

SDGs NUST ANNUAL
REPORT 2023



SUSTAINABLE
DEVELOPMENT
GOALS

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This report covers the sustainable initiative of National University of Sciences and Technology (NUST) from year 2023 from January to December.

This mainly focuses on the university's key areas of SDGs alignment that has mapped earlier from year 2018 to onwards, which includes research and innovation, academics and youth engagement, operations and governance and community engagement.

It also pins the research projects from all the schools of NUST directly working for the achievement of sustainable development goals at the national and international level to address the pressing issues like climate change, health, dwindling economies and technological advancement. The work recognition by The Impact ranking of NUST in the year 2023 and its community engagement in the national cause is discussed.

We believe that you will find this report useful and informational. We look forward to receiving your feedback on the report that help us to communicate our annual SDGs work with you. In the report AI has been used for image generation and paraphrasing.

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Website: <https://sdgs.nust.edu.pk/>



THE IMPACT RANKINGS

SDG No. & Description	World Rank 2021	World Rank 2022	World Rank 2023
SDG 1: No Poverty	401+	201-300	400
SDG 2: Zero Hunger	301-400	301-400	300
SDG 3: Good Health and Well being	601-800	801-1000	1000
SDG 4: Quality Education	101-200	101-200	200-300
SDG 5: Gender Equality	401-600	401-600	600
SDG 6: Clean Water and Sanitation	101-200	101-200	200
SDG 7: Affordable and Clean Energy	67	4	100
SDG 8: Decent Work and Economic Growth	201-300	201-300	200-300
SDG 9: Industry, Innovation and Infrastructure	201-300	201-300	200-300
SDG 10: Reduced Inequalities	401-600	401-600	600-800
SDG 11: Sustainable Cities and communities	401-600	301-600	300-400
SDG 12: Responsible Consumption and production	101-200	67	100-200
SDG 13: Climate Action	201-300	201-300	200-300
SDG 14: Life below Water	201-300	62	300-400
SDG 15: Life on Land	201-300	101-200	400
SDG 16: Peace, Justice and Strong Institutions	401-600	401-600	600-800
SDG 17: Partnership for the Goals	201-300	201-300	400-600
Overall	201-300	101-200	200-300



2nd in Pakistan



5th in Pakistan



6th in Pakistan



NUSTAINABLE TEAM

Universities hold an invaluable role within societies since they contribute towards the sustainable development goals through: education, research and innovation and collaborations with industries. NUST has established one of Pakistan's first Office of Sustainability - Nustainable to carry out long term strategy aligned with the sustainable development goals, including the university's aspirations to becoming carbon neutral by 2030. The team is comprised of the head of Sustainability, Ms. Ameera Adil, along with her team members Mr. Zia-ur-Rahman (Assistant Manager Sustainability) and Mr. Syed Asghar Ali (Assistant Manager Sustainability). The Sustainability Office team has been working on youth engagement, advocacy and partnerships to host educational events at the university and facilitate the participation of young climate activists on campus. They have since established a Student 'Youth Panel' to bridge the gap between policies implemented on campus and beyond with the perspective of the next generation. The office aims to promote knowledge diffusion regarding climate change and sustainable practices, mobilizing the youth to be the agents that bring this change. On a larger level, the office is an institutional platform for international partnerships to promote interdisciplinary research and address the challenges faced within implementing the Sustainable Development Goals (SDG,s).



Ms. Ameera Adil
(Head of Sustainability)



Mr. Zia-ur-Rahman
(Assistant Manager
Sustainability)



Mr. Syed Asghar Ali
(Assistant Manager
Sustainability)

SUSTAINABILITY OFFICE IN ACTION



1st in Pakistan

339 in World

OUT OF 1400 UNIVERSITIES
WORLDWIDE



200

OUT OF 1705 UNIVERSITIES
WORLDWIDE

NUST SUMMER SCHOOL ON CLIMATE CHANGE (NSSCC)

The first inaugural NUST Summer School on Climate Change commenced on July 8th, 2023, attracting students from diverse backgrounds to engage in a five-day immersive program. With a focus on climate change communication, de-carbonization, circularity, environmental Sustainability, and inclusivity, the event aimed to empower youth with tools to tackle climate challenges. Rooted in the grassroots, the initiative underscores NUST's commitment to driving Pakistan towards a sustainable future, aligning with global climate justice efforts.



LCOY

LCOY Pakistan, endorsed by UNFCCC and YOUNGO, convened at NUST Islamabad on August 24-25, 2023. With 800+ youth participants from all provinces, it featured 9 breakout rooms for policy development, 3 plenary sessions on energy transition, climate finance, and community-based action, and 17 side events covering various topics. The policy document from LCOY Pakistan was presented in the global south youth statement at COP28 UAE.



GENDER, INTERSECTIONALITY AND CLIMATE CHANGE (GICC) – ROUNDTABLE

NUST Office of Sustainability, with funding from GIZ Pakistan, held a roundtable discussing the gender-climate change nexus to address challenges faced by Pakistani women. The event aimed to outline research themes and paving the way for the 2024 academic conference on “Gender, Intersectionality, and Climate Change” (GICC).



UNPACKING COP28; FROM COMMITMENTS TO ACTION

At post-COP28 event, a collaborative effort between NUST and PRCS resulted in an inclusive panel discussion, translating key discussions into actionable steps. These steps include accelerating the transition towards renewable energy, operationalizing loss, and damage funds for LDCs, and to engage private sector to reduce emissions.



EVENT PARTICIPATION (ATTENDED AS SPEAKERS OR PANELISTS)

Represented at COP28 Dubai UAE

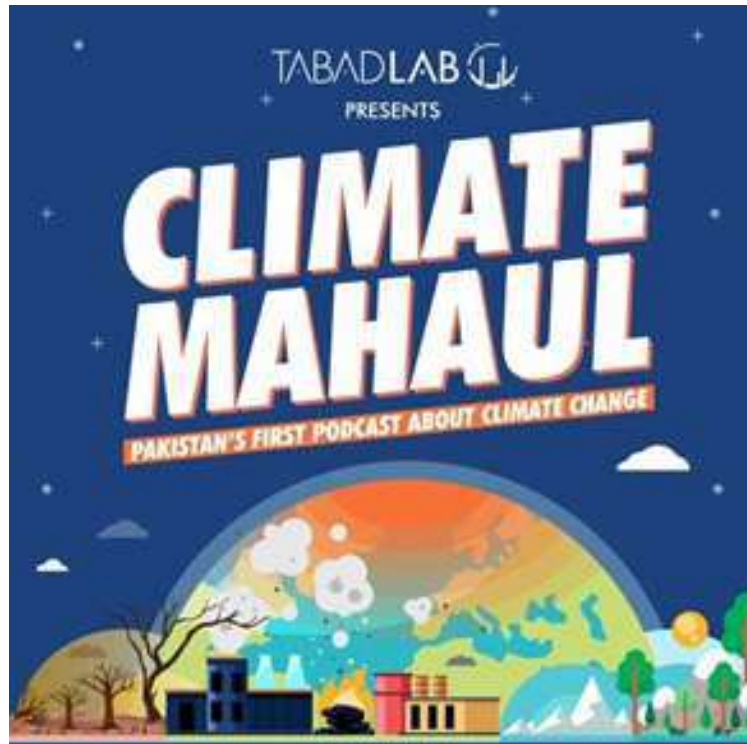
Ms. Ameera Adil, head of Sustainability Office NUST represented NUST at the Conference of Parties COP28 in Dec 2023



Participated as panelist in Workshop on "Elevating & Catalyzing Climate Action in Pakistan in Dec 2023"



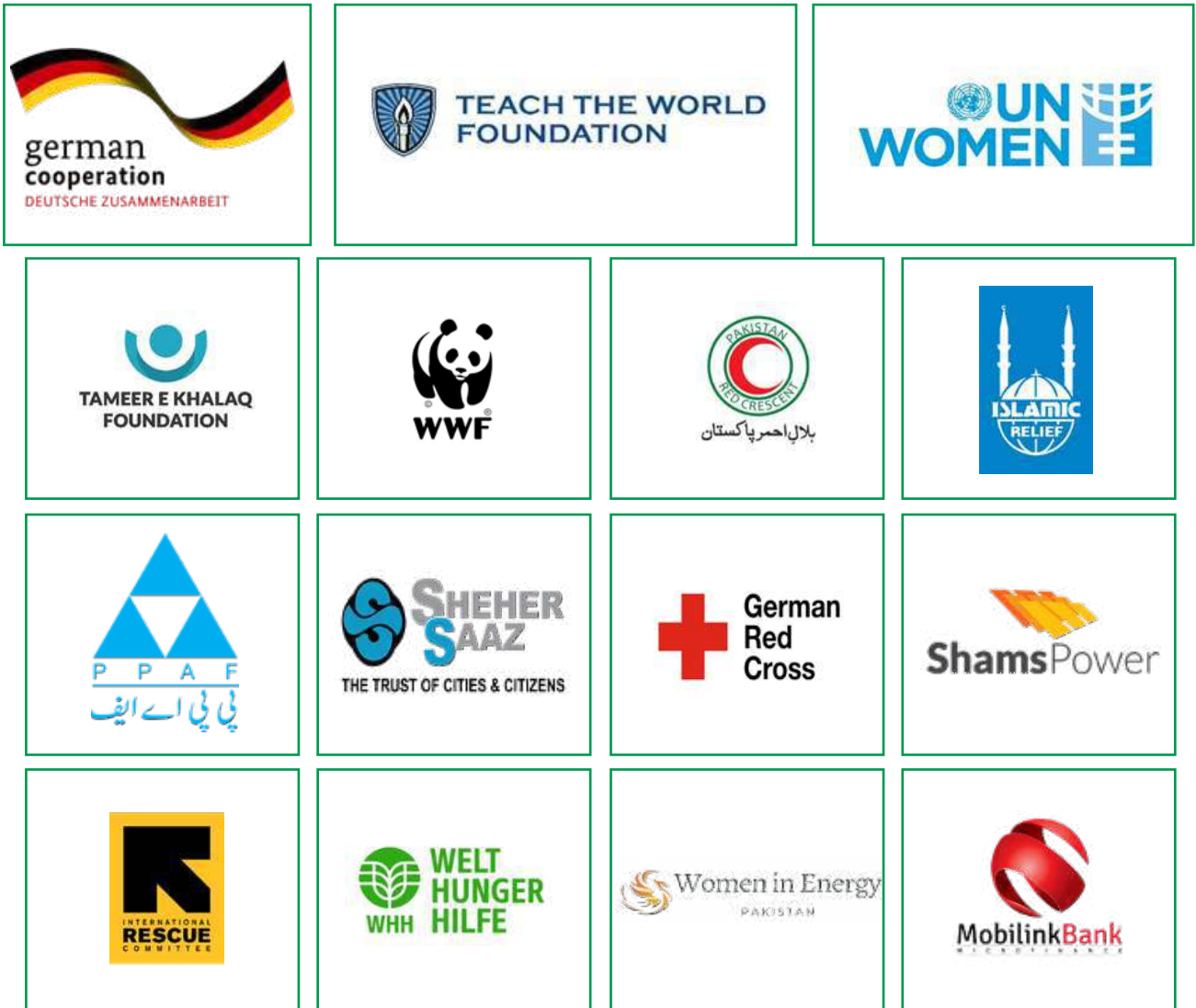
Ms. Ameera Adil Represented Tabadlab Climate Mahaul Podcast



