

  Several hundred institutions having more than one central web domain, preserving active old domains, using alternative domains for international (English) contents or sharing domains with third parties

- Fake and non-accredited universities

  Trying not to include fake institutions, checking especially online, international and foreign branches if they have independent web domain or subdomain

Webometrics

Current calculation of indicators

INDICATORS	MEANING	METHODOLOGY	SOURCE	WEIGHT
PRESENCE	Public knowledge shared	Size (number of **pages**) of the main webdomain of the institution. It includes **all the subdomains** that share the same (central/main) webdomain	*Google*	5%
VISIBILITY	Web contents Impact	Number of **external networks** (subnets) linking to the institution's webpages (normalized and then average value)	*Ahrefs Majestic*	50%
TRANSPARENCY (or OPENNESS)	Top cited researchers	Number of **citations** from **Top 210 authors** (excl. top 20 outliers) See Transparent Ranking for additional info	*Google Scholar Profiles*	10%
EXCELLENCE (or SCHOLAR)	Top cited papers	Number of **papers** amongst the top 10% most cited in each one of the 26 disciplines of the full database Data for the five year period: **2014-2018**	*Scimago*	35%

Webometrics RANKING WEB OF UNIVERSITIES

CWTS Leiden Ranking

What is CWTS Leiden Ranking?

- The CWTS Leiden Ranking is an annual global university ranking based exclusively on bibliometric indicators

- The rankings are compiled by the Centre for Science and Technology Studies at Leiden University in the Netherlands

- The Clarivate Analytics bibliographic database Web of Science is used as the source of the publication and citation data
- 1225 universities are located in 69 countries

CWTS Leiden Ranking

Data

- The Leiden Ranking uses data from the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index

- The Leiden Ranking is based on Web of Science data because Web of Science offers a good coverage of the international scientific literature and generally provides high quality data

CWTS Leiden Ranking

Universities

- The CWTS Leiden Ranking includes 1176 universities from 65 countries. Selection is based on universities number of Web of Science indexed publications in the period of 3 years

- The Leiden Ranking presents a list of institutions that have a high degree of research intensity in common

- The ranking scores for each institution should be evaluated in the context of its particular mission and responsibilities, (strongly linked to national and regional academic systems)

Universities

- Affiliated institutions

A key challenge in the compilation of a university ranking is the handling of publications originating from research institutes and hospitals affiliated with universities.

CWTS distinguishes three different types of affiliated institutions:

1) Component : The affiliated institution is actually part of or controlled by the university
2) Joint research facility or organization: Identical to a component except that it is administered by more than one organization
3) Associated organization: More loosely connected to a university

CWTS Leiden Ranking

Selection of universities

- In Leiden Ranking, Only so-called core publications (will be discussed later) are counted, which are publications in international scientific journals
- Only research articles and review articles are taken into account
- Collaborative publications are counted fractionally

**It is important to note that universities do not need to apply to be included in the Leiden Ranking. The universities included in the Leiden Ranking are selected by CWTS according to the procedure described above. Universities do not need to provide any input themselves.

Selection of universities

- Publication
- The Leiden Ranking takes into account only a subset of the publications in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index
- It refers to the publications in this subset as core publications
- Core publications are publications in international scientific journals in fields that are suitable for citation analysis

Selection of universities

- Publication

In order to be classified as a core publication, a publication must satisfy the following criteria

- The publication has been written in English.
- The publication has one or more authors. (Anonymous publications are not allowed.)
- The publication has not been retracted.
- The publication has appeared in a core journal.

Fields

The CWTS Leiden Ranking 2021 provides statistics not only at the level of science as a whole but also at the level of the following five main fields of science:

- Biomedical and health sciences
- Life and earth sciences
- Mathematics and computer science
- Physical sciences and engineering
- Social sciences and humanities

Indicators

- **Size-dependent vs. size-independent indicators**

  Size-dependent indicators are obtained by counting the absolute number of publications of a university that have a certain property (like the number of highly cited publications of a university and the number of publications of a university co-authored with other organizations)

  Size-independent indicators are obtained by calculating the proportion of the publications of a university with a certain property (like The proportion of the publications of a university that are highly cited and the proportion of a university's publications co-authored with other organizations)

Indicators

- **Scientific impact indicators**

  - P. Total number of publications of a university
  - P(OA) and PP(OA). The number and the proportion of open access publications of a university.
  - P(gold OA) and PP(gold OA). The number and the proportion of gold open access publications of a university. Gold open access publications are publications in an open access journal.
  - P(hybrid OA) and PP(hybrid OA). The number and the proportion of hybrid open access publications of a university. Hybrid open access publications are publications in a subscription journal that are open access.

