



LUMS

A Not-for-Profit University

Learning *Without* Borders

CENTRES AT LUMS



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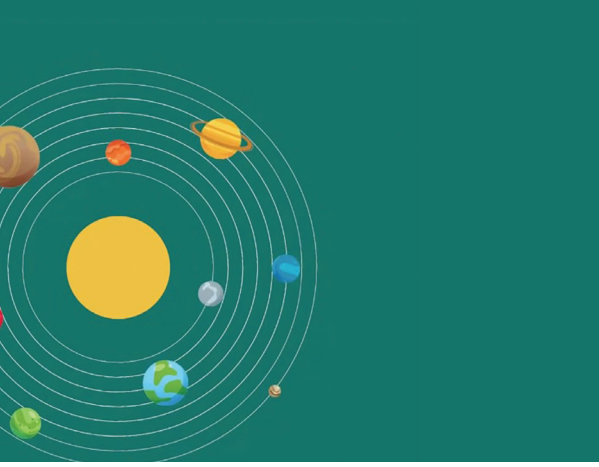
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**MESSAGE FROM
DR. ARSHAD AHMAD
VICE CHANCELLOR**

LUMS is a university of excellence where different stakeholders work together to create opportunities for hands-on innovation, research, scholarship and knowledge generation. This has helped create a dynamic infrastructure across the campus, institutionalising no-borders research and teaching on critical issues.

The diverse centres and institutes at LUMS are also the hub for exciting discoveries and avant-garde scholarship through a synergistic relationship between theory and practice.

Driven by a community focused on delivering breakthrough solutions to global problems, these centres and institutes are led by a dedicated team of dynamic individuals committed to providing solutions that have a regional and global impact.

Societal challenges in today's era are complex and require an exhaustive approach. Issues such as inequality, scalability and sustainability are thus being debated on within the University's no-borders agenda that transcends local and global boundaries and focuses on 'Learning without Borders.'

LUMS faculty and students, in collaboration with industry, international experts and governments, are tirelessly working to execute adaptable and sustainable solutions that create real and tangible differences to their communities and beyond.

We at LUMS hold dear the University's mission to create new knowledge, and I invite you to read more about how the centres and institutes are helping forward the understanding of humankind, in the region and beyond.

MESSAGE FROM
DR. TARIQ JADOON
INTERIM PROVOST



The information age overwhelms us with a constant influx of news and data from all directions. Our lives are changing faster than we have ever imagined; making it all the more important to think about our collective future and weigh in on our decisions to make the right choices that affect the betterment of our communities. It is we who need to solve the grand challenges of our society.

These grand challenges present complex multidisciplinary problems that LUMS is seeking to address with its focus on a transdisciplinary agenda of knowledge production and learning. Our centres and institutes are geared towards promoting dialogue and discussion across disciplines and various schools - whether it is about energy, the environment, water resources, urban growth, social responsibility, or addressing issues of gender discrimination.

By bringing together diverse disciplines, we seek to expand the learning experience. These interconnected aspects help our students and faculty to understand their connections with a shared past, with a common present, and with a collective future. Along with a spirit of critique and curiosity embedded in our mission, our intellectual practice remains linked to the pursuit of lifelong learning.

LUMS LEARNING INSTITUTE

The LUMS Learning Institute (LLI) is committed to enhancing teaching and learning communities, cultures and practices at LUMS and beyond. The LLI has been developing programmes that provide leadership in teaching and learning by undertaking multiple initiatives.

These include delivering teacher trainings on a large scale across LUMS, establishing pedagogical partnerships between students and teachers, and experimenting with modern technologies and innovative teaching tools – both offline and online to enhance the scope of teaching and learning.



LEARNING WITHOUT BORDERS

The LLI aligns closely with the University's no-borders agenda and imbues the vision that world-class education should be available to all – regardless of financial, geographical or social barriers.

The Institute also brings together faculty members from across the University's five schools in a strong testament to the values of diversity and transdisciplinary education. The LLI's leadership team shares the belief that educational milestones and greater cohesion could be achieved through working together across disciplines.

“Learners belonging to the 21st century are continuously exposed to new ways of interacting with the world; they like to play a role in the way they are taught, and the spaces in which they learn. Thus, we can no longer afford to rely on 20th century methods of teaching. In this emerging world, it is imperative to enable students to learn in an effective way – not only in a classroom setting, but in any space. Learning changes us: it changes the way we think and act, and shapes our future. We cannot think of learning and teaching as a product, but rather as a process that must be celebrated.”

Dr. Suleman Shahid
Director



Dr. Denise Chalmers gives a keynote talk at the launch of the LLI



LLI launch ceremony, February 2020

INITIATIVES

Instructional Skills Training Workshop

The Instructional Skills Training (IST) Workshop is an integral component of faculty development and the LLI's efforts to encourage evidence-based pedagogical practice at LUMS. This 3-day forum for cross-disciplinary, peer-based instructional development is designed to strengthen participants' instructional skills through intensive work in small groups, practicing new instructional techniques, and peer feedback. The IST is domain and experience independent, which means that it is relevant to instructors regardless of their subject matter or level of teaching experience. Since May 2019, 110 participants from across the five schools have participated in the workshop.

Course Design Express

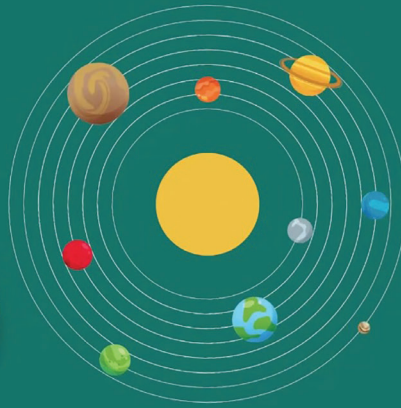
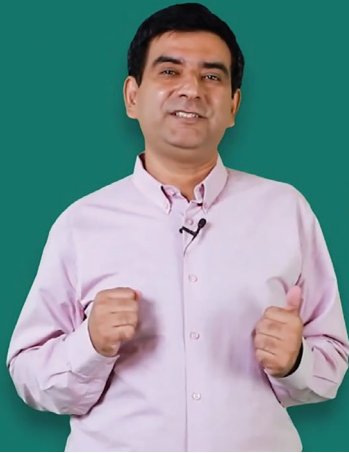
Piloted in December 2020 with 10 instructors, Course Design Express is a self-paced course where participants work through a series of five flexible blocks, working their way up to building their course outline. Optional prescheduled check-ins and group discussions are provided to those who want support and feedback.

Course Design Express with the University of Baltistan

LLI collaborated with the University of Baltistan, Skardu (UoBS) by offering the Course Design Express to faculty members from both UoBS and LUMS. The faculty members worked on developing courses related to e-commerce, life and bio-sciences, water informatics, green energy, and entrepreneurship. These will be offered in the Summer Exchange Programme 2022 between the two institutions.

Pedagogical Partnerships

The Pedagogical Partnership Programme is a LUMS-wide initiative, which aims to establish meaningful partnerships between students and staff/faculty to work on a range of teaching and learning projects. The Programme provides compensation for students to work as full members of project teams with faculty and/or staff. The Programme has supported 44 pedagogical partnerships with more than 59 student partners and 44 faculty/staff partners to date.



Dr. Muhammad Sabieh Anwar recording a MOOC

Students as Co-researcher Programme

In Summer 2020, the LLI collaborated with the Office of Research at LUMS and launched the Students as Co-researcher (SCR) Programme. It aims to promote a culture of scholarly activities amongst undergraduate students who have completed their junior year and are starting their senior year. The Programme is for students who are interested in pursuing their own research projects, in collaboration with a LUMS faculty member and mentors from industry/partner organisations.