Represented NUST at BAT Sustainability Initiative Event



PARTNERS



CURRENT PROJECTS

Eco-Tourism Campaign in Gilgit Baltistan with Islamic Relief Pakistan

Sustainability Tour of NUST

International Conference on Gender, intersectionality, and Climate Change (GICC)- Sep 2024 website; <https://gicc.nust.edu.pk/>

FLAGSHIP ACHIEVEMENT OF 2023 AT NUST



NSTP AS SDG MODEL ZONE

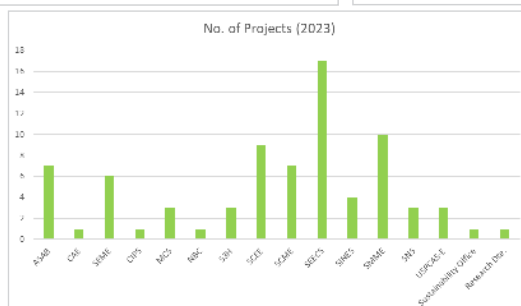
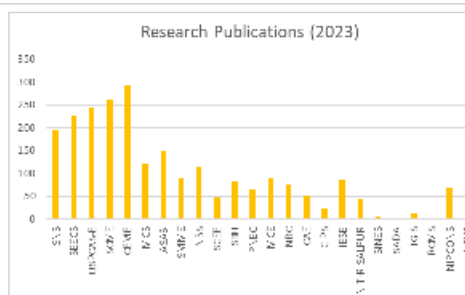
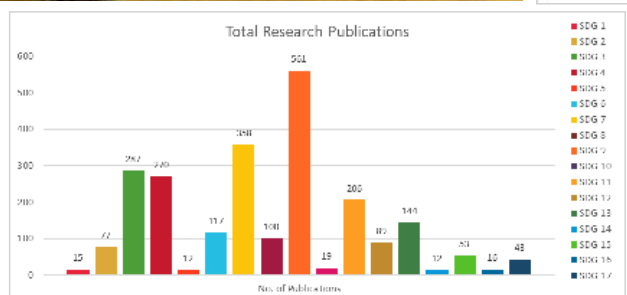
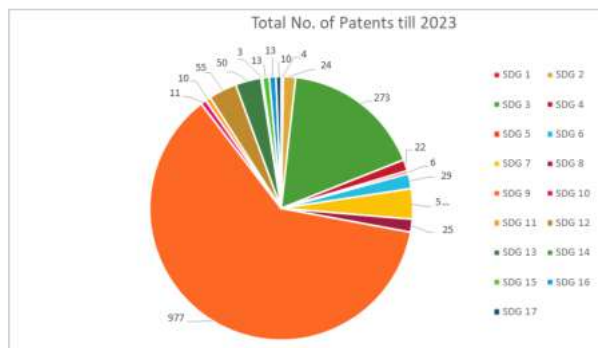


NSTP was recognized among the 50 Global SDG Model Zones by GASEZ at the United Nations Conference on Trade and Development (UNCTAD) forum, reaffirming its commitment to sustainable development.

NUST RESEARCHER PUBLISHED BOOKS IN 2023



PRESIDENTIAL ACHIEVEMENT AWARD ON PERFORMANCE TO MS. NADIA





GOAL 1

No Poverty

94

Projects

57

Publications

4

Patents

IMPACT OF LOW BIRTH WEIGHT ON STUNTING AND WASTING IN SINDH, PAKISTAN: A PROPENSITY SCORE MATCHING APPROACH

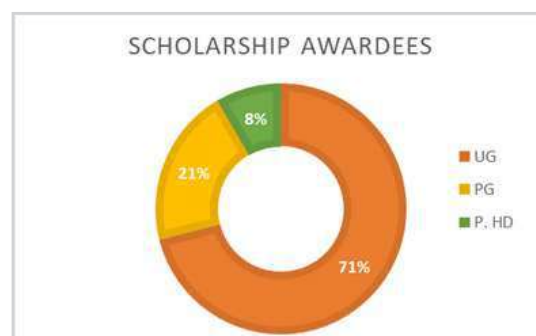
A study conducted by Dr. Faisal from S3H NUST highlights the significant impact of low birth weight (LBW) on stunting and wasting in children under five in Sindh, Pakistan. Using propensity score matching, it demonstrates LBW's adverse effects on child health outcomes, contributing to SDG 1 by addressing child malnutrition and promoting health equity.



NEED BASED SCHOLARSHIPS - UNLOCKING OPPORTUNITIES

NUST is committed to promoting inclusivity and empowerment in education through the NEED initiative, which offers scholarships to deserving university Students based on merit. A substantial 61% of the Student body originates from lower-middle-income backgrounds. The NEED initiative utilizes diverse strategies, including endowment building and the implementation of a scholar program. As of now, NUST has granted a total of 4489 need-based scholarships, to unlock opportunities and address poverty. This commitment aligns with SDG 1, illustrating NUST's proactive efforts to provide crucial financial support to students and eliminate economic barriers in their educational journey. The status of current scholarship awardees is listed below:

Class / Program	No. of Scholarship Awardees
Undergraduate (UG)	1602
Postgraduate (PG)	463
PhD	189
Total	2254



NCSC RATION DRIVE 2023

Every year NUST Community Service Club (NCSC) makes it their mission to ensure Ramzan is as enjoyable for as many people as possible, and families can experience the Holy Month without worrying whether they'll have enough food. Similarly, this year too, NCSC collected donations for 3 weeks, both in-person at Concordia 1, Concordia 2, Coffee Lounge, Retro Café, Masjid-e-Rehmat and the Library, and online. After 965,000 rupees were collected, the drive ended on 8th April, with a distribution of ration to 220 families from Mehrabaadi: a stark improvement from last year's 81 family count.



NUST FUNDRAISER SUPPORTS PALESTINIAN CAUSE

The NUST Community Service Club held a fundraiser at the ASAB Seminar Hall, screening "Al-Nakba: The Palestinian Catastrophe - Episode 1." Proceeds were donated to the Palestinian cause, with the President and a representative from Al-Khidmat Foundation attending. Funds collected were handed over, supporting SDG 1 by aiding poverty relief efforts for Palestinian victims.





GOAL 2

Zero Hunger

54

Projects

232

Publications

18

Patents

AGRI-DRONE - ASSISTING FARMERS FOR YIELD IMPROVEMENT

The Agri-Drone project in Pakistan endeavors to revolutionize the agricultural sector by leveraging drone technology. It aims to employ drones equipped with advanced sensors and cameras to assess crop readiness, providing farmers with crucial data for optimal harvesting timing. Additionally, drones will be utilized for the swift and efficient delivery of perishable goods from rural areas to urban markets, bypassing traditional transportation challenges. By reducing delivery time and minimizing post-harvest losses, the project seeks to enhance productivity and improve the livelihoods of farmers. Through these efforts, Agri-Drone aligns with the Sustainable Development Goals,

fostering sustainable agriculture and economic growth in rural communities.



CLIMATE CHANGE MITIGATION FOR FOOD SECURITY – FOSTERING CLIMATE SMART AGRICULTURE THROUGH NATURE-BASED APPROACHES

This project aims to develop the facility/ setup for quantification of emissions from agriculture sector particularly N₂O species. Improving nutrient management via innovative fertilizers and plant resilience with better nutrient use efficiency. The soil quality improvements through carbon sequestration and restoring soil organic carbon is also a vital component of this project with a focus on multi-cropping strategies to bring resilience in cropping systems under changing climate.



REPRESENTATION AT 2ND ISLAMIC ORGANIZATION FOR FOOD SECURITY (IOFS)

Professor Dr. Rafia Mumtaz from NUST as a distinguished speaker at 2nd Islamic Organization for Food Security (IOFS) on October 2, 2023, in Doha, Qatar, the Islamic Organization for Food Security (IOFS) hosted a Forum on Advanced Agri-Tech, which brought together researchers, specialists, and business executives to exchange ideas, breakthroughs, and developments in the field of agricultural technology.

To showcase her work at the 2nd Islamic Organization for Food Security (IOFS), a high-level symposium on food security, IOFS invited

Professor Dr. Rafia Mumtaz from NUST as a distinguished speaker. Speaking at the event, Dr. Rafia presented her study on the AI- and IoT-enabled Crop Disease Monitoring System that her lab had built. Attendees at the forum who were representatives of foreign companies expressed a strong interest in NUST's creative work and a wish to cooperate.



RATION DRIVE H-12

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RESEARCH ON CONFLICT AND NON-TRADITIONAL SECURITY:

Exploring the Relationship between Food Insecurity and Conflict in Baluchistan Ms. Tayyaba Razzaq, Research Associate, NIPS, presented a paper titled "Conflict and Non-Traditional Security: Exploring the Relationship between Food Insecurity and Conflict in Baluchistan" at the 3rd The 3rd International Conference on Business Management and Social Sciences by Centre for International Peace and Stability (CIPS), NUST Islamabad on March 14-15, 2023. The study proposes actionable policy recommendations, including strengthening the national food security strategy, investing in agricultural development

and medicinal plants in Baluchistan, enhancing human capital investment, and reducing rural-urban disparities linking it SDG 2 which aims to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture.





GOAL 3

GOOD HEALTH AND WELL-BEING

155

Projects

1577

Publications

273

Patents

AI BASED RISK PREDICTIVE TOOL FOR EARLY DIAGNOSIS AND TREATMENT OF GESTATIONAL DIABETES

Dr. Ihtesham ul Islam from MCS is developing an AI-powered platform for Gestational Diabetes Mellitus (GDM) risk prediction for a diverse demographic population of South Asia by selecting Pakistan as use case. Leveraging Shifa International Hospital's clinical data and NUST's AI expertise, the aim is to implement GDM risk assessments, personalized notifications, and the ability to predict maternal and fetal outcomes based on treatment modalities. The goal of

the projects is to empower expectant mothers, improving perinatal and postnatal outcomes through advanced healthcare technology.



CONTACTLESS SMART LIVESTOCK HEALTHCARE MONITORING SYSTEM FOR INTERNET-LESS AREAS

The report outlines two primary objectives: Firstly, to design a smart livestock monitoring system for internet-less areas, facilitating early disease detection by monitoring individual cattle's physical parameters. Secondly, to develop a contactless mechanism for data collection from livestock, enhancing animal welfare and farming efficiency. This approach reduces stress on animals while providing natural and reliable data.



INTEGRATING SCIENCE AND POLICY FOR COLLABORATIVE HEALTHCARE MANAGEMENT-PROJECT

This project outlines efforts to foster dialogue and cooperation between researchers and decision-makers in medicine and pandemic management. Participants exchanged best practices, developed strategies to address ordinary obstacles, and reached a consensus on advanced techniques for early warning systems, healthcare architecture, data management, and risk communication.



NUST COMMUNITY SERVICES CLUB (NCSC) CONDUCTED A THREE-DAY BLOOD DONATION CAMP

NUST Community Services Club conducts blood camp NUST Community Service Club (NCSC) flagship event: Blood Donation Drive, was held this semester from 14-16 Feb 20



RISING ABOVE DESPAIR SESSION WAS CONDUCTED BY NUST CHARACTER BUILDING SOCIETY AT SMME SEMINAR HALL.

Mr. Hamza A. Tzortzis a British guest speaker was invited to deliver a talk to enhance personality development and character building on 14 Sep 2023.