Indicators

- **Scientific impact indicators**

  - P(bronze OA) and PP(bronze OA). The number and the proportion of bronze open access publications of a university. Bronze open access publications are publications in a journal that are open access without a license.
  - P(green OA) and PP(green OA). The number and the proportion of green open access publications of a university. Green open access publications are publications in a journal that are also available in an open access repository.
  - P(OA unknown) and PP(OA unknown). The number and the proportion of a university's publications for which the open access status is unknown. These publications typically do not have a DOI in the Web of Science database.

Indicators

- **Gender indicators**

  - A. The total number of authorships of a university. Consider for instance a publication that has five authors, of which three report university X as their affiliation and two report university Y as their affiliation. This publication then yields three authorships for university X and two authorships for university Y.

  - A(MF). The number of male and female authorships of a university, that is, a university's number of authorships for which the gender is known.

  - A(unknown) and PA(unknown). The number of authorships of a university for which the gender is unknown and the number of authorships for which the gender is unknown as a proportion of a university's total number of authorships

Indicators

- **Gender indicators**

  - A(M), PA(M), and PA(M|MF). The number of male authorships of a university, the number of male authorships as a proportion of a university's total number of authorships, and the number of male authorships as a proportion of a university's number of male and female authorships.

  - A(F), PA(F), and PA(F|MF). The number of female authorships of a university, the number of female authorships as a proportion of a university's total number of authorships, and the number of female authorships as a proportion of a university's number of male and female authorships.

Counting method

The scientific impact indicators in the Leiden Ranking can be calculated using either a full counting or a fractional counting method.

- The full counting method gives a full weight of one to each publication of a university
- The fractional counting method gives less weight to collaborative publications than to non-collaborative ones

**fractional counting is the preferred counting method for the scientific impact indicators in the Leiden Ranking. Collaboration, open access, and gender indicators are always calculated using the full counting method.

U.S. News Ranking

What is U.S. News?

- U.S. News & World Report is an American media company that publishes news, opinion, consumer advice, rankings, and analysis. Founded as a news magazine in 1933, U.S. News transitioned to primarily web-based publishing in 2010, although it still publishes its rankings
- It was produced to provide insight into how universities compare globally
- 1,500 top universities, more than 80 countries

U.S. News Ranking

Objectives

It can help those applicants accurately compare institutions around the world, since the number of students plan to enroll in universities outside of their own country are increasing.

Provides insight into how U.S. universities stand globally

U.S. News Ranking

Methodology

- To create the pool of 1,748, U.S. News first included the top 250 universities in the results of Clarivate's global reputation survey.
- Next, U.S. News added institutions that had met the minimum threshold of at least 1,250 papers published in 2014 to 2018, down from 1,500 papers last year.
- The last step was to remove duplicates and institutions that are not schools to reach the final 2021 ranking pool of 1,748 institutions.

U.S. News Ranking

Methodology

Ranking Indicator	Weight
Global research reputation	12.5%
Regional research reputation	12.5%
Publications	10%
Books	2.5%
Conferences	2.5%
Normalized citation impact	10%
Total citations	7.5%

U.S. News Ranking

Methodology

Ranking Indicator	Weight
Number of publications that are among the 10% most cited	12.5%
Percentage of total publications that are among the 10% most cited	10%
International collaboration – relative to country	5%
International collaboration	5%
Number of highly cited papers that are among the top 1% most cited in their respective field	5%
Percentage of total publications that are among the top 1% most highly cited papers	5%

U.S. News Ranking

Reputation Indicators

- **Global research reputation**

This indicator reflects the aggregation of the most recent five years of results of the Academic Reputation Survey for the best universities globally for research.

