

HAZARA UNIVERSITY, MANSEHRA PAKISTAN

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**SECOND
SUSTAINABILITY REPORT 2022**



Directorate Quality Enhancement

PREFACE

Hazara University established in year 2001 and since its establishment is committed towards sustainable development. In this regard this First ever report on sustainable development is presented and published. Though the University sustainability is a smooth wave, however till now it could be divided into four phases. The first phase from 2001 till 2005 (the year of devastation by the Oct 2005 earth-quack) when the initiation of the university with appointment of the first Vice Chancellor occurred and initial plantations and consideration towards sustainability started. The 2nd phase is from 2006 till 2016, when a lot of plantation campaigns conducted, preserving the old trees on campus, taking measures for sustainability in new constructions was practiced. The third phase from 2016 to till date, the lawns, footpaths, natural ventilated and natural lighted building as per international standards observation were looked into. Green plantation was enhanced many folds and the existing on campus greenery were given new modes in terms of not only in sustainability but in beauty shaping as well. During this phase, the University attained place in the UI GREEN Metric worlds ranking and improved its ranking in 2020 to 567th position. This First Sustainability Report of Hazara University is published with the aim to report on progress in the commitment of the University to sustainable development covering the breadth of contribution that Hazara University has made to the sustainable development agenda.

In order to improve and enhance its impact on sustainability in different manners and in many & various ways including campus infrastructure settings, institutional policies and strategies, curriculum, and community engagement, the Hazara University has explored the issue of sustainability in length. The report outlines key achievements, summarizes performance and provides detailed evidence and data with reference to published documentation (where needed its inclusion as appropriate). The report also highlights the diverse sustainability initiatives in progress across the campus and looks ahead to those planned for 2021 onwards.

The gross plan and much improvement towards the sustainability policy is observed within the third phase from year 2016 to 2019 during the leadership of the then Vice Chancellor who motivated the administration on focusing towards sustainable quality development. It was then that the University led in transforming the Main Campus of the University into a live-sustainable-condition based on neutralizing-carbon policy. The sitting Hon. Vice Chancellor's interest in further improving the Green Campus has also added the enthusiasm among the faculty, staff and students to ensure, maintain and improve the Green-campus-neutral-carbon status. He address the challenges in every university forum which he chairs, and monitor the progress of all the activities related to sustainability. The Hazara University has taken up the target to lead its campus among all the Higher Education Institutions of Pakistan in becoming the top sustainable campus

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UNIVERSITY MANAGEMENT

- **Dr Jamil Ahmad**, Vice Chancellor
- **Prof Dr Mohsin Nawaz**, Pro Vice Chancellor
- **Mr. Shakil Ahmad**, Registrar
- **Col (R) Saleem Raza**, Director Works
- **Lt Cdr. (R) Dr Mahmood Khan**, Director Quality Enhancement
- **Dr Mansoor Bangash**, Director ORIC
- **Jehanzeb Khatak**, Director Administration
- Director, Academic & Research
- Director, Health & Physical Education
- Director, Student Service Centre
- Director, Trainings
- Controller Examination
- Provost

ACADEMIC MANAGEMENT

- **Prof Dr Mohsin Nawaz**, Dean Faculty of Natural and Computational Sciences
- **Prof Dr Jamil Ahmad**, Dean Faculty of Arts
- **Prof Dr Inham Ullah**, Dean Faculty of Health Science
- **Prof Dr Azkia Hashmi**, Dean Faculty of Law & Management Science

SUSTAINABILITY LEADERSHIP

- ☐ Prof Dr Jamil Ahmad, Vice Chancellor
- ☐ Lt Cdr (R) Dr. Mahmood Khan, Director Quality Enhancement
- ☐ Dr. Arif Iqbal Umar, Sustainable Officer/Beatification In charge
- ☐ Mr. Aurangzeb Khan, Deputy Director Quality Enhancement, (Focal Person University Rankings)
- ☐ Engr. Col. Saleem Raza, Director Works
- ☐ Dr. Ali Bahadar, Director Academics
- ☐ Dr. Zar Gul, Principal Medical Officer
- ☐ Mr. Abid Rafique, Transport Officer
- ☐ Engr. Ijaz Ahmad, Electrical Engineer
- ☐ Engr. Ali Zameer, Civil Engineer
- ☐ Mr. Amjad Khan, Manager ORIC
- ☐ Waqar Azeem Jadoon, Assistant Professor (Environmental Sciences)
- ☐ Mr. Riaz, Head of Plantations
- ☐ Mr. Sohail, Photographer

SUSTAINABILITY REPORT 2022

Hazara University Mansehra, KP, Pakistan

1. VISION

Hazara University intends to be a standard university providing affordable quality educational opportunities for students to develop scientific, socio-culture, economic and political leadership, through learner-centered teaching and research, while strengthening their identity at Regional, National and International level.

2. MISSION

The mission of Hazara University is to impart knowledge in the fields of emerging and social sciences as well as liberal arts inculcating the universal values of truth, beauty and goodness among the younger generations, on the one hand, and to provide a befitting research base for contributing original research to the world research pool for the service of mankind, on the other. It further aims at imbuing the students with higher and nobler ideals of Islam and socializing them into well-rounded persons ever ready to serve their own nation, the Ummah and humanity at large. The Emblem of the University has the motto derived from the Holy Quran, an injunction from Almighty Allah meaning "Get Knowledge". The Emblem has snow-covered mountains of Kaghan in the backdrop and the Siran River in the foreground, having Deodar trees on its bank. Deodar tree has the symbolic significance of slow, steady and sure growth spreading over centuries. The mission of the University, therefore, is to impart education systematically, gradually but surely spreading over centuries. The objective of the University, therefore, is to impart universal education systematically and gradually but surely to the coming generations of students for over indefinitely remote and distant future with Godspeed. "The emblem of the University was approved in its present design by its faculty, 'Ullema' and the Syndicate in 2003.

3. QUALITY POLICY

In present era, Higher Education System in Pakistan is evolving, passionately expanding and realizing the role of learning outcome initiatives in quality assurance framework, academic performance and academic audits. Well defined objectives are anticipately heeded for propitious output, which not only administer clear understanding of educational value to students, employers & stakeholders, but also foresee to boost institutional and learning improvement in monitoring Programs, curriculum development, teaching practices and methodologies. Such clear-cut decisive out-comes and set processes undertake better control of educational quality what has been supposed intangible in the academic quality assurance accountability. For this purpose, policy guidelines are devised to regulate the processes in an aligned manner. These policy guidelines will help to settle Hazara University Quality Policy with National and International standards and best practices.

Aim

The Quality Assurance Policy of Hazara University aims to strengthen the Quality Culture in learning & research activities, enhance the quality of research output and provide support for implementing National and International standards.

Vision

To aim for Quality Education on Continual basis at Hazara University through quality practices, inputs and by implementing world class Quality Standards.

Mission*

The Directorate of Quality Enhancement (DQE) is devoted to continually enhance excellence in the institutional processes by uplifting the spirit of focusing on quality delivery of educational services, to achieve satisfaction of stakeholders/students and to promote public confidence that the standards of the award of degrees are enhanced and safeguarded.

Quality Assurance Policy Statement:

To promote quality culture in higher education & research at HU based on self-assessing, to obtain improved outcome in view of the University's main vision/objectives duly in compliance to the HU Mission.

a. Compliance with Statutory Requirements

Hazara University ensures that every individual working for or studying in HU shall comply with the University Act, Statutes, Regulations, Rules and Policies.

b. Basic Principle of Quality Assurance Policy

Hazara University will serve the community and meet the challenging needs of national and international market by providing quality higher education through effective and efficient quality assurance system underpinned by quality teaching, learning and research. University will also inculcate ethical values in students through its programs to become better citizens. The QA policy of Hazara University is having a holistic approach, based on self-assessment keeping focus on Quality improvement through comprehensive framework.

c. Students' Focus

Students are direct customers of the university; therefore, HU is committed to produce highly qualified manpower related to multidisciplinary fields. University ensures meeting students' professional needs and expectations and appreciates their role to participate in maintaining progressive learning environment.

d. Stakeholders Focus

Every stakeholder is important to the university, therefore HU endeavors to provide encouraging, flexible, empowered, cohesive and congenial working environment to create, assimilate and analyze knowledge for the ultimate benefit of academia, industry, government and society.

e. Knowledge Creation and Dissemination

HU is focused on conducting multidisciplinary research in order to create knowledge to resolve political, socio, technological and environmental issues and to disseminate this knowledge through trainings, workshops, conferences and research journals to various national and international institutions.

f. Business Startup

Hazara University is focused on facilitating startups and creating businesses based on multidisciplinary fields.

g. Linkages and Networking

HU establishes strong ties with various national and international universities, industries, INGOs, NGOs, organizations and government.

h. Optimization of Resources

HU is focused that the Human Capital, infrastructure and financial resources must be utilized optimally for accruing and sustaining benefits.

i. Environment Friendly

HU is committed to make campus(es) environment safest, green and clean and to provide a rewarding and challenging environment for faculty, staff and students to kindle and sustain a passion for excellence.

4. HAZARA UNIVERSITY CARBON NEUTRAL INITIATIVE

Hazara University campus is pedestrian friendly. Many have vehicle-free paths way in the campus for these users. There is a 20 km speed limit on all internal roads for vehicles. Waste bearing vehicles and hybrid vehicle running by the university faculty reduce emission in the campus environment.

The University notified Zero Emission Policy of the Government of Pakistan from the year 2020 and onward.

No. of Zero emission Vehicles on campus per day: **32**

University sites in and around Mansehra and Abbottabad are very well served by students, faculty and administration transport buses run by the University management. The university own shuttle service inside the campus and outside the campus in and around district Mansehra is active from 0700 hrs to 1700 hrs five days a week.