SESSION ON SEERAH NABI AND SEERAH MODEL EXHIBITION

The first day of scholastic journey was an elucidative seer'ah model exhibition held at Margalla cafe. Tauha ibn e Jalil, Qaiser Ahmed Raja, Raja Zia ul Haq, and Ustad Daniyal Malik all provided eschatological light on the prophet's life. The audience was riveted, and a panel discussion concluded the session.

- NUST Character Building Society conducted a seminar namely 'Unleashing the Fire Within and Burning the Addictions' to illuminate the path towards breaking free from various addictions on 1 Dec 2023.
- Drug Challenges in Health & Humanitarian Crisis, and Diabetes Awareness & Insulin Advocacy



MENTAL HEALTH MATTERS FOR NUST

Centre for Counselling and Career Advisory (C3A) is an entity of NUST that provides primary mental health services since 2008. NUST is one of the pioneer universities in Pakistan offering this service, which extends to all the NUST Students, faculty, personnel and families of those associated, within and outside the H-12 campus. The core objective of C3A is to provide professional counselling service, for educational, social, or psychological issues that may inhibit personal or professional performance and advancement.

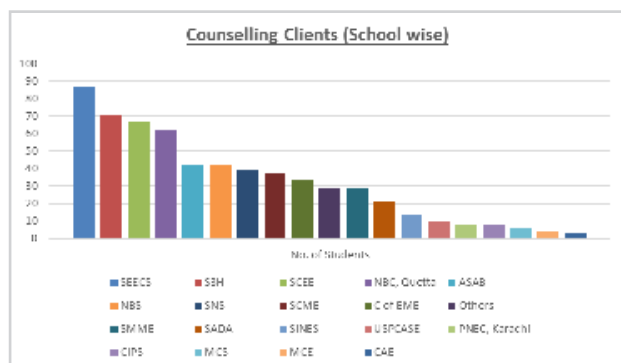
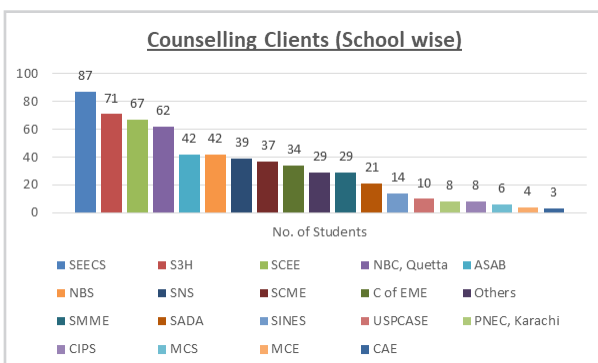
Seminar on 'social media: modern day security blanket'



Ensuring Mental Health and a Safer Environment at Workplace–Secretariat Training Institute (STI)



Statistical Representation of Newly Registered Counselling Clients (School wise) Jan- Dec 2023



Total Figure Events Jan 2023- Dec 2023

Orientation Sessions	Awareness raising session on the NUST Policy on Protection against Harassment	Trainings, Workshops, Seminar, Lectures	NUST Summer School & Conference of Youth
22	26	49	2
Total 99			

TRAINING SESSION ON “BASIC COUNSELLING SKILLS FOR HOSTEL MANAGERS”

A training session was arranged by C3A for the hostel managers at H-12 campus. The primary focus of this session was to highlight the crucial role that hostel managers play as the initial point of contact for addressing any unforeseen incidents related to Students’ emotional well-being.



TRAINING SESSIONS ON “ORDINARY PSYCHOLOGICAL ISSUES FACED BY UNIVERSITY STUDENTS” IN NUST CONSTITUENTS

C3A organized a comprehensive series of sessions titled “Ordinary Psychological Issues Faced by University Students” for Students of NBC, MCE, and MCS, which garnered the active participation of more than 230 Students.



USAID'S HESSA STUDENT SUPPORT SERVICES SUMMIT 2023

Higher Education System Strengthening Activity (HESSA), a USAID sponsored project, organized their second 4-day summit from 19th to 24th June 2023. 16 selected universities from across the country participated.



MENTAL WELLNESS CORNER AT THE LOCAL CONFERENCE OF YOUTH (LCOY 23')

As part of the Local Conference of Youth (LCOY) 2023, C3A introduced a Mental Wellness Corner offering: Mindfulness meditation where participants engaged in group meditation sessions to embrace mindfulness, reduce stress, and find inner peace.



WORLD MENTAL HEALTH CELEBRATION 2023

In a monumental display of commitment to the well-being of the NUST community, C3A, in collaboration with the Department of Behavioral Sciences, orchestrated a series of impactful events in celebration of World Mental Health Day 2023.



ASAB, MUST DESIGNED “REGIONAL GUIDELINES FOR COLLECTING AND TRANSPORTING HIGH-CONSEQUENCE PATHOGEN SAMPLES FOR PAKISTAN” BY NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE (NASEM)



DR. HUSSAIN MUSTATAB WAHEDI REPRESENTED MUST AT UNITED NATIONS GENERAL ASSEMBLY (UNGA78) ADDRESSING INNOVATION IN HEALTHCARE



NUST STUDENTS WIN APICTA MERIT AWARD FOR DERMAVISION PROJECT

Students from The NUST College of Electrical & Mechanical Engineering (CEME) have clinched the Merit Award (Runners Up) in the APICTA Awards for their project "DermaVision." The project utilizes Generative Artificial Intelligence to create digitally stained histopathological images for tissue analysis.





GOAL 4

Quality Education

21

Projects

1725

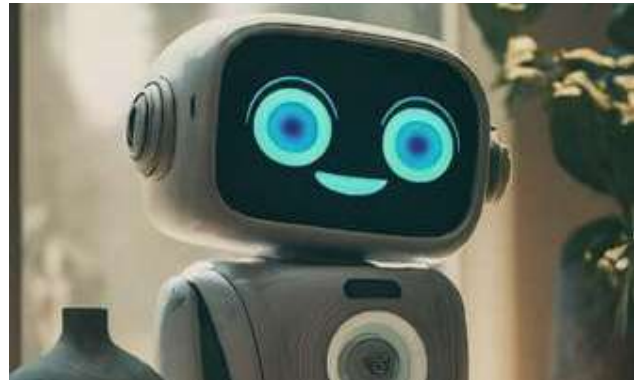
Publications

22

Patents

ADVANCING AI CAPABILITIES FOR ENHANCED HUMAN INTERACTION

The NUST School of Mechanical and Manufacturing Engineering (SMME) project aims to develop an AI system with natural language processing and robotic gestures for human-like interaction. It focuses on logical reasoning, emotion recognition, dynamic learning, and versatile applications across sectors like education, healthcare, business, and finance, fostering personalized and empathetic user experiences.



CONTRIBUTIONS ON STEM FOR WOMEN'S EMPOWERMENT IN PAKISTAN: PROVIDING EQUAL OPPORTUNITIES

Mr. Ali Shah, Director, NIPS, spoke as a panelist in the Seminar on “STEM for Women’s Empowerment in Pakistan: Providing Equal Opportunities” organized by the Asian Development Bank, Chip Training and Consulting, and NUST US- Pakistan Center for Advanced Studies in Energy on March 17, 2023. He discussed the multiple dimensions of relatively low female participation in STEM fields in Pakistan, highlighting policy and systemic reforms necessary in academia and industry to promote women in science, technology, and innovation. This initiative directly contributes to SDG 4 (Quality Education) and SDG 5 (Gender Equality).



NSTP IS COMMITTING TO SUPPORTING PAKISTAN'S UNDERREPRESENTED CREATORS AND ADVANCING GENDER EQUALITY

The Rising Stars Startup Competition for women and minorities was introduced by NSTP in collaboration with the US Embassy in Pakistan. Participating in the competition were more than 300 individuals with a variety of ethnic backgrounds from far-flung parts of Pakistan, such as Kashmir, Gilgit Baltistan, Waziristan (KPK), Tandu Allah Yar (Sindh), and Zhob (Baluchistan). Throughout these nine-month national program, participants gained extensive training and mentorship and the priceless chance to network with industry professionals from Draper University in the USA. Generous initial funding was given to the competition winners, and the total cash prizes exceeded PKR 6 million.



UG AWARENESS SESSION HELD AT THE GOVT ASSOCIATE COLLEGE FOR WOMEN

Chakwal, under the direction of NUST UAO Dte and the district government. On October 9, 2023, the UG Awareness Session was held at the Govt Associate College for Women, Chakwal, under the direction of NUST UAO Dte and the district government. About eight hundred HSSC Students from different Chakwal institutions showed up for the session. The prerequisites for the Entry Test, the UG Admission Process, and the NUST Scholarships were explained to the Students. Members of the two teams led the QA session. The Director of UAO made closing remarks.



NUST UG AWARENESS CAMPAIGN

The Admissions Directorate participated in a significant number of events across Pakistan during Jan - Dec 2023. The details are as under: -

- 19 x face-to-face awareness sessions
- 5 x online awareness sessions
- Participation in 5 x Career Fairs / Educational Expos

Scope of Events: 29 events were conducted strategically in major cities across Pakistan, including Islamabad, Rawalpindi, Murree, Abbottabad, Haripur, Hassan Abdal, Chakwal, Lahore, Faisalabad, Daharki, and Karachi. Approximately 20,000 Students and faculty benefitted from the activity.

Objective: To aware the participants regarding NUST, undergraduate admission process, offered UG programs, including the facilities and incentives for the Students.

International Engagement: The Admissions Directorate also extended its efforts internationally by conducting an online session for the Students and faculty members of Pakistan International School Jeddah, Kingdom of Saudi Arabia (KSA), indicating a commitment of reaching out to the potential Students beyond the territorial boundaries.

Overall, these efforts reflect a proactive approach to promote NUST and facilitate aspirants in making decision for pursuing their academic goals.

360 DEGREE FINANCIAL AID PROGRAM

To provide quality education, first and foremost to the university Students themselves NUST caters to collect information on financially disadvantaged Students of NUST to appropriately grant scholarships to eligible Students on its various campuses. Through documentation requirements, on-site verification, and interviews, eligible Students can take advantage of the financial aid program.

The initiative has already benefited more than 5000 Students, opened doors of opportunity, and empowered them to pursue their academic dreams.



NUST ENDOWMENT - EMPOWERING THE STUDENTS

NUST aims to build resilient infrastructure and support inclusive industrialization, fostering Students' innovative pursuits. Through the adoption of a futuristic, long-term approach, NUST enhances its Students by aiming to increase its endowment size and hence increase the impact of the startup ecosystem

at NUST: Currently, there are two types of endowments available, general (unspecified donations) or restricted (resources utilized for a defined purpose). The grant encourages entrepreneurs to polish, publish, and execute their ideas within Pakistan. Hence the university attempts to maintain talent retention and create a sustainable economic impact with a vibrant startup ecosystem to benefit Pakistan at large.



STUDENT CLUBS AND SOCIETIES

NUST prides itself on having multiple dedicated clubs and societies that engage the diverse Student body. NUST strives to develop skills in their Students that foster creativity, innovation, and leadership qualities to equip the future of our generation to tackle global problems. With the Student Affairs Directorate. The Student Affairs Directorate acts as the core facilitating body for 41 clubs/societies administered by the Student representatives of all Club/Societies.

