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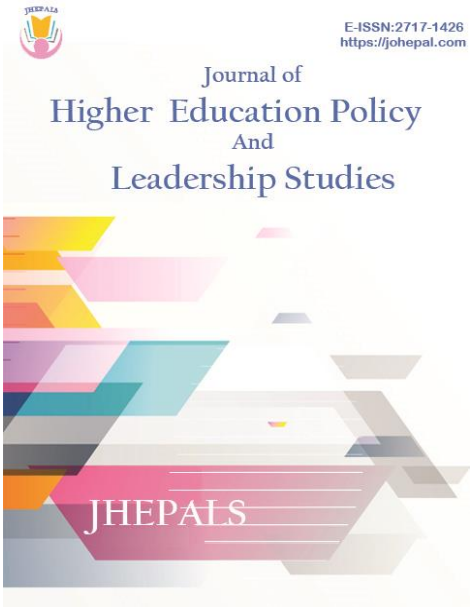

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Role of Pakistan's Higher Education Institutes Towards SDGs – Insight into Times Higher Education Impact Ranking 2023

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Abstract

The Times Higher Education (THE) Impact Ranking assesses universities around the world based on the United Nations' Sustainable Development Goals (SDGs), including many HEIs in Pakistan. This study addresses insight on how Pakistan HEIs has been mapped towards SDGs achieving impact ranking scores for the year 2023, using 2023 Times Higher Education Impact Ranking (THE-IR) data. Quantitative data analysis from THE-IR 2023 is performed on 71 Pakistani HEIs. The paper shows which SDGs have been addressed most often by Pakistani HEIs in the conducted research—SDG5 (Gender Equality) and SDG4 (Quality Education). THE findings suggest that just 27 percent of HEIs from Pakistan took part in 2023 THE-IR. Moreover, 91.55% of the HEIs mainly contributed towards 'SDG5: Gender Equality', while 'SDG14: Life Under Water' is least contributed to. The research focuses on importance to render policy frameworks of Higher Education Commission (HEC) which are promotion of SDG aligned initiatives. It also offers some insight into what causes performance gaps and what needs to be improved. The implications highlight the significance of institutional commitment, government backing, and international joint work for bridging HEI efforts and national and global sustainability objectives.

Keywords: Times Higher Education Impact Ranking; Higher Education Institutes; Sustainable Development Goals (SDGs); Pakistan

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Introduction

The 17 interconnected sustainable development goals (SDGs) were developed as a worldwide response to pressing issues including poverty and climate change, with a focus on the value of evidence-based decision-making (Goals, 2023). The Sustainable Development Goals (SDGs) expand the scope, breadth, and participation of the Millennium Development Goals (MDGs) in order to provide a clear framework for their formulation and execution (Fisher & Fukuda-Parr, 2019). Approved during the 2012 Rio20 conference, Agenda 2030 is a fifteen-year plan that needs to be integrated into the way that governments, corporations, academic institutions, and society at large make decisions. The plan includes a road map with objectives and metrics for putting rich and developing nations on the same sustainable development path. The term "SDGs" refers to a broad range of policy goals (e.g. gender equality, health). Therefore, creating precise metrics or instruments to assess the contributions or effects of the goals is difficult (Rafols, Noyons, Confraria, & Ciarli, 2021). Countries, organizations, and individuals worldwide are encouraged to work towards achieving these 17 goals by 2030 (Figure 1).

Figure 1. 17 Sustainable Development Goals (Source: United Nations, 2015)

Higher education institutions have a multifaceted role in contributing to the attainment of the SDGs. By integrating sustainability principles into their core functions of research, education, and community engagement, they can make meaningful contributions to addressing the complex challenges outlined in the SDGs (De Iorio et al., 2022). Some major contributions by the HEIs towards the SDGs include research and innovation, education and capacity building, community engagement, partnership and collaboration, monitoring and evaluation and advocacy and policy influence (Gómez Marcos et al., 2022; Nogueiro & Saraiva, 2023).

The Times Higher Education Impact Rankings (THE-IR) are a set of global university rankings that evaluate universities based on their social and environmental impact. These rankings were first introduced in 2019 by THE, a leading provider of higher education data and analysis (THE, 2023). Unlike traditional university rankings that primarily focus on academic and research performance, the impact rankings assess universities based on their

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contributions to addressing global challenges and promoting sustainability. The rankings cover a range of key areas aligned with the United Nations' SDGs.

In this study, we investigate the contribution of HEIs in Pakistan towards SDG goals. We do so by analyzing the THE-IR score released in 2023. The major contribution of this study includes:

- Identify common and focused SDGs by the HEIs of Pakistan.
- Quantification of public and private sector HEIs actively participating in THE-IR.
- Quantification of provincial level participation and contribution to the SDGs via THE-IR scores.
- Identify top ranking HEIs across the different SDGs in public and private sectors; scored via THE-IR.
- Offer policy recommendations and suggestions on how contribution to SDGs can be effectively improved.