No. of Shuttle buses operated in university: **04**

Average No. of Passenger of each shuttle/Bus: **40**

Total Trips of shuttle service each day: **5**

No. of Car actively used and managed by University: **11**

No. of Cars entering the University daily: **126**

No. of Motorcycles entering the university daily: **20**

The University notified Zero Emission Policy of the Govt. of Pakistan from the year 2020 and onward.

University has adopted zero emission policy inside the campus(s) for the year 2020-21 for the purpose private vehicles are not allowed in the campus, its parking is situated outside the campus. However, the vehicles of employees are very limited & allowed on special-pass for inside travel being the vehicle is running on CNG (compress natural gas) which has very meager emission of Carbon dioxide in the campus environment. Further the university is situated in tropical region where rainforest area is abundant which reduce all types of pollution.

University has started a landmark initiative in 2021 and successfully completed the solarization project the same year. University installed

5. GOOD HEALTH AND WELL-BEING

5.1 Medical Facilities in Campus and Out Campus

A medical facility (medical center Hazara university) is available on the campus in seven rooms building. The facility has two wards one each for male and female patients. The facility is manned with well qualified and experienced, three doctors, one lady health visitor (LHV), one OT technician, one male nurse, one security guard, three ward boys and three drivers for

ambulance. It is well equipped with emergency vehicle and provide 24/7 emergency services for students, staff and their families. Recently the facility is extended to treat students of SoS children Village and School and local communities around the university vicinity. An appointment of a Lady Doctor is in process.

The wards are fully furnished with necessary medical items, ward beds and other furniture. A medical laboratory is also recently added to the facility. The facility provides free of cost emergency medicines to students. During last three years, the facility has purchased medicines of Rs. 375,700/- and provide treatment to 17990 patients.



5.2 Pedestrian Path Policy on Campus

Hazara University is having a lush green beautiful campus with many separated pathways for pedestrian inside the campus. Ramps and guiding blocks which have suitable design for pedestrian having physical disabilities. Street lamps for pedestrian in night. The Campus has 179 solar street lamps, which is controlled by dual charge backup. Wheel Chairs are available for physically handicap students at the main entrance of the university. Every Building have the feature of Pathways for disable persons

Pedestrian Path Policy on Campus

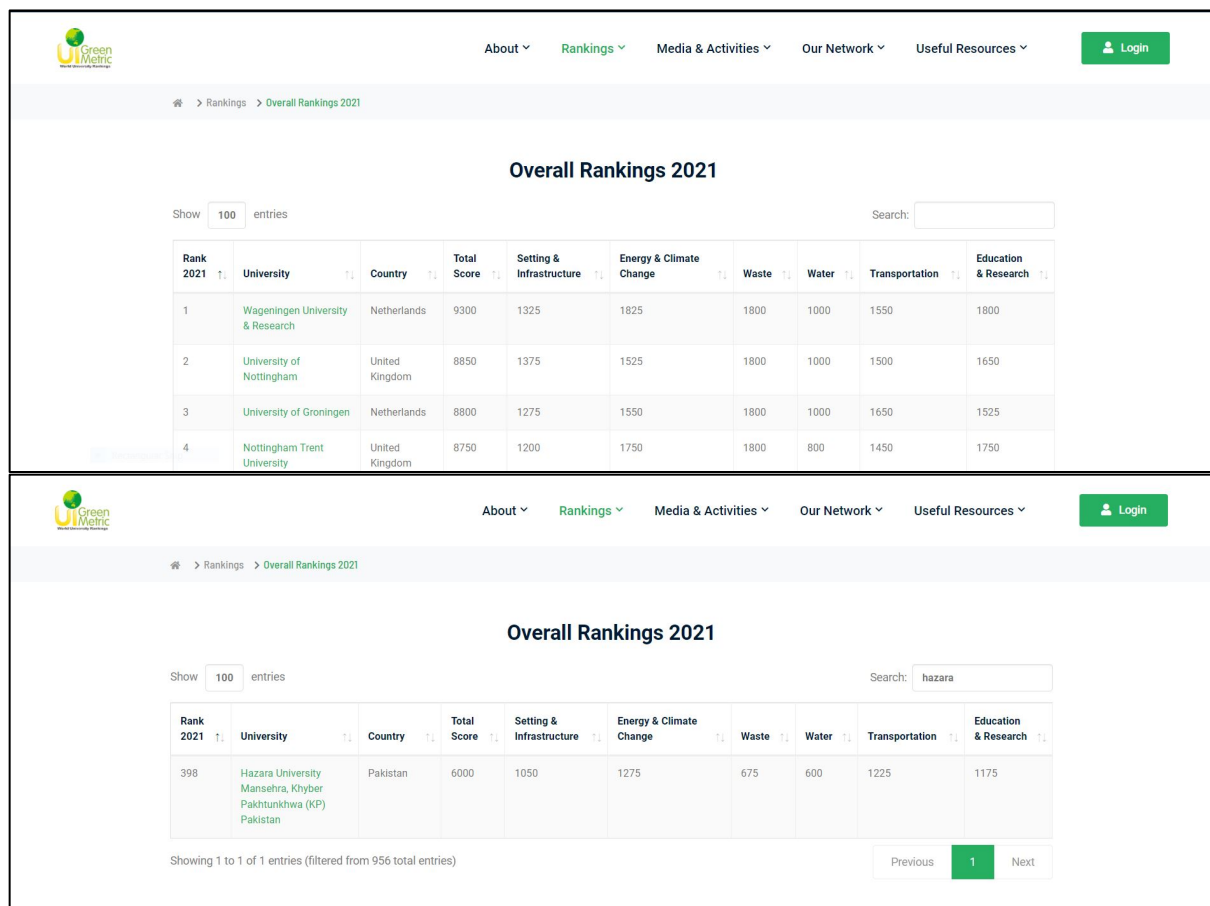


1. Hazara University is having a lush green beautiful campus with many separated pathways for pedestrian inside the whole campus.
2. Ramps and guiding blocks which have suitable design for pedestrian having physical disabilities.
3. Railings and supports.
4. Street lamps for pedestrian in night. The Campus has 179 solar street lamps, which is controlled by dual charge backup.
5. Wheelchairs are available for physically handicap students at the main entrance of the university. Every Building have the feature of Pathways for disable persons.



6. UNIVERSITY RANKING

The UI GREEN METRIC World University Ranking has been announced for the year 2021. Hazara University has achieved its status at 398, improving by 1300 points with overall aggregate score 6000 points (*as compared to last year score of 4700 points*) crossing-up 152 universities of the world. Hazara University is ranked 11 in Pakistan and at 1st place in Khyber Pakhtunkhwa. The UI Green Metric initiative launched in 2010, measuring the steps of managing and improving sustainability of top universities of the world along with environmental impact. The result of the ranking shows the current condition and the policies related to Green Campus and the attention of the Hazara University Management given to combating the climate change, energy & water conservation, waste recycling and green transportation etc. This huge improvement of the Hazara University shows the green-activities on campus and change of behavior of the university staff, faculty & students towards sustainability which is fruit of at least of the previous five years policies. In future, Hazara University aims in its efforts to put in place eco-friendly policies and manage behavioral change among academic community within and around its campuses along with raising awareness in the mass/community.



The screenshot displays the UI Green Metric World University Ranking 2021 website. The page features a navigation bar with links for About, Rankings, Media & Activities, Our Network, and Useful Resources, along with a Login button. The main content area is titled "Overall Rankings 2021" and includes a search bar and a table of university rankings. The table lists the top 4 universities, with Hazara University Mansehra, Khyber Pakhtunkhwa (KP) Pakistan at rank 398. The table columns include Rank 2021, University, Country, Total Score, Setting & Infrastructure, Energy & Climate Change, Waste, Water, Transportation, and Education & Research.

Rank 2021	University	Country	Total Score	Setting & Infrastructure	Energy & Climate Change	Waste	Water	Transportation	Education & Research
1	Wageningen University & Research	Netherlands	9300	1325	1825	1800	1000	1550	1800
2	University of Nottingham	United Kingdom	8850	1375	1525	1800	1000	1500	1650
3	University of Groningen	Netherlands	8800	1275	1550	1800	1000	1650	1525
4	Nottingham Trent University	United Kingdom	8750	1200	1750	1800	800	1450	1750

Rank 2021	University	Country	Total Score	Setting & Infrastructure	Energy & Climate Change	Waste	Water	Transportation	Education & Research
398	Hazara University Mansehra, Khyber Pakhtunkhwa (KP) Pakistan	Pakistan	6000	1050	1275	675	600	1225	1175

Showing 1 to 1 of 1 entries (filtered from 956 total entries)



HAZARA UNIVERSITY ACHIEVED 601-800 / 1799 POSITION IN “TIME HIGHER EDUCATION WORLD UNIVERSITIES RANKING” FOR 2023 1st IN KHYBER PAKHTUNKHWA & 4th POSITION IN PAKISTAN

Time Higher Education (UK) World University Ranking has been announced for the year 2023. Hazara University accomplished in securing its placement at 601-800 among universities of the world. **Hazara University is ranked at 1st place in Khyber Pakhtunkhwa & 4th in Pakistan.** While Ranked 281 in citation in TOP category of 82 percentile & above in the **World**. Total 1799 universities from all over the world were listed for the current rank, of which 29 universities from Pakistan succeeded in attaining their positions, including Hazara University. The good for Pakistan is that the strength of Pakistani universities has increased from 21 to 29 as compared to the previous year. Hazara University is also among the new 24 admittance.

