



**ZIAUDDIN  
UNIVERSITY**

**ZU-SUSTAINABLE DEVELOPMENT  
GOALS (SDG) REPORT**

**2024-2025**

## Executive Summary

Ziauddin University (ZU) stands at the forefront of Pakistan’s higher education institutions in aligning its strategy with the United Nations Sustainable Development Goals (SDGs). This 2025 report integrates *qualitative and quantitative evidence* to present ZU’s measurable progress toward environmental sustainability, social inclusion, and technological innovation.

## Institutional Overview

Total Campuses	7
Total Area	472,262 m <sup>2</sup>
Open Green Space	425,045 m <sup>2</sup> (90.05%)
Renewable Energy Ratio	97.12%
Annual Clean Energy Generation	7.28 million kWh
Budget Allocated to Sustainability	17.9%
Reduction in CO <sub>2</sub> Emissions (2021–2024)	18%

## Part I – Environmental Sustainability (SDGs 6, 7, 9, 11, 12, 13, 14, and 15)

### SDG 6 – Clean Water and Sanitation

ZU ensures efficient water management through RO plants, wastewater reuse, rainwater harvesting, and smart irrigation systems.

- **Permeable land:** 110,224 m<sup>2</sup> for groundwater recharge
- **Greywater reuse:** 30% of irrigation water
- **Outcome:** Improved water sustainability and universal access to treated drinking water across all campuses.

### SDG 7 – Affordable and Clean Energy

ZU operates over 700 kW solar capacity, supported by biomass and co-generation systems.

- **Renewable energy share:** 97.12%
- **Clean energy output:** 7.28 million kWh/year
- **Energy efficiency:** 82% across appliances
- **Impact:** Lowered fossil fuel dependence, reduced institutional emissions, and national recognition for clean energy innovation.

### SDG 9 – Industry, Innovation, and Infrastructure

ZU integrates IoT sensors, automation, and smart energy systems across its 147,000 m<sup>2</sup> of infrastructure.

- **100% of new buildings** incorporate at least 5 smart features

- **6 IoT monitoring systems** for environmental quality
- **2 national innovation awards** for sustainable infrastructure
- **Impact:** Advances climate-smart campus operations and sustainable research ecosystems.

### **SDG 11 – Sustainable Cities and Communities**

ZU's campus planning emphasizes resilience, accessibility, and urban greening.

- **Open space ratio:** 90.05%
- **Emergency response time:** <5 minutes
- **Civil Defence safety certification:** 7 campuses
- **Impact:** Promotes safety, livability, and green mobility within academic communities.

### **SDG 12 – Responsible Consumption and Production**

Through digitalization, waste segregation, and recycling, ZU minimizes its ecological footprint.

- **Waste reduction:** 30% since 2022
- **Recycling rate:** 30%
- **Paper reduction:** 40%
- **Impact:** Fosters a circular economy model within higher education.

### **SDG 13 – Climate Action**

ZU's Climate Action Plan drives emission reduction, afforestation, and awareness.

- **Carbon footprint:** 3,717.67 metric tons CO<sub>2</sub>
- **Green cover:** 172,000+ m<sup>2</sup>
- **Trees planted:** 5,000+ annually
- **Initiatives:** Green Waqf, climate dialogues, research on smart sensors.
- **Impact:** Institutional contribution to Pakistan's Nationally Determined Contributions (NDCs).

### **SDG 14 – Life Below Water**

- **Initiatives:** Chemical-free VR labs, water reuse in aquaculture
- **Achievements:** 100% reduction in toxic lab chemicals; 30% recycled water usage
- **Impact:** Conserves aquatic ecosystems and promotes responsible water use.

### **SDG 15 – Life on Land**

ZU's biodiversity programs include urban forests, aviaries, orchards, and research-based conservation.

- **Green/forest vegetation:** 36.52% of campus area
  - **Total vegetated area:** 142,498 m<sup>2</sup>
  - **Partnership:** Sindh Forest Department (Green Pakistan Program)
  - **Impact:** Strengthens biodiversity protection and ecological resilience.
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## **PART II – SOCIAL AND ECONOMIC IMPACT (SDGs 1, 2, 3, 4, 5, 8, 10, 16, and 17)**

### **SDG 1 – No Poverty**

ZU invests in community development, scholarships, and affordable transport.

- **Budget allocation:** 17.9% toward welfare and sustainability
- **Beneficiaries:** 5,000+ annually
- **Impact:** Reduces economic barriers and improves social inclusion.

### **SDG 2 – Zero Hunger**

ZU sustains greenhouses, orchards, and compost-based farming for food security.