Literature Review

Current Ranking Tools

Some rankings focus on mapping the Sustainable Development Goals (SDGs) in higher education institutes. These include UI GreenMetric World University Ranking, Academic Ranking of World Universities (ARWU), Sustainable Development Goals (SDG) Ranking, Times Higher Education World University ranking and Times Higher Education Impact ranking.

UI GreenMetric World University Ranking

It is a global sustainability ranking developed by the Universitas Indonesia (UI) in 2010. This ranking focuses on universities' sustainability efforts, including their performance in areas such as setting and infrastructure, energy and climate change, waste management, water usage, and transportation and education. Participating universities provide data on various sustainability-related metrics, such as energy consumption, greenhouse gas emissions, waste management practices, water usage, green spaces, transportation options, and sustainability education programs. Through 39 indicators in 6 criteria, UI GreenMetric World University Rankings prudently determined the rankings by universities' environmental commitment and initiatives. But compared to other ranking systems, its simplicity has been seen as a significant drawback in terms of its categories and indicators, and the data types it requires are typically less empirical and have lower participant requirements than those found in other systems (Lauder et al., 2015).

Academic Ranking of World Universities (ARWU)

Launched by Shanghai Ranking Consultancy, this ranking evaluates universities' contributions to the SDGs based on research output and impact. The indicators include measures such as the number of alumni and staff winning Nobel Prizes and Fields Medals, the number of highly cited researchers, the number of papers published in prestigious journals like Nature and Science, and per capita academic performance. Research output is seen as a primary indicator of a university's academic strength and global reputation. Docampo et al. (2022) critically reviewed the ranking and found that ARWU in actuality is

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complicated, erratic. Moreover, an incompletely disclosed data and regulations are used to create the yearly and time series Shanghai rankings. Trends and shifts in the rankings could be mistakenly seen as inherent characteristics of organizations or systems when, in reality, they are independent of any one country or university. The author also demonstrates how exogenous or methodological changes have frequently caused changes in ranking by analyzing an ARWU evaluation of ranking changes from 2004 to 2016.

QS Ranking

The QS World University Rankings, developed by Quacquarelli Symonds (QS), primarily focus on assessing universities' overall academic performance and reputation across various indicators such as academic reputation, employer reputation, faculty/student ratio, citations per faculty, international faculty ratio, and international student ratio. While the QS World University Rankings do not explicitly integrate the SDGs into their methodology, there are ways in which universities' efforts towards sustainability and SDGs can indirectly influence their rankings, which includes research and innovation, Internationalization and Diversity, Employability and Social Impact. The ranking has also faced criticism for putting too much emphasis on reputation surveys and subjective factors, which have a tendency to change over time and create a feedback loop (Bookstein et al., 2010).

SDG Index

The SDG index, which was initially released in 2015, was the first worldwide rating system that used a wide range of relevant metrics for each target to translate the SDG narrative and assess universities' national contributions. However, the composite index's low precision, unmeasurable parameters, and data gathering limitations compromised its usefulness (Sachs et al., 2018; Diaz-Sarachaga et al., 2018).

THE-World University Ranking

The Times Higher Education (THE) World University Rankings is an annual publication that ranks universities worldwide based on several key indicators across the core missions of teaching, research, knowledge transfer, and international outlook. These indicators include factors such as academic reputation, faculty-to-student ratio, citation impact, research funding, industry income, and international student and staff ratios. Developed by Times Higher Education, a UK-based magazine, these rankings are considered one of the most prestigious and widely recognized university rankings globally. The Times Higher Education – World University Rankings (THE-WUR) and Green-UI Metric were compared by Galleli et al. (2022) who discovered a notable discrepancy in the specificity of the two rankings. Also, Bautista-Puig et al. (2022) found that these initiatives are geographically centered in the Anglo-Saxon regions (e.g. STARS and AASHE STARS at the USA, and People and Planet Green League in the UK).

THE-IR

Launched in 2019, ranks and assesses universities' contributions to the SDGs across various areas, including research, stewardship, outreach, and teaching. The THE-IR are the only global performance tables that assess universities against the United Nations' SDGs. Even though this ranking is relatively new (the fifth edition was released in 2023), THE-IR has

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already generated discussion among supporters and critics in the higher education sector. According to Torabian (2019), this rating is a step in the right direction, showing that HEIs and the general public are interested in addressing SDG. On the other hand, the pursuit of particular metrics or rankings (such as those based on research output) may incite actions that are in opposition to the objectives itself. Iskandaryan (2020) explored the SDG4 implementation at one Russian university, while De La Poza et al. (2021) evaluated the degree of reporting and the degree to which SDG accomplishments were in line with the overall THE-WUR ranking score. They discovered that SDGs 9 and 16, which are related to "industry, innovation, and infrastructure" and "peace, justice, and strong institutions", respectively, are priorities for the best-ranked universities. Calderon (2021) provided a critical summary of this rating and proposed that, considering the global reach of the SDGs, it should be contextualized based on a national or regional framework that enables like-to-like comparisons across nations. Like any other ranking, THE-IR should be examined to see if its methodology accurately captures institutions' levels of sustainability and if its findings are reliable enough to serve as a basis for research and tactical decision-making. De La Poza et al. (2021) analyzed THE-IR and THE-WUR, taking into account the areas and disciplines of universities, to see if performance on one SDG in THE-IR is related to the results received in THE-WUR. They did not, however, address the raw overlap between THE-IR and THE-WUR, which could possibly indicate the existence of particular geopolitical tactics in order to be seen in this ranking, in addition to a possible influence of the latter on the former (Bautista-Puig et al., 2022).