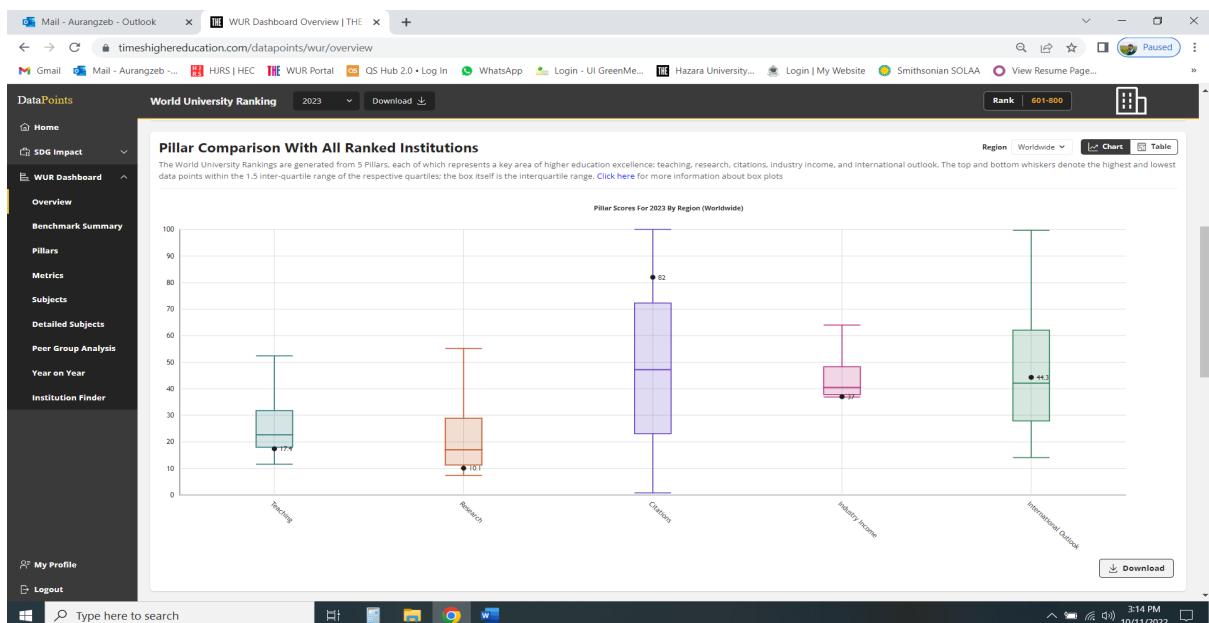
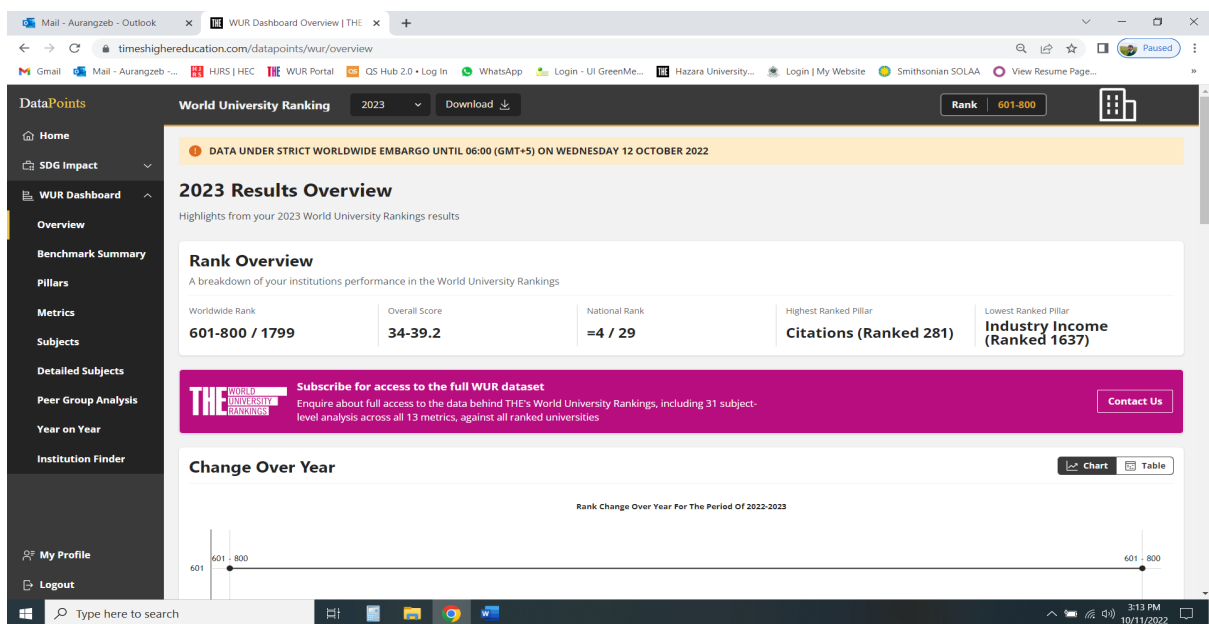
Times Higher Education (THE) is a UK based magazine organization which is providing trusted performance data on universities, for students & their families, academics, university leaders, governments and industry, using **13 carefully calibrated performance indicators** to comprehend balance comparisons. ***THE-World University Ranking*** (Global Rankings) makes a definitive list of the world’s best universities on judgement of the *research mission, core mission, teaching/learning environment, research volume, income & reputation, research influence (i.e. citations), knowledges (i.e. industry income) and international outlook (of staff, students & research)*. The overall rank includes the sub eleven (11) subject-specific-rankings.

For the purpose the Directorate of Quality Enhancement of Hazara University, obtained access for the first time to the *THE- portal* for submitting its data after online meeting through *Skype* with their Regional Director. The University struggled hard since 2019 to improve its performance in order to convince THE for inclusion of Hazara University in World Ranking.

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The current **THE-WUR** initiative started in 2020 and the Directorate Quality Enhancement of Hazara University submitted data by February 2022, keeping in view the steps and indicators of managing and improving research of top universities of the world Teaching impact. The result of the ranking shows the current condition and the policies related to Research and the attention of the Hazara University Management given to combating the Teaching Methodology, Innovations in Digitalization, Student's facilitation, and general academics along with importance to community service and beneficial research towards the country growth by its outcomes as well as the international outlook & exposure of the Hazara University through linkages.

This is a magnificent achievement of Hazara University, that shows the research activities on campus, improved quality culture through change of behavior of the university staff, dedication of the faculty & students towards improvements. This is a rewarding success of at least of the last 05 years durable Academic & Research policies of the University Management.



World University Rankings 2023

timeshighereducation.com/world-university-rankings/2023/world-ranking#/page/0/length/100/locations/PAK/sort/by/rank/sort_order/asc/cols/stats

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Rank	University Name	Location	Impact Rating	China Subject Rating	Asian University Rating	US College Rating
601-800	Hazara University Mansehra	Pakistan	12.45	26.5	0%	26.74
601-800	International Islamic University, Islamabad	Pakistan	25.221	25.1	7%	53.47
601-800	Lahore University of Management Sciences	Pakistan	4.099	13.8	1%	42.58
601-800	University of Malakand	Pakistan	7.757	27.1	1%	29.71
601-800	Righah International University	Pakistan	23.590	21.5	0%	50.50
801-1000	University of Agriculture, Faisalabad	Pakistan	27.826	42.4	0%	45.55
801-1000	University of Engineering and Technology, Peshawar	Pakistan	8.680	20.7	1%	6.94
801-1000	The Islamia University of Bahawalpur	Pakistan	35.698	28.5	0%	46.54
801-1000	University of Lahore	Pakistan	27.149	14.8	2%	37.63
801-1000	National University of Sciences and Technology	Pakistan	11.737	9.4	5%	34.66
801-1000	University of Peshawar	Pakistan	6.107	9.0	1%	32.68
801-1000	University of the Punjab	Pakistan	28.384	22.4	1%	52.48

FEATURED JOBS

- Post-doctoral Fellow, School of Nursing
THE UNIVERSITY OF HONG KONG
- Administrative Officer, Exams and Assessment Team
UNIVERSITY OF SOUTHERN QUEENSLAND
- Post-doctoral Fellow, Department of Paediatrics and Adolescent Medicine
THE UNIVERSITY OF HONG KONG
- Research Assistant, Pathology
LEICESTER UNIVERSITY
- Research Engineer
UNIVERSITY OF MELBOURNE