- NUST Bazm-e- Pakistan (NBP)
- NUST Adventure Club (NAC)
- NUST Environment Club (NEC)
- NUST Science Society (NSS)
- NUST Literary Circle (NLC)
- NUST Book Club (NBC)
- NUST Community Service Club (NCSC)
- NUST Dramatic Club (NDC)
- NUST Debating Society (NDS)
- NUST Media Club (NMC)
- NUST Fine Arts Club (NFAC)
- NUST Bio Reach Society
- NUST Entrepreneurs Club (NEC)
- NUST Leaders Society (NLS)
- NUST Excursion Club (NEC)
- NUST Digital Club (NDC)
- NUST Water Sports Club
- NUST Technical Amusement Club (NTAC)
- NUST Paragliding Club
- NUST Robotics Club (NRC)
- NUST Quiz Club (NQC)
- International Chapter (SCME)
- NUST Trekking Club (NKC)
- NUST GeneUs
- NUST Archery Club (NArC)
- NUST Cultural Club (NCC)
- NUST Fitness Club (NFS)
- NUST Physics and Astronomy (NPA)
- Institution-based Clubs and Societies
- NUST Ni Hao Club
- IMEchE
- NUST Hack Club

THE NUST SCHOOL OF NATURAL SCIENCES ORGANIZED JOINT “NUST-NCP COLLEGE ON SPACE AND ASTROPHYSICAL PLASMAS” IN OCT/NOV 2023

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DATA VISUALIZATION & PRESENTATION

The Dr Yasir Ahmad HoD Dept. of Eng. Mgmt, (NUST) and Mr Yalman Ansari Faculty (COMSATS Institute of Information Technology) organized one-day CPD workshop on “Data Visualization & Presentation.” For NUST College of E&ME Department of Engineering Management.

Data Visualization and Presentation

Learning Investment
RS. 2500 (NUST AFFILIATES)
RS. 3000 (STUDENTS)
RS. 6000 (PROFESSIONALS)

RESOURCE PERSONS
Dr. Yasir Ahmad
(HoD Dept of Engg Mgmt)
Mr. Yalman Ansari
(Faculty COMSATS)

7 OCTOBER 2023
Saturday, 9:30 am - 4:30 pm

1x CPD Point for Engineers

CONTENT

- Types of data and visualizations
- Understanding key elements of visualizations
- Science of how we see
- Idea, context and visual discovery
- Building persuasive charts

VENUE: ICE, NUST College of Electrical and Mechanical Engineering, Peshawar Road, Rawalpindi

For Information Call at 0311-5180335

REGISTER HERE

DATA SCIENCE BOOT CAMP

NUST School of Natural Sciences arranged a workshop related to Data Science in which, participants will delve into the fascinating realm of image analysis and discover how machine learning algorithms can be applied to extract valuable insights from visual data. The focus will be on utilizing the Python programming language, known for its statistical and data analysis capabilities, to harness the potential of machine learning for image-related tasks.



WORKSHOPS ON ASTRONOMY, TELESCOPES & ASTROPHOTOGRAPHY (WATA)

A series of events, was organized to create awareness among Students, and ordinary people in the community about Astronomy and the universe around us. People from diverse backgrounds such as education, journalism, social activists, showbiz, etc. participated in the events.





GOAL 5

Gender Equality

42

Projects

176

Publications

06

Patents

PROMOTING GENDER EQUITY IN NEUROSCIENCE RESEARCH

In both remote regions and major cities, there's a lack of awareness regarding neuroscience research and ethics, exacerbated by gender disparities. This event aims to promote education and research in neuroscience, fostering a better understanding of brain and behavior. With a focus on gender equity, it seeks to address these gaps and promote inclusivity in neuroscience exploration and discourse.



GENDER, INTERSECTIONALITY AND CLIMATE CHANGE (GICC) : FROM SCIENTIFIC EVIDENCE TO ACTION

GICC project is funded by BMZ/GIZ-Deutsche Gesellschaft für International Zusammenarbeit / German Development Agency, Germany which is an international conference planned to happen in September 2024. One roundtable discussion on the climate change discourse through cross-sectoral dialogues happened in Oct 2023 at NUST. Partnership development between NUST, local industry/NGOs, academia, and international entities aims to foster inclusive collaboration. Publications, including special journal issues and policy briefs, prioritize gender-inclusive approaches to contribute significantly to NUST's commitment to the Sustainable Development Goals (SDGs).



WEBINAR ON GENDER, JUST CITIES, AND DEVELOPMENT

On July 12, 2023, NIPS organized a webinar titled "Gender, Just Cities, and Development" featuring leading specialists on gender and development, Dr. Caroline Moser, and Dr. Attiya Inayatullah. These discussions align with Sustainable Development Goal 5 (Gender Equality), aiming to empower women and achieve gender parity in all aspects of society.



A NETWORKING EVENT AND A USPWC-PAKLAUNCH ACCELERATOR SESSION WERE ORGANIZED BY NSTP IN ASSOCIATION WITH PAKLAUNCH (PL) AND THE US STATE DEPARTMENT.

The main goal of the initiative was to increase the number of female entrepreneurs in the nation. Distinguished visitors, such as Mr. Andrew Schoffer, Deputy Chief of Mission, and Courtney Powell, Chief Operating Officer of 500 Global, were there to recognize this unique event.



INTERNATIONAL CONFERENCE PAPER ON ENHANCING WOMEN'S PARTICIPATION IN GREEN SECTORS: STRATEGIES FOR INCLUSIVE HUMAN RESOURCE DEVELOPMENT UNDER CPEC

Ms. Sobia Khursheed, Assistant Director, Collaboration, NIPS, presented a research paper, "Enhancing Women's Participation in Green Sectors: Strategies for Inclusive Human Resource Development Under CPEC," at the international conference "Decade of CPEC and BRI: From Vision to Reality" on July 25, 2023.



MENSTRUAL HEALTH SEMINAR AT MASHAL SCHOOL H-9

Ms. Sobia Khursheed, Assistant Director, Collaboration, NIPS, presented a research paper, "Enhancing Women's Participation in Green Sectors: Strategies for Inclusive Human Resource Development Under CPEC," at the international conference "Decade of CPEC and BRI: From Vision to Reality" on July 25, 2023.



EMPOWERING WOMEN AS PEACEBUILDERS



ENTREPRENEURSHIP FOR ALL

A training was organized for transgenders on 24 December 2022. The training delivered to 15 trainees in total focused on enhancing their entrepreneurial and self-employability skills as equal members of the Pakistani society. Modules included team building skills, basic entrepreneurship skills, idea generation and Business Model Canvas Development.





GOAL 6

Clean Water and Sanitation

89

Projects

679

Publications

29

Patents

ENHANCING BIOGAS PRODUCTION AND PURIFICATION THROUGH WATER-BASED SYSTEMS-PROJECT

This project focuses on water-centric approaches to upgrade biogas production and purification. It encompasses pilot-scale studies of biogas upgrading processes using hybrid systems of water scrubbing and membrane technology. Additionally, it involves the synthesis and testing of nano-composite membranes for CO₂/CH₄ separation, optimization of biogas digester parameters, and feasibility analysis of water scrubbing and membrane systems for enhanced energy efficiency.



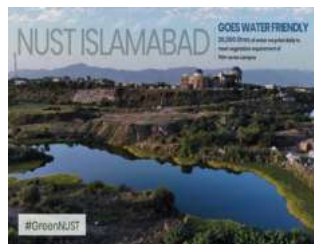
TRANSFORMING TEXTILE WASTE: NUST AND KAUST COLLABORATION INNOVATES DYE WASTEWATER RECYCLING

Dr. Sher Jamal Khan of NUST, in collaboration with KAUST, devised a method to recycle dyes wastewater from denim and polyester dye baths. Using sodium dodecyl sulfate, the process produces hazard-free dyes, ready for reuse, with no harmful by-products.



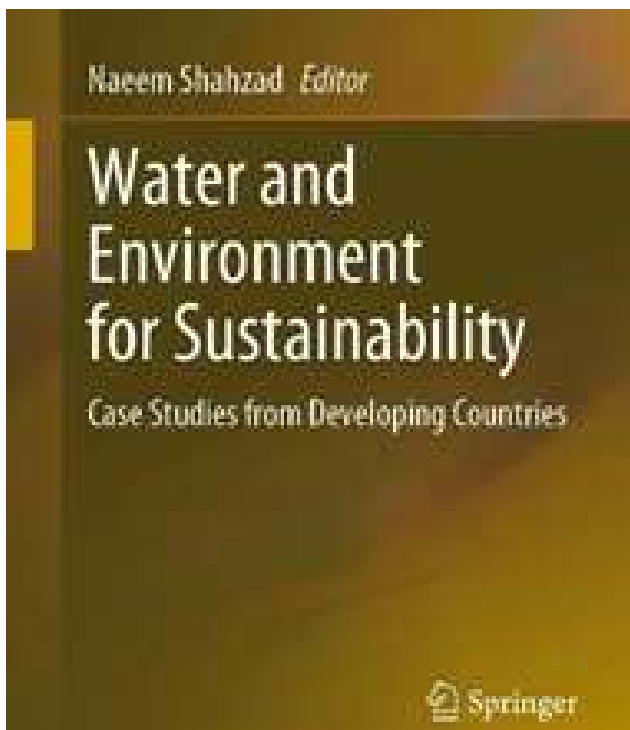
NUST'S SUSTAINABLE WATER CONSERVATION INITIATIVES

As an SDGs-aligned institution, NUST spearheads water conservation efforts. The NUST Membrane Bioreactor (MBR) plant and natural wetland systems recycle 60% of water at the Islamabad Campus. Collaborating with UNESCO, NUST installed a low-cost, low-maintenance wastewater treatment plant producing 75,000 gallons of recycled water daily. This sustains vegetation across the sprawling 750-acre campus. Presently, 20,000 litres of recycled water daily support campus greenery, markedly reducing water consumption while fostering a lush, eco-friendly environment.

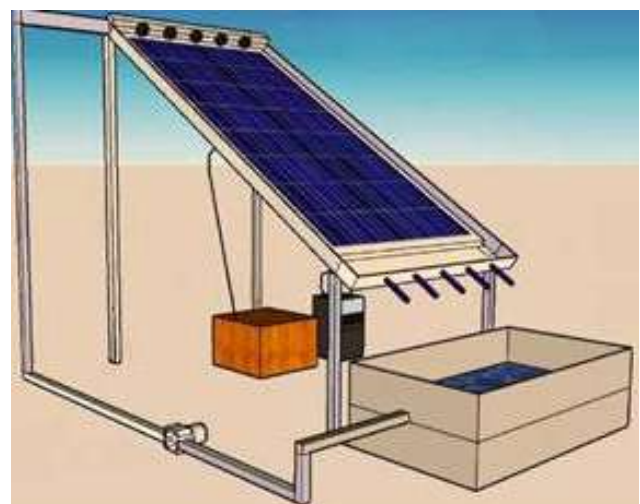


WATER & ENVIRONMENT FOR SUSTAINABILITY: EXPLORING THE INTERCONNECTIONS WITH CLIMATE AND ENERGY-DR NAEEM SHAHZAD

WATER & ENVIRONMENT FOR SUSTAINABILITY: EXPLORING THE INTERCONNECTIONS WITH CLIMATE AND ENERGY-DR NAEEM SHAHZAD



Dr. Adeel Waqas and his NUST team studied dew impact on PV modules, introducing a water-based cleaning system with flat fan nozzles, resulting in up to 12% power recovery and cooling effects.