Current Landscape of HEIs in Pakistan

Pakistan adopted the Sustainable Development Goals (SDGs) as its national development agenda in 2016, demonstrating a strong commitment to building a more equitable and sustainable future. This decision was further solidified by the establishment of the Federal SDGs Support Unit and dedicated provincial units, laying the groundwork for coordinated efforts across the country. The administration has made significant strides in integrating the SDGs into national policies and plans. The National SDGs Framework outlines prioritized goals and localization strategies, while the Five-Year Plans and provincial growth strategies reflect how these goals are being translated into concrete actions (SDG-Pakistan, 2023). Many HEIs in developing countries including Pakistan face financial constraints, inadequate infrastructure, and limited access to resources such as research funding, laboratory equipment, and technology. This hampers their ability to conduct research, offer relevant courses, and provide students with hands-on learning experiences related to sustainable development. Developing countries often struggle to retain qualified faculty, researchers, and students due to factors such as better opportunities abroad, higher salaries, and more favorable working conditions. Brain drain can undermine efforts to build institutional capacity and expertise in sustainable development and hinder long-term progress towards achieving the SDGs. Moreover, the curriculum in many HEIs in developing countries may not adequately address the principles and practices of sustainable development or provide students with the skills and knowledge needed to address sustainability challenges in their respective fields (CREDP, 2024; Zia et al., 2023). Addressing these challenges requires an integrated strategy that involves government support, international cooperation, private sector engagement, and community participation to strengthen the capacity of HEIs in

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developing countries to contribute effectively to SDG implementation and sustainable development efforts. These HEIs participate in impact ranking portals to measure their performance and efforts, positively reflecting the HEIs in Pakistan and worldwide.

Research Methodology

The methodology consists of mainly three steps, where the main data analytics task, which is the focus and contribution of the current study, starts from Step 3 (Figure 2).

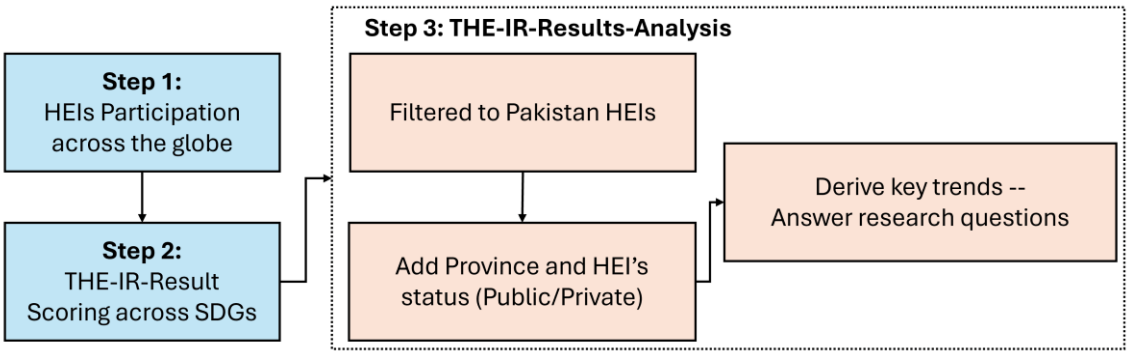

Figure 2. Block diagram of the current study

Step 1: HEIs participation in the THE-IR

The THE-IR are the only international performance tables that evaluate universities in relation to the SDGs of the United Nations. To give a thorough and fair comparison across four major domains—research, stewardship, outreach, and teaching—THE-impact ranking employs meticulously calibrated indicators. These major domains cover main aspects that a university might help to deliver the SDGs. THE-IR requires HEIs to submit data and evidence related to their activities, policies, and initiatives across at least 4 SDGs one of which must be SDG17-Partnership towards goal. Data collection portal is open for submission in first week of October where the deadline is usually around mid-November every year. HEIs then within these timeframes submit necessary evidences for evaluation by THE team reviewers.

Step 2: THE-IR Result

The THE-IR team scrutinizes the information and scores each related activity with contributing evidence. The results are declared every year in the month of July. The results include SDG scores attained given the pre-defined metric indicators across the different SDGs and are ranked across the participating HEIs. Further insight into the methodology and metric indicators can be accessed at (THE-Methdology, 2023).