- **Cultivation area:** 10,000+ m<sup>2</sup>
- **100% organic compost use**
- **Impact:** Promotes sustainable agriculture and student engagement in food science.

### **SDG 3 – Good Health and Well-being**

Through five hospitals, wellness centers, and 24/7 emergency facilities, ZU enhances healthcare access.

- **Coverage:** 100% staff medical insurance
- **10,000+ individuals served annually**
- **Impact:** Integrates health and education for community resilience.

## **SDG 4 – Quality Education**

ZU advances inclusive, ICT-integrated education and research.

- **ICT-integrated classrooms:** >90%
- **Digital resources:** 20,000+
- **Paper reduction:** 40%
- **Impact:** Expands equitable access to digital learning while conserving resources.

## **SDG 5 – Gender Equality**

ZU promotes gender equity in education and employment.

- **Female students:** 52%
- **Female faculty:** 45%
- **Daycare and maternity benefits:** 100% compliance
- **Impact:** Empowers women across all institutional levels.

## **SDG 8 – Decent Work and Economic Growth**

ZU's green jobs, vocational programs, and research funding foster sustainable growth.

- **Employment:** 3,500+ individuals
- **Green jobs:** Created under campus sustainability projects
- **Impact:** Drives Pakistan's green economy and supports decent employment.

## **SDG 10 – Reduced Inequalities**

ZU maintains fully accessible campuses and inclusive education policies.

- **Accessibility:** 100% buildings equipped with ramps/elevators
- **Scholarships:** 100+ students from marginalized backgrounds
- **Impact:** Ensures equal opportunity and diversity in higher education.

## **SDG 16 – Peace, Justice, and Strong Institutions**

- **Ethical governance, safety protocols, grievance redressal** mechanisms.
- **Civil Defence compliance:** 100%
- **Impact:** Promotes institutional transparency and trust.

## **SDG 17 – Partnerships for the Goals**

ZU collaborates with ICCIA, Sindh Forest Department, NGOs, and UN initiatives.

- **Collaborations:** 10+ national/international
  - **Cross-sector partnerships:** 5
  - **Impact:** Strengthens Pakistan’s academic contribution to global sustainability.
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## **PART III – INNOVATION, RESEARCH, AND TECHNOLOGY FOR SUSTAINABILITY (SDGs 4, 7, 9, 13, and 17)**

ZU integrates cutting-edge technologies into education and sustainability research:

- **Virtual simulation labs, IoT energy monitoring, and AI-based air quality systems.**
  - **Research Initiatives:** Vertical Axis Wind Turbine project, Green Waqf framework, smart environmental sensors.
  - **Outcome:** Strengthened interdisciplinary innovation aligned with SDG-driven research goals.
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**Ziauddin University – SDG-Aligned Sustainability Report (With Quantitative Indicators)**

***Comprehensive Edition for Institutional and International Reporting***

<b>SDG No.</b>	<b>Goal Title</b>	<b>Key University Initiatives / Evidence</b>	<b>Performance Indicators / Metrics</b>	<b>Outcomes / Impact</b>
<b>SDG 1: No Poverty</b>	End poverty in all its forms everywhere	<ul style="list-style-type: none"> <li>• Subsidized shuttle service for students &amp; staff across all campuses.</li> <li>• Health outreach clinics in low-income areas.</li> <li>• Student financial aid and community development engagement.</li> </ul>	<ul style="list-style-type: none"> <li>• 17.9% of annual university budget allocated to sustainability &amp; community welfare.</li> <li>• 5,000+ beneficiaries of subsidized health and education support programs annually.</li> </ul>	Reduces financial barriers, enhances community well-being, and promotes inclusive access to education and healthcare.
<b>SDG 2: Zero Hunger</b>	End hunger, achieve food security, and promote sustainable agriculture	<ul style="list-style-type: none"> <li>• Campus orchards, greenhouses, and livestock farms at Link Road &amp; Sukkur.</li> <li>• Compost-based vegetable and fruit farming for internal use.</li> </ul>	<ul style="list-style-type: none"> <li>• &gt;75% of conservation initiatives implemented.</li> <li>• Over 10,000 m<sup>2</sup> allocated to orchards &amp; greenhouse food cultivation.</li> <li>• 100% organic composting for soil enrichment.</li> </ul>	Enhances food security, supports agricultural research, and provides practical agri-learning environments.
<b>SDG 3: Good Health and Well-being</b>	Ensure healthy lives and promote well-being for all	<ul style="list-style-type: none"> <li>• 5 major Dr. Ziauddin Hospitals integrated into campus operations.</li> <li>• On-campus gyms, wellness</li> </ul>	<ul style="list-style-type: none"> <li>• 24/7 emergency medical access.</li> <li>• 100% staff covered under medical insurance.</li> <li>• Hospital collaboration with</li> </ul>	Strengthens healthcare accessibility and public health resilience, fostering a healthy learning community.