3RD SPRINGER “INTERNATIONAL CONFERENCE ON WATER, ENERGY AND ENVIRONMENT FOR SUSTAINABILITY (IC-WEES)”

NUST School of Natural Sciences (SNS) has organized the 3rd international conference on Water, Energy, and Environment for Sustainability (IC-WEES) from August 16, 2023 to August 18, 2023. The focus theme of this conference is “Organic and Inorganic Hybrid Materials for Energy Conversion and Storage.”



WATER GOVERNANCE & POLICY ISSUES IN PAKISTAN

Innovation & Commercialization Office NUST (ICON) organized talk on “Water Governance & Policy Issues in Pakistan” on October 20, 2023, with guest speaker Alexandra Campbell-Ferrari Executive Director (Center for Water Security & Cooperation).



CONSERVING PAKISTAN'S WATER RESOURCES IN A POST 1.5°C WORLD

NUST Seminar Advocates for Water Conservation in a Changing Climate on December 19, 2023, the NUST Student Affairs Directorate, in collaboration with the NUST Environment Club, organized an educational seminar titled “Conserving Pakistan’s Water Resources in a post 1.5°C World” at the IESE Seminar Hall. Distinguished panelists, including representatives from the Pakistan Council of Research in Water Resources (PCRWR) and NUST’s Sustainability department, shared insights and best practices for water conservation and climate action.

This seminar aligns with Sustainable Development Goal 6: Clean Water and Sanitation, by promoting efforts to ensure the availability and sustainable management of water for all.





GOAL 7

Affordable and Clean Energy

63

Projects

789

Publications

59

Patents

Dr. Sarah Farrukh's latest book, "Facilitated Transport Membranes (FTMs) for CO₂ Capture: Overview and Future Trends," published by Springer, explores the significance of FTMs in carbon capture. It covers gas transport phenomena, industrial applications like bio-gas upgrading, fabrication methods, testing techniques, and future outlooks. This comprehensive work contributes significantly to the understanding and advancement of carbon capture technologies.



ENHANCING ENERGY EFFICIENCY: TRAINING ON STANDARD AUDITS AND IOT MONITORING

A successful two-day training on standard energy audit protocols and IoT-based monitoring in commercial and industrial sectors concluded on December 22, 2023, at #NUST School of Chemical and Materials Engineering (SCME). Organized jointly by the Association of Energy Engineers, Pakistan Chapter, SCME NUST, and E-Triangle Automation Company, the event welcomed professionals from diverse industries. The training was supported by the U.S. Pakistan Center for Advanced Studies in Energy.



PROMOTING INNOVATION AND AWARENESS FOR CLIMATE RESILIENCE THROUGH ENERGY TRANSITION IN PAKISTAN PROJECT

This project explores various facets of energy transition by establishing a Secretariat for the National Academic Network, organizing policy advocacy dialogues, supporting local stakeholders in solar PV manufacturing projects, and concluding a fellowship program focused on clean energy technologies. These efforts aim to drive sustainable energy development in the region.

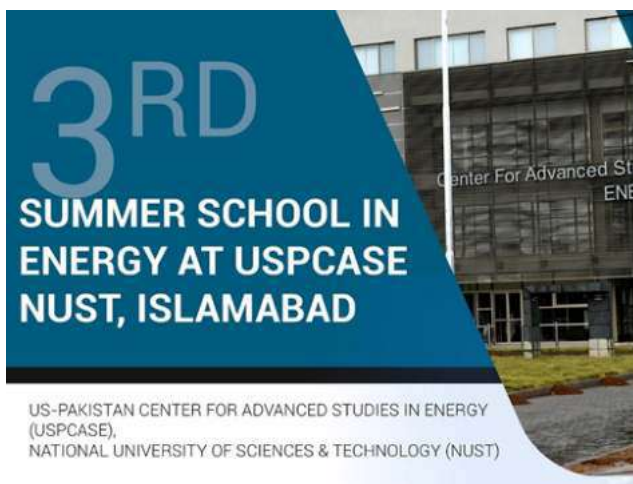


ADVANCING NANOMATERIAL CHARACTERIZATION: HANDS-ON WORKSHOP AT U.S.-PAKISTAN CENTRE FOR ADVANCED STUDIES IN ENERGY

The U.S.-Pakistan Centre for Advanced Studies in Energy at NUST conducted a 2-Day Workshop on Hands-on Characterization Techniques for Nanomaterials from November 23-24, 2023. Held in our Advanced Energy Materials and Systems (AEMS) lab, the workshop provided participants with practical training in various techniques including SEM, XRD, Raman Spectroscopy, TGA, Electrochemical Workstation, FTIR, BET Analyzer, UV-VIS Spectroscopy, Thermal Dilatometer, and AFM.



THE FLAGSHIP 3RD SUMMER SCHOOL IN ENERGY AT USPCAS-E, NUST



INTERNATIONAL CONFERENCE ON “PAKISTAN ENERGY SECTOR LANDSCAPE: CHALLENGES & OPPORTUNITIES”

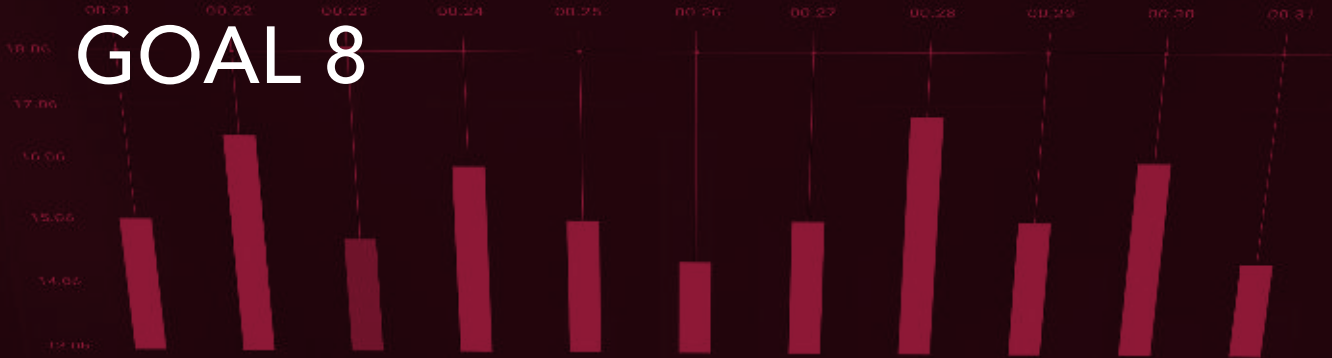


OTHER WORKSHOPS AND TRAINING

- Workshop titled “Designing Green Buildings using LEED and EDGE Standards
- Policy Dialogue: Revitalizing Pakistan’s Power Sector
- 2-day workshop on “Fabrication and Characterization of Low-Cost and Highly Efficient Advanced Solar Photovoltaic Cells
- 2nd Workshop on Designing and Hands-On Training of Solar Thermal System
- A webinar on the topic of “Electrifying the Road Ahead: Exploring the Potential and Addressing Barriers for Electric Vehicles in Pakistan”
- 2-Day International Workshop on Renewable Energy System (RES): System Designing and Global Transition
- 2-Day International Workshop on “Renewable Energy System (RES): System Designing and Global Transition



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Decent work and Economic Growth

47

Projects

309

Publications

29

Patents

TELENOR MICROFINANCE BANK MANAGEMENT DEVELOPMENT PROGRAM

NUST Business School (NBS) concluded an extensive training program for Easypaisa technical leaders from December 4th to 8th, 2023. Dr. Naukhez Sarwar, Principal NBS, commended Easypaisa management's engagement and thanked NBS faculty/trainers for their contribution. NBS wishes all participants success in their current and future roles.



ENHANCING MANAGEMENT PRACTICES: CAPACITY BUILDING OF HESSA PARTNER HEIS ORIC AT NUST

The training session at NUST focused on enhancing management practices for HESSA Partner HEIs ORIC. Participants delved into post-award activities, including execution, management, and monitoring of project grants to ensure successful deliverables.



PAKISTAN: IMAGE BUILDING AND PERCEPTION MANAGEMENT

collaborative approach involving the business community, government, and civil society.

The webinar on “Pakistan: Image Building and Perception Management,” organized by NIPS on September 7, 2023, featuring Mr. Javed Jabbar and Mr. Toaha B. Z. Qureshi. Both the speakers underscored the importance of nation branding for Pakistan’s progress, proposing a



NUST ALUMNI NETWORK

NUST’s commitment to creating a global impact is evident in the diverse opportunities that our graduates have successfully pursued. The NUST Alumni Network boasts a robust community of over 48,000 members spanning over 70 countries. This network plays a pivotal role in enriching the Student lifecycle through a multitude of activities, including webinars, mentorship programs, internships, projects, and contributions to the need-based financial assistance program. This collaborative environment fosters equal growth and prosperity among its members.



ICESCO CHAIR OF DATA SCIENCE AND ANALYTICS FOR BUSINESS AT NUST

A stimulating panel discussion took place on September 28, 2023, during the 78th session of the UN General Assembly. This session was opportunity to learn more about the game-changing possibilities of data science in the business world, hosted by the ICESCO Chair of Data Science and Analytics for Business at NUST.



TEACH FOR PAKISTAN VISIT TO NUST FOR ENHANCED LEARNING



SKILLS DEVELOPMENT SESSION AT GOVT E-ROZGAR CENTER UMW

Management Excellence Consulting conducted a skills development session at the Government E-Rozgar Center UMW, focusing on MS Office, Graphic Designing, and Digital Marketing. Customized topics were tailored based on participants' needs identified through a pre-session survey. Participants were also guided on job portals for job search. MEC pledged continued support for job postings.



RE-INTEGRATION OF DEPORTED MIGRANTS INTO THE SOCIETY

The challenge of re-integration of deported migrants into society was identified. To mitigate this challenge, a series of training programs were offered for returning migrants as part of a consultancy project that offered employability skills. This consultancy was run with the aim of capacity building of these migrants and was delivered in partnership between NBS and the German Corporation for International Cooperation (GIZ) Pakistan.



NUST PARTNERS WITH ENTREPRENEURS ORGANIZATION ISLAMABAD TO FOSTER THE RESEARCH AND INNOVATION ECOSYSTEM IN PAKISTAN.

Through this partnership, both entities will engage in various activities such as Student entrepreneurship competitions, workshops, seminars, training programs, projects, and more. This collaboration aligns with several Sustainable Development Goals primarily quality education, decent work and economic growth, and industry, innovation, and infrastructure.



MS. NADIA PERVAIZ RECEIVES THE PRESIDENT ACHIEVEMENT AWARD 2023

Ms. Nadia Pervaiz, a member of the NUST family, has been honored with the President Achievement Award 2023 in the Entrepreneur category. In addition to her role within NUST, Ms. Nadia plays a vital role in managing the corporate aspects of the business, including handling embassies and UN Offices. The entire NUST family extends heartfelt congratulations on her remarkable achievement. This recognition aligns with Sustainable Development Goal 8: Decent Work and Economic Growth, by celebrating entrepreneurship and promoting sustainable economic development.