- **Regional research reputation**

This indicator reflects the aggregation of the most recent five years of results of the Academic Reputation Survey for the best universities for research in the region; regions were determined based on the United Nations definition

U.S. News Ranking

Bibliometric Indicators

- **Publications**

This is a measure of the overall research productivity of a university, based on the total number of scholarly papers – reviews, articles and notes – that contain affiliations to a university and are published in high-quality, impactful journals. This indicator is closely linked to the university's size. It is also influenced by the university's discipline focus, since some disciplines, particularly medicine, publish more than others.

Bibliometric Indicators

- **Books**

Books are an important medium of publication for scholarly research, particularly in the social sciences and arts and humanities. The ranking indicator provides a useful supplement to the data on articles and better represents universities that have a focus on social sciences and arts and humanities.

U.S. News Ranking

Bibliometric Indicators

- **Conferences**

This ranking indicator provides a useful supplement to the data on articles and better represents universities that have a focus on social sciences and arts and humanities.

- **Normalized citation impact**

The total number of citations per paper represents the overall impact of the research of the university and is independent of the university's size or age; the value is normalized to overcome differences in research area, the paper's publication year and publication type.

U.S. News Ranking

Bibliometric Indicators

- **Total citations**

This indicator measures how influential the university has been on the global research community. It is determined by multiplying the publications ranking factor by the normalized citation impact factor.

- **Number of publications that are among the 10% most cited**

his indicator reflects the number of papers that have been assigned as being in the top 10% of the most highly cited papers in the world for their respective fields.

U.S. News Ranking

Bibliometric Indicators

- **Percentage of total publications that are among the 10% most cited**

  This indicator is the percentage of a university's total papers that are among the top 10% of the most highly cited papers in the world – per field and publication year

- **International collaboration – relative to country**

  This indicator is the proportion of the institution's total papers that contain international co-authors divided by the proportion of internationally co-authored papers for the country that the university is in.

Bibliometric Indicators

- **International collaboration**

  This indicator is the proportion of the institution's total papers that contain international co-authors and is another measure of quality.

U.S. News Ranking

Scientific Excellence Indicators

- **Number of highly cited papers that are among the top 1% most cited in their respective field**

  This highly cited papers indicator shows the volume of papers classified as highly cited in the Clarivate's Essential Science Indicators service.

- **Percentage of total publications that are among the top 1% most highly cited papers**

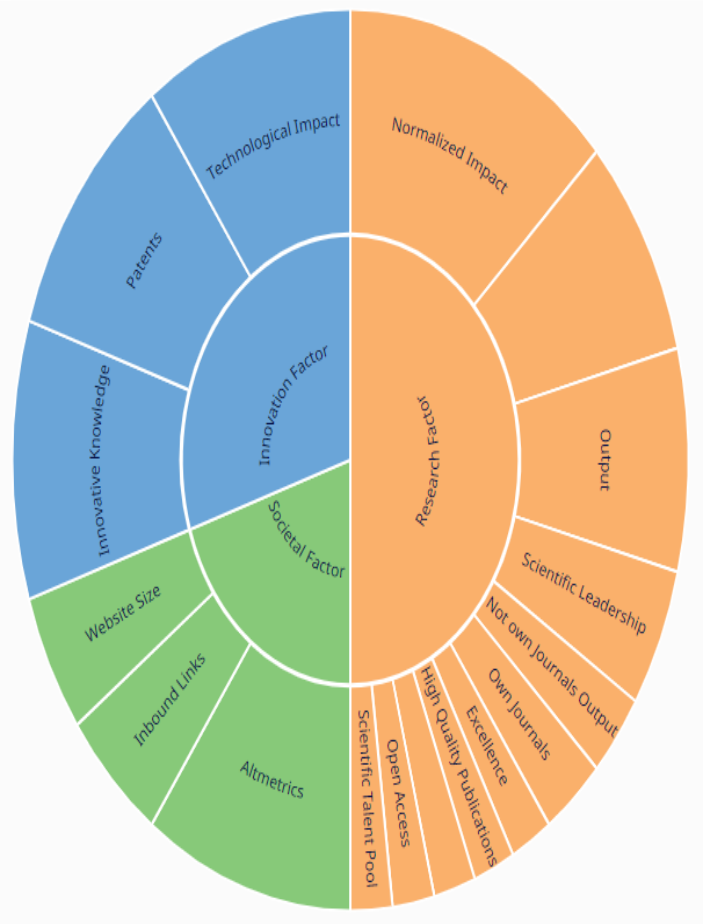
  This percent shows the number of highly cited papers for a university divided by the total number of documents it produces, represented as a percentage