		centers, daycare, and first aid units. <ul style="list-style-type: none"> <li>• Smart Airborne Infection Isolation Rooms (All).</li> </ul>	Rescue & Civil Defence certified for safety.	
<b>SDG 4: Quality Education</b>	Ensure inclusive and equitable quality education	<ul style="list-style-type: none"> <li>• Smart classrooms and CMS-integrated learning management systems.</li> <li>• Virtual Reality simulation labs (Dental, Anatomy).</li> <li>• ZU Digital Library reducing physical material use.</li> </ul>	<ul style="list-style-type: none"> <li>• &gt;90% classrooms ICT-integrated.</li> <li>• Over 20,000 digital resources available via e-library.</li> <li>• Reduced paper usage by ~40% through digitalization.</li> </ul>	Expands equitable access to modern education and enhances sustainability through reduced resource consumption.
<b>SDG 5: Gender Equality</b>	Achieve gender equality and empower all women and girls	<ul style="list-style-type: none"> <li>• Daycare centers, maternity policy, girls' common rooms.</li> <li>• Programs on women's leadership and well-being.</li> </ul>	<ul style="list-style-type: none"> <li>• 100% compliance with maternity benefits.</li> <li>• 52% of enrolled students are female.</li> <li>• Gender-responsive spaces on every campus.</li> </ul>	Promotes female empowerment, participation, and equality in education and employment.
<b>SDG 6: Clean Water and Sanitation</b>	Ensure availability and sustainable management of water	<ul style="list-style-type: none"> <li>• RO plants, wastewater reuse, and sprinkler irrigation systems.</li> <li>• 110,224 m<sup>2</sup> water</li> </ul>	<ul style="list-style-type: none"> <li>• 23.34% of total area designated for water absorption.</li> <li>• 100% campuses have treated drinking water.</li> <li>• 30% of irrigation</li> </ul>	Improves water sustainability, enhances reuse efficiency, and supports clean water access for all.

		<p>absorption areas for infiltration.</p> <ul style="list-style-type: none"> <li>• Water efficiency systems integrated into smart buildings.</li> </ul>	<p>from recycled greywater.</p>	
<b>SDG 7: Affordable and Clean Energy</b>	<p>Ensure access to affordable, reliable, sustainable energy</p>	<ul style="list-style-type: none"> <li>• 700+ kW solar PV across campuses.</li> <li>• Co-generation and biomass systems.</li> <li>• Energy-efficient LED, inverter-based HVAC.</li> </ul>	<ul style="list-style-type: none"> <li>• 97.12% renewable energy ratio.</li> <li>• 7.28 million kWh clean energy generated annually.</li> <li>• 82% appliance efficiency average.</li> </ul>	<p>Minimizes carbon emissions, lowers grid dependence, and sets a national benchmark for green energy in education.</p>
<b>SDG 8: Decent Work and Economic Growth</b>	<p>Promote inclusive economic growth and employment</p>	<ul style="list-style-type: none"> <li>• Sustainability-focused budget and projects.</li> <li>• On-campus employment for green maintenance teams.</li> <li>• Technical training in renewable and ICT sectors.</li> </ul>	<ul style="list-style-type: none"> <li>• 17.9% of annual budget invested in sustainability.</li> <li>• Dozens of jobs created under green campus programs.</li> </ul>	<p>Drives green employment, supports Pakistan’s SDG-8 targets, and fosters economic resilience.</p>
<b>SDG 9: Industry, Innovation, and Infrastructure</b>	<p>Build resilient infrastructure and foster innovation</p>	<ul style="list-style-type: none"> <li>• Smart building systems, automation, and IoT environmental sensors.</li> <li>• Renewable energy R&amp;D (Vertical Axis</li> </ul>	<ul style="list-style-type: none"> <li>• 100% of new buildings integrate at least 5 smart features.</li> <li>• 6 IoT monitoring devices deployed.</li> <li>• 2 national-level innovation awards in energy efficiency.</li> </ul>	<p>Advances sustainable engineering innovation and promotes climate-smart infrastructure.</p>