Step 3: THE-IR Result Analysis

The outcome of THE-IR 2023 has been analyzed in the present study. The result data contains the rank and score of participating HEIs across the world. A total of 1,705 universities from 115 countries HEIs have participated in the 2023 impact ranking (THE, 2023). For rank greater than 100, both the score and the rank are slabbed and actual score points are not provided in the public available datasheet. Each institute has access to their actual scores but due to low/no-response, the data remained incomplete. Hence information provided in the public domain was used towards the analysis of the study. The

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SDGs & THE Impact Ranking in Pakistan

2023 THE-IR result data was then filtered to HEIs in Pakistan. This data was then further expanded by incorporating the provinces in which the HEIs reside, along with the status of the HEI i.e. either public or private. This information was taken from the HEC website (HES, 2024). Significant information was extracted from the datasheet, displayed in various forms (figures and tables), in order to address the key research objectives mentioned.

Result and Discussion

In 2023, Pakistan had 263 HEIs that represents 154 public sector and 109 private sector HEIs across the five provinces and capital territory in Pakistan (HES, 2024). A total of 71 universities participated in the THE-impact ranking. This corresponds to only 27% of the HEIs in Pakistan, where 35% public and 15.5% private sector HEIs contributed. The distribution of the institutes across the provinces for public and private sector is shown in Figure 3. Apart from KP, more public sector HEIs were found to participate than private section HEIs. HEIs are required to submit their SDG contribution to at least 4 SDGs whereby submission to SDG 17 is mandatory (THE-Methdology, 2023). Each SDG is scored based on a predefined metric indicator by THE-IR team. The overall score presents the average of the top 4 contributing SDG. Table 1 shows the distribution of SDGs contribution across 71 participating institutes in the different provinces.

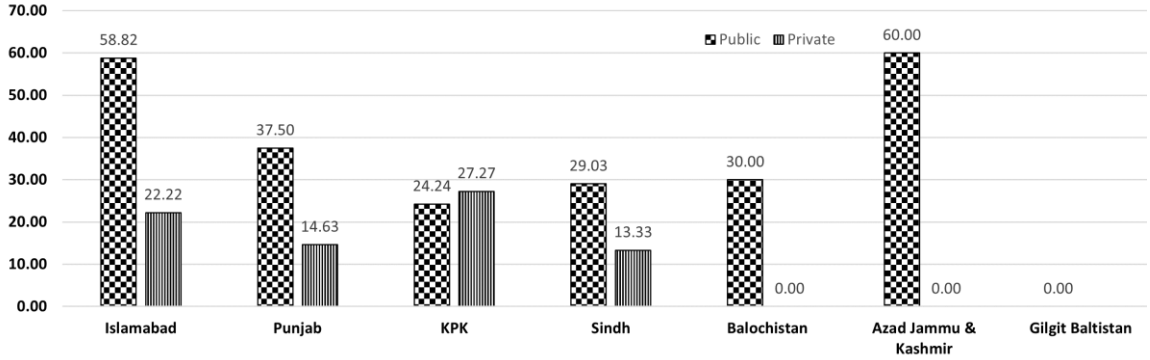

Figure 3. Percentage of HEIs in Pakistan participating in the Times Higher Education Impact Ranking 2023

Submission to SDG17 was 100% as it is mandatory in the evaluation process. SDG17 emphasizes the importance of cooperation between governments, the private sector, and civil society to achieve the other 16 SDGs. Without strong partnerships and collaborations, the ambitious targets of the SDGs would be difficult to achieve. In the remaining 16 SDGs, HEIs contributing more than 50%, in descending order, were SDG5(91.55%), SDG4(87.32%), SDG3(67.61%), SDG1(67.61%), SDG6(56.34%), SDG10(52.11%). The numbers in brackets represent the percentage of HEIs participating and contributing towards the SDG. The least contributing SDG was found to be SDG14 (19%), which is Life Below Water. We will discuss the top 6 SDGs excluding SDG17, their metric indicators and the leading HEI in public and private sector, ahead.

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Table 1.
Distribution in percentage of HEIs submissions in the THE-Impact Ranking SDGs

SDG/Province	Islamabad	Punjab	KPK	Sindh	Baluchistan	Kashmir	%-age contribution
SDG1: No Poverty	10	18	8	7	2	3	67.61%
SDG2: Zero Hunger	4	14	4	4	2	1	40.85%
SDG3: Good-Health and Well Being	8	20	6	12	1	1	67.61%
SDG4: Quality Education	11	24	11	12	2	2	87.32%
SDG5: Gender Equality	11	27	6	15	3	3	91.55%
SDG6: Clean water and sanitation	3	13	6	15	3	0	56.34%
SDG7: Affordable and Clean Energy	5	8	5	5	1	0	33.80%
SDG8: Decent work and economic growth	7	12	7	7	2	0	49.3%
SDG9:Industry, innovation and infrastructure	7	12	6	4	2	0	43.66%
SDG10: Reduced inequalities	9	17	4	5	2	0	52.11%
SDG11: Sustainable cities and communities	5	9	4	2	2	0	30.99%
SDG12: Responsible consumption and production	4	11	2	3	1	0	29.58%
SDG13: Climate Action	6	16	4	4	1	0	43.66%
SDG14: Life Below Water	3	4	3	3	1	0	19.72%
SDG15: Life on Land	3	6	3	3	1	0	22.54%
SDG16: Peace Justice and Strong Institutions	7	9	4	3	2	0	35.21%
SDG17:Partnership for the Goals	12	27	11	15	3	3	100%