Scimago Institutions Rankings (SIR)

- Compare more than 7000 universities across 3 broad Indicators that are divided into three groups intended to reflect
  - Research Performance(50%)
  - Innovation Outputs(30%)
  - Societal Impact(20%)
  - Scientific, Economic and Social Characteristics

Scimago Institutions Rankings (SIR)

- A classification of academic and research-related institutions
- Ranked by a composite indicator that combines three different sets of indicators



SCIMAGO INSTITUTIONS RANKINGS

ISC

Islamic World Science Citation Center (ISC)

- ISC established by the Islamic Conference of the Ministers of Higher Education and Scientific Research (ICMHESR) in 2008

- Islamic universities and research institutes are required to cooperate with ISC.

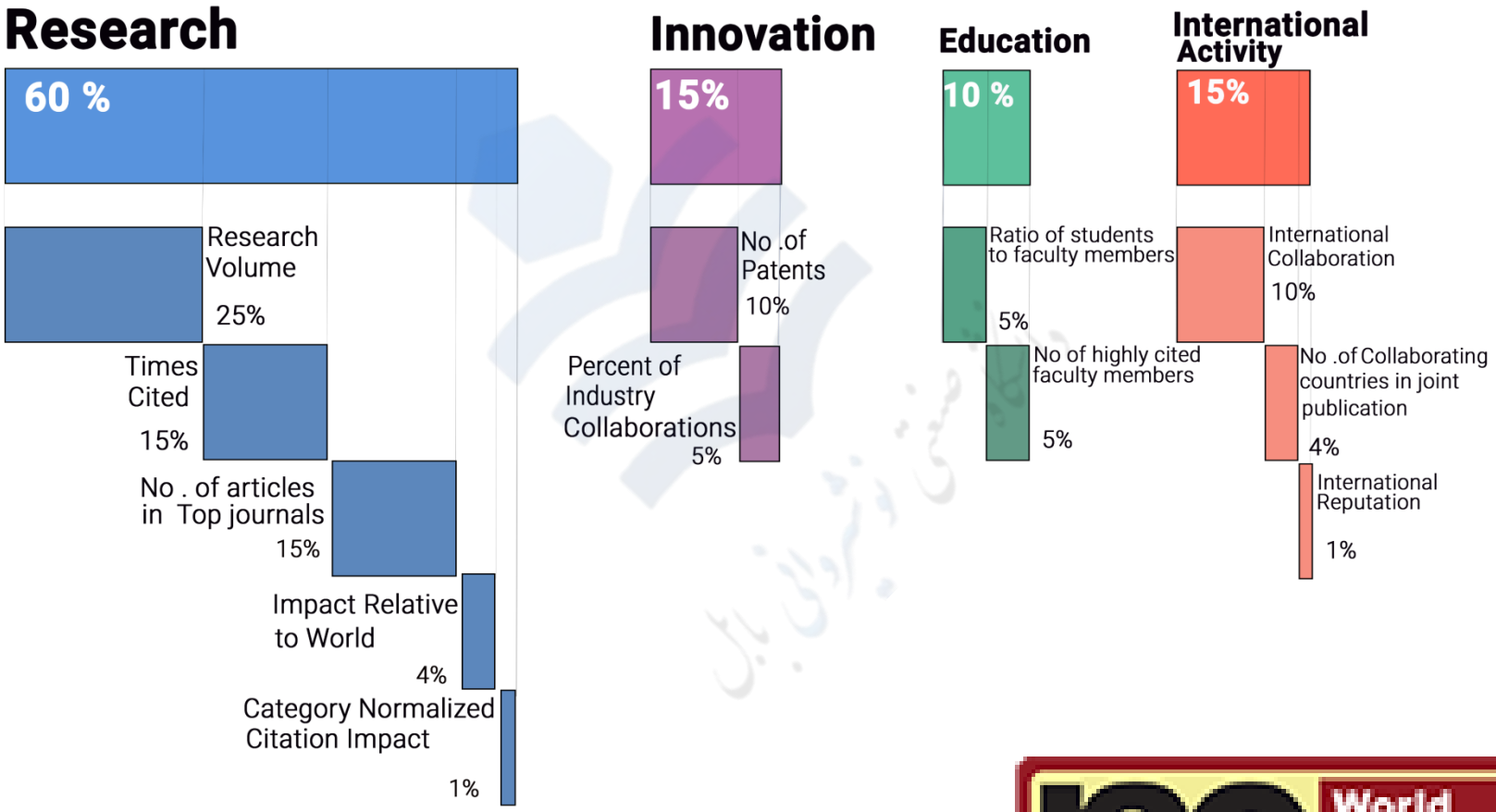
- 282 from 26 Islamic countries

Methodology

- **World University Ranking Indices**
  - Research
  - Education
  - International Activity
  - Innovation

Indices applied in the 3-year time period analysis

ISC


Research
60 %
Research Volume
25%
Times Cited
15%
No . of articles in Top journals
15%
Impact Relative to World
4%
Category Normalized Citation Impact
1%
Innovation
15%
No .of Patents
10%
Percent of Industry Collaborations
5%
Education
10 %
Ratio of students to faculty members
5%
No of highly cited faculty members
5%
International Activity
15%
International Collaboration
10%
No .of Collaborating countries in joint publication
4%
International Reputation
1%

Methodology

- **Research**
  - Research volume (extracted from Incite database)
  - Times cited (extracted from Incite database)
  - Category normalized citation impact (extracted from Incite database.)
  - Impact relative to world
  - The number of articles published in top journals

Methodology

- **Education**
  - The ratio of student to faculty members
  - The number of highly cited faculty members

Methodology

- **International Activity**
  - The number of international contribution of universities in producing articles in a 3 years period
  - The number of cooperating countries in publishing international articles

Methodology

- **International Activity**
- Reputation of the universities which is measured in accordance with their presence in three international rankings
  - QS
  - THE
  - ARWU

Methodology

- **Innovation**
  - Number of patents recorded period with the name of a university in:
    - United States Patent
    - Trademark Office
  - Percent of Industry Collaborations

Research Center Ranking

- TRANSPARENT RANKING: Top Research Centers by Google Scholar Citations