		Wind Turbine project).		
<b>SDG 10: Reduced Inequalities</b>	Reduce inequality within and among countries	<ul style="list-style-type: none"> <li>• Accessibility infrastructure (ramps, elevators, Braille signage).</li> <li>• Scholarships for marginalized students.</li> <li>• Regional expansion to interior Sindh (Sukkur Campus).</li> </ul>	<ul style="list-style-type: none"> <li>• 100% buildings accessible to special needs individuals.</li> <li>• 100+ students benefit annually from inclusive education programs.</li> </ul>	Improves inclusion and equity in access to education and facilities.
<b>SDG 11: Sustainable Cities and Communities</b>	Make cities inclusive, safe, resilient, and sustainable	<ul style="list-style-type: none"> <li>• Green campus design (472,262 m<sup>2</sup> total area; 90% open).</li> <li>• Urban forests and green mobility systems.</li> <li>• Fire safety and disaster response compliance.</li> </ul>	<ul style="list-style-type: none"> <li>• 425,045 m<sup>2</sup> open green space (90.05%).</li> <li>• Response time &lt;5 minutes for emergencies.</li> <li>• 7 campuses certified with Civil Defence safety compliance.</li> </ul>	Develops resilient, eco-friendly, and safe academic communities.
<b>SDG 12: Responsible Consumption and Production</b>	Ensure sustainable consumption and production	<ul style="list-style-type: none"> <li>• 3R waste segregation, composting, and recycling.</li> <li>• Digital library replacing physical books.</li> <li>• Awareness programs on resource efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>• 100% segregation with color-coded bins.</li> <li>• 30% of waste recycled or composted.</li> <li>• 40% paper use reduction via digital systems.</li> </ul>	Encourages responsible resource use and reduces institutional waste footprint.

<b>SDG 13: Climate Action</b>	Take urgent action to combat climate change	<ul style="list-style-type: none"> <li>• Green Waqf Initiative, climate dialogues, afforestation programs.</li> <li>• Renewable energy transition and GHG reduction tracking.</li> </ul>	<ul style="list-style-type: none"> <li>• Total carbon footprint: 3,717.67 metric tons CO<sub>2</sub>.</li> <li>• &gt;172,000 m<sup>2</sup> reforested areas.</li> <li>• 4 major climate action events annually.</li> </ul>	Strengthens institutional climate resilience and supports Pakistan's NDC targets.
<b>SDG 14: Life Below Water</b>	Conserve and sustainably use aquatic ecosystems	<ul style="list-style-type: none"> <li>• VR labs replacing chemicals that pollute water.</li> <li>• Water reuse in aquaculture and irrigation systems.</li> </ul>	<ul style="list-style-type: none"> <li>• 100% reduction in formaldehyde &amp; dental chemicals in labs.</li> <li>• Sustainable water use at 30% recycling efficiency.</li> </ul>	Protects marine ecosystems and promotes water stewardship.
<b>SDG 15: Life on Land</b>	Protect, restore, and promote sustainable terrestrial ecosystems	<ul style="list-style-type: none"> <li>• Forest, aviary, and orchard development across campuses.</li> <li>• Collaboration with Sindh Forest Department under Green Pakistan Program.</li> </ul>	<ul style="list-style-type: none"> <li>• 36.52% campus area covered in green/forest vegetation.</li> <li>• 142,498 m<sup>2</sup> planted vegetation.</li> <li>• Annual plantation &gt;5,000 trees.</li> </ul>	Conserves biodiversity and contributes to Pakistan's afforestation goals.
<b>SDG 16: Peace, Justice, and Strong Institutions</b>	Promote peaceful and inclusive societies	<ul style="list-style-type: none"> <li>• Fire, safety, and ethical policy enforcement.</li> <li>• Transparent governance and stakeholder engagement.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual safety inspections (100% compliance).</li> <li>• Civil Defence certification for all main sites.</li> <li>• Multi-level grievance redressal policy.</li> </ul>	Builds a culture of safety, accountability, and institutional trust.

<b>SDG 17: Partnerships for the Goals</b>	Strengthen global partnerships for sustainable development	<ul style="list-style-type: none"> <li>• MoUs with ICCIA, Green Pakistan Program, NGOs, and academic partners.</li> <li>• Participation in Pakistan Sustainability Week &amp; UN events.</li> </ul>	<ul style="list-style-type: none"> <li>• 10+ national/international collaborations.</li> <li>• 5 cross-sector partnerships in sustainability domains.</li> <li>• Annual SDG dialogue and reporting to GreenMetric.</li> </ul>	Strengthens institutional collaboration and accelerates collective SDG achievement.
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**CONCLUSION**

Ziauddin University has established a comprehensive SDG implementation model that merges policy, infrastructure, education, and research. Through evidence-based sustainability metrics, ZU reinforces its role as a national benchmark for green universities.

Its ongoing commitment to clean energy, inclusive education, environmental conservation, and social welfare aligns seamlessly with Pakistan’s Vision 2030 and the United Nations 2030 Agenda.