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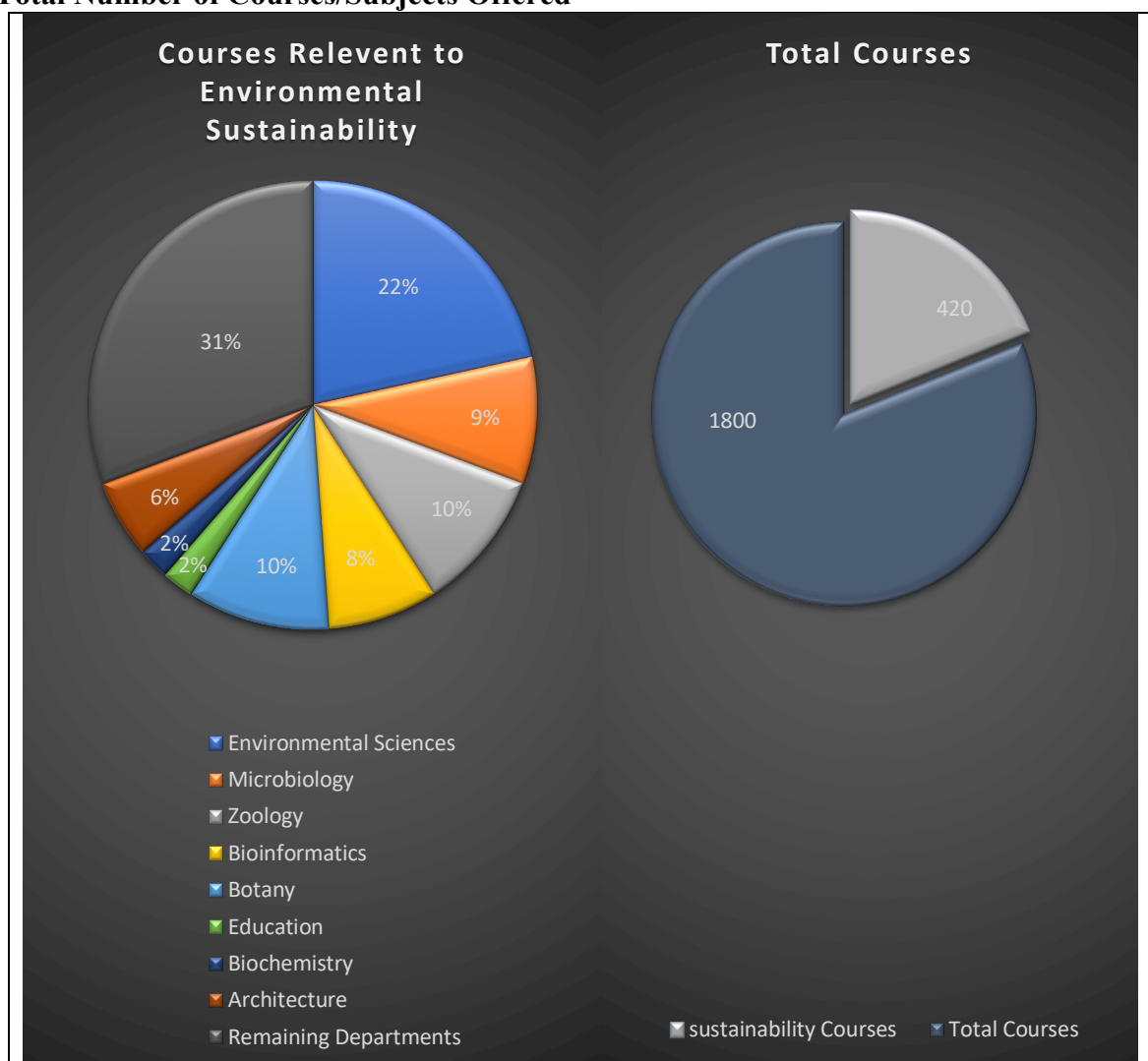
Universities should prepare now to take advantage of government coronavirus aid

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7. QUALITY EDUCATION

Education and Research (ED)

Total Number of Courses/Subjects Offered



Description:

Courses related to sustainability is offered in 33 departments of Hazara University throughout the year in two semesters (i.e. spring & fall). Major courses offered related to sustainability are **19** in Environmental Sciences, **11** in Microbiology, **10** in Zoology, **13** in Bioinformatics, **19** in Botany, **12** in Education, **13** in Biochemistry and **21** in Architecture etc. Other departments of the university maintained **15%** courses related to sustainability of the total courses offered in each department.

Total number of courses with sustainability embedded for courses running in 2021-22: **420**

Description:

Hazara University operated 36 Academic departments having 118 programs at different level i.e. BS, LLB, LLM, B. Arch, Master (18 yrs) and PhD. These 36 departments offered 1800 courses throughout the year. Out of which at least 15% courses are related to sustainability

being the university is located in sub-tropical region and between two international routes i.e. Silk Rout & CPEC.

Total number of courses offered in 2021-22 = **1800**

2019	1860
2020	2800
2021	1800

Department of Environmental Sciences

Courses related to sustainability offered

S.No.	Criteria	Indicative Performance Measure
1.	Number of courses/subjects related to sustainability offered	35
2.	Total number of courses/subjects offered	118
3.	The ratio of sustainability courses to total courses/subjects	30 %

Number of Total Courses and Courses Related to Environment & Sustainability Offered for Four Years BS Programs in the Department of Earth and Environmental Sciences

Total number of courses offered in 2021-22

BS Environmental Science	Number of courses offered
Fall Semester 2021	35
Spring Semester 2022	26
BS Geology	
Fall Semester 2021	35
Spring Semester 2022	22
Total courses offered	118

Total number of courses related to Environment and Sustainability offered in 2021-22

BS Environmental Science	Number of courses offered
Fall Semester 2021	22
Spring Semester 2022	9
BS Geology	
Fall Semester 2021	1

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Spring Semester 2022	3
Total courses offered	35

8. GENDER EQUALITY (2021-22)

Applications for Admission 2021-22

Undergraduate Programs					
	BS		MSc		
	Male	Female	Male	Female	Total
Fall-2021					
Spring-2022					
Grand Total					

Masters Programs (MS/MPhil)			
	Male	Female	Total
Fall-2021			
Spring-2022			
Grand Total			

PhD Programs			
	Male	Female	Total
Fall-2021			
Spring-2022			
Grand Total			

Male

Female =

Total Applications = Undergraduate + Masters + PhD

Admissions Fall 2021-Spring 2022

Program	Male	Female	Total admissions
Bachelor Programs (BS)	1746	818	2564
Master Programs (MPhil/MS)	98	68	166
Doctoral Programs (PhD)	48	15	63
Grand Total Admissions (BS+MPhil+PhD)			2,793

9. RESEARCH CENTRES

There are four Research centers in the university

9.1 Centralized Research Labs (CRL)

The centralized research lab was established 2021 and two floors are dedicated to the lab. The lab is equipped with the state-of-the-art instruments to facilitate the students and faculty to carry out target analyte characterization. Various instruments present in CRL are Gas Chromatograph –Mass Spectrometer (GC-MS), Thermogravimetric Analyzer (TGA), Differential Scanning Calorimeter (DSC), FTIR, Polarized Optical Microscope (POM), QPCR Thermal Cycler, autoclaves, Gel Horizontal Apparatus, Gel Documentation System,

Temperature controlled Centrifuges, Incubators, Gene gun, Electroporator, Four Probe Analyzer, Laser Induced Breakdown Spectroscopy (LIBS). The CRL is providing analytical services to researchers from various institutes and also training to the undergraduate/graduate students of in the KPK province.

9.2 Center for Human Genetics (CHG)

9.3 Center for Software Engineering

9.4 Archaeological Teaching & Conservation Research Lab (ATCRL)

Department of Conservation Studies established the “Archaeological Teaching Conservation & Research Laboratory” (ATCRL), with the financial assistance of HEC (Rs.39.172 million) in 2013, to fulfill the practical and research requirement of students of Hazara University. Main objective to establish ATCRL is to facilitate the research students of not only parent department but also to other field relevant departments of Hazara University as Conservation is a multidisciplinary field. ATCRL building comprises of four well equipped laboratories. Three labs are established at the ground floor and one at the first Floor.



Their names and functions are as follows

- 1. Metal Conservation lab, i.e lab # 1.**
- 2. General Practicals lab, i.e Lab # 2.**
- 3. Organic Materials Conservation Lab, Lab # 3.**
- 4. Wild life Conservation and Herbarium Management Lab, i.e Lab # 4.**

1. Metal Conservation Lab.

- Basic aim to establish this lab is to conserve the metallic artifacts by removing the encrustation and corrosion from their surfaces by applying mechanical, chemical and electrochemical treatments.
- Various archaeological coins which are very badly corroded and heavily encrusted are treated in this lab. Not only the archaeological coins but other metallic artifacts which are rusted and decayed are also being treated in this lab to restore their metallic luster, patinas and identification.
- We also have sand blasting machine for treatment of larger metallic objects.
- We have ultra-sonication bath to remove the coagulation of coins.

- We also have various conservation tools besides chemicals for mechanical treatment of coins and smaller artifacts.

2. General Practical's Lab.

- This lab is particularly designed to fulfill the practical and research requirements of BS students of Conservation Studies department. This lab is highly equipped with all the necessary requirements of BS level students.
- In this lab various Conservation techniques and practicals like; sampling methods, water absorption methods for porous materials, porosity in solid materials, Movement of salts, salt crystallization measurements, Qualitative analysis of water soluble salts and carbonates, particle size analysis methods, measurement of plastic and liquid limits of soils, mortar analysis methods, cleaning of building stones, repointing of stone and brick work, sampling of architectural surface materials, seasoning of wood, test loading of wooden material, preparation and application of traditional oil house paint.
- This lab is highly equipped with important instruments like Stereomicroscope, centrifuge, furnaces, Hot plates, sonicators, dental tooling kit, deionization water plant, pH metre, conductivity metres, hgyrometres (hygrometer), ASTM apparatus for measuring liquid and plastic limits, Lux meters etc.

3. Organic materials Conservation Laboratory.

- This lab is established to fulfill the research requirements of students doing specialization in Conservation of organic materials artifacts like wood, bone, ivory, textile, paper, papyrus, parchment and painting Conservation.
- Various techniques and practicals related to textile conservation like organic pigments composition, their deterioration factors, analysis of textile texture's plant based or animal based textile materials analysis, their Conservation techniques, use of various binders and cleaning solvents and bleaching techniques have been practiced in this lab.
- Wood seasoning techniques and use of various fumigants as pesticides, insecticides and fungicides for conservation of wooden artifacts have also been studied and practiced. Various consolidants for conservation of bone and ivory materials are studied and practiced in this lab.
- Painting Conservation techniques from mural to fresco to cave carvings have been practiced and studied in this lab.

4. Wild life Conservation and herbarium management lab.

- It is very important and specialized field laboratory. Basic aim to establish this lab is to preserve the endangered plant and animal species from being extinct.
- This lab needs special attention to be equipped with important stuffing techniques and equipment's for stuffing the endangered animal species. Herbarium management also needed to be established.