HARASSMENT IN ORGANIZATIONS, PREVENTION AND EMPOWERMENT

A training was conducted by an NBS faculty member in partnership with the National Examination and Evaluation Foundation (NEEF). The faculty designed the curricula for the training program which was delivered in three phases. In the first phase, the faculty delivered the training to 60 participants under the 'Train the Trainers' program through which 9 individuals were identified to deliver the training to approximately 800 employees of SMEs operating in Karachi. In the second phase, the faculty delivered a training to the CEOs and senior management of the SMEs as an intervention to seek their willingness and acceptance to deliver the training to their employees. Approximately 35 people participated. In the third and final phase, the faculty held a consultative dialogue with the consulate representatives and the SME management.





GOAL 9

Industry, Innovation and Infrastructure

322

Projects

1370

Publications

977

Patents

DEALING WITH BELT AND ROAD INITIATIVE: FUTURE CHALLENGES AND OPPORTUNITIES GLOBAL ECONOMIC REVITALIZATION

During the three-day Annual Meeting of the IFF in Guangzhou, China, from October 27 to 29, 2023, Dr. Khan participated in panel discussions on the Belt and Road Initiative (BRI) and global economic revitalization. Highlighting BRI's achievements, particularly CPEC's contributions to Pakistan's socio-economic progress, he emphasized addressing infrastructural bottlenecks and energy shortages. Dr. Khan cautioned against economic tensions arising from US-China competition, advocating against 'de-coupling' and 'de-risking' as detrimental to post-pandemic global economic recovery. His insights align with Sustainable Development Goals 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation, and Infrastructure), aiming to promote sustained, inclusive, and sustainable economic growth and build resilient infrastructure.



PROF. SYED ALI HASSAN HONORED WITH GOLD MEDAL FOR ENGINEERING EXCELLENCE

Professor Syed Ali Hassan, from SEecs, NUST, has been awarded the prestigious Gold Medal by the Pakistan Academy of Sciences for his remarkable contributions to Engineering Sciences. With a background in electrical engineering, Prof. Hassan completed his higher education at renowned universities in the USA and Germany. His extensive research in telecommunications, spanning over a decade, has led to the publication of over 250 articles in related fields. Additionally, Prof. Hassan has supervised the graduation of more than 65 MS and 7 PhD Students, secured numerous projects from global funding agencies, and served as an international visiting professor. Prof. Hassan's endeavors epitomize SDG 9, driving technological innovation and sustainable infrastructure for industrial growth and economic advancement.



ECO BRICKS RECEIVES PKR 2.5M INVESTMENT FROM STANDARD CHARTERED ACCELERATION PROGRAM

Eco Bricks, a startup from NSTP's Hatch 8 Cohort 4, successfully secured PKR 2.5 million in funding from the Acceleration Program of Standard Chartered. Founded by Kashaf, Eco Bricks stood out in a competitive field of 1100 applicants, with Kashaf being the youngest among the final seven females in the finale. Eco Bricks is dedicated to revolutionizing sustainable construction practices by developing eco-friendly bricks made from non-recyclable plastic.



NUST MILITARY COLLEGE OF SIGNALS TRIUMPHS IN PAKISTAN CYBER SECURITY CHALLENGE

Under Dr. Muhammad Faisal Amjad's guidance, NUST Military College of Signals teams secured 1st prizes and PKR 300,000 each in both the Pak Crypt Challenge and Ideas Cup Challenge at the Pakistan Cyber Security Challenge. Their success underscores expertise in cybersecurity and technological innovation, aligning with SDG 9: Industry, Innovation, and Infrastructure, fostering technological advancements in cybersecurity.



SMME PISTON CUP 2023: FOSTERING ENGINEERING EXCELLENCE

NUST School of Mechanical and Manufacturing Engineering hosted the SMME Piston Cup from November 17th to 19th, 2023. Thirteen universities participated in the championship, showcasing vehicles designed, built, and manufactured to specific constraints. This event promotes innovation in engineering design and manufacturing, aligning with SDG 9: Industry, Innovation, and Infrastructure.



NSTP STARTUP SUCCESS: BENDCRETE AND INLIGHTS SHINE AT SHELL PAKISTAN - TAMEER AWARDS 2023

Two startups nurtured by NSTP's flagship program, Hatch8, excelled at the 10th Shell Pakistan - Tameer Awards 2023. Bendcrete Engineering Services and InLights secured top positions in innovative product categories, receiving PKR 0.5 million each. This success underscores NSTP's role in fostering innovation and entrepreneurship, aligning with SDG 9: Industry, Innovation, and Infrastructure.



KEYNOTE ADDRESS ON UZBEKISTAN-PAKISTAN REGIONAL CONNECTIVITY

Ambassador Oybek Arif Usmanov delivered a keynote address at NUST Institute of Policy Studies (NIPS) on “Uzbekistan-Pakistan Regional Connectivity” on October 6, 2023. He highlighted historical ties and advocated for comprehensive relations, promoting regional integration. This initiative aligns with SDG 9: Industry, Innovation, and Infrastructure, fostering regional connectivity and infrastructure development.



FIRST SECRETARY OF THE CANADIAN HIGH COMMISSION IN PAKISTAN, VISIT TO NUST.

Amanda DeSadeleer, First Secretary of the Canadian High Commission in Pakistan, paid a visit to NUST, focusing on a creative cold chain solution that SMME developed with assistance from CFLI. Standing shoulder to shoulder with this project, PODA - Pakistan, the local partner, was essential. Three NUST schools—SMME, SEECS, and NBS, have teamed up, demonstrating a vibrant collaboration essential to the development of this innovative technology. The project’s potential to increase farm production and decrease post-harvest waste has the stakeholders optimistic.



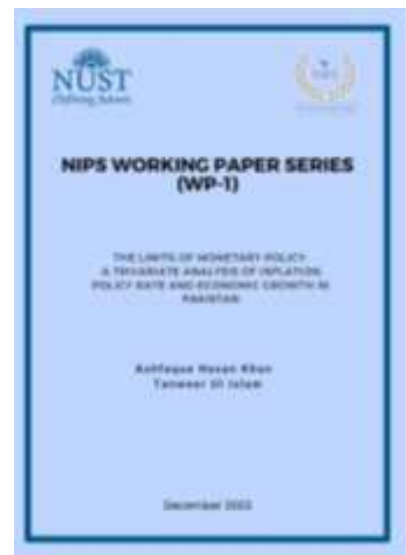
NATIONAL SEMINAR ON PAKISTAN'S ECONOMIC CRISIS: CHALLENGES AND THE WAY FORWARD

The high-level national seminar, held on January 18, 2024, featured Dr. Shamshad Akhtar, Caretaker Federal Minister for Finance, Revenue & Economic Affairs, and Mr. Muhammad Ali, Caretaker Federal Minister of Energy, Power & Petroleum. The seminar aimed to analyze economic challenges and propose solutions, aligning with Sustainable Development Goals 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation, and Infrastructure).



NIPS Working Paper

The release of the NIPS working paper titled “The Limits of Monetary Policy: A Trivariate Analysis of Inflation, Policy Rate, and Economic Growth in Pakistan” contributes to advancing SDG 8 by providing valuable insights into the relationship between inflation, policy rates, and economic growth in Pakistan, thereby supporting efforts to promote sustainable economic development and decent work opportunities.



NUST Placement Services

NUST University aids Student development by providing opportunities for placements in industry - with more than 500 recruitment drives and up to 1200 industries engaged within the last seven years, NUST Students have a 91% employment rate as per QS ranking criteria and is ranked as Pakistan's No. 1 University in the employer's reputation. The Students are polished with skills that would transfer seamlessly into the industry where recruiters can notice talent at the on-campus recruitment drives. The industry sessions and alumni talk series occur on all branches and are an engaging opportunity for all.

POLICY DIALOGUES ON POWER SECTOR REFORMS

University Advancement Office (UAO) in collaboration with the USPCASE, orchestrated two impactful dialogues themed “Resolving Energy Sector Crisis Through Digitalization & Innovation” on March 6, 2023, and “Revitalizing Pakistan’s Power Sector” on August 28, 2023. These dialogues brought together representatives from diverse industries, delved into the dynamics with the experts, and provided the Students with immense knowledge in the domain. Shout out to Imran Rana (NBS '13) Director Communications at K-Electric for steering the sessions.

FOR RESISTIVE DATA STORAGE

Prof. Dr Syed Rizwan Hussain developed novel two-dimensional MXene nanomaterials that showed excellent ferroelectric and multiferroic properties at room-temperature. The material was then inserted into a trilayered memristor device that showed excellent resistive data storage capabilities at room-temperature. Further to this, the device performance and retention was controlled using ferroelectric properties of the 2D material, making it energetically viable for data storage industry.

CAREER CAMP AT NUST SUMMER SCHOOL 2023

C3A collaborated with Student Affairs Dte in NUST Summer School '23, organizing a three-day program to help Students explore career options as they enter university. This initiative aimed to empower Students to make informed career choices. Activities included career assessment and career camp, engaging 189 and 154 participants respectively. Services offered encompassed individual career counselling, interview readiness, career exploration, decision-making, labor market information, self-hypnosis, and personality testing. An international organization, Franklin Covey, contributed by helping Students identify their passions and career aspirations. A results and interpretation session was held where reports were shared with Students through group counselling sessions. The Students responded positively to these events.





GOAL 10

Reduced Inequalities

42

Projects

72

Publications

11

Patents

BREAKING THE AID-DEBT CHAINS

Dr. Ashfaqe Hasan Khan delivered a lecture at the 37th Annual General Meeting and Conference of the Pakistan Society of Development Economists (PSDE) on “Breaking the Aid-Debt Chains” and his Allama Iqbal Lecture on “A Framework of Debt Relief for Low-Income Developing Countries” organized by on Pakistan Institute of Development Economics (PIDE). Dr. Khan’s contributions to the discourse on debt relief and breaking aid-debt chains directly address the goals of reducing inequalities as outlined in SDG 10.



HEARTWARMING VISIT TO COMMUNITY LIFE FOUNDATION

NCSC volunteers visited Community Life Foundation, a Christian orphanage, under Project Orphans kNOW More. Celebrating Christmas and New Year, they created unforgettable memories with the children through singing, games, and a cricket match. The day ended with cake-cutting, gift-giving, and spreading joy, fostering bonds and happiness.



TABA'S OUTREACH TO MASHAL MODEL SCHOOL

TABA team visited Mashal Model School in Islamabad, engaging 750 underprivileged Students in fun-filled activities and games. Split into indoor and outdoor groups, they organized various activities and donated sports equipment and educational materials to the school, fostering holistic development and joyous learning experiences.



PAKISTAN'S IRREGULAR MIGRATION TRENDS AND WAY FORWARD-CONFERENCE

The Centre of Excellence on Population and Wellbeing Studies (CePwS) NUST held a conference with an emphasis on Pakistan's irregular migration trends and future directions. The session's speaker, Assistant Professor S3H Dr. Tauqeer Hussain Shah, focused on the causes of migration as well as the history of migration in Pakistan. Additionally, he proposed that improving collaboration between local bodies, governments—particularly union councils—and migration groups could be a way to counteract this trend, which is only becoming worse. Making way forward towards reducing inequality.