SDG5- Gender Equality

In this SDG, the research conducted by universities on gender equality, their policies about gender equality, and their dedication to hiring and advancing women are the main factors considered. With this objective, six metrics has been defined by THE-IR. These metrics and their further details can be accessed from (THE, 2023) (THE-Methodology, 2023). The normalized weightage for the six defined metrics is shown in brackets.

a) Research publications on gender equality (0.27)
b) Proportion of first-generation female students (0.154)
c) Student access measures (0.154)
d) Proportion of senior female academics (0.154)
e) Proportion of women receiving degrees (0.115)
f) Women's progress measures (0.153)

Pakistan's higher education system comprises universities and colleges that offer various types of educational environments, including those that are exclusively for males, exclusively for females, and those that are co-educational. For HEIs that are 'female only' have no problem in excelling in this SDG, whereas HEIs with co-education work very hard to maintain the "Gender Equality" equilibrium. These institutes are often seen as promoting gender equality and providing students with exposure to diverse perspectives. Moreover, there are certain fields of study that have traditionally or culturally perceived as more

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suitable for women. These fields often align with societal expectations, interests, and perceived roles of women. Some examples include health sciences, education, social sciences, arts and humanities and business management. HEIs offering these degree programs would result in high rate of female admissions. We suggest that the evaluation procedure should reflect (a) gender proportion rather than gender promotion, (b) an indicator, such as, is the university exclusively for women? With these additions and modifications, the SDG5 would truly reflect a HEIs working hard towards this SDG accomplishment.

Given the pre-defined metric indicators, Ziauddin University, a private university, and Government College Women University Faisalabad, a public university, are ranked first in SDG5. Table 2 shows the top performing HEIs across public and private sectors in the different provinces. The Table shows the HEIs ranks, and score achieved by the THE-reviewer committee.

Table 2.
Top Public and Private Universities, contributing towards SDG5-Gender Equality, across the different Provinces in Pakistan - Outcome of THE-Impact ranking

Sector	Institution name	Province	Rank	Score
Public	Government College Women University Faisalabad	Punjab	5	76.8
	Dow University of Health Sciences	Sindh	201–300	56.1–61.4
	University of Karachi	Sindh	201–300	56.1–61.4
	Air University	Islamabad	301–400	51.6–56.0
	University of Poonch Rawalakot	Kashmir	301–400	51.6–56.0
	Hazara University Mansehra	KP	401–600	43.7–51.5
	Shaheed Benazir Bhutto Women University Peshawar	KP	401–600	43.7–51.5
	Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS)	Balochistan	1001	5.0–21.9
	University of Balochistan	Balochistan	1001	5.0–21.9
Private	Ziauddin University	Sindh	201–300	56.1–61.4
	National University of Computer and Emerging Sciences	Islamabad	801–1000	22.1–34.3
	Sir Syed University of Engineering and Technology	Islamabad	801–1000	22.1–34.3
	CECOS University of IT and Emerging Sciences	KP	801–1000	22.1–34.3
	City University of Science and Information Technology, Peshawar	KP	801–1000	22.1–34.3

SDG3-Good Health and Well Being

This SDG encompasses three main areas: the health of students and staff; support for healthcare professions; and research on major disorders and diseases that have a disproportionate impact on health outcomes globally. It does not represent a broad indicator of the quality of medical education and research at a university. For these objectives three metric indicators are devised and used towards impact ranking score. As mentioned previously, the weightage of each indicator is mentioned in brackets.

a) Research on health and well-being (0.27)
b) Number of students graduating in health professions (0.346)
c) Collaborations and health services (0.384)

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HEIs with health profession are most likely to excel in this SDG. In both public and private sectors, Sindh Universities Dow University of Health Sciences and Aga Khan University ranked 1st in this SDG. Table 3 shows top performing HEIs across different provinces in both sectors.

Table 3
Top Public and Private Universities contributing towards SDG3-Good health and wellbeing across the different Provinces in Pakistan - Outcome of THE-Impact ranking

Sector	Institution name	Province	Rank	Score
Public	Dow University of Health Sciences	Sindh	96	79.3
	University of Veterinary and Animal Sciences, Lahore	Punjab	301–400	63.9–68.2
	Shaheed Zulfiqar Ali Bhutto Medical University	Islamabad	401–600	54.7–63.8
	University of Balochistan	Balochistan	601–800	44.7–54.5
	University of Malakand	KP	801–1000	32.1–44.6
	University of Azad Jammu and Kashmir	Kashmir	801–1000	32.1–44.6
Private	Aga Khan University	Sindh	101–200	73.5–78.9
	University of Management and Technology	Punjab	301–400	63.9–68.2
	National University of Computer and Emerging Sciences	Islamabad	1001	1.0–32.0
	Sir Syed University of Engineering and Technology	Islamabad	1001	1.0–32.0
	CECOS University of IT and Emerging Sciences	KP	1001	1.0–32.0
	City University of Science and Information Technology, Peshawar	KP	1001	1.0–32.0

SDG4-Quality Education

The early years and lifetime learning contributions made by universities, their research on high-quality education, and their dedication to inclusive education are the main factors considered in this ranking. The table should not be used to judge the overall caliber of instruction at a university since lifelong learning and early years programs are not the primary goals of university education.