Achievements.

More than 70 M.Phil. and 2 Ph.D. students of the department of conservation Studies have been facilitated from these labs and many students from other allied departments like chemistry, botany, and zoology have also been facilitated from ATCRL. Miss Seemab Pervaiz as Chief Archaeological Chemist is supervising and maintaining these labs since their establishment.

Linkages with National and International Organizations.

We have established linkages with

- Army Museum Rawalpindi,
- Taxila Museum, Taxila.,
- Department of Archaeology Peshawar Museum,
- Taxila Institute of Asian Civilization, Quaid I Azam University,
- ICCROM Rome Italy,
- Isfahan University, Tehran, Iran,
- Canadian Conservation Institute, Canada.
- CACH, Beijing, China etc.
- Directorate of Archaeology and Museums, Islamabad. (Korean Conservation Laboratory)
- University of Leads, London, U.K.

Future Plans and goals.

- We will upgrade all these laboratories to meet the research activities of students especially in the field of dating technology. We want to establish another Lab for Radio Carbon dating techniques.
- We also want to establish archaeological building Conservation material analysis Laboratory, for which we need to install XRD, SEM and XRF apparatus.
- Just like department of Conservation being unique, we also want to upgrade and equip the ATCRL with all new uniqueness and advances in the field of Conservation of Cultural heritage.

The credit goes to HEC for funding and financial assistance without this help of HEC it would be impossible to establish ATCRL. We are thankful to HEC for being the core investor and hope that in future HEC will also support ATCRL for its smooth running and its up gradation.

10. DECENT WORK AND ECONOMIC GROWTH

Smart Classrooms

The smart classrooms initiative has been taken by Higher Education Commission (HEC) Pakistan under the Socio-Economic Development Sector of China Pakistan Economic Corridor (CPEC). This facility enabled the university to faculty sharing with far-flung institutes and is helping improve the quality of Education through smart classroom gadgets i.e., Auto Audio/Video Tracking, Lecture Recording, Interactive Digital Boards, and E-Learning System.

Campus Management System (CMS)

Hazara University has introduced campus management system (CMS), which is providing online admission application opportunity to far-flung areas candidates and selected candidates. The CMS system is also very helpful in student's registration, assessing classes timetable, lecture rooms/laboratories finding, availability of room for class, students daily roll call, examination datasheet and to download the transcripts and other certificates. The introduction of CMS has reduced the amount of paper used in various communications and notices etc.

Learning Management System (LMS)

The COVID-19 pandemic has changed the world dynamics, and forced the society for virtual meeting, work and learning. Therefore, HU successfully started the LMS system to virtually conduct classes during lockdown periods. Currently, if a faculty member is away from university can conduct a class through this system. Additionally, the course content, semester plan and reference material is shared with students through LMS.

11. OFFICE OF RESEARCH, INNOVATION AND COMMERCIALIZATION (ORIC)

Innovation and Commercialization

As reported in the last few years that the university with the guidance of the HEC created an independent **Office of Research, Innovation and Commercialization (ORIC)** for organization of R&D activities. The main purpose of the ORIC to organize R&D and guide university faculty to make their research as viable commercial product.

The office of the ORIC is responsible for the following:

- To Manage and Enhance the Research Activities of the university
- Develop Research Policies and Priorities
- To mobilize Faculty, Business Community and Industry for Research Commercialization
- Monetize Royalty Streams from Licenses
- Draft and Monitor Department Budget
- Work with Development Office to promote Institute IP success stories
- Collaborate with the Principal Liaison for Technical Marketing and Licensing on the commercialization of the Institute's IP in coordination with Manager Industrial Linkages
- Establishment of center of innovation and entrepreneurship HU through a joint venture with SYBRID (A subsidiary of Lakson Group of Companies), mandated to foster entrepreneurship and innovation in Hazara region in particular and entire Pakistan in general.
- Approval of business incubation and services framework for HU business incubation center from the statutory bodies establishing its status as a separate entity.
- Proposal for the establishment of Hazra University Skilled Development Center to foster technically skilled workforce and their retention, expansion and attraction of graduates by business and organizations.

- Lead in the consortium of universities and institutions for KPK accelerated skills development programs for merged districts.
- Permanent collaboration with NVTTC in high tech trade programs and conventional programs for improving technical skills on campus and off campus.

Research Projects earned by Faculty during 2021-22

The faculty of Hazara University is actively involved in R&D activities and getting funded projects on regular basis to provide solution to the problems faced by the society. The details of funded projects under various categories are shown in the below tables.

Table No. 22: Projects Approved Under National Research Program for Universities (NRPU), HEC

S. No.	Name of Principal Investigator (PI)	Project Title	Amount (Rs. in Million)
1.	Dr. Muhammad Zahir	Systematic Archaeological survey of Trangir and Darel valley district Diamer, Gilgit-Baltistan	7.271
2.	Dr. Fatima Iftikhar	Probing the Optoelectronic Properties of Novel Annulated Azaphosphoryls as Potential Oleds	10.295
3.	Dr. Aziz Ud Din	Identification of DNA-Markers for early detection of Cardiovascular diseases in Pakistan	4.945
4.	Dr. Alia Gul	Exploration, Conservation, Biological Potential Assessment and DNA Barcoding-based Molecular species identification of the Selected Pteridophytes of Hazara Division and Adjoining Areas, Pakistan	4.377
5.	Dr. Zarshad Ali	Synthesis and Characterization of functionalized surfaces for the removal of Arsenic from drinking and wastewater.	4.956
6.	Dr. Manan Khan	Identification and Functional Characterization of Gene Mutations Causing Asthenzo ospermia	5.204
7.	Dr. Monsif ur Rehman	Exploring the diversity in Pea (<i>Pasium Sativum</i>) for different stresses and adaptation to the cropping system of Hazara Division	5.593
8.	Dr. Atta ur Rehman	Exploring the genetic landscape of inherited retinal dystrophies in Khyber Pakhtunkhwa using whole exome sequencing approach.	5.744
9.	Dr. Amjad Ali	Characterization and Antiviral Evaluation of Multiple TRIM Proteins against SARS-COV-2	4.604
10.	Dr. Umm-E-Kalsoom	Delineation of mutation spectrum for developing the genomic diagnostic kit for screening of genetic skeletal disorders.	6.274
11.	Dr. Bilal Afsar	Up gradation of Hazara University neuroscience lab for advance of neuroscience for sustainable business development in Pakistan	1.819
12.	Dr. Rabia Afza	Genomics Assisted Conservation of Endangered Himalayan yew in Pakistan.	6.322
13.	Dr. Arif Iqbal Umar	Deep learning prediction support system for anaemic RBC	2.462

SECOND SUSTAINABILITY REPORT, HAZARA UNIVERSITY 2022

S. No.	Name of Principal Investigator (PI)	Project Title	Amount (Rs. in Million)
14.	Dr. Abdul Hameed	Archaeological Excavation at the Iron Age Cemeteries in District Chitral	9.847
15.	Dr. Shakir Ullah	Archaeological Exploration of the Un-Explored District (Tor Ghar, Battagram, Kohistan) of Hazara Division, Khyber Pakhtunkhwa	5.027
16.	Dr. Shakir Ullah	Archaeological Excavation at District Mansehra: Zar Dheri Buddhist Complex, Gandhian Buddhist Stupa and Guli Bagh Muslim Period Site	5.127

Table No. 23: Projects Approved from HEC-British Council during 2021-22

S. No.	Name of PI	Project Title	Amount (Rs. in Millions)
1.	Dr. Shakirullah	Archaeological Explorations at Tor Ghar, Battagram and Kohistan Districts of Hazara Division.	52.178

Table No. 24: Projects Approved from Pakistan Agriculture Research Council during 2021-22

S. No.	Name of PI	Project Title	Amount (Rs. Millions)
1.	Dr. Tariq Mahmood	CRISPER- Cas- Based Promoter Editing of Sweet Gene(s) in Locally Adopted Rice Cultivar(s) in Pakistan for Bacterial Blight Resistance.	6.741

Table No. 25: Projects approved under Post COVID Fund ALIPH Switzerland during 2021-22

S. No.	Name of PI	Project Title	Amount (Rs. Million)
1.	Dr. Mir Wali Shah	Urgent Preventive Protection of Hazara University Museum and First Aider Conference and Training Room Architecture	2.35

Table No. 26: Projects approved under Local Challenge Fund (LCF) during 2021-22

S. No.	Name of PI	Project Title	Amount (Rs. in Million)
1.	Dr. Bilal Afsar	Implementing community-based homestay tourism in Pakistan	36.351

Table No. 27: Projects approved under Hazara University Research Grant Program (HURGP) during 2021-22

S. No.	Name of PI	Project Title	Amount (Rs. Million)
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1.	Dr. Ghulam Mujtaba Shah	Establishment of sustainable integrated solid waste management system (ISWMS) at Hazara University, Mansehra, Pakistan	0.481
2.	Dr. Muhammad Zahir	Systematic Documentation of Rock Art and Exploration of Buried Archaeology in District Diamer, Gilgit Baltistan	0.539
3.	Dr. Niaz Ali	Genetic Variability in the Himalayan elm (<i>Ulmus wallichiana</i> Planch.): Implications for the Conservation of a Critically Endangered Species.	0.501
4.	Dr. Ikram Ullah	Standardization of highly anticancer medicinal plant <i>Fagonia indica</i> L. extract for quality assurance and commercialization.	0.501
5.	Dr. Ali Imran Jehangiri	Deployment of a LoRaWAN network and evaluation of monitoring sensors in the context of smart Campus	0.525

Table No. 28: Project approved under National Academy of Higher Education-HEC (HEC-NAHE) Program during 2021-22