RELATED EVENTS AND SEMINARS

- Al-Qalam, an initiative dedicated to bringing education to those less fortunate by NUST Community Service Club from 20-23 Feb 2023.
- TABA chapter of NUST Community Service Club visited 'Mashal Model School' to conduct Sport Gala for young Student on 25-Feb-23 with 49 x volunteers' Students.
- NUST Community Services Club (NCSC) organized an activity for revival of project "Elevate" at Pehli Kiran School, Islamabad in which 21 Students participated on 4 Mar 2023.
- NUST Community Services Club TABA team organized Book Asylum in which they designed a library on 15 April 2023. 35 Students participated in it for under privileged Students.
- NUST Community Services Club organized Orphans kNOw More Visit to Bait-e-Mayam on 6-May-23 in which 22 Students participated.
- NUST Community Services Club Orphans know more visited to Mera Ghar orphanage on 7-Oct-23 in which 30 Students participated.
- NCSC TABA Team organized Orphans kNOw More - Visit to Basera Trust, Islamabad, on 14-Oct-23 in which 50 Students participated.
- NUST Community Services Club Orphans know more visited to Community Life Foundation on 30-Dec-23 in which 35 Students participated.
- NCSC TABA visited MGQ Memorial Trust, Islamabad to organize different interactive activities for the elderly people at the aforementioned old age home along with an advice session for the youth in which 38 Students participated on 9 Dec 2023.



GOAL 11

Sustainable Cities and Communities

259

Projects

43

Publications

10

Patents

NUST RESEARCHERS INNOVATE AI SYSTEM FOR FAULT DETECTION IN POWER PLANTS

NUST researchers have developed an Artificial Intelligence (AI)-based system capable of detecting, locating, and classifying faults in large-scale power generation plants. Led by Dr. Khurram Kamal and Dr. Tahir Abdul Hussain Ratlamwala, the study presents groundbreaking advancements in power plant maintenance.



ENSURING SAFE VEHICULAR COMMUNICATIONS IN FOGGY WEATHER

Researchers aim to develop a safe and stable software-defined vehicular communication network, ensuring the safety of drivers, passengers, and pedestrians during foggy weather conditions. The network will facilitate real-time exchange of alerts regarding visibility conditions on various roads, enabling safe travel for all.



CANADA FUND FOR LOCAL INITIATIVES (CFLI) FOR AN INNOVATIVE SOLAR PV-BASED COLD

The Canada Fund for Local Initiatives (CFLI) has awarded NUST a grant for Dr. Hussain Imran's innovative solar PV-based cold storage concept. This multidisciplinary project aims to address post-harvest losses, increase farmers' income, and reduce carbon footprint. Collaborating with NUST schools and co-Principal Investigators Drs. Kamran Khalid and Sara Baber, the project directly aligns with seven Global Goals for Sustainable Development, contributing to global Sustainability efforts. Supported by stakeholders like the Canadian High Commission in Pakistan, CFLI, and local NGO PODA - Pakistan, this project aims to establish a precedent for future Sustainability initiatives.



NUST PARTNERS WITH YES ELECTROMOTIVE FOR EV DEVELOPMENT

The NUST School of Mechanical & Materials Engineering joined hands with YES Electromotive to spearhead the indigenous development of electric vehicles (EVs). This initiative aligns with Sustainable Development Goal (SDG) 11: Sustainable Cities and Communities, it aims to promote sustainable mobility within the campus environment. The EVs are intended to facilitate various activities such as campus transportation, visits, research projects, club engagements, community initiatives, awareness campaigns, and excursion trips, contributing to a more sustainable and eco-friendly campus culture.

NUST'S CLEANLINESS DRIVE IGNITES ACTION FOR SUSTAINABLE COMMUNITIES

On December 20, 2023, NUST's Marketing & Communications organized a fruitful Cleanliness Drive at its H-12 Campus, engaging senior management, Students, faculty, and staff. The drive aimed to cultivate awareness and a sense of responsibility among the NUST community for maintaining cleanliness in their surroundings. This initiative resonates with Sustainable Development Goal 11: Sustainable Cities and Communities, fostering endeavors to ensure access to safe, inclusive, and sustainable environments for all.





GOAL 12



Responsible Consumption and Production

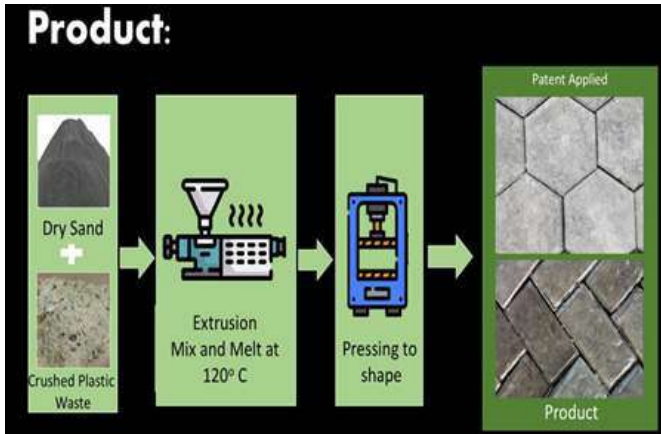
58
Projects

410
Publications

55
Patents

ECO BRICKS

Eco Bricks, a startup from NUST, pioneers eco-friendly building blocks from plastic waste, addressing waste management and environmental conservation. Each square foot of their sustainable bricks reduces 2 kg of plastic waste and decreases air pollution by 20%, while boasting a 98% reduction in water usage.



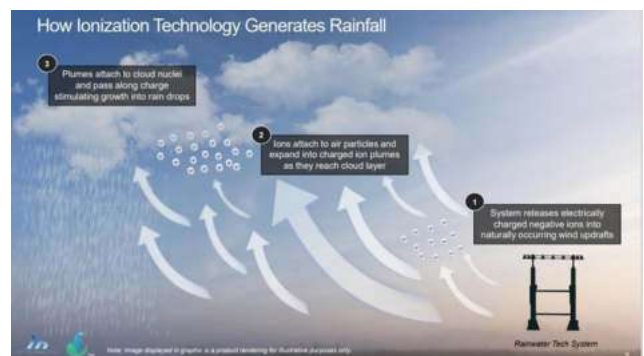
STRENGTHENING BITUMEN WITH REUSED OILY SLUDGE

Dr. Engr. Imran Khan from NUST, in collaboration with Universiti Teknologi PETRONAS (UTP), repurposed oily sludge to enhance bitumen strength for road and roof construction. Adding 8% sludge to bitumen strengthens it against wear and breakage, contributing to SDG 12: Responsible Consumption and Production.



IONIZATION-BASED RAIN ENHANCEMENT

Rain enhancement via ionization involves introducing charged particles into the atmosphere to stimulate raindrop formation. This technique amplifies natural processes, promoting more efficient rainfall in water-stressed regions. Strategically deploying ionization devices aims to mitigate drought impact, sustain ecosystems, and enhance agriculture, offering potential solutions for water resource management and drought resilience.





GOAL 13

Climate Action

105

Projects

843

Publications

50

Patents

DEPLOYMENT OF CO₂-BIN TO OFFSET CO₂ EMISSIONS

This project of Dr. Fahim Khokhar aims to deploy CO₂-Bin strategically across NUST H-12 campus to offset CO₂ emissions. Additionally, it focuses on building capacity for climate change adaptation and mitigation efforts. This project aligns with Sustainability goals, promoting environmental responsibility and carbon neutrality.



CONDUCTING A PILOT-SCALE INVESTIGATION INTO UPGRADING BIOGAS USING A HYBRID SYSTEM THAT INTEGRATES WATER SCRUBBING AND MEMBRANE TECHNOLOGIES

The project involves lab-scale testing and optimization of nano-composite membranes for CO₂/CH₄ separation. Pilot-scale biogas digester process parameters are optimized to enhance biogas production. Additionally, a water scrubber, chiller, and compressor system is designed and installed to upgrade an existing biodigester plant at SCME NUST. Feasibility analysis compares water scrubbing, membrane, and hybrid systems for energy efficiency in capturing CO₂, utilizing high-pressure membrane testing rigs.



NUST SUMMER SCHOOL ON CLIMATE CHANGE (NSSCC)

The first-ever NUST Summer School on Climate Change (NSSCC) gathered 41 delegates from over 20 universities nationwide for debates and discussions on national climate action. Hosted by NUST's Office of Sustainability, the event marked a significant milestone. The second episode is scheduled for July 2024.



ASSESSGHG-REMOVEC: ENHANCING CLIMATE-RESILIENT AGRICULTURE IN PAKISTAN

This project of Dr. Ghulam Haider from ASAB NUST focuses on assessing Pakistan's GHG emissions and implementing globally accepted CO₂ removal strategies through C-sink trading. Pakistani researchers attend German summer schools, funded by DAAD stipends, to teach acquired knowledge to local Students at NUST. Funding applicants undergo rigorous selection by a joint German-Pakistani committee.

KEYNOTE ADDRESS ON IMPACT ON ECONOMY, GOVERNANCE, AND LIVELIHOODS

NIPS hosted an expert lecture on “Climate Change: Impact on Economy, Governance, and Livelihoods” by Dr. Muhammad Fahim Khokhar of NUST. Dr. Khokhar emphasized the need for climate-resilient development in Asia, addressing governance failures and knowledge gaps. The session fostered industry-academia partnerships aligning with SDG 13: Climate Action.



INTERNATIONAL CONFERENCE ON “MATERIALS FOR SUSTAINABLE ENERGY AND CLIMATE CHANGE (MATSEC23)”



CLIMATE-SECURITY NEXUS IN BALOCHISTAN

Ms. Hiba Malik, NIPS Research Intern and Student of Center of International Peace and Stability (CIPS), researched the Climate-Security Nexus in Balochistan directly supports SDG 13 by addressing the impacts of climate change, understanding adaptation practices, identifying vulnerabilities, and addressing the interconnected social issues exacerbated by climate change.



RELATED EVENTS AND SEMINARS

- NUST Environment Club (NEC) organized Eco-Marathon in collaboration with Green Youth Movement (GYM)
- NEC and Green Youth Movement (GYM) held a guest lecture session entitled 'Organic Farming and its Impacts on Environment.'
- NEC in collaboration with Green Youth Movement (GYM) arranged a Nature Conservation Walk to Shah Allah Ditta Caves
- NEC and (GYM) organized Water Conservation Seminar to highlight the threats of climate change to water conservation and the risks associated with surpassing the red line for global warming.



GOAL 14



Life below Water

81

Projects

382

Publications

03

Patents

NUST'S RESEARCH: ENHANCING WATER QUALITY WITH NANOPARTICLES

Dr. Shahid Iqbal of NUST tested titanium oxide nanoparticles on zeolite to remove harmful nutrients like ammonia and phosphorous from freshwater, yielding clean drinking water and healthier ecosystems. This aligns with NUST's efforts on SDG 14, preserving marine life and ecosystems through water quality improvement.



NUST AT PAKISTAN SUSTAINABILITY WEEK 2023

The Pakistan Sustainability Week 2023 at Expo Centre Karachi was a huge success, brought together academics, business leaders, and Students to discuss important Sustainability concerns. The honoree was Dr. Syed Sajjad Haider Zaidi from NUST-PNEC. With NUST PNEC Team Envision taking first place in the Projects Competition and demonstrating a strong dedication to Sustainability and innovation, the event highlighted the critical importance of water, energy and epically the marine environment.