For SDG4, Quality Education, 4 metric indicators are devised with weightage mentioned in brackets.

a) Research on early years and lifelong learning education (0.27)
b) Proportion of graduates with teaching qualification (0.154)
c) Lifelong learning measures (0.268)
d) Proportion of first-generation students (0.308)

The Higher Education Commission (HEC) in Pakistan plays a crucial role in overseeing and regulating HEIs in the country. Established in 2002, the HEC operates as an autonomous body with the mandate to improve the quality of education, promote research and development, and ensure the overall development of higher education in Pakistan (HEC, 2024). For HEIs, SDG4 is very significant as it relates to the main objective of an institute – education. One of the high scored metric indicators corresponds to the proportion of first generation students. One strategy to achieve this indicator is via Online distance learning (ODL). ODL offers several advantages. This includes making education accessible, flexible,

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convenient to individuals who have work commitments, family responsibilities and is cost saving. In Pakistan, first generation students can and currently are taking advantage from it. Allama Iqbal Open University, which only provides ODL platform, has ranked 1st in public sector in SDG4. HEC had initiated ODL program but is yet to approve the policy. To further excel in this SDG, HEIs would benefit from having such programs. Table 4 shows the top performing HEIs in public and private across the different provinces. University of Wah, in the private sector, ranked 1st in this SDG.

Table 4.
Top Public and Private Universities contributing towards SDG4-Quality Education across the different Provinces in Pakistan-Outcome of THE-Impact ranking

Sector	Institution name	Province	Rank	Score
Public	Allama Iqbal Open University	Islamabad	25	80.4
	Fatima Jinnah Women University	Punjab	31	79.5
	University of Malakand	KP	101–200	66.6–73.0
	Dawood University of Engineering and Technology	Sindh	201–300	62.6–66.5
	Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS)	Balochistan	401–600	51.0–58.6
	University of Balochistan	Balochistan	401–600	51.0–58.6
	Mirpur University of Science and Technology	Kashmir	401–600	51.0–58.6
Private	University of Wah	Punjab	28	80.1
	Ghulam Ishaq Khan Institute of Engineering Sciences and Technology	KP	81	74.6
	Iqra University	Sindh	301–400	58.7–62.5
	National University of Computer and Emerging Sciences	Islamabad	601–800	43.6–50.9

Further, it would be beneficial to HEIs, if HEC could provide a road map that further guide them towards SDG4 attainment. HEC focuses on quality education through assessment of quality of academic programs in an institute, for which a Quality Enhancement Cell has been devised. Additional strategy to improve quality education with respect to SDG4 and the mentioned metrics should be initiated. This would further enhance HEIs contribution towards this SDG. Interestingly only 87% of the HEIs participated in SDG4, despite being a HEI. This proofs that HEIs lacks awareness towards the SDGs. This can be circumvented through general awareness sessions and seminars organized by HEC.

SDG1-No Poverty

This ranking is based on how well institutions understand poverty and assist low-income students and community members. For SDG1, No Poverty, 4 metric indicators and their weights are shown below.

a) Research on poverty (0.27)
b) Proportion of students receiving financial aid to attend university because of poverty (0.27)
c) University anti-poverty programs (0.23)
d) Community anti-poverty programs (0.23)

In this SDG, HEIs that are backed by international funding bodies and NGOs, are likely to contribute more towards anti-poverty programs. HEIs that allocate a percentage of their total budget towards this cause should also be given weightage, as not all HEIs have access

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to funding bodies. Aga Khan University, Sindh in private sector and University of Poonch Rawalakot, Kashmir in public sector ranked 1st in this SDG. Table 5 shows the contribution of top HEIs across each province and sector. University anti-poverty programs that are managed by university funds and not NGOs or international funding bodies should also be reflected.