S. No.	Name of PI	Project Title	Amount (Rs. in Million)
1.	Dr. Iram Gul	Selection of multi-metal hyperaccumulator plants: effects of heavy metals on the uptake and tolerance.	1.0
2.	Dr. Muhammad Zaheer Abbasi	Groundwater Flow and Solute Transport in Multilayered Aquifer-Aquitard system	1.0

12. ARCHITECTURAL DESIGNING CENTER

(Department of Architecture, Hazara University, Mansehra)

Introduction:

Architecture design cells are recently being established by various universities of Pakistan with different specialties, which benefits faculty, students and university as well. For example, at NED university of Engineering and Technology Karachi Urban Research and Design Cell (URDC) at the Department of Architecture and Planning (DAP) was initiated in 2007 by a group of resident academics / architects and associated professionals with following objectives:

- ✓ Promotion of a new Urban Planning and Design Paradigm.
- ✓ Research & Extension.
- ✓ Provision of a platform for Advocacy, Research and Practice Interaction.
- ✓ Studio as a means of Professional Linkage.
- ✓ Outreach to all concerned stakeholders.
- ✓ Development of Urban Design as a Profession in Consolidation of URDC as a professional body

Architecture Design Cell, Department of Architecture, Hazara University, Mansehra

If the department of Architecture steps in, for the establishment of Architecture design cell with in the Department following objectives can be achieved:

- ✓ Research studies regarding Contemporary Architecture and Architectural Documentation of Heritage sites around
- ✓ Architecture design projects within the university
- ✓ A consultancy service for public / private projects
- ✓ Outreach to all concerned stakeholders
- ✓ Internship positions for the students, with field experiences

Required Infrastructure:

No additional infrastructure is required by the department, but only a research lab with provision of computers / Laptops with good graphics

Financial Benefits:

The department can generate finance for itself, stakeholders / Architects involved in the projects and for the university as well.

Academic Benefits:

Establishing a design cell, not just means designing for university and outside, but this will be more beneficial for the students of the department, who can win paid internship within the department and actively participate in the running projects.

Design cell to construction firm

Being a public university, after successful launch of Architecture design cell, we can work for the establishment of a construction firm as well in the future.

13. HIGH PERFORMANCE COMPUTING CENTRE (HPCC)

14. CULTURAL HERITAGE MANAGEMENT

The Department of Archaeology has launched 2-year Master degree program and a 6- month Post Graduate Diploma (PGD) in Cultural Heritage Management in collaboration with University of Leicester (UK) in 2013.

Cultural heritage management (CHM) is the vocation and practice of managing cultural heritage. It is a branch of cultural resources management (CRM), although it also draws on the practices of cultural conservation, restoration, museology, archaeology, history and architecture. While the term cultural heritage is generally used in Europe, in the USA the term cultural resources is in more general use specifically referring to cultural heritage resources.

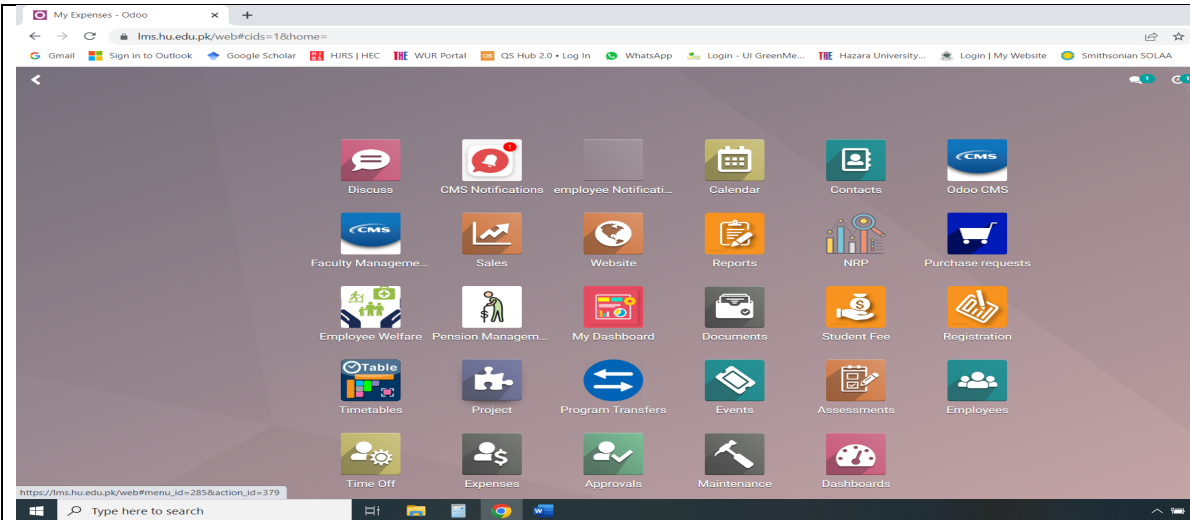
CHM has traditionally been concerned with the identification, interpretation, maintenance, and preservation of significant cultural sites and physical heritage assets, although intangible

aspects of heritage, such as traditional skills, cultures and languages are also considered. The subject typically receives most attention, and resources, in the face of threat, where the focus is often upon rescue or salvage archaeology. Possible threats include urban development, large-scale agriculture, mining activity, looting, erosion or unsustainable visitor numbers.

The public face of CHM, and a significant source of income to support continued management of heritage, is the interpretation and presentation to the public, where it is an important aspect of tourism. Communicating with government and the public is therefore a key competence.

Total research funds dedicated to sustainability research (in US Dollars) from 2021 – 2022 are as follows;

Total Research Funds Dedicated to Sustainability Research (in US Dollars)



ORIC in Hazara university works on the commercialization of research and helping startups to incubate, grow, create new jobs, products, services, markets, carry out innovation and bring in funding. We are expected to:

1. Secure funds for contractual research
2. Generate Revenues from Research commercialization/ Technology Transfer
3. Secure Investments for Incubates
4. Create Jobs and Internships

ORIC activities will revolve around the following research cycle to ensure research impact on the economy and society.

SERVICES OFFERED BY ORIC

- Fundraising for research
- Provide information to faculty about various available research grants
- Link faculty with relevant industry
- Help and guide on patent filing and licensing
- The interface between faculty and the commercial sector
- Work with patent counsel to assess patentability/licensing
- Evaluate markets for commercialization of inventions
- Identify potential licensees
- Negotiate terms of licenses
- Assist with negotiating problematic sponsored research agreements
- Help faculty start companies

Sources for online check through Campus Management System (CMS)

Description:

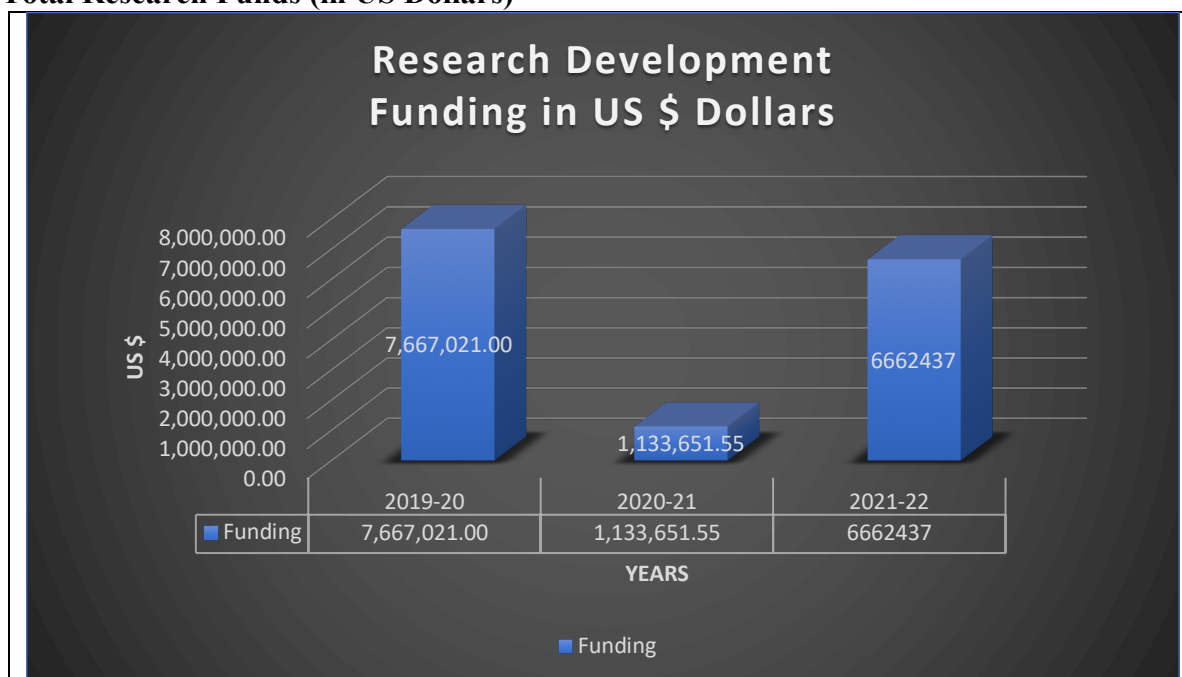
Total research fund dedicated to sustainability in 2020 = \$ 170310.79 US Dollars

Total research fund dedicated to sustainability in 2021 = \$ 469750.00 US Dollars

Total research fund dedicated to sustainability in 2022 = \$ 969750.00 US Dollars

The averaged annum last 3 years of research fund dedicated to sustainability = \$ **1609810.79** US Dollars

Total Research Funds (in US Dollars)



Description:

Total research fund in 2019/20 = **7667021.000** US Dollars

Total research fund in 2020/21 = **1133651.551** US Dollars

Total research fund in 2021/22 = **6662437.000** US Dollars

The averaged annum last 3 years of research fund = \$ (US) **15463109.551**

15. SUSTAINABLE COMMUNITIES

Hazara University is taking into account, and addressing, students, employees and residents on campus needs, not just focusing few at the exclusion of all others. HU is enabling the environment where students and employees of diverse backgrounds and perspectives feel welcome and safe, where every group has a seat at the decision-making table, and where prosperity is shared. HU manages its natural, and financial capital to meet current needs while ensuring that adequate resources are available for future. Furthermore, HU is seeking the solutions of problems such as poverty, inequality, climate change, environmental degradation and social injustice, which could be the biggest threats to sustainable communities.

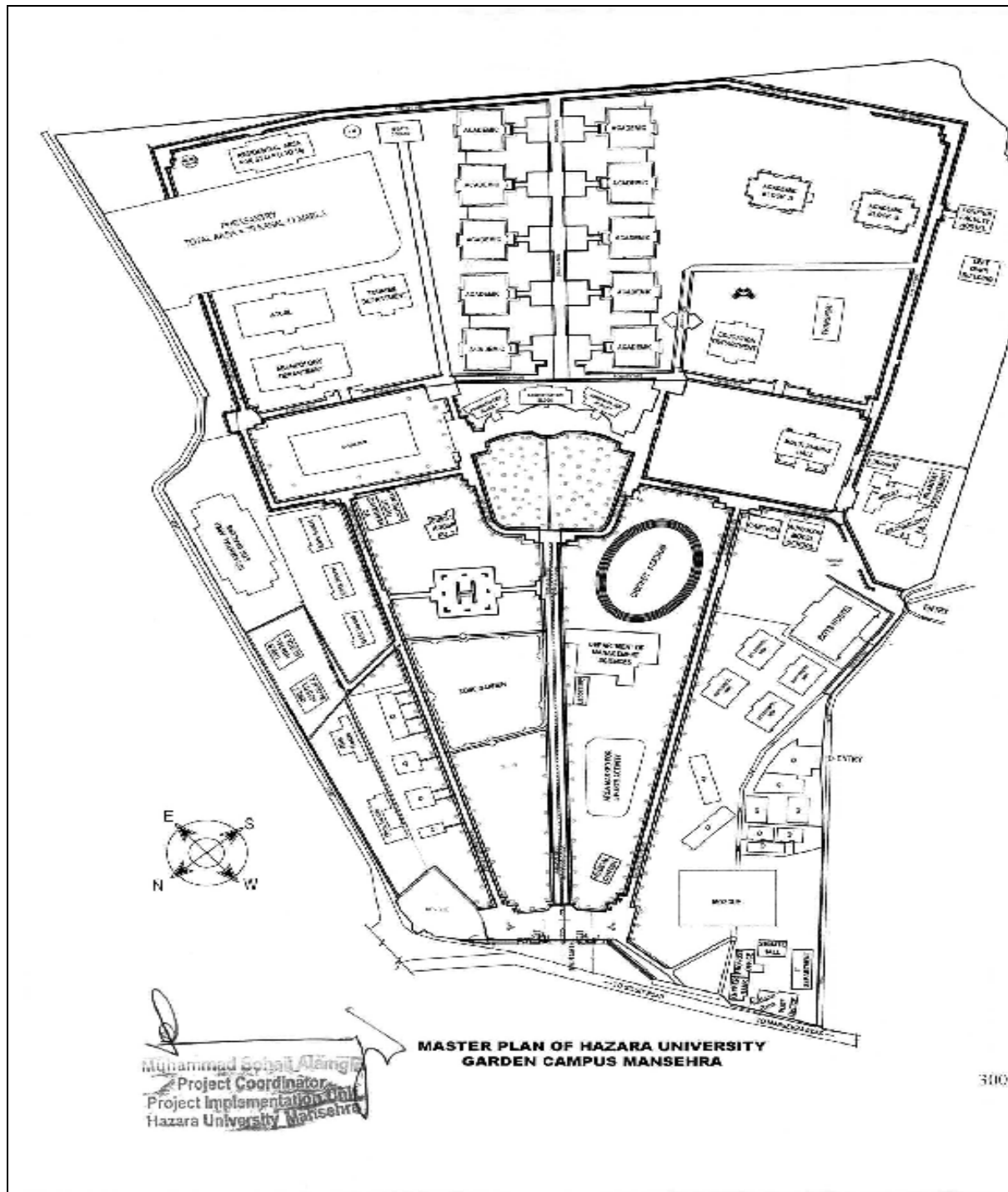
To generate and strengthen the sustainable communities, university is engaged in providing inclusive, equitable and quality education. Through innovation in teaching and research, through active participation of all academic stakeholders (teaching staff and students) the university is covering the vision of the Sustainable Development Goals (SDGs) and responding to the problems set out by the 2030 Agenda.

1. The university is training its teaching staff to improve teaching skills and course upgradation to provide skilled based and quality education (SDG 4 – quality education). The university has established the **Central Research Lab (CRL)** which is

providing quality education and training the students with high analytical skills for future.

2. University is incorporating aspects of the SDGs in the university courses, thus delivering students with the knowledge and skills necessary to address the complex challenges of sustainable development throughout their careers. University have already incorporated courses or academic directions towards specific SDGs (for example, **SDG 6** – Clean Water and Sanitation and **SDG 13** – Climate action).
3. University researchers are working to enhance crops yield to address the food insecurity (**SDG 2** – Zero hunger).
4. Research is being carried at university for the synthesis/isolations of various active compounds to address various diseases and to combat/solve environmental pollution problems (**SDG 3** – Good health and well-being)
5. University management has already adopted policies and implemented strategies to address the SDGs and further improving its policies and strategies. The adopted policies are gender equality (**SDG 5**), appropriate environmental management on campus, moving towards a carbon neutral university, cooperating with the local communities to promote sustainable goals (sustainable use of fertilizers/pesticides, introducing biofertilizers, biological pest control, introduction of suitable crop varieties), providing safe and supporting environment for minorities and handicapped students. University is discouraging fossil fuel combustion and exploiting alternate energy sources, new energy efficient buildings are made, old buildings are renovated to achieve high-energy efficiency and university installed a 300-kW solar power (**SDG 7**) facility, which soon will provide clean electricity to surrounding communities.
6. Hazara University is establishing global linkages with other universities/institutes both on national and international levels to acquire advanced techniques and professional skills to address SDGs related challenges. For example, conservation of natural resources, excavation and preservation of old civilizations in Pakistan, digitalization of flora and Fauna in Pakistan, clean energy production, waste reduction and waste material application in pollution abatement.

16. SEWERAGE DISPOSAL



Description:

Sewerage / Drainage system of the University is completely underground as per Master plan of University. The university sewerage system is combined in a large underground tank constructed for the purpose of step by step settlements of eliminating toxic chemicals and waste. The filter sewerage is entering a large channel of outside the campus in the main drainage system of Town Municipal Committee leading to district level sewerage treatment center outside the city.

17. INORGANIC WASTE TREATMENT

Apart from university administration with collaboration of Govt. of Pakistan NGOs from 2018 has started education campaign regarding waste (organic/inorganic/toxic) management in organization and societies the same is exercising till now.

For this purpose, toxic waste treatment university medical/health center trained laboratory staff regarding different chemicals. The toxic waste treatment is properly categorized step by step and managed by our cleaning staff for disposal in proper containers. See fig above.

The last figure showed neat and clean Hazara University from drone footage as evidence.

Solid Waste Management

Hazara University management installed the waste bins at various sites throughout the campus for solid waste collection. The collected waste is transferred to the recently built Integrated Resource Recovery Center (IRRC) and separated into burnable/biowaste, recyclable and hazardous waste categories. On later stage the collected waste is recycled and converted to valuable products.

Recycling Program for University Waste

Hazara University management collects about 50-70 kg of solid waste on daily basis when university is fully operational, while during break time the daily solid waste reduces to about 10-20 kg. Almost 90-100 collection bins are installed at various points in the university for the waste collection. At 17 sites bins are placed in triplicates to segregate burnable/biowaste, recyclable and hazardous waste. The collected waste is transferred to the Integrated Resource Recovery Center (IRRC) and further separated into burnable/biowaste, recyclable and Hazardous waste categories. University is engaged to convert the burnable/biowaste to produce bio manure, which will be applied as nutrient source for plants on campus. The recyclable waste is used to generate mates, decorative artifacts and also transfer the iron, steel, aluminum, paper, ink-cartridges and plastic waste to nearby recycling market to be reutilized. (Khaghan, shinkayari, Mansehra)

Besides, Hazara University has arranged every year through students and faculty cleanliness and recycling programs on campus and outside the university such as public places (parks/waste lands), tourist hubs, and protected (national parks) areas in Mansehra and Abbottabad districts. These programs are sponsored by the district government, Khyber Pakhtun Khawa government and higher education commission Pakistan (HEC) and stress to allows all types recyclables (plastic, paper, glass, aluminum) to be collected in the same place and dispose of to the local recycling agency. However, the university administration is in practice all the year to collect paper, plastic, glass, steel, electronic waste and ink-cartridges from printers etc. and auctioned out to the local recycling agency properly.





18. RESPONSIBLE CONSUMPTION AND PRODUCTION (SDG 12)

Energy efficient appliances usage are replacing conventional appliances. More than 70% of the computer monitors used at the HU campuses are energy efficient LCD monitors. The old Tungsten filament bulbs and fluorescent light tubes are completely phased out and replaced with smart LED lights. Those old ceiling fans which are in good condition are being modified to consume less electrical energy through their conversion to DC source. While, others which are completely broken are replaced with new energy efficient fans. The Energy efficient appliances are gradually replacing the conventional high energy consumption appliances. There are various campaigns and directions through lectures, seminars, social media and on campus walks to reduce waste generation. Students are given projects to utilize the waste material to make decors or some valuable products such as mats, manure, ropes etc. The metal waste is provided to recycling market.

19. RENEWABLE ENERGY PRODUCED INSIDE CAMPUS

Description:

1. Solar System energy i.e. 19 Kw is used for Tube Well all-day water supply for daily usage.
2. Solar Panels at every building roof the New Academic Blocks are used for energy and all nature lights as energy sources for electricity, heating and lighting in classrooms and corridors of smart building.
3. Small wind turbines are installed at every building for backup energy to the UPS systems for renewable energy as sources.
4. Solar cars are made by students of Physics department to be used in for disabled students' convenience.
5. Planation inside the building used for cooling effects and provide fresh oxygen in all the days.
6. Buildings overhead 'Heat Trap' in winter.

No	Renewable Energy	Production (in kWh)
1	Biodiesel	0
2	Biomass	0
3	Solar panel	22800
4	Windmill	2.5
	Total	22802.5

22802.5 x 100/813730 (renewable energy divided by total usage of the university) = 6.7% (renewable energy %age) per year

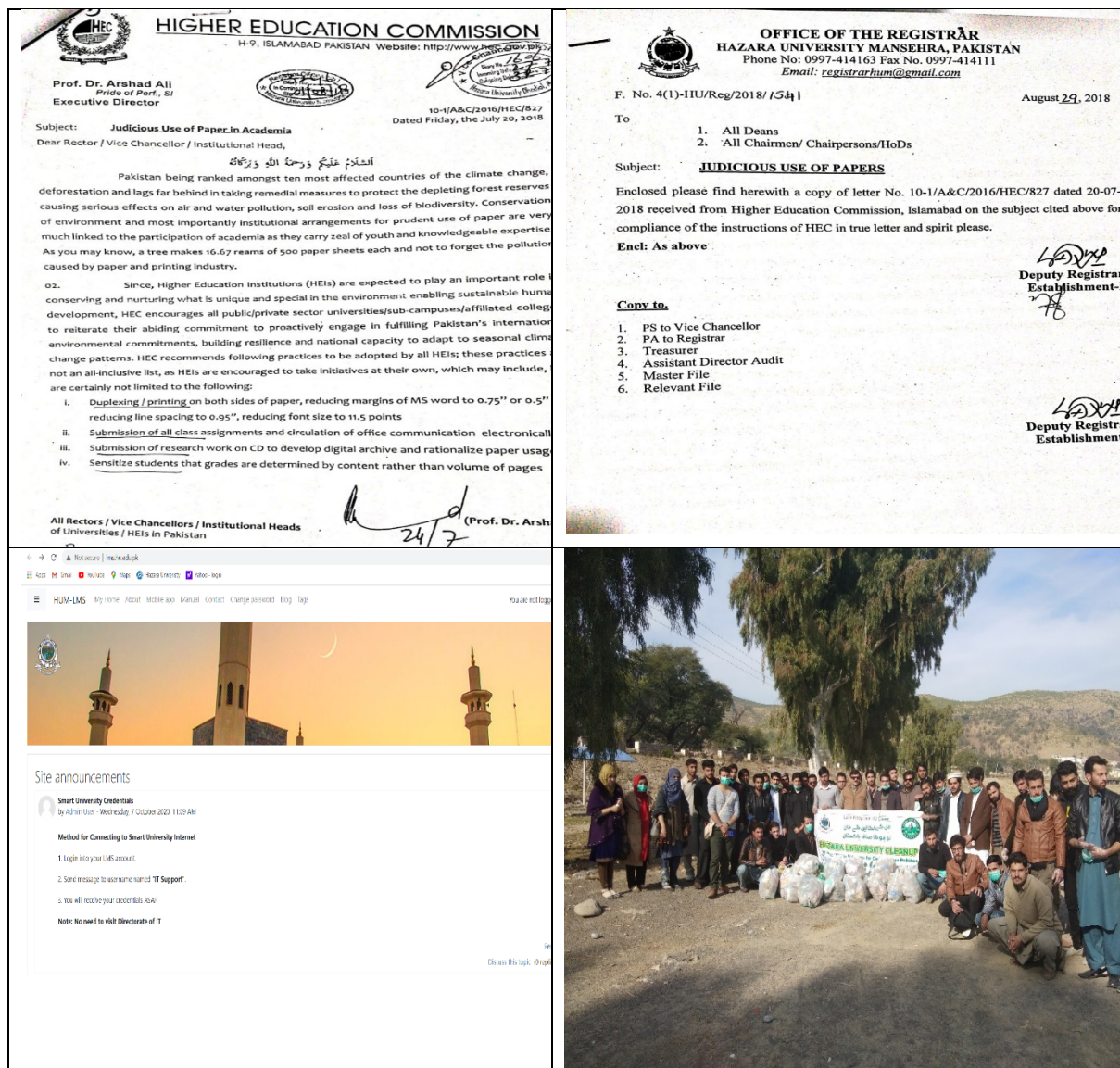
Energy Efficient Appliances Usage



The following is an example of the description of the energy efficient appliances usage on HU campus.

Appliance	Total Number	Total number energy Efficient appliances	Percentage
LED Lamp 12watt	10,500	10,500	100%
Fluorescent tube light 40 watt	3,000	3,000	80%
Fog Lamp	10	10	100%
LED lights 2x2 feet 40 watt	150	150	100%
LED Street Lights	211	211	100%
LED Flood Lights	30	30	100%
		Average Percentage	96%

20. PROGRAM TO REDUCE THE USE OF PAPER AND PLASTIC ON CAMPUS THROUGH CAMPUS / LEARNING / OPERATION MANAGEMENT SYSTEMS (CMS/LMS/OMS)



1. Hazara University has started Learning Management System (LMS) and Campus Management System (CMS) to supports paperless system to reduce paper in daily workplace. Important notices, lecture materials and exam datasheets are circulated through these systems, which is reducing a lot of paper use at Hazara University. Consequently, HU is playing its role in reducing CO₂ emissions.
2. Reusable paper in back office, e.g. using 2-side of paper, always recheck data before print, use online system instead of hard copy.
3. Hazara University has adopted National policy of “Reduce Reuse plastic bag since Aug 29, 2018 till now. University is playing its role in reducing plastic waste in university and outside the university in the Mansehra district through campaigns organized by the university student and teachers’ team.

21. UNIVERSITY SOCIAL RESPONSIBILITY

1. Hazara university is engaged to fully develop students' abilities with a sense of social responsibility, educating them to become critical participants in a democratic society and promoters of changes that will foster equity and justice.
2. University is emphasizing in providing equal opportunities for all in terms of access, progress and completion of studies, despite different cultural, and social backgrounds
3. University is making sure that students acquire the knowledge and the skills needed to promote sustainable development, including, among others, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity.
4. HU beside advancing science and sharing knowledge with society, also empowering the students through their participation in various events where students feel inclusive.

22. CLIMATE ACTION

Hazara University is adopting dual strategy (critical twin strategy) in climate mitigation and adaptation. First, university is aiming to become "carbon neutral" institutions by adopting low-carbon operational practices. Second, university is developing curricula and pedagogical approaches to educate students about the imperatives of carbon neutrality and climate change mitigation and adaptation. Hazara University is actively engaged to address climate change related issues by taking sustainable actions such as solarization, rainwater harvesting, and solid waste management.

1. Since its inception the solar based power generation (121 days) at campus is not only providing uninterrupted power supply, but also playing significant role in addressing climate change issues. This clean energy prevented about 37.15 tones of CO₂ generation, saved about 25.58 tons of coal combustion in these 121 days. Additionally, this green energy is equivalent to as if 3485.54 trees are planted during these 121 days.
2. HU is searching the practical solutions to address climate changes issues by conducting research on alternate energy sources e.g. hydrogen energy and solid waste management.
3. University carries two types of plantation campaigns every year. In one campaign university staff plants about 1200 to 1500 plants every year on campus. In another campaign teachers and students (as a social work) in collaboration with local government and forest department plant trees outside the campus at designated sites. Additionally, university grow and receive (from forest department and local government) about 5000 to 6000 saplings each year and distribute among students (free of cost) to plant on their private lands outside the campus. Such activities are helpful in reducing atmospheric CO₂, regulating ambient air temperature and reducing air pollution.
4. HU is reducing paper use, plastic and solid waste.
5. University has installed rainwater harvesting facility on campus. Furthermore, university is looking for installing groundwater recharge well, introduction smart facet to reduce water loss and wetland construction for water treatment.

23. ENVIRONMENT AND SUSTAINABILITY EVENTS



Description:

Total **107 Events** related to environment and sustainability hosted/organized by the HU in the academic year 2019 to 2022.

Total number of sustainability/environment related events in:

2019/2020:	43
2020/2021:	13 (Due to corona/lock down only awareness activities were done in surrounding of the University)
2021-22:	51

A total average per annum over the last 3 years of **35 events** (e.g. online conferences, workshops, awareness raising, practical training, etc.). After neutralizing 2020-21, average per Anum 47 events.

Sustainability Report



Description:

51 Events related to environment and sustainability hosted or organized by the HU in the academic year 2021-22 most of them were awareness programs online with the community. The same is published in the annual report 2021-22 of Hazara University.

Sustainability report for the year 2021-22 is published and placed on the university website follow link below.

Total number of sustainability/environment related events in: 2021-2022: 51

A total average per annum over the last 3 years of **35 events** (e.g. conferences, workshops, awareness raising, practical training, etc.). After neutralizing 2020-21, average per Anum 47 events.

24. SUSTAINABILITY AWARD