GOAL 15



Life on Land

92

Projects

338

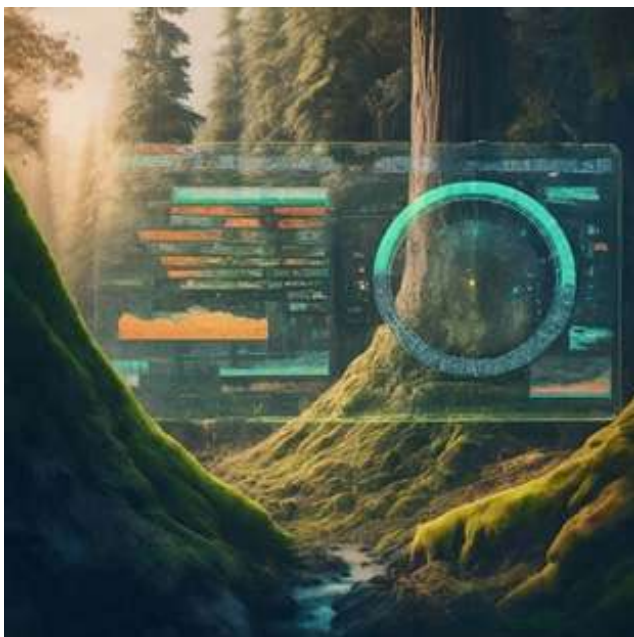
Publications

13

Patents

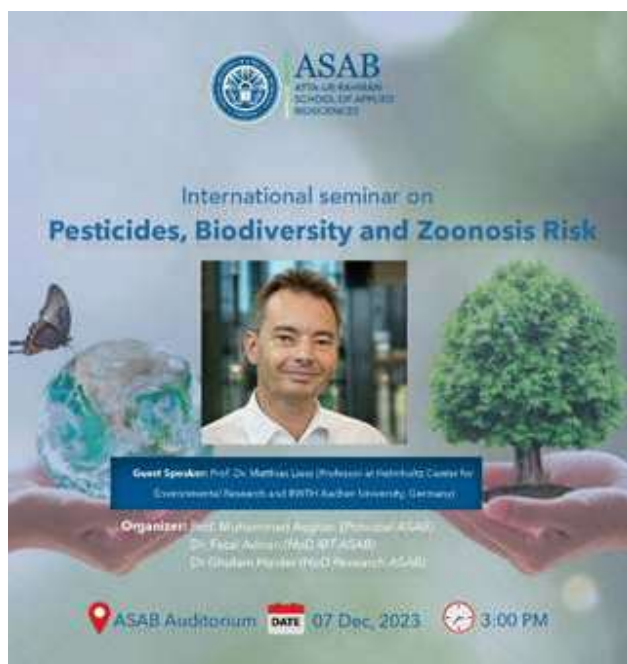
ENHANCING CLIMATE CHANGE MITIGATION RESEARCH THROUGH INTERNATIONAL COLLABORATION

This project promotes academic exchange between Pakistan and Germany, focusing on climate change mitigation under SDG-15. Three Students will annually undertake three-month research internships in Germany, gaining expertise and contributing to the project's objectives. Researchers from NUST and HSRM will also visit Pakistan for project meetings, dissemination activities, and fieldwork with Kohsar University. Faculty exchanges will foster collaboration, interdisciplinary research, and networking opportunities.



SEMINAR ON PESTICIDE, BIODIVERSITY AND ZONOSIS RISK

NUST's Atta Ur Rahman School of Applied Biosciences (ASAB) is organizing an International Seminar titled "Pesticide, Biodiversity and Zoonosis Risk." This event will gather global experts to discuss the challenges and opportunities related to pesticide use, its impact on biodiversity, and the risk of zoonotic diseases. The seminar aims to share cutting-edge research, promote interdisciplinary collaborations, and develop innovative strategies to address these complex issues.



NATIONAL CONFERENCE ON REGENERATIVE AGRICULTURE IN FARMING SYSTEMS

The National Conference on Regenerative Agriculture in Farming Systems, organized by NUST, Soorty Enterprises, and the Rural Business Development Center (RBDC), featured sessions on sustainable agriculture practices. Key topics included regenerative cotton production, farmer perspectives, soil health enhancement, and water stewardship. The conference aimed to promote sustainable agriculture by sharing innovative practices and fostering collaboration among stakeholders.





GOAL 16



Peace, Justice and Strong Institutions

94

Projects

301

Publications

13

Patents

ENHANCING JUDICIAL EFFICIENCY THROUGH DIGITIZATION

This project aims to digitize paper records into searchable digital documents using OCR to improve judicial efficiency under SDG-16 (Peace, Justice, and Strong Institutions). Despite PLD Publishers' digital platform for case retrieval, reference cases are only in textual form, requiring manual searches. The current keyword search is limited to literal matching, missing relevant cases. This third-party subscription service, not controlled by Pakistan's judiciary, lacks analytical capabilities to enhance justice quality and judicial rankings globally.



SECOND INTERNATIONAL FORUM ON DEMOCRACY: THE SHARED HUMAN VALUES

Mr. Ali Shah authored the paper titled "Democracy and Global Governance" and chaired the session on "Democracy and Innovation" at the "Second International Forum on Democracy: The Shared Human Values," held in Beijing from March 21-23, 2023. This forum was organized by major Chinese state-led organizations, including the State Council Information Office. The paper and session contributed to discussions on promoting democratic principles and innovation within global governance frameworks, aligning with Sustainable Development Goal 16 (Peace, Justice, and Strong Institutions) by advocating for inclusive and accountable governance structures.



SEMINAR ON RUSSIA-UKRAINE WAR-THE GLOBAL IMPLICATIONS

On March 17, 2023, a seminar titled “Russia-Ukraine War-The Global Implications” was organized by NIPS. The seminar successfully illuminated the broad-ranging implications of the Russia-Ukraine War, aligning with Sustainable Development Goal 16 (Peace, Justice, and Strong Institutions) by promoting informed discourse and understanding of global conflicts.



SEMINAR ON THE CONSTITUTION OF PAKISTAN

The seminar on the Constitution of Pakistan, hosted by NIPS on February 28, 2023, through its discussions and interactive sessions, contributes to the promotion of peace, justice, and strong institutions as outlined in SDG 16.



DOCUMENTED ECONOMY CURBS CORRUPTION

The keynote address delivered by the Director-General of NIPS on “Documented Economy Curbs Corruption” at the National Accountability Bureau (NAB) Headquarters on International Anti-Corruption Day, December 9, 2023, aligns with SDG 16 by advocating for measures to combat corruption, strengthen institutions, and promote peace, justice, and accountability.



HENRY DUNANT MOOT COURT COMPETITION PAKISTAN NATIONAL ROUND AND NUST LAW MOOT COURT TEAM

The NUST law moot court team, comprising Ms. Harram Chaudhry, Mr. Sheikh Saim Shahzad, and Ms. Zainab Rafiq Khan, won the 15th Henry Dunant Moot Court Competition Pakistan National round. Mentored by Mr. Fazeel Hyder Chohan, they will now represent Pakistan in the Asia Pacific round in Hong Kong.



RESEARCH GRANT 2023 FROM THE GERMAN ACADEMIC EXCHANGE SERVICE (DAAD) UNDER THE TITLE: PLANNING IN GERMANY AND PAKISTAN

Dr. Umer Khayyam has received a DAAD Research Grant 2023 for the project "Planning in Germany and Pakistan: Responding to Challenges of Climate Change through Intercultural Dialogue." The initiative involves training, publications, and curriculum development to enhance research skills and facilitate idea exchange between Pakistan and Germany.



#iamnust

Dr Umer Khayyam (S3H) and Mr Safi Ullah (SADA) secured the 2023 **German Academic Exchange Service (DAAD) Research Grant** for their project on climate change response through intercultural dialogue, focusing on capacity building via workshops, training, conferences, exposure visits, and publications in Germany and Pakistan.





GOAL 17

Partnerships for the Goals

45

Projects

43

Publications

10

Patents

PARTNERSHIP WITH S&P GLOBAL INC., SOLIDIFIED THROUGH A MEMORANDUM OF UNDERSTANDING (MOU)

An agreement between NUST Placement Office and S&P Global Inc. was established on September 14, 2023, when a Memorandum of Understanding (MoU) was signed. This partnership's strategic orientation is expected to result in revolutionary shifts in the areas of training, employment opportunities, industrial linkages, and research for both of our businesses.

Important individuals graced the MoU signing ceremony at NUST, including Mr. Mujeeb Zahur, Managing Director of S&P Global, and Pro-Rector RIC, Dr. Rizwan Riaz. Both parties agreed that S&P Global would always hire highly qualified people, and that NUST would also work hard to turn forth highly qualified applicants.



ENHANCING RENEWABLE ENERGY THROUGH NUST-CSAIL COLLABORATION

NUST and China Three Gorges South Asian Investment Ltd (CSAIL) signed a MoA to advance Renewable Energy in Pakistan, focusing on the R&D center at CSAIL's Karot hydro power plant. Opportunities include Student internships, skill development, and job openings. The collaboration aims to support R&D and offer specialized training programs, enhancing skills in renewable energy.



SOLAR PV TRAINING

NUST's first-ever international training was made possible by our distinguished alumnus, Muhammad Hafeez Abbasi, who leads strategic Partnerships at Saudi Electric Services Polytechnic aligned with SDG 17. A 5-day training course on Solar-PV designs was organized in partnership with Saudi Electric Services Polytechnic (SESP) from July 12th to 16th, 2023. The primary goal was to empower participants with crucial skills, positioning them to successfully undertake a certification exam within the Kingdom of Saudi Arabia.

PAKISTAN DELEGATES AT CRANFIELD UNIVERSITY FOR KNOWLEDGE EXCHANGE



EXPANDING CAREER PROSPECTS – CISCO NET ACADEMY

In its inaugural year, SEECs and CEME welcomed 681 Students who were honored with complimentary certifications from Cisco. This noteworthy accomplishment garnered recognition and celebration, marked by a visit from Cisco leaders representing the UAE, Qatar, and Pakistan. The purpose of their visit was to fortify the existing partnership and establish a forward-looking plan for future collaborations. In May 2023, the University Advancement Office (UAO) team, aligning with SDG 17, represented NUST at the Cisco Summit in Paris, France. Throughout the summit, they actively explored diverse opportunities for growth and collaboration on an international scale, thereby amplifying NUST's presence in the global arena.

PRO-RECTOR ACADEMICS, DR. OSMAN, AND HONORABLE RECTOR, ENGR. JAVED MAHMOOD BUKHARI, VISIT TO FH SALZBURG, THE UNIVERSITY OF APPLIED SCIENCES, IN AUSTRIA

NUST is delighted to report that Pro-Rector Academics, Dr. Osman, and Honorable Rector, Engr. Javed Mahmood Bukhari, visited FH Salzburg, the University of Applied Sciences, in Austria. This meeting's main goal was to investigate possible partnerships in a variety of fields, such as information sharing, access to new resources, academic, staff, and Student exchanges, as well as the start of cooperative research initiatives. It demonstrates commitment to raising awareness of global issues by forming alliances with prestigious organizations such as Fach Hochschule Salzburg.



NUST FORMULA STUDENT TEAM PARTNERS WITH THE TESLA FOR GLOBAL SUCCESS

The NUST Formula Student Team (NFST) achieved another milestone by securing a partnership with Tesla, marking a significant moment for innovation in Pakistan. As the country's longest running and most esteemed university team, NFST's consistent victories in Formula Student events have garnered national pride. With Tesla onboard, NFST is poised for even greater success on the global stage, showcasing Pakistan's talent and potential in the field of automotive engineering.



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