

Sustainable Development Goals (SDGs) in Universities: Policies and Rankings



Fondazione CRUI
(www.here-research.it)

Policies

17 UN Sustainable Development Goals (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 – Clean 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

UN SDGs and Universities in the World

Sustainable development networks and initiatives at international level

Some examples...

- Higher education sustainable initiative (HESI)
- International sustainable network campus (ISCN)
- Group of experts in SDGs and higher education (GUNI)
- University alliance for sustainability
- Principles for responsible management education (PRME)
- Sustainability initiatives of various university networks (e.g. IAU, IARU)
- Association for the advancement of sustainability in higher education (AASHE)

UN SDGs and Universities in Europe

Sustainable development networks and initiatives in Europe

Some examples...

- European university network for sustainable mobility
- Network of the Mediterranean universities for sustainable development
- Copernicus Alliance – European network on higher education for sustainable development
- Baltic & Black sea Circle Consortium (BBCC)
- Alliance for sustainability leadership in education (EAUC)

- Sustainable development networks and initiatives in Italy

Some examples

- **Rete delle Università per lo Sviluppo sostenibile** (Network of Universities for Sustainable Development) promoted by the CRUI since 2015, it is the first experience of coordination and sharing among all Italian universities engaged in environmental sustainability and social responsibility
- **Initiatives:** interdisciplinary course *Lezione zero*, sustainability report, internal processes to enhance sustainability

2019 CRUI INITIATIVE: Magnifici incontri *Università per la sostenibilità*

Rankings

Rankings

- Assessing Universities against the UN SDGs
 - **Times Higher Education Impact**
 - ✓ First edition in 2019
 - **GreenMetrics**
 - ✓ Since 2010

THE University Impact

- University Impact Rankings measure global universities' success in delivering the United Nations' Sustainable Development Goals (UN SDGs)

- 11 of the 17 are considered in the first edition of the ranking (2019)

Considered UN SDGs

Times Higher Education evaluates University performance on 11 UN SDGs in the first edition of the ranking (2019)

- SDG 3 – Good health and well-being
- SDG 4 – Quality education
- SDG 5 – Gender equality
- 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 16 – Peace, justice and strong institutions
- SDG 17 – Partnerships for the goals

THE Impact: Methodology

Developed in conjunction with Vertigo Ventures and Elsevier, after consultation and input from individual Universities, academics, and sector groups

- Universities submit data on as many of these SDGs as they are able
- Each SDG has a series of metrics that are used to evaluate the performance of the University in that SDG
- To be included in the overall ranking, a University has to provide data on SDG 17 and at least 3 other SDGs

THE Impact Published Rankings

- Overall ranking table
 - Final score is calculated by **combining**:
 - ✓ **SDG 17** (accounts for 22% of the overall score)
 - ✓ **with each University's top three scores out of the remaining 10 SDGs** (each carry a weighting of 26%)
 - ✓ score from each SDG is scaled so that the highest score in each SDG is 100
- Each individual SDG in 11 separate tables
 - allows to reward any University that has participated with a ranking position, even if they are not eligible to be in the overall table

Individual SDGs

Three categories of metrics within each SDG

- **Research** metrics: for each SDG, a specific query narrows the scope of the metric to **papers relevant to that SDG** (it is used a **5-year window** 2013-2017, data supplied by Elsevier)
- **Continuous** metrics: measure contributions to impact that vary continually across a range
 - E.g., the number of graduates with a health-related degree are normalised to the size of institution.
- *Policies and initiatives* (e.g. mentoring programmes): metrics require Universities to provide the **evidence** to support their claims. Credit is given for evidence, and for the evidence being public. These metrics are **not** size normalized
 - Data refer to the closest academic year to January to December 2017

Top 15 in overall THE Impact

Rank	University	State	#Ind	Score	#Ind	Score	#Ind	Score	#Ind	Score	Total
1	University of Auckland	New Zealand	3	89.1	5	77.6	16	81.4	17	97.0	97.2
2	McMaster University	Canada	8	84.4	3	89.0	11	82.2	17	91.8	96.6
3	University of British Columbia	Canada	13	96.9	11	88.1	9	87.3	17	94.7	96.2
3	University of Manchester	United Kingdom	3	85.6	11	85.6	12	81.4	17	97.0	96.2
5	King's College London	United Kingdom	3	86.9	16	81.9	5	75.9	17	93.9	95.1
6	University of Gothenburg	Sweden	4	81.6	5	78.3	3	84.6	17	84.5	95.0
7	KTH Royal Institute of Technology	Sweden	8	82.3	9	96.1	13	85.8	17	92.6	94.6
7	University of Montreal	Canada	3	88.8	8	73.7	5	74.9	17	96.8	94.6
9	University of Bologna	Italy	4	78.0	5	77.7	8	78.4	17	89.8	94.3
10	University of Hong Kong	Hong Kong	10	68.1	4	74.9	3	81.2	17	94.8	94.1
11	Western Sydney University	Australia	5	80.9	10	70.7	4	72.8	17	83.0	94.0
12	University of Southampton	United Kingdom	8	79.8	13	86.0	12	80.4	17	90.1	93.1
13	University of Waterloo	Canada	13	91.8	11	84.6	10	60.7	17	93.4	92.6
13	University of Wollongong	Australia	10	67.3	16	79.6	11	82.9	17	92.8	92.6
15	University of Helsinki	Finland	16	82.8	11	85.9	13	84.0	17	94.3	92.4