Table 5.
Top Public and Private Universities contributing towards SDG1-No Poverty across the different Provinces in Pakistan-Outcome of THE-Impact ranking

Sector	Institution name	Province	Rank	Score
Public	University of Poonch Rawalakot	Kashmir	83	70
	Allama Iqbal Open University	Islamabad	87	69.4
	University of Veterinary and Animal Sciences, Lahore	Punjab	87	69.4
	Hazara University Mansehra	KPK	301–400	49.5–54.4
	Khyber Medical University	KPK	301–400	49.5–54.4
	Government College University Hyderabad	Sindh	401–600	38.2–49.4
	NED University of Engineering and Technology	Sindh	401–600	38.2–49.4
	Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS)	Balochistan	401–600	38.2–49.4
	University of Balochistan	Balochistan	401–600	38.2–49.4
Private	Aga Khan University	Sindh	70	71.7
	Superior University	Punjab	101–200	60.3–68.4
	CECOS University of IT and Emerging Sciences	KPK	401–600	38.2–49.4
	City University of Science and Information Technology, Peshawar	KPK	401–600	38.2–49.4
	Ghulam Ishaq Khan Institute of Engineering Sciences and Technology	KPK	401–600	38.2–49.4
	National University of Computer and Emerging Sciences	Islamabad	601–800	23.3–38.1

SDG6- Clean Water and Sanitation

This ranking is based on how much water-related research institutions perform, how much water they consume, and how committed they are to making sure the larger community has good water management. For SDG6, 5 metric indicators and their weights are shown below.

a) Research on clean water and sanitation (0.27)
b) Water consumption (0.19)
c) Water usage and care (0.23)
d) Water reuse (0.12)
e) Water in the community (0.19)

Clean water and sanitation typically falls under various degree programs in the field of Environmental Engineering, Environmental Science, or Civil Engineering. These programs often cover topics related to water resources management, water treatment technologies, wastewater treatment, environmental health, and sanitation systems. HEIs offering such programs can contribute towards this SDG. HEIs participating in this SDG are ranked in Table 6. HEIs can educate both students and the public about the importance of clean water and proper sanitation practices. This can include incorporating water-related topics into the curriculum, organizing workshops, seminars, and awareness campaigns, and utilizing various media platforms to disseminate information. HEIs can also engage with local communities to address water-related challenges and implement sustainable solutions. This could involve

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partnering with community organizations, conducting outreach programs, and involving community members in water management and conservation projects.

Table 6.
Top Public and Private Universities contributing towards SDG6 -Clean water and sanitation across the different Provinces in Pakistan- Outcome of THE-Impact ranking

Sector	Institution name	Province	Rank	Score
Public	COMSATS University Islamabad	Islamabad	26	81.3
	Government College Women University Faisalabad	Punjab	201–300	49.3–57.0
	Government College University Hyderabad	Sindh	201–300	49.3–57.0
	Hazara University Mansehra	KP	401–600	24.8–42.6
	University of Malakand	KP	401–600	24.8–42.6
	Balochistan University of Engineering and Technology, Khuzdar	Balochistan	401–600	24.8–42.6
	University of Balochistan	Balochistan	401–600	24.8–42.6
Private	University of Lahore	Punjab	201–300	49.3–57.0
	National University of Computer and Emerging Sciences	Islamabad	401–600	48.4–57.7
	Ghulam Ishaq Khan Institute of Engineering Sciences and Technology	KP	401–600	24.8–42.6
	Ilma University	Sindh	401–600	24.8–42.6

SDG10- Reduced Inequalities

The research that universities do on social inequality, their anti-discrimination laws, and their dedication to hiring faculty and students from underrepresented groups are the main factors that go into this ranking. For SDG10, 5 metric indicators and their weights are shown below.

a) Research on reduced inequalities (0.27)
b) First-generation students (0.155)
c) Students from developing countries (0.155)
d) Students and staff with disabilities (0.23)
e) Measures against discrimination (0.19)

Even though almost all HEIs in Pakistan have need-based scholarship programs, are equal opportunity organizations, and have anti-harassment and anti-discrimination policies in place, only 52.11% of them took part in this SDG. Table 7 displays the top performing HEIs in this SDG. Another conclusion to be drawn from this analysis is that, despite HEIs' contributions to sustainability, these efforts go unreported and unnoticed. Therefore, HEC should implement measures that encourage HEIs to take part and document their accomplishments and one-way to expedite the process is through participation in impact ranking forums.

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Table 7.
Top Public and Private Universities contributing towards SDG10-Reduced Inequalities across the different Provinces in Pakistan - Outcome of THE-Impact ranking

Sector	Institution name	Province	Rank	Score
Public	Government College University Lahore	Punjab	201–300	57.6–65.1
	University of Malakand	KP	301–400	51.8–57.5
	COMSATS University Islamabad	Islamabad	401–600	40.0–51.7
	National University of Modern Languages (NUML)	Islamabad	401–600	40.0–51.7
	Quaid-i-Azam University	Islamabad	401–600	40.0–51.7
	Lahore College for Women University (LCWU)	Punjab	401–600	40.0–51.7
	NED University of Engineering and Technology	Sindh	601–800	25.6–39.9
	Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS)	Balochistan	601–800	25.6–39.9
	University of Balochistan	Balochistan	601–800	25.6–39.9
Private	Ilma University	Sindh	301–400	51.8–57.5
	University of Central Punjab	Punjab	401–600	40.0–51.7
	University of Wah	Punjab	401–600	40.0–51.7
	National University of Computer and Emerging Sciences	Islamabad	801	3.9–25.5
	Sir Syed University of Engineering and Technology	Islamabad	801	3.9–25.5