- This is the new edition of the Transparent Ranking for Research Centers using **Google Scholar Citations (GSC)** data. Following the request of many organizations, we decided **temporally** not to use the **Google Scholar Citations (GSC) institutional profiles.**

- GS is still working for extending their coverage, but unfortunately their resources are limited and there is no final date for finishing the task. The number of profiles is over 5000

Research Center Ranking

- The Basic Sciences Research Institute, the Iranian Polymer and Petrochemical Research Institute, the Materials and Energy Research Institute, the Royan Research Institute and the Petroleum Industry Research Institute have been ranked first to fifth in the top 30 research institutes in the country, respectively
- Changes in the methodology related to research institutes
- Different nature of activities and missions of research institutes
- Adding research contract amounts to the indicators

SCIMAGO

Research Center Ranking

- Assessing universities &
- research-focused institutions
- How institutions are distributed by their research outputs
- Why is research Important
- research institutions alongside with universities

SCIMAGO INSTITUTIONS RANKINGS

A Few Key Points

- **Rankings are there to help** the universities **detect their weaknesses** in comparison with their competitors on the global stage.
  - **Trends in rankings should be assessed and reflected to the university administration** to make policies to improve their performance.
  - **Universities should not be blindsided** by their performance in the rankings, whether positive or negative.

A Few Key Points

- Most well-known rankings do not require much information from the universities, and evaluate universities based on their own databases.
    - **Unifying the affiliations** used by faculty members is essential.
- **Building up "Academic Reputation" is critical** in improving the university's position in many rankings

A Few Key Points

- Purely research rankings:

- U.S. News & Leiden

- research indicators weight in other rankings:

Scimago: 80%

THE: 62.5%

Shanghai: 60%

QS: 20%

A Few Key Points

- Rankings with reputation indicators:

  THE Academic reputation: 15%

  THE Research reputation: 18%

  QS Peer review: 40%

  QS recruiter review: 10%

  U.S. News Global research reputation: 12.5%

  U.S. News Global regional reputation: 12.5%

THE IMPACT RANKINGS

Insights to THE Impact Ranking: Challenges and Recommendations

Why we measure?

- The **Sustainable Development Goals (SDGs)** adopted by all United Nations Member States in 2015, are an urgent call for action by all countries - developed and developing - in a global partnership
- They recognize that **ending poverty and other deprivations** must go with strategies that:
  - Improve **health and education**
  - **Reduce inequality**
  - Spur **economic growth**
  - All while **tackling climate change** and working to preserve our oceans and forests.

Mechanism

- The methodology is built up **from individual Sustainable Development Goals**. Universities receive a score and a rank for their activities in each of the SDGs for which they submit data.
- Participation in the overall ranking requires universities to submit data to **at least four SDGs one of which must be SDG 17** – Partnerships for the Goals.

Mechanism

The overall score is generated from the score for SDG 17 (worth up to 22% of the overall score), plus the three strongest of the other SDGs for which they provided data (each worth up to 26% of the overall score).

SDGs

SDG 1: No Poverty

SDG 2: Zero Hunger

SDG 3: Good Health and Well-being

SDG 4: Quality Education

SDG 5: Gender Equality

SDG 6: Clear Water and Sanitation

SDG 7: Affordable and Clean Energy

SDG 8: Decent Work and Economic Growth

SDG 9: Industry, Innovation and Infrastructure

SDG 10: Reduced Inequalities

SDG 11: Sustainable Cities and Communities

SDG 12: Responsible Consumption and Production

SDG 13: Climate Action

SDG 14: Life Below Water

SDG 15: Life on Land

SDG 16: Peace, Justice and Strong Institutions

SDG 17: Partnerships for the Goals

Challenges

- Lack of data in some SDGs (not recorded or saved anywhere!)
- No policies regarding university ranking
- Contradicting data collected from different university sectors
- Hard in realizing relation between queries and corresponding sectors
- Lack of collaboration among university sectors
- Negligence in collecting documents in some university sectors

Challenges

- Time needed for SDGs related policy to be implemented
- Collaboration with local or regional authorities, in terms of SDGs, such as climate change etc.
- Prioritizing environmental and energy related in university policy making

Recommendations

- Data must be monitored consistently in order to be ready for the time that is required.
- Presence of informed staff in international office who are able to explain the duties of all university sectors to international office
- Briefing all university sectors about the significance of ranking and its ensuing consequences
- Having active collaboration with local or regional authorities to address environmental issues related to SDGs

Recommendations

- Creating any option in educational system which would be helpful in obtaining data about students/staff
- Comprehending the ranking for different university sectors in order to be considered in policies
- Updating the website of each university sector with latest news, events and/or any necessary information
- Delegating duties to representatives of each faculty

Our Experience

- **SDG 1: No Poverty**

✓ Loans and supports for the bottom 20% of household income group in the country.

✗ Unable to identify and admit low-income group in the country, neither policy nor program

✗ No anti-poverty program in all dimensions

Our Experience

- **SDG 2: Zero Hunger**

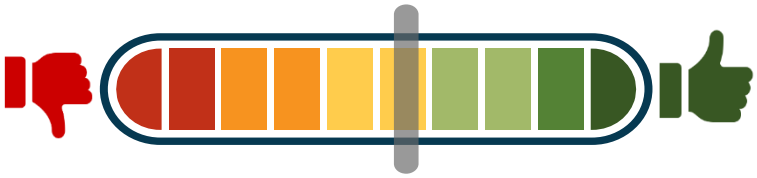
✓ Food supervision contract and low-price food options

– Providing events for local farmers and food producers

– Providing access to university facilities

– Prioritizing purchase of products from local, sustainable sources

✗ No plan for vegans



Our Experience

- **SDG 3: Good Health and Well-being**

✓ Providing free health-care services

✓ Delivering outreach programs to improve or promote health and wellbeing

✗ Having collaborations with local or global health institutions

Our Experience

- **SDG 4: Quality Education**

✓ Hosting events at university that are open to the general public

✓ Number of first-generation students starting a degree

– Undertaking educational outreach activities

✗ No policy for the access to activities regardless of ethnicity, religion disability or gender

Our Experience

- **SDG 5: Gender Equality**

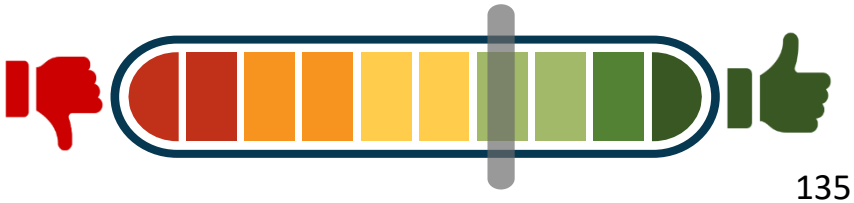
✓ Number of students (women) starting a degree

✓ Number of first-generation students (women) starting a degree

✓ Number of female graduates and staff/senior staff

✗ Tracking women's application rate

✗ Policy for discrimination against women



Our Experience

- **SDG 6: Clean Water and Sanitation**

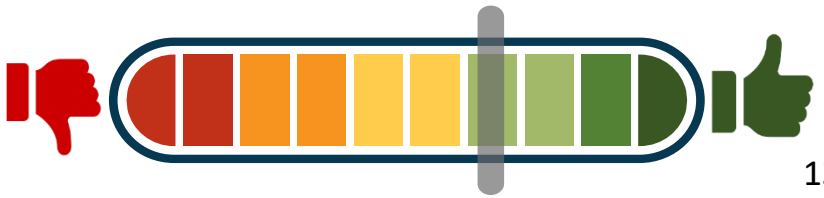
✓ Measure the total volume of water used in the university

✓ cooperate with local, regional, national or global governments

– Having a process in place to treat waste water

✗ Preventing polluted water entering the water system

✗ Measurement of reused water across the university



Our Experience

- **SDG 7: Affordable and Clean Energy**

✓ Policy for all renovations / new builds to be energy efficient

✓ Having an energy efficiency plan in place to reduce overall energy consumption

– Having a policy on divesting investments from carbon-intensive energy

✗ Provide direct services to local industry aimed at improving energy efficiency

Our Experience

- **SDG 8: Decent Work and Economic Growth**

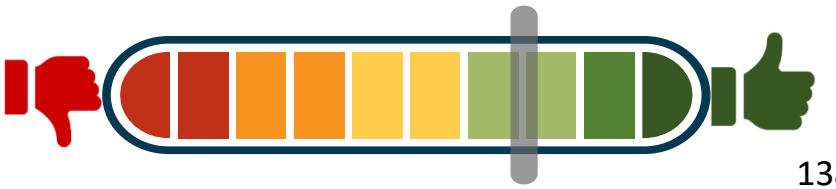
✓ Recognizing unions and labor rights (freedom of association)

✓ Having a policy on pay scale equity

✓ Having a policy on guaranteeing equivalent rights of workers

✗ Having a policy on ending discrimination in the workplace

✗ Having a process for employees to appeal on employee



Our Experience

- **SDG 9: Industry, Innovation and Infrastructure**

✓Number of university spin-offs

✓Research income

✓Research income by subject area

✓Number of academic staff by subject area

Our Experience

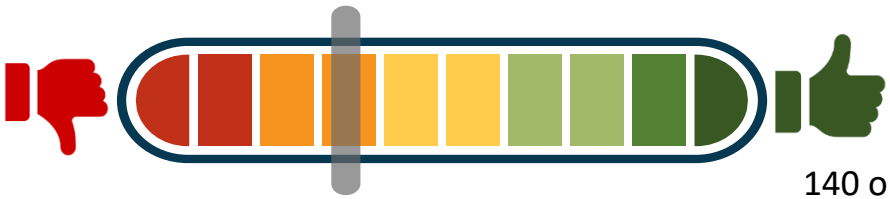
- **SDG 10: Reduced Inequalities**

✓ Tracking applications of underrepresented Research groups including non-traditional students