Analysis by country: # Universities participating and Top 100

All	#
Japan	30
United States	28
Russian Federation	25
United Kingdom	25
Spain	17
Australia	16
Egypt	14
Turkey	14
Brazil	12
Taiwan	12
Canada	10
Italy	10
Iran	9
Chile	8
India	8
Mexico	8
Pakistan	8
France	7
Malaysia	7
Colombia	6
South Korea	6
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Total	384

#	Top 100
17	United Kingdom
12	Australia
8	Canada; United States
5	Ireland
4	Spain
3	Chile; Finland; Italy ; Japan; New Zealand; Taiwan; Turkey
2	Hong Kong; Mexico; Netherlands; Russian Federation; South Korea; Sweden
	Denmark; Egypt; France; Germany; Indonesia;
1	Iran; Kuwait; Latvia; Malaysia; Norway; Portugal; Saudi Arabia; Slovakia

Italian universities in overall THE Impact

Rank	University	#Ind	Score	#Ind	Score	#Ind	Score	#Ind	Score	Total Score
9	University of Bologna	4	78	5	77.7	8	78.4	17	89.8	94.3
16	University of Padua	4	76.4	5	75.1	3	80	17	89.6	92.2
78	University of L'Aquila	8	71.2	12	74.1	13	72.4	17	50.2–68.5	78.1
101–200	University of Florence	13	73.6	9	63.2	12	18.9–47.4	17	69.4	64.6–75.6
201–300	University of Brescia	3	76.6	13	57.3	11	60.3	17	1.4–35.8	53.7–64.5
201–300	University of Calabria	11	77.7	12	53.1	3	44.5–58.2	17	35.9–50.1	53.7–64.5
201–300	University of Pavia	3	84.1	9	61.9	10	46.9	17	1.4–35.8	53.7–64.5
201–300	Sant'Anna School of Advanced Studies – Pisa	9	80.6	16	64.3	3	7.9–44.4	17	1.4–35.8	53.7–64.5
301+	Kore University of Enna	13	3.8–31.0	11	8.4–41.0	5	26.6–42.0	17	1.4–35.8	23.8–53.6

GreenMetric: Methodology

- Philosophy that encompasses the 3 Es:
 - Environment
 - Economics
 - Equity
- Data are collected from the Universities who are willing to provide information (through a questionnaire)
- They use criteria that are generally considered to be of importance by Universities in relation to sustainability

Indicators (weights):

- Setting and Infrastructure (SI) (15%)
- Energy and Climate Change (EC) (21%)
- Waste (WS) (18%)
- Water (WR) (10%)
- Transportation (TR) (18%)
- Education and Research (ED) (18%)

Setting and Infrastructure

Gives the basic information of the University policy towards green environment; shows whether the campus deserves to be called Green Campus. **Indicators** are:

- Ratio of open space area towards total area
- Area on campus covered in forest
- Area on campus covered in planted vegetation
- Area on campus for water absorbance
- Total open space area divided by total campus population
- University budget for sustainable effort

Energy and Climate Change

Indicators are expected to increase the effort in energy efficiency on their buildings and to take more about nature and energy resources.

Indicators are:

- Energy efficient appliances usage replacing conventional appliances
- Smart Building implementation
- Number of renewable energy sources in campus
- The total electricity usage divided by total campus population (kWh per person)
- The ratio of renewable energy produced towards energy usage
- Elements of green building implementation as reflected in all construction and renovation policy
- Greenhouse gas emission reductions program
- The ratio of total carbon footprint divided by campus population

Waste

Waste treatment and recycling activities are major factors in creating a sustainable environment. Programs and waste treatments should be among the concern of the University.

Indicators are:

- Recycling program for University waste
- Program to reduce the use of paper and plastic in campus
- Organic waste treatment
- Inorganic waste treatment
- Toxic waste handled
- Sewerage disposal

Water

The aim is that Universities can decrease water usage, increase conservation program, and protect the habitat.

Indicators are:

- Water conservation program implementation
- Water recycling program implementation
- Use of water efficient appliances (water tap, toilet flush, etc)
- Treated water consumed

Transportation (1/2)

Transportation system plays an important role on the carbon emission and pollutant level in University. Transportation policy to limit the number of motor vehicles in campus, use of campus bus and bicycle will encourage a healthier environment.

The pedestrian policy will encourage students and staff to walk around campus, and avoid using private vehicles.

The use of environmentally friendly public transportation will decrease carbon footprint around campus.

Transportation: Indicators (2/2)

- The Ratio of total vehicles (cars and motorcycles) divided by total campus population
- Shuttle service
- Zero Emission Vehicles (ZEV) policy on campus
- The ratio of Zero Emission Vehicles (ZEV) divided by total campus population
- Ratio of parking area to total campus area
- Transportation program designed to limit or decrease the parking area on campus for the last 3 years (from 2015 to 2017)
- Number of transportation initiatives to decrease private vehicles on campus
- Pedestrian path policy on campus

Education and Research

Criterion (added to the questionnaire in 2012) is based on the thought that University has an important role in creating the new generation concern with sustainability issues. **Indicators** are:

- The ratio of sustainability courses towards total courses/subjects
- The ratio of sustainability research funding towards total research funding
- Number of scholarly publications on environment and sustainability published
- Number of scholarly events related to environment and sustainability
- Number of student organizations related to environment and sustainability
- Existence of a university-run sustainability website
- Existence of published sustainability reports

Participating Universities over time

University	2010	2011	2012	2013	2014	2015	2016	2017	2018
# Universities	95	178	215	300	361	407	515	617	719

Top 15 Universities in 2018

Score by indicator (over 100)

University	Ranking	Country	Total Score	Setting & Infrastructure	Energy & Climate Change	Waste	Water	Transportation	Education & Research
Wageningen University & Research	1	Netherland	9125	83.3	82.1	100.0	100.0	86.1	100.0
University of Nottingham	2	UK	8600	78.3	79.8	87.5	100.0	80.6	95.8
University of California Davis	3	USA	8575	93.3	65.5	95.8	100.0	83.3	87.5
University of Oxford	4	UK	8525	76.7	77.4	91.7	85.0	88.9	91.7
Nottingham Trent University	5	UK	8450	81.7	79.8	100.0	55.0	77.8	100.0
Umwelt-Campus Birkenfeld	6	Germany	8350	90.0	81.0	83.3	80.0	70.8	95.8
University of Groningen	7	Netherland	8350	73.3	73.8	87.5	100.0	86.1	87.5
Bangor University	8	UK	8325	83.3	71.4	91.7	42.5	94.4	100.0
University College Cork	9	Ireland	8250	76.7	70.2	95.8	60.0	91.7	91.7
University of Connecticut	10	USA	8150	80.0	64.3	100.0	70.0	80.6	91.7
University of North Carolina Chapel Hill	11	USA	8125	88.3	61.9	100.0	100.0	66.7	83.3
Dublin City University	12	Ireland	8025	63.3	81.0	100.0	95.0	66.7	79.2
Keele University	13	UK	8025	90.0	78.6	91.7	65.0	72.2	79.2
University of Bradford	14	UK	8000	70.0	79.8	91.7	100.0	81.9	63.9
Universita di Bologna	15	Italy	8000	78.3	63.1	91.7	62.5	91.7	87.5

Top 15 Universities in 2018 over time

University	Country	2010	2011	2012	2013	2014	2015	2016	2017	2018
Wageningen University & Research	Netherland					37	32	3	1	1
University of Nottingham	UK	2	1	2	1	1	1	2	2	2
University of California Davis	USA		11	17	9	4	3	1	3	3
University of Oxford	UK					5	5	5	6	4
Nottingham Trent University	UK					3	15	9	5	5
Umwelt-Campus Birkenfeld	Germany							21	10	6
University of Groningen	Netherland			53	65	49	12	15	11	7
Bangor University	UK	11	26	18	19	29	22	16	8	8
University College Cork	Ireland		4	3	2	2	4	12	9	9
University of Connecticut	USA		3	1	5	7	2	4	7	10
University of North Carolina Chapel Hill	USA	10	12	8	8	12	7	11	13	11
Dublin City University	Ireland		128	80	46	54	58	27	15	12
Keele University	UK				80	69	88	7	17	13
University of Bradford	UK			22	4	6	8	17	4	14
Universita di Bologna	Italy	61			182	97	125	71	29	15

Analysis by country: 2018

All	#
Indonesia	66
USA	61
Russia	42
Colombia	37
Pakistan	34
Thailand	32
Turkey	30
Chinese Taipei	29
Spain	28
Italy	27
India	26
Brazil	23
Malaysia	18
Iran	16
Mexico	13
UK	13
Canada	11
Germany	10
Japan	10
Kazakhstan	10
Ukraine	10
Hungary	9
Jordan	9
Romania	8
...	
Total	719

#	Top 100
11	UK
10	USA
7	Chinese Taipei; Spain
6	Canada; Indonesia; Malaysia
5	Colombia
4	Germany; Italy ; Netherland
3	Brazil; Finland; Ireland; Japan; Thailand
2	Australia
1	Austria; China; Czech Republic; Denmark; France; Hungary; Iran; Mexico; Philippines; Portugal; Russia; Saudi Arabia; Turkey

Italian universities

Score by indicator (over 100)

Italian Ranking	World Ranking	University	Total Score	Setting and Infrastructure	Energy and Climate Change	Waste	Water	Transportation	Education and Research
1	15	Università di Bologna	8000	78.3	63.1	91.7	62.5	91.7	87.5
2	47	Università degli Studi di Torino	7275	65.0	71.4	70.8	55.0	77.8	87.5
3	88	Università Ca' Foscari Venezia	6875	55.0	61.9	70.8	65.0	83.3	73.6
4	98	Università degli Studi di Milano Bicocca	6700	45.0	51.2	87.5	50.0	86.1	73.6
5	104	Politecnico di Torino	6550	41.7	69.0	75.0	50.0	68.1	77.8
6	115	Politecnico di Milano	6375	28.3	46.4	100.0	25.0	73.6	88.9
7	120	Università degli Studi di Genova – Savona Campus & Hanbury Botanical Gardens	6275	65.0	69.0	75.0	37.5	55.6	62.5
8	147	Università degli Studi dell'Aquila	6000	78.3	63.1	83.3	45.0	31.9	54.2
9	196	Università degli Studi di Trieste	5600	51.7	39.3	95.8	47.5	45.8	54.2
10	204	Università degli Studi di Bari Aldo Moro	5575	61.7	41.7	62.5	50.0	62.5	56.9
11	208	Università degli Studi di Perugia	5550	56.7	40.5	66.7	65.0	47.2	63.9
12	214	Università degli Studi di Salerno	5525	51.7	47.6	83.3	20.0	58.3	55.6
13	228	Università degli Studi di Brescia	5450	43.3	51.2	66.7	20.0	70.8	58.3
14	229	Libera Università Internazionale Degli Studi Sociali Guido Carli Luiss	5450	53.3	51.2	66.7	25.0	58.3	59.7
15	273	Università Politecnica delle Marche	5125	38.3	61.9	58.3	80.0	31.9	45.8
16	276	Università degli Studi di Ferrara	5125	23.3	48.8	70.8	40.0	43.1	72.2
17	308	Università Degli Studi Roma Tre	4925	50.0	61.9	45.8	25.0	40.3	59.7
18	313	Università degli Studi di Padova	4925	51.7	39.3	70.8	35.0	45.8	48.6
19	315	Università della Calabria	4925	70.0	23.8	79.2	0.0	51.4	56.9
20	329	Università IUAV di Venezia	4850	48.3	36.9	58.3	57.5	33.3	62.5
21	355	Università degli Studi di Roma La Sapienza	4725	56.7	53.6	37.5	25.0	58.3	43.1
22	387	Politecnico di Bari	4550	43.3	60.7	41.7	25.0	29.2	61.1
23	436	Università Degli Studi di Modena e Reggio Emilia	4375	48.3	22.6	70.8	5.0	43.1	59.7
24	513	Università Degli Studi Di Udine	4000	58.3	25.0	83.3	0.0	25.0	36.1
25	586	Università degli Studi di Firenze	3450	38.3	9.5	58.3	0.0	44.4	45.8
26	655	Università degli Studi Mediterranea di Reggio Calabria	2750	25.0	20.2	37.5	5.0	36.1	31.9
27	691	Università degli Studi di Macerata	2175	30.0	28.6	25.0	5.0	18.1	16.7

Key messages

Key messages - Policies

- The challenge of sustainability is tackled by universities, at international, European and national level, through, *inter alia*, **networking, joint initiatives and exchange of good practices with respect to institutional strategies, research and teaching.**
- **Activities are various and may include:** aligning campus sustainability initiatives with the SDGs; supporting local sustainability efforts; raising awareness on campus about the SDGs; developing a coordinated strategy to integrate the SDGs into the institution's curriculum; supporting and encouraging student research related to sustainable development; developing specific fellowship programs
- Our overview suggests that currently a special focus exists on **environmental and mobility issues**

Key messages - Rankings

- Growing attention to sustainability issues among Universities worldwide
 - GreenMetrics: From 95 participating Universities in 2010 to 719 in 2018
 - Times Higher Education developed the first edition of a ranking focused on Sustainability Development Goals in 2019
- Top-performers in both ranking are Universities from the Anglo-Saxon world, particularly United Kingdom and United States
- University of Bologna is the best-ranked Italian university
 - It is in the top-15 in both rankings