Conclusion

Pakistan's Higher Education Institutions (HEIs) are striving to support the UN 2030 Agenda, which aims to achieve the 17 Sustainable Development Goals. An insight to HEI's contribution to this cause can be gained from the Times Higher Education Impact ranking score. Through data analytics we conclude that HEIs in the public sector are more dedicated to accomplishing and mainstreaming the SDGs than those in the private sector, with 35% of public and 15% of private HEIs contributing to the ranking. HEIs were found to contribute to a subset of SDGs where participation of more than 50% were found in SDG1 No Poverty, SDG 3 Good Health and Wellbeing, SDG4 Quality Education, SDG5 Gender Equality, SDG6 Clean water and sanitation and SDG10 Reduced inequalities. HEIs benefiting from international funding bodies and NGOS were found to excel in SDG1. SDG5 gender equality should be applicable to HEIs with co-educational environment. SDG3 is found to be easily accomplished by HEIs offering health programs. Only 87% of the participating HEIs contributed towards SDG4 which represents Quality Education. Since the SDG captures the mission of HEIs, it should be regarded as mandatory. HEC's role in creating a roadmap towards achieving the SDG4 target is crucial. It includes approving regulations for initiating online distance learning programs, enhancing lifelong learning initiatives, and holding seminars or awareness sessions about the SDGs.

Future work in this direction includes monitoring trends and progress of HEIs participation and comparative analysis of impact ranking score across different years. Pakistan's journey towards achieving the SDGs remains a challenge, but with administration's commitment and an established institutional framework, a solid foundation for progress is possible. By addressing resource constraints, strengthening governance, prioritizing climate resilience, and fostering inclusive development, Pakistan can translate its goals into tangible improvements for its people and secure a more sustainable future for

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generations to come. Beyond rankings, contributions from Pakistan's HEIs to the SDGs demonstrates inclusivity and collaboration towards a shared goal as a global community.

Policy Recommendations

Given the insight into the THE-IR metrics and the performance of HEIs in Pakistan, further improvement is possible by incorporating the following policies and ideas into practice.

Policy Recommendations for HEC

a) Only 27% HEIs (Figure 2) from Pakistan participated in the THE-IR. In order to increase the participation of HEIs towards THE-IR, currently there exists no policy by HEC that enforces institutes to map their performance based on SDGs. HEC should initiate a policy regarding SDGs and should award institutes that are contributing into their national ranking mechanisms.
b) Other ways to map SDGs in a HEI is to map the curriculum to their respective SDGs. i.e. HEIs should integrate SDG-related subjects and sustainability ideas into their curriculum across academic areas. Currently Outcome Based Education has been mapped into the scheme of studies of many academic programs to reflect psychomotor, cognitive and affective domains. HEC should devise a policy for SDG-based curricula mapping, creating fresh curricula, educational modules, and programs with an emphasis on sustainability in addition to incorporating chances for experiential learning like internships and service-learning initiatives.

Policy Recommendations for HEIs

a) As a top priority, HEI's strategies and mission statements should include and reflect SDGs, whether the SDGs are reflected in the academic programs level or at the institutional level. With this HEIs clearly shows that one is committed to sustainable development by coordinating academic, research, and operational efforts in line with the SDGs' objectives.
b) HEIs should encourage students to participate in sustainable projects. Some strategies include helping student coordinating, organizing sustainability initiatives on campus, and honoring sustainability-related accomplishments of students.
c) HEIs should actively collaborate and form partnerships for sustainable development with other universities, local communities, businesses, NGOs, and government agencies. Diversity, equity, and inclusion should also be given top priority by HEIs in all facets of their operations and initiatives by creating a campus climate that values diversity and advances social justice in addition to guaranteeing that all students, instructors, and staff have equitable access to education and opportunity.
d) Moreover, research and innovation projects, whether grants or FYDPs that directly address any SDGs should receive funding from HEIs. This comprises multidisciplinary research initiatives, collaborations with businesses and governmental organizations, and financial options that are especially meant to promote sustainable development solutions. Currently, HEC is playing a pivotal role in improving the research landscape. While at the provincial level Khyber Pakhtunkhwa Directorate of Science and Technology (DOST) has initiated many research initiatives in this direction.

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e) Finally, HEIs should publish their progress towards the SDGs, in the form of an SDG report, with greater accountability and openness. This entails keeping a close eye on their performance, assessing it on a regular basis, recording its effects, and clearly and readily informing stakeholders of the outcomes.

Policy Recommendations for THE

a) THE-IR has allocated research publications as a metric in all the SDGs. Apart from research publication, final year design projects (FYDP) which is a mandatory requirement for many degrees should also be integrated in the metric score as these FYDPs contribute to various SDGs.

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The author(s) claimed that Grammarly and ChatGPT are used in this research just for the purpose of improving the language of the manuscript. No further use of these technologies are also confirmed by the author(s) to write different parts of the research. One native speaker of English is also invited to proof-read the text prior to its online publication.

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