✓ Providing accessible facilities for people with disabilities

✗ Having an admissions policy for non-discriminatory

✗ Programs for recruiting students/staff/faculty from under-represented groups



Our Experience

- **SDG 11: Sustainable Cities and Communities**

✓ providing public access to buildings, monuments or natural heritage

✓ Measuring and set targets for more sustainable commuting

✓ Providing affordable housing for students

– Providing free public access to open spaces

✗ Allowing remote working for employees as a matter of policy

✗ Working with local authorities to address planning issues

Our Experience

- **SDG 12: Responsible Consumption and Production**

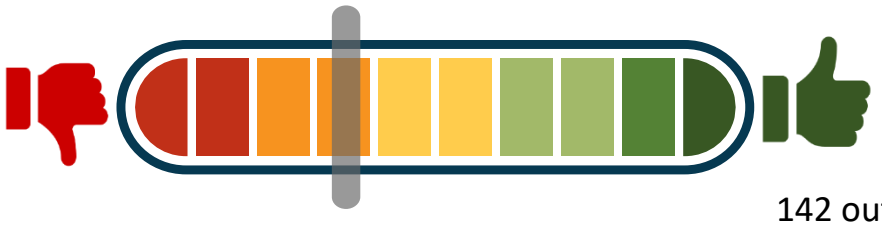
✓ Having a policy on ethical sourcing of food and supplies

✓ Having a policy on waste disposal - Covering hazardous materials

✗ have a policy on to measure the amount of waste

✗ Extending policy to outsourced services and the supply chain

✗ Measuring the amount of waste generated and recylced



Our Experience

- **SDG 13: Climate Action**

✓ Providing local education program or campaigns on climate change

✓ Participating in cooperative planning for climate change disasters

– Informing and supporting local or regional government in local climate change

✗ Having a target date by which it will become carbon neutral

Our Experience

- **SDG 14: Life Below Water**

✓ Offering educational programmes on fresh-water ecosystems

✓ Awareness about illegal, unreported and unregulated fishing

✗ Policy to ensure that food on campus comes from aquatic ecosystems

✗ Having water quality standards and guidelines for water discharges

✗ Having a plan to minimise chemical and/or biological alterations

✗ Monitoring the health of aquatic ecosystems

Our Experience

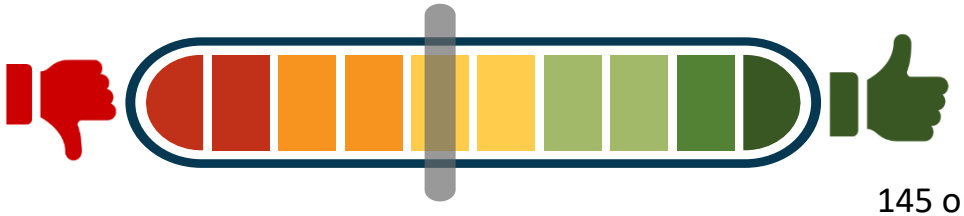
- **SDG 15: Life On Land**

✓ Supporting events aimed to promote conservation of the land, including forests

✓ Including local biodiversity into any planning and development process

✗ Offering educational programs on ecosystems (wild flora and fauna)

✗ Having a policy to ensure the conservation and sustainable use of terrestrial ecosystems



Our Experience

- **SDG 16: Peace, Justice and Strong Institutions**

✓ Having elected representation on the university's highest governing body from

✓ Recognizing a students' union

✓ Providing specific expert advice to local or national government

✓ Providing a neutral platform and "safe" space for different political stakeholders

– Having a policy on supporting academic freedom

Our Experience

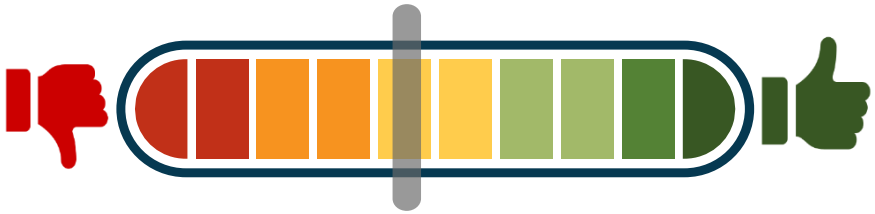
- **SDG 17: Partnership for the Goals**

✓ Having direct involvement in national government SDG policy development

✓ Reviewing comparative approaches through international collaboration and research

– Collaborating with NGOs to tackle the SDGs

✗ Publishing progress against SDG1, SDG2, SDG4, SDG7, SDG11



SDGs

SDG 1: No Poverty

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SDG 5: Gender Equality

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SDG 12: Responsible Consumption and Production

SDG 13: Climate Action

SDG 14: Life Below Water

SDG 15: Life on Land

SDG 16: Peace, Justice and Strong Institutions

SDG 17: Partnerships for the Goals

Thanks for your attention!!!

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