The LLI provided consultation on developing a new stream for projects called Pedagogical Research. This encourages student-led pedagogical research initiatives which have the potential for improving teaching and learning at LUMS, scholarly publications and presentation. Over the course of two years, LLI in collaboration with the Office of Research, has supported more than 50 projects. The funding for these projects can be used for summer research projects or extended into Senior Projects.

LUMSx: BRINGING LUMS TO WIDER AUDIENCES

LUMSx is the first major strategic initiative to support the development and enhancement of technology-enhanced teaching and learning at LUMS and beyond. It is an exemplary platform for open learning which also enables faculty to create and deliver high quality online and blended learning experiences. The social and

economic impact of LUMSx can be extensive, as it is a great tool for inclusivity and has the potential to empower minorities and marginalised communities who do not have access to traditional education.

Currently, the LUMSx team is collaborating with leading experts and faculty to develop eight exemplary courses for the platforms (ILMx: Learning How to Learn, Train the Trainers (KP), Persian for Beginners, Health and Wellbeing, and Introduction to SQL, LUMSx: Introduction to Data Science, Course Design Express, and English Language for Beginners). They are also working on identifying and planning the next round of courses, as well as building in certifications such as Data Science, English Language and Business Communication, with an aim to address key gaps in the education and professional sector in Pakistan.

Learning How to Learn

The inaugural LUMSx project that is currently underway is the production of an Urdu version of the world's most subscribed course, Learning How to Learn, originally developed by Dr. Barbara Oakley.

Traditionally, the weakest link in the education system is seen during the formative years of primary schooling where the majority of development in children occurs. The National Human Development Report (NDHR) states that in 2015, 9.45 million Pakistani children at the primary level were estimated to be out of school. In addition, recent studies have shown that a vast majority of students have not been taught



The upgraded LUMS Studio

how to learn effectively – even those that have had access to formal education. Learning How to Learn will target young learners who are in their formative years and introduce them to simple, yet effective learning tools that can maximise their understanding and retention and ideally enhance their capabilities as learners.

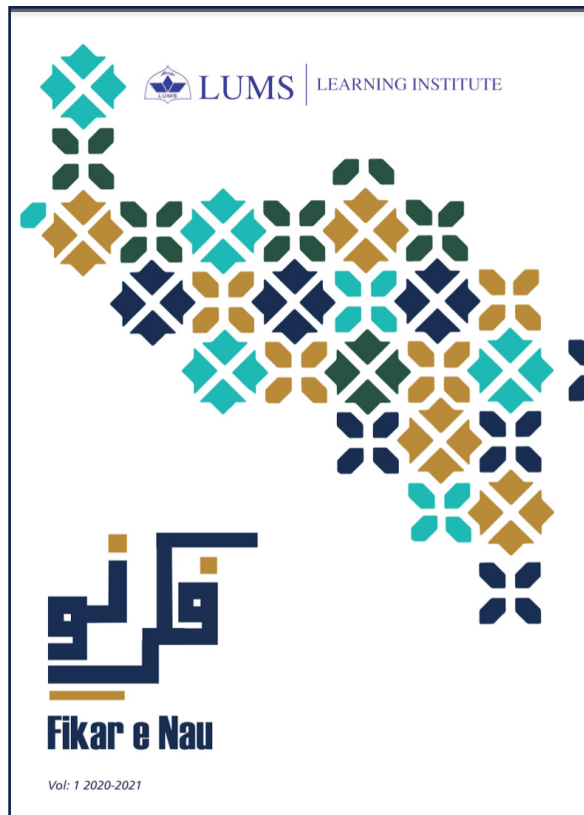
its inception. The name *Fikar-e-Nau* aligns with the concept behind setting up the LLI, which is to introduce, explore and practice new ideas in teaching and learning.

Celebrating and Recognising Teaching

Co-sponsored by the Office of the Vice Chancellor and the LLI, the Vice Chancellor's Award for Excellence in Teaching demonstrates the value LUMS attributes to the core function of teaching and learning. It recognises the contributions of individuals who, through innovation, commitment, and continued excellence in teaching have significantly enhanced the quality of their students' learning experiences. The Award recognises sustained achievement with weight given to evidence of continuing effort and outstanding contributions in teaching and learning over several years.

Fikar-e-Nau

This newsletter captures the ethos of scholarly initiatives that LLI has been involved in since



The inaugural issue of *Fikar-e-Nau*

CONTINUING EDUCATION STUDIES

LUMS houses an exclusive Centre for Continuing Education Studies (CES) that is open to not just students within LUMS but outside of the University as well. Since its inception in 2017, CES aims to address the educational needs of a range of learning communities, including high school students, career professionals and nontraditional learners. It offers a diverse and ever-increasing catalogue of courses related to professional and personal development, creative arts, languages, and cultural studies.



“The Centre for Continuing Education Studies gives us the opportunity to develop exciting and innovative curricula that address contextually-relevant problems. We can build on the research expertise of our faculty and develop courses that fulfil our commitment to be an institution of educational excellence and seek to sensitively engage with communities outside the walls of this campus.”

Dr. Ali Raza
Director

THE CES EXPERIENCE

Learners from all walks of life come to the Centre to pursue newly found interests, rediscover old passions, develop professional expertise, or to simply expand their intellectual horizons. The courses are designed and delivered by highly acclaimed industry experts and academics, so participants have the opportunity to learn from instructors passionate about their areas of expertise; the courses are also concordant with current industry best practices.

Participants learn through various experiential learning activities, work on real-time projects and gain exposure from various sessions conducted by guest speakers, well-acclaimed in their craft. Many CES graduates have been hired by different firms, have started working as freelancers or started their own businesses.

The Centre offers the following:

- Evening Short Courses
- Certifications and Programmes
- Summer Semester
- Winter School, Summer School and Pre-College Courses

POPULAR COURSES AT CES

- Data Science and Data Analytics
- Content Marketing, SEO and Google Ads Fundamentals
- Graphic Design
- Mobile Application Development for Android &

FAST FACTS

22

Successful Sessions* Organised

75+

Distinct Courses Offered

7,900+

Participants till Date, Including International Participants from 20+ Countries



A glimpse into a German language class

iOS

- Introduction to Digital Marketing
- Interior Design
- German Language
- Drawing and Painting
- Standardised Testing Preparatory Sessions for SAT, GRE and GMAT

SUMMER SCHOOL

CES runs a successful summer school for high school students to equip them with advanced learning skills and assist aspiring college applicants in preparing for the college application season. This 3-week programme allows students to spend their summer vacations in an exciting and intellectually stimulating environment.

College Coaching Workshops are held regarding essential aspects of the college application process, from writing personal statements and resumes to developing effective learning techniques.

LUMS Seminar Talks offer an introduction to the various disciplines taught at LUMS and the dialogues and conversations that animate its classrooms.

Writing School gives students the opportunity to polish their writing skills through exposure to diverse genres of writing, including academic

essays, fiction writing, and journalism, etc.

Languages and Literature Courses

ranging from Arabic to German, are offered with insight into the works of some of the most renowned authors of all time.

Arts School Classes help deepen the understanding of performing, visual and creative arts, refine the skills of the participants, and also help create a portfolio for their college applications.

Skills Building Courses are designed to equip students with skills essential to their personal, educational, and professional development.

WINTER SCHOOL

The Centre has recently also launched a two-week Winter School for high school students. Winter School comprises of the 'LUMS Seminar Talks' and 'College Coaching'. Each of the five schools at LUMS elucidate the various majors/minors offered and help shape the students' choices about what to study at university. Additionally, students engage with academic texts, theories, and research that pique their interest, and prepare them to contribute to college-level classroom discussions.

Course attendees include employees from top MNCs and leading national firms including PepsiCo, Coca Cola, Unilever, British Council, WWF-Pakistan, Engro, and the State Bank of Pakistan

*Duration of each session is 6-8 weeks.

KEY INITIATIVES

Weekend Workshops

Weekend workshops were introduced for high school students in various subjects, including Fiction Writing and Public Speaking.

Urdu Language Programme

This course primarily caters to foreigners, non-native speakers, and expats. Students study Urdu in an immersive environment and are introduced to Pakistani society and culture. The course emphasises the four skills of reading, writing, listening, and speaking, with a pedagogy that takes an active learning, student-centred approach.

LUMSx

Under this initiative, two asynchronous online programmes are being developed, which include Certificate in Data Science and Elementary English for Remote Learners.

Summer Semester at LUMS

With over 35+ online courses, the Summer Semester offers the same learning outcomes and credits as the regular undergraduate courses. These courses are open to college going and non-traditional students across Pakistan and abroad. Online courses are available in Business, Economics, Humanities, Law and STEM.

Alumni Engagement

Currently alumni from various disciplines are teaching CES courses and sharing their expertise with a wider audience, along with LUMS faculty and industry experts. About 48% of the current instructors are LUMS faculty and alumni.

Corporate Engagement

In addition to training employees from MNCs and leading national organisations, CES has launched a corporate outreach activity to further engage the corporate sector.

ACHIEVEMENTS DURING THE PANDEMIC

- 10 sessions have been successfully conducted, 143 courses were offered and 3,683 students were enrolled.
- Various new courses were offered such as Mobile App Development for Android and iOS, Cyber Security Fundamentals, Digitisation and Financial Technologies, Influencer Marketing and Digital PR, Introduction to Fashion Marketing, How to Start and Run an E-commerce Business in Pakistan, Investment and Asset Management 101, Beginning Urdu, SEO Fundamentals and Google Ads, and Graphic Design.
- The Centre's online mode of teaching increased its global reach. Participants joined CES courses from countries such as the USA, Canada, UK, UAE, and Sweden.

Gradual Shift from Online to On-campus Courses

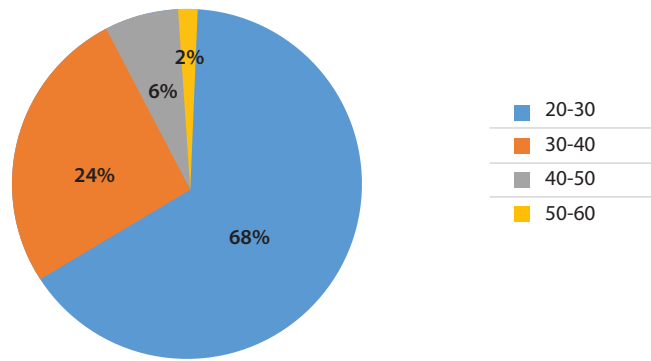
- As life returns to normal, a blend of online and on-campus courses are being offered.
- On average 30 courses are being offered on a bi-monthly basis. Out of these, nine courses have been conducted on-campus.



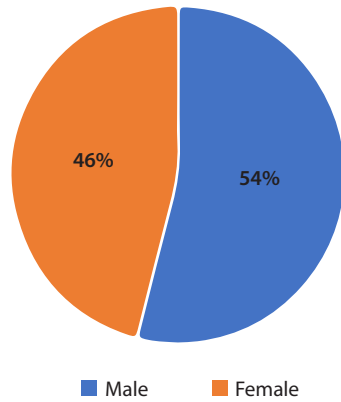
Summer School 2019 session

PARTICIPANT DEMOGRAPHICS AND MISCELLANEOUS STATISTICS

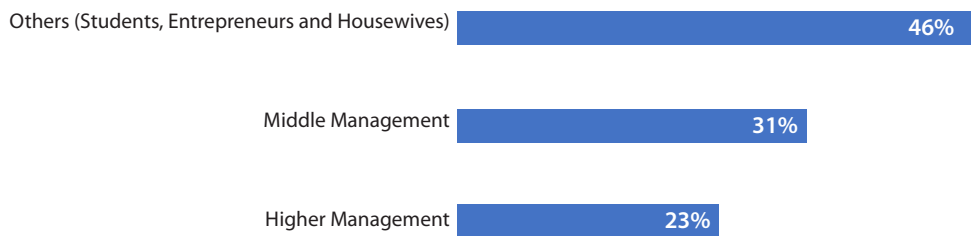
AGE GROUP DIVISION



GENDER RATIO



DIVERSITY BY PROFESSION



GURMANI CENTRE FOR LANGUAGES AND LITERATURE

The Gurmani Centre for Languages and Literature (GCLL) was founded by the Gurmani Foundation in 2010 for the advancement of South Asian languages and literature through language teaching, research and publications, and cultural programming.



“The Gurmani Centre for Languages and Literature is a unique platform for promoting and celebrating all forms of culture that represent the people of Pakistan in particular, and of South Asia in general. It brings together scholars representing different linguistic communities and presents a creative space that practitioners serving the art and heritage industries can delightfully make their own. From poetry and prose, drama, music and dance, to calligraphy, paintings and photography, the Centre appreciates and showcases almost every art form. It also continues to evolve as an inviting avenue for students to express themselves in their native languages.”

Dr. Nadhra Shahbaz Khan
Director

STUDYING AND TEACHING LANGUAGE

The Centre’s core focus is on vernacular language teaching and language curriculum development. It currently offers literature and language courses in Urdu, Persian, Punjabi, Sindhi, Pashto and Arabic, and the South Asian literary history. It is the only place in the country that has developed, and continues to further strengthen, its language curricula for non-native speakers pursuing higher education.

Publications

In line with its aim to promote regional languages and literature, the Centre offers a yearly literary journal and a student magazine. It has published several books by eminent writers over the past few years and is working on several new projects.

a. Literary Journal and Magazine:

The two publications that preserve and encourage literature in Urdu offered by GCLL are:

1. **Bunyād**, published annually, is one of the best Urdu research journals and is placed in the ‘Y’ category by the Higher Education Commission, Pakistan. It is recognised as an excellent platform where emerging academics can share innovative research in Urdu with their audience across the globe.
2. **Numūd** is the Centre’s annual magazine that features creative expressions of students. The 2022 issue is the first that invited students to write and explore their creativity in any language of their choice. The magazine includes picture stories along with articles, travelogues, short stories, and poetry.

b. Other Publications (2020-2021): *Ārē Tirčhē Āinē*—a comprehensive collection of Sarmad Sehbai’s six Urdu and three Punjabi stage plays. This landmark collection features several popular and a few unpublished plays by the author.

CULTURAL PROGRAMMES

GCLL has held a series of cultural programmes like classical music, poetry, art, storytelling and theatre, art exhibitions and aims at expanding its scope and outreach in the future. The Centre continuously looks for ways to offer people opportunities to reconnect with Pakistan's indigenous languages and their textual and visual expressions. It amalgamates traditional art and literature with contemporary expressions to provide the LUMS community a sense of belonging to this region, and to support the progress of Pakistani artists and performers.

a) Webinar Series

During the pandemic, most of GCLL's activities were shifted online. The online sessions included book launches of in-house publications and scholarly discussions on a variety of literary themes. GCLL's two broad categories for its literary activities, *Halqa-i Danish* and *Bazm-e Adab* were used to invite guest speakers (both virtually and in person) to engage in discussions with their co-panellists and the audience.

• *Halqa-e Danish*

- 'Literature and Art - The Afghan Perspective: Contemporary Afghan Pashto-Dari Short Stories' Session I
- 'Literature and Art - The Afghan Perspective: Contemporary Afghan Persian Poetry' Session II

• *Bazm-e Adab*

- 'Corona kī Vabā aur Hamārā Adab' (The COVID-19 Pandemic and Our Literature)
- 'Frantz Fanon: Jāiza aur Afāda' (Frantz Fanon: An Overview and Significance)

b) Virtual Book Launch Sessions

- GCLL's Annual Urdu Journal, *Bunyād '21*
- *Ārē Tirčhē Āinē* by Sarmad Sehbai

c) Exhibition of Paintings and Shahnameh Recital

Dirafsh-e Kāviyānī (Kaveh's Banner)—An Exhibition of Paintings by Fazil Hussain Mousavi and Recital of Ferdowsi's *Shahnameh* in Hazargi Accent; Curators: Dr. Nadhra Shahbaz Khan, Dr. Fatima Fayyaz and Shahabuddin Alamee.

d) Podcast Series—*Khayal-o-Nazar Ka Silisila* (Linkages of Visions and Visuals)

A new audio-visual engagement plan has been launched by GCLL with recordings of audio discussions on two essays published in *Bunyād's* 2021 issue.



Recital of Ferdowsi's *Shahnameh*

Published Podcasts

- Manto's Short Story "Dhuvā " (Smoke)
- Frantz Fanon, "Sixty Years After His Death: Review and Relevance"

URDU LANGUAGE PROGRAMME

GCLL has collaborated with the Centre for Continuing Education Studies at LUMS to launch the Urdu Language Programme. The programme successfully finished its first session of teaching in Fall 2021 and is set to welcome students for Spring 2022 session.

This programme is a rare opportunity for foreign students to study Urdu language and literature in Pakistan's cultural capital, and to learn about the country's society and traditions first-hand. Additionally, it provides a potential avenue for interested diaspora and heritage learners to connect with Pakistani language and culture. The programme has received support from the Mushtaq Ahmad Gurmani School of Humanities and Social Sciences, the American Institute of Pakistan Studies, and the Berkeley Urdu Language Programme in Pakistan.

MAHBUB UL HAQ RESEARCH CENTRE

The Mahbub ul Haq Research Centre (MHRC) is the flagship centre of social science research at LUMS. It supports interdisciplinary research, scholarship and teaching on issues of human development, social exclusion and inequality across South Asia. Its vision is to co-construct knowledge on critical challenges with a community of scholars, students, practitioners and social actors to bring about transformative change for an inclusive and equitable society.



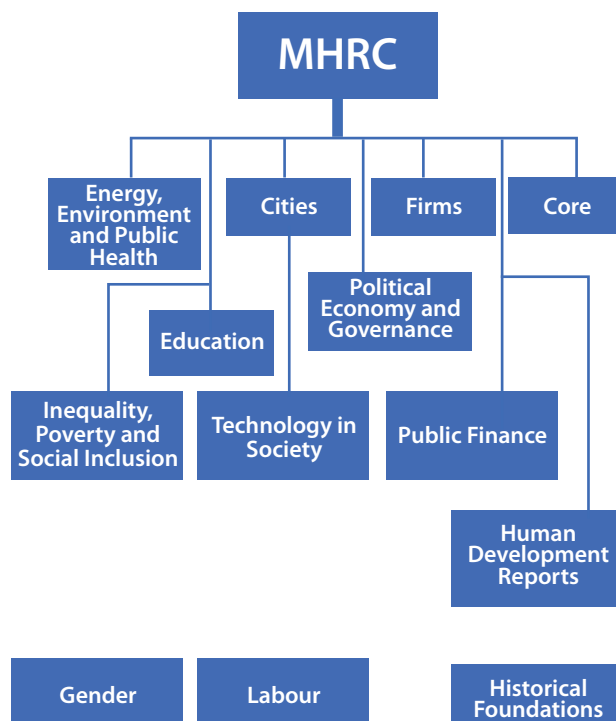
“The current aim of the Mahbub ul Haq Research Centre is to be a premier, interdisciplinary social sciences research centre in Pakistan with an emphasis on co-production of research. The work we do at the Centre draws on the expertise of talented faculty from the different schools at LUMS and is strengthened through strong collaborative relationships with social activists, practitioners, and policymakers.”

Dr. Ali Cheema
Director

RESEARCH CLUSTERS

MHRC has 8 research clusters. Fellows from each cluster commit to providing research leadership in their themes of interest. Thematic clusters at MHRC offer fellows the opportunity to work in peer groups and draw on expertise across disciplines. Gender, labour, and historical foundations are considered as cross-cutting themes.

MHRC has 116 Research Fellows working together on various projects and publications, including 39 External Fellows and 77 Resident Fellows.



PUBLICATIONS

MHRC undertakes a range of publishing efforts, from the annual issue-driven, Human Development Report to policy papers as well as academic blogs.

The Centre is currently engaged with the Institute of Development Studies (IDS), one of the world's leading international development think tanks associated with the University of Sussex, in the preparation of the next Human Development Report on Gender and Cities.

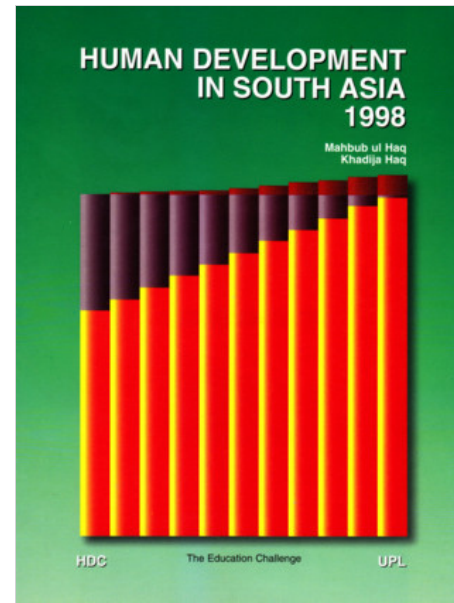
MHRC also launched a revamped website with a new blog section, Pakistan Dialogues. The purpose of the blog is to invite scholars and practitioners to draw on their work to further the understanding of national and global challenges and how they can be addressed.

EVENTS

The Centre organises multiple events to encourage conversations about human development among various stakeholders

and the wider public. These events provide participants a platform to learn from experts in the field, discuss policy challenges and share their perspectives in a variety of formats.

- **The Distinguished Lecture Series** brings leading scholars in discussion with Centre members and invitees on new knowledge concerning the critical global and national challenges of our times.
- **Reform Dialogues** facilitates critical conversations around key policy reforms and debates, helping bridge the gap between academia and practice.
- **Book Colloquiums** provide a platform for researchers to launch their publications and engage with a diverse audience.
- The **Webinar Series** brings together policymakers, academics and practitioners on a virtual platform to discuss various social themes.



MHRC Distinguished Lecture Series with Nobel Prize-winner, Esther Duflo on 'Social Experiments to Fight Poverty: From Research to Policy'



Mahbub ul Haq Distinguished Lecture Series Session, *Technical Change, Inequality and Capitalist Development* with Prof. Daron Acemoglu, Institute Professor at Massachusetts Institute of Technology (MIT), Dr. Shandana Khan Mohmand and Dr. Ali Cheema

- This year, MHRC introduced the **I. A. Rehman Social Justice and Change Webinar Series** to honour and commemorate the life of veteran Pakistani journalist, progressive and rights activist, I.A. Rehman.
- The Centre also introduced the **Nigar Ahmad & Rubina Saigol Memorial Lecture Series** to honour and commemorate the life and work of Pakistani women's rights activists and scholars; Nigar Ahmad and Rubina Saigol.

RESEARCH COLLABORATIONS

MHRC has been able to deepen academic research collaborations with various organisations and universities both within Pakistan and abroad. The focus of these collaborations revolve around:

- Public Finance
- Political Economy and Governance
- Public Health
- Gender and Development

- Urban Development
- Environment

THE CENTRE'S PARTNERS

- UN Development Programme (UNDP)
- Institute of Development Studies (IDS)
- Centre for Economic Research Pakistan (CERP)
- Akhuwat Foundation
- International Growth Centre (IGC)
- Small and Medium Enterprises Development Authority (SMEDA)
- Consortium for Development Policy Research (CDPR)

ENGAGEMENT AND OUTREACH

MHRC has cultivated an active presence on Twitter and Facebook, creating a vibrant online community of academics, students and journalists, among others.

THE CENTRE'S IMPACT

- Partnership with the Government of Khyber Pakhtunkhwa on

- strengthening local public finances and local service delivery
- Partnership with the Government of Punjab on strengthening local public finances
- Signed an MoU with the Special Monitoring Unit within the CM Secretariat in Punjab to build a Smog Consortium that can help address the rapidly worsening smog crisis in the province
- MoUs in progress with the Provincial Disaster Management Authority Punjab as well as the Environment Protection Authority Punjab to address air pollution
- Going to partner with the Ministry of Federal Education and Professional Training, specifically with the newly emerging Pakistan Institute of Education
- An MoU with Tabadlab is being signed on following areas of priority:
 - Public Health
 - Urban Policy
 - Education
- MHRC Director Policy, Maha Rehman and MHRC Fellow, Shaper Mirza have worked with the Institute of Public Health, Punjab, Services Institute of Medical Sciences and Pakistan Kidney and Liver Institute on identifying the drivers of the heterogeneity in COVID spread
- Signed an MoU for the duration of three years with SMEDA to focus on entrepreneurship and SME development
- Partnership with Kashf Foundation and Akhuwat for a conference on the success and limitations of microfinance in mediating the gender gap



Book colloquium with Dr. Ammara Masood and Dr. Shandana Mohmand



LUMS Live Session 101: Development and Contention: Energy Politics in the Contemporary Era, hosted in collaboration with MHRC

SAIDA WAHEED GENDER INITIATIVE

Established in Fall 2015, the Saida Waheed Gender Initiative (SWGI) leverages research, teaching, and praxis related to gender at LUMS. Foregrounding gender as a contested category of analysis and action, the Initiative approaches gender as a set of relations and processes that include women, men, and members of the third gender. It promotes interdisciplinary inquiry that is attentive to the construction and operation of gender across different spatial and temporal contexts.



“The Saida Waheed Gender Initiative continues with its aim to look at gender and sexuality issues through an intersectional lens. Our programming expands on the discourse of how gender and sexual realities of people are deeply tied to other conditions that inform their everyday lives. We feature insightful and critical conversations through our seminar series, and we highlight Pakistani and international academic and non-academic work. Incorporating non-academic work has been key in allowing us to expand our conversations to include insights emerging from grassroots work being done by practitioners across the country.”

Dr. Hadia Majid
Director

WEBINARS

Conditional Cash Transfers and Maternal Health: Quasi-experimental Evidence from Pakistan

Dr. Rashid Memon, Assistant Professor at LUMS and Warda Riaz, a PhD candidate at University of California (Davis), touched upon the gaps in maternal and child health in Sindh and highlighted the need for a Conditional Cash Transfer (CCT) programme in the area. They also highlighted the various dimensions of heterogeneity which are expected to create a differential impact of the CCT programme on the outcomes of interest such as the take-up of health care services. The session was moderated by Dr. Agha Ali Akram, Assistant Professor, LUMS.

Gender and the Politics of Data Work in Frontline Health

To discuss the application of data-driven and Artificial Intelligence (AI) in frontline health, Dr. Neha Kumar, Associate Professor, Georgia Institute of Technology, and Azra Ismail, a PhD candidate in Human-Centered Computing at Georgia Institute of Technology, discussed the data work that these systems depend on, and the gender-based politics surrounding data work, through their latest research project. The session was moderated by Dr. Maryam Mustafa, Assistant Professor, LUMS.

Forging Gendered Subjects: The Cultural Politics of Education in Pakistan

A riveting talk was held where Dr. Shenila Khoja-Moolji was joined by Dr. Razia Sadik, Associate Professor at LUMS, to discuss her latest work, *Forging the Ideal Educated Girl: The Production of Desirable Subjects in Muslim South Asia*. The book received the Jackie Kirk Outstanding Book Award by the Comparative and International Education Society in 2019.

Auntologies: Queer Aesthetics and South Asian Aunties

Dr. Kareem Khubchandani, a Mellon Bridge Assistant Professor in theatre, dance, and performance studies, and women's, gender, and sexuality studies at Tufts University, talked about his research on the figure of the 'aunty' in South Asia. The session was moderated by Dr. Sara Shroff, Assistant Professor at LUMS.

Salt and Sponge: Eugenics, Women's Welfare, and the Genesis of Family Planning Programmes in Pakistan

The talk was by Dr. Amna Qayyum, a Postdoctoral Fellow at the Jackson Institute for Global Affairs, Yale University, who specialises in 20th century global history, with a particular focus on decolonisation and the Cold War in South Asia and the Muslim world. The session was moderated by Dr. Shayan Rajani, Assistant Professor at LUMS.

COLLABORATIONS

Income Inequality Under COVID-19

The webinar was organised in collaboration with Consortium for Development Policy Research (CDPR), Mahbub ul Haq Research Centre, International Growth Centre (IGC) and Centre for Economic Research in Pakistan (CERP). The panellists for the session were experts from across the globe including Dr. Asim Ijaz Khwaja, Professor of International Finance and Development at Harvard Kennedy School and Director of Center for International Development at Harvard University; Dr. Homi Kharas, Senior Fellow and Deputy Director for the Global Economy and Development Program at the Brookings Institution and Dr. Ijaz Nabi, Country Director for Pakistan at the IGC and Chairman of CDPR.

Patriarchal Violence and the Policy Landscape

The webinar was organised in collaboration with Shaikh Ahmad Hassan School of Law and the Office of Accessibility and Inclusion. The panellist included Maliha Zia, Advocate of the High Court and Associate Director of Legal Aid Society, Mehlab Jameel, a Lahore-based researcher whose interests include issues of gender and sexuality in postcolonial contexts and Nighat Dad, a lawyer and digital rights activist, currently heading Digital Rights Foundation.

Impact of COVID-19 on Women in Informal Work Across South Asia

The panel session included experts from South Asia, including Ume Laila Azhar, a woman labour rights activist, pioneer of the Home-Based Workers Movement in Pakistan and member of HomeNet Pakistan; Dr. Imran Matin, Executive Director, BRAC Institute of Governance and Development at BRAC University, Bangladesh; Dr. Sona Mitra, Principal Economist at IWWAGE at KREA University, India; and Prabha Pokhrel, Chairperson of Home-Based Women Concern Society, Nepal.

GRANTS

SWGI has funded student-led research projects and senior projects. Grantees were funded for projects on diverse topics. These were 'A New Man? Masculinities in the Post #MeToo World'; 'Popularity or Power: Does the accumulation of social capital in higher education settings in Pakistan increase women's agency?' and 'Investigating how young women in Pakistan employ fashion as a tool of resistance against patriarchal gender and cultural norms'.

Faculty have also been given grants for the pursuit of creative and

GENDER BI-ANNUAL



interdisciplinary research and projects relating to gender and sexuality in Pakistan. Social Sciences faculty, Dr. Tania Saeed recently received a grant for her work, 'Intergenerational Knowledge Amongst Women: From Sex Education to Menopause'.

LUMS ENERGY INSTITUTE

The LUMS Energy Institute (LEI) was established with the single agenda to help Pakistan's power sector. Being one of the largest sectors in the country, in terms of financial value and one on which its economy is dependent, it is absolutely pertinent to take the right decisions for economic and socio-political stability and sustainability.



LEI aims to fill an existing gap in the country for cross-cutting policy research on complex energy and power sector issues. It plans to institutionalise multidisciplinary research on critical issues and provide the country's policymakers a sound basis for making informed decisions. The research is aimed at (i) power and energy planning; (ii) adoption of renewable and clean energy technologies; (iii) grid modernisation; (iv) energy markets; and (v) capacity building and institutional development. LEI is poised to play a critical role in households adopting international standards and best practices for energy conservation and efficiency.

Dr. Fiaz Ahmad Chaudhry
Director

The power sector needs to be cognisant of future developments and disruptions that may be on their way; if those working to change the system are not wary of these disruptions, the sector will become more problematic. Thus, the Institute primarily focuses on contributing in terms of resource and development of the sector. As a first step, it signed MoUs with key government entities of the sector including the Central Power Purchasing Agency Guarantee (CPPA-G) and the Power Information Technology Company (PITC) to endorse that they could contribute to solving the problems at hand.

Following this, the LUMS Energy Institute started multiple initiatives, namely, an assessment of the power sector planning function. The consistent neglect and mistakes made in power sector planning had led to a capacity shortfall in the past, while ad hoc decisions by the government have resulted in a generation surplus.

The government makes two kinds of payments to power generation companies for their generation cost—capacity payments and energy payments. Capacity payments are paid against capital investments to develop power plants with dependable generation capacity and energy payments are paid against operation (fuel) and maintenance cost.

The capacity payment for Pakistan in 2015 was about PKR 255 billion. Currently, it stands at PKR 900 billion and in 2025, it will be PKR 1,600 billion. This amounts to a six-time plus increase in ten years and constitutes about 65 per cent of the total generation cost. If a few billions are saved out of this, they can be utilised for constructive activities at the government level. Otherwise, Pakistan will keep on accumulating the ever-increasing circular debt and the situation will only worsen.

Keeping this in view, the energy demand and supply analysis for 2020-25 was initiated by the Institute. After thorough research and using a Production Simulation Model, the LUMS Power Dispatch Model, *Pakistan's Electricity Outlook 2020-25 Report* was published which highlighted the challenges faced by the power sector, the technical and financial factors associated with it, and proposed solutions for the problems.

ACCOMPLISHMENTS

With regards to an excess of power, the Institute estimated that this surplus could be used to introduce electric vehicles. This drastic change in the form of electric vehicles could solve multiple problems the country is facing that include air pollution, increase in the country's oil import bill and solving the problem of unemployment, among others.

Previously, Pakistan did not have any government level policy for electric vehicles, and thus the first step was to put together a complete policy recommendation on electric vehicles and present it to the government.

This first of its kind policy was approved by the Government of Pakistan on November 5, 2019. Under the National Electric Vehicles (EV) Policy, the target set was to convert 30 per cent of four- and tri-wheelers in the country into electric vehicles. The policy envisioned using electricity to get 100,000 cars, 500,000 two- and three- wheelers, 1,000 buses and trucks to ply on the roads in the next five years. By 2030, it was envisioned that 30 per cent of all new cars, big and small trucks, vans, and jeeps and 50 per cent of all two, three and four-wheelers should be electric vehicles reducing tailpipe emissions by 65 per cent.

Subsequently, a report on *Electric Vehicles and Batteries Market Assessment* was released on behalf of USAID which explored investment opportunities and key market success factors associated with the uptake of EVs in Pakistan. It proposed that early entrants will be best positioned to reap the benefits of a large Pakistani market and export prospects regionally.

CAPACITY BUILDING

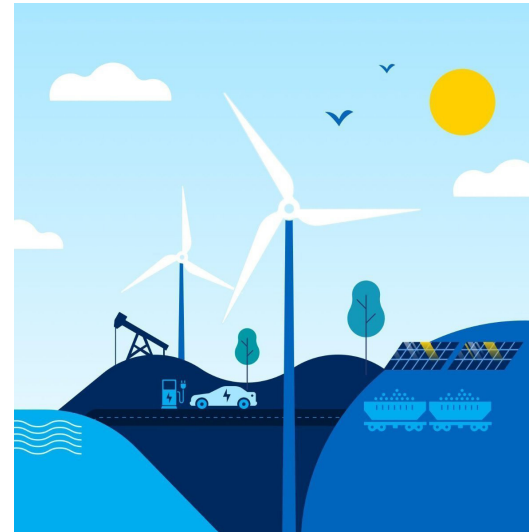
The Institute has collaborated with CPPA-G to establish and operationalise the Power Sector

Centre of Excellence (PSCE) at LUMS. Its objective is to impart trainings to power sector professionals and equip them with skills needed for long-term integrated planning. A module each on Medium-term Demand Forecasting and Transmission Planning has been conducted for officials from distribution companies, National Transmission and Despatch Company, National Electric Power Regulatory Authority and CPPA-G.

PLANS FOR THE FUTURE

The Institute is looking forward to conducting more training modules related to Demand Forecasting, Transmission Planning, Generation Planning and Electricity Markets. The objective is to cover all integral functions in power system planning.

Moreover, the Institute is a key partner of the Energy Security Group that has been awarded the USAID's Power System Improvement Project with the sole objective of reforming the power sector to make it sustainable.



Joint report by LUMS Energy Institute and USAID showcasing the potential for partnerships and investment opportunities in the electric vehicle industry

NATIONAL INCUBATION CENTRE LAHORE

The National Incubation Centre Lahore (NICL) at LUMS, funded by Ignite and the Ministry of Information Technology and Telecommunication (MoITT) passionately supports and enables ideas that create value. The Centre's vision has three key pillars: incubating and accelerating start-ups that solve problems in high impact sectors for Pakistan; facilitating corporate innovation to increase capacity and global competitiveness and enhancing applied skills for enterprising youth through broadscale skills-based training.



NICL is proud to be an integral player in this transformative emergence of Pakistan's start-up ecosystem by elevating skills and ideas to leapfrog our growth trajectory.

With guidance from trailblazing entrepreneurs and venture capitalists, we have executed a transformative redesign of the core Foundation Program. We have further enhanced our programme offerings to include global best practices through different partnerships.

We continue to deepen our ties with the LUMS community through mentorships, as well as employment and partnership opportunities for students and alumni, while enabling industry research and consultation for faculty and startups.

Nauman Zaffar
Director

PARTNERS TO PROBLEM SOLVERS

NICL is supporting ideas and entrepreneurs that create value in high impact sectors for Pakistan. It serves as a nexus between industry, academia, talent, and capital. The mission of NICL is to incubate a greater percentage of businesses that address a large commercial opportunity and attract investment capital for growth. It aims to inspire, enable, and facilitate a generation of Pakistani problem solvers.

INCUBATION AND ACCELERATION IN HIGH-IMPACT SECTORS

NICL has identified five high-impact verticals for tech-enabled solutions in Pakistan:



AGRICULTURE



EDUCATION



ENVIRONMENT



HEALTHCARE



FINANCE



AI/ML



BLOCKCHAIN



CLOUD



HARDWARE



AR/VR

The Centre's renewed strategy and programme execution is guided by an eminent group of trailblazing entrepreneurs and venture capitalists that form its Foundation Council and Advisory Board. These individuals help curate the intake of founders with novel ideas and high potential, and guide them with venture building, industry expertise, networking, and access to capital.

NICL's Innovative Curriculum and Foundry Programme is a six-month-long, boot camp style programme for entrepreneurs, covering modules such as Design Thinking, Strategy and Business Modelling, and Entrepreneurial Finance. At the culmination of this training, the capstone Investor Summit introduces the graduating batch to leading venture capitalists and angel investors for oversight and guidance.

INITIATIVES

Stanford Seed Spark Programme

NICL launched Pakistan's first Stanford Seed Spark Programme, offering best-

in-class regional training and access to a global network of entrepreneurs. NICL's nominated start-up, Code School won top laurels and a cash prize in the capstone business pitch competition in the Stanford Seed Spark Programme for high-achieving entrepreneurs across South Asia. This was the inaugural cohort from Pakistan, and was introduced by NICL. Also, all of the Centre's mentored start-ups made the top 20 finalists.

Entrepreneurship 101

Offered with Saarland University, Entrepreneurship 101 aims to inspire talented students to join the start-up ecosystem through asynchronous training on developing start-up ideas

Mentorship Programme

70+ LUMS alumni from JP Morgan, Amazon, Google, Coca Cola, Shell and Akzo Nobel provide one-to-one mentorship to NICL start-ups, sharing industry knowledge and establishing networks.



Courtney Powell, Chief Operating Officer and Managing Partner, 500 Global, and Board Member, Max Scheder-Bieschin



CONGRATULATIONS

Seed | Spark

to winners of the Stanford SEED Spark Program Competition!

SECOND INDIA



PRANABESH DASH
Xplorazzi
SINE-IIT, Bombay

FIRST PAKISTAN



SADAF REHMAN
Code School
NIC-LUMS, Lahore

THIRD INDIA



SARIKA PATHAK
Cresa GreenTech
Bhau Institute, Pune

FINALIST PAKISTAN



MALIK WALEED TARIQ
XStak
NIC-LUMS, Lahore

- 83 VENTURES
- 17 INSTITUTIONS
- 3 COUNTRIES







NICL's nominated start-up, Code School won top laurels in the Stanford Seed Spark Programme

FAST FACTS

126

Graduated Start-ups

97

Revenue Generating Start-ups

55

Start-ups that Raised Investment



Mentorship Programme at NICL

Makers Lab

NICL and Fatima Ventures launched the Makers Lab: a set of five state-of-the-art labs that help researchers, students and start-ups rapidly prototype solutions that require precision, technical expertise, and material viability.

CORPORATE INNOVATION

NICL refocused its aim to serve as a hub for collaborative research and development to enable technology transfer and global best practices.

- The Centre collaborated with the Innovation-Acceleration Lab at UNDP

Pakistan to host SolutionsFest 2.0, to address the issue of plastic waste management in Pakistan.

- Upcoming initiatives include collaborations with Engro Energy on solutions in renewable energy; with WWF to facilitate Cleantech start-ups; and with Huawei Pakistan to facilitate technical infrastructure.

Applied Skills Academy

To impart vocational and technical skills in data science, advanced analytics, and AI/ML, NICL is establishing an Applied Skills Academy. One of the projects include a 600-person training under the National Vocational & Technical Training Commission's Kamyab Jawan scheme that provides learning in advanced programming, artificial intelligence, and web scraping. A collaboration with Technical Education and Vocational Training Authority (TEVTA) for a broad-scale programme for uplifting technical and business skills necessary for underserved populations in Punjab is also under consideration.



Participants at the SolutionsFest 2.0



US Consul General in Lahore Mr. William K. Makaneole at NICL

DEEPENING LINKAGES

NICL has endeavoured to increase LUMS student and community participation across the board to help promote a culture of entrepreneurship and innovation across the campus. Some of the pathways developed by the Centre for LUMS include EdVenture, which pairs high potential start-ups incubated at NICL for consulting assignments with Masters of Science students. The Centre has also enabled LUMS faculty research and consultation work. It has served as a bridge between the industry and academia, allowing organisations to benefit from the experience of the LUMS faculty and integrate novel and

updated learning practices. Over the past year, NICL has also been expanding global outreach and partnership opportunities by hosting several international delegations and guests.

These included venture capital firms, 500 Global and Antler, and the leadership of OPEN Global as well as Pakistani American technology professionals. The Centre also entered a partnership with Paklaunch and Step Conferences to syndicate content, mentors, and capital. It has also launched the 'Entrepreneur in Conversation' series.



NICL aims to create the next generation of Pakistani problem solvers

RAUSING EXECUTIVE DEVELOPMENT CENTRE

The Raising Executive Development Centre (REDC) aims to impact the way industry leaders envision organisational strategy, develop leadership capital and achieve optimal results. REDC's targeted customised organisational-capability development collaborations and high-impact open programmes combine a trusted academic environment and stellar curriculum with meticulously documented real-world cases to produce a unique learning experience.

REDC executive alumni form part of all leading corporate and public sector organisations in Pakistan. The REDC alumni network extends to more than 30,000 executives from over 2,000 client organisations in the region.



“The REDC exists to impact and serve the practice of management, leadership, innovation, and executive education. It fosters excellence and enables innovation and growth within personal skillsets and organisational systems. We play a key role in developing a smarter, better equipped, and socially responsible generation of managers, with an aim of improving the overall business scape in Pakistan. Through these contributions in management and governance capacity building, we continue to contribute to nation-building in line with the LUMS mission, and proudly claim a part in the nurturing of generation after generation of Pakistani organisational leadership.”

Dr. Zain ul Abdin Khawaja
Director

FAST FACTS

THE PARADIGM SHIFT

There is a paradigm shift in how different organisations perceive learning and development; the idea that executive education is necessary for personal development and organisational growth is now widely understood.

Organisations are thereby functioning in a world that has necessitated a continued lifelong learning experience. They now require greater knowledge, greater inquisition, better methods of inquiry, and research to compete and sustain in the continuously evolving business scape. This focus on learning and development is now evident in the result-focused learning collaborations between industry and academia.

THE CURRENT TREND

As learning needs have evolved, so have learning solutions. REDC in its initial avatar offered courses that served to refresh and augment standard management curriculums. In its recent modern avatar, however, executive programmes at REDC extend well beyond traditional management curricula and are conceptualised based on real-time market research.

30,000

Executive Alumni Network

2,000+

Client Organisations

INNOVATIONS FOR ENHANCED LEARNING OPPORTUNITIES

Keeping in view the ever-evolving need to innovate its learning experience and stay current to varying requirements of its market, during the past year the REDC has developed new, innovative, and safe learning models pushing the boundaries of traditional classrooms.

New modes of teaching and learning ranging from live online, asynchronous, open-air classrooms, and hybrid learning classrooms, have been developed, deployed, and adapted to REDC's forte of interactive learning. Since the introduction of the Centre's online education platform in June 2020, hundreds of participants have completed executive programmes through its interactive platform, which is designed to facilitate deliberation on real-world business situations. This allows the participants to deal with complex problems and explore prospective solutions in a collaborative e-learning environment.

The Centre can now create seamless blended learning experiences across different mediums of instruction, thereby giving its clients and executives more flexible and relevant models of learning.

Serene and beautiful REDC gardens enhance the overall learning programme experience as well as provide safe and a COVID-appropriate facility for learning, interacting, and networking. With an extended live, in-person and hybrid capability the Centre aims to provide its clientele with a variety of innovative options that will extend beyond the realm of traditional learning.



Executives engaged in a discussion during a group based activity

THE WAY FORWARD

A continuing challenge for executive education is to keep abreast of market learning needs and to evolve its model accordingly, inclusive of mode, method, and material. One of the most prominent examples of this is the need for executive education to extend towards multi-disciplinary and more integrated learning solutions.

This is a response to the multifaceted needs of today, with communication, sciences, psychology, economics, business studies, and many other disciplines intertwined in modern management roles.

While the rest of Pakistan's education market has yet to adopt multidisciplinary learning in executive education, REDC has taken a flagship role in this effort. Over the next couple of years, the Centre will develop and offer hybrid management

courses that coalesce the practice of management with science and engineering, law, humanities, and social sciences, and education.

The Centre is also looking to scale its storied success to other markets, with an official presence and yearlong programme calendar in Karachi from this year onwards, and with operations starting in several Middle Eastern, South, Central, and East Asian countries.

With the launch of the Centre's online platform and cutting-edge technological and pedagogical innovations, it will supplement its face-to-face programmes with an enhanced capacity to step into international markets. As executive education grows in demand around the world, REDC is well poised to embrace new technology, new models of programme development and delivery as well as real and present challenges grappling business leaders.

60+

Executive Programmes Offered in a Year

18

International Linkages

50+

Indigenous Localised Cases Developed

CENTRE FOR WATER INFORMATICS AND TECHNOLOGY

The Centre for Water Informatics and Technology (WIT) focuses on hydro informatics and system analysis, engaging the next generation of water practitioners and academics in a multidisciplinary research team, working on innovative technologies.

Scrutinising water economics is the first step. Combining this with fundamental scientific knowledge, the Syed Babar Ali School of Science and Engineering at LUMS has a keen focus on hydrology and hydraulics as a discipline so that a scientific perspective can be brought in to formulate solutions to global water woes.



Combining information derived from water communities or hydro informatics, we use aids that enable us to look at problems at presidential scales and help us observe the process—system analysis or integrated system analysis. We analyse how things are going on and interacting with each other. The output of this is technology interventions, policy advice to the government, to managers and agencies.

Water problems are interconnected with many challenges including climate change, food security and urbanisation. This nexus of water with food, energy and environment is the reason to focus on water using an integrated system analysis.

Dr. Abubakr Muhammad
Director

INITIATIVES

- Agreement with WWF Pakistan for deployment of a Forest Health Calculator
- Agreement with Almoiz Industries Ltd. for installation of digital soil moisture meters and weather stations
- Installation of water quality sensors at various sites in agreement with WWF Pakistan
- Partnered with the University of Agriculture, Peshawar for installation of water quality sensors
- Continuation of soil moisture installations for Nestle Pakistan
- MoU with Hawkeye for analysing 3D point clouds of water channel beds
- Agreement with On Farm Water Management for installation of soil moisture meters and smart flume systems
- NCRA - Agricultural Robotics Lab (NARL), awarded to WIT by the National Centre for Robotics and Automation (NCRA) was granted an extension in support for an additional year

PROJECTS

- 'Autonomous Mobile Sensors for Hyper Resolution Hydrology' by the German Academic Exchange (DAAD), for 3 years starting from January 2021, in partnership with TU Kaiserslautern
- 'Climate Technology Market Assessment Services in Pakistan' by the International Trade Center for 6 months started in June 2021. The team conducted an extensive visit of Sindh and Balochistan and has submitted its report.

- 'A Hydro-informatics Test-bed for Smart Irrigation and Flood Prediction Applications in the Namal Valley' under a LUMS Faculty Initiative Fund grant for one year
- 'Improving Canal Irrigation Management through Remote Sensing Based Decision Support Tool' signed between WIT and Punjab Irrigation Department. The project is financed by Asian Development Bank.

WEBINARS

Aab-Beeti Sessions: Six virtual webinars with 35,000 views were conducted to highlight topics revolving around environmental issues, sustainability and climate change with respect to water management, its impacts and conservation. The series featured expert speakers who engaged in solution-oriented discussions.

Best of Water Systems Research: The seminar series celebrates distinguished works in water systems research and is aimed towards researchers, practitioners, and technical experts in water-related areas. The list of speakers majorly consists of individuals who regularly deploy quantitative data-driven methods and systems thinking and have earned recognition via peer-reviewed research in top journals. Eight seminars, with an attendance of over 200 people, were conducted in 2021.

WORKSHOPS

- NARL conducted a workshop, *Earth Observation Applications in Agriculture and Forestry* from August 17 to September 13, 2020, which was attended by 65 participants from relevant institutions.
- WIT showcased its indigenously built low-cost soil moisture sensors at the Bayer Learning Centre, a farmer-focused 2-day event organised by Bayer Crop Science. A significant number of farmers from Lahore, Okara, Sahiwal, and Sheikhpura regions



A state-of-the-art trolley robot for the Crop Phenotyping Application at the Digital Agriculture Field at LUMS

participated in the event, which was held at Bayer's Manga Mandi research centre in November 2020.

- NARL Lab and the Robotics Research Lab, Department of Computer Science, TU Kaiserslautern, jointly organised a virtual workshop, *Models, Machine Learning, and Autonomous Systems in Hydrology* in December 2021. One hundred eighty participants from all over the country attended the talks by Dr. Karsten Berns (TU Kaiserlautern), Dr. Abubakr Muhammad (WIT), Dr. Zahra Lakdawala (SBASSE), and other faculty members from LUMS.



WIT team during the cryosphere research expedition at Gabin Jaba, Swat

PUBLICATIONS

The WIT team's publications carry pioneering work that revolves around sustainability, robotics and water related issues. Between September 2020 and May 2021, the team has successfully published the following work:

- Ali, H., Muhammad, A. and Khan, M.M., 2020, September. A Simple Framework for Context-Aware Driver Performance. In 2020 IEEE 23rd International Conference on Intelligent Transportation Systems

(ITSC) (pp. 1-6). IEEE.

- Khan, M.M., Berns, K. and Muhammad, A., 2020. Vehicle specific robust traversability indices using roadmaps on 3D pointclouds. *International Journal of Intelligent Robotics and Applications*, 4(4), pp.490-506.
- Farooq, M., Muhammad, A. and Manzoor, T., 2020, December. Climate Informatics for the Water-Energy-Food Nexus in the Indus Basin: A Scoping Study in Modelling Dairy Farms. In AGU Fall Meeting 2020. AGU.
- Vinca, A., Parkinson, S., Riahi, K., Byers, E., Siddiqi, A., Muhammad, A., Ilyas, A., Yogeswaran, N., Willaarts, B., Magnuszewski, P. and Awais, M., 2021. Transboundary cooperation a potential route to sustainable development in the Indus basin. *Nature Sustainability*, 4(4), pp.331-339.
- Parveen, F. and Hankins, N., 2021. Integration of Forward Osmosis Membrane Bioreactor (FO-MBR) and Membrane Distillation (MD) Units for Water Reclamation and Regeneration of Draw Solutions. *Journal of Water Process Engineering*, 41, p.102045.
- Ilyas, A., Muhammad, A. and Manzoor, T., 2021. A Dynamic Socio-Hydrological Model of the Irrigation Efficiency Paradox. *Water Resources Research*.
- Hassan, W., Muhammad, A., Jaleel, H. and Manzoor, T., 2021. Demand-based water allocation in irrigation systems using mechanism design: A case study from Pakistan. *Agricultural Water Management*.

FIELD ACTIVITIES

- NARL took up the task to initiate an experimental field on its grounds for the purpose of an in-depth examination and understanding of crops and their yield through nature-inspired sustainable farming practices. The field is equipped with cutting-edge sensing technologies

to digitally log all parameters related to crop health and environmental conditions.

- In an on-going project collaboration with the Punjab Monitoring and Implementation Unit, WIT has installed three units on canals at different sites.
- The WIT field team completed maintenance work on the snow monitoring weather station deployed at 14,000 feet, Gabin Jabba, Swat in November 2021.

CURRICULAR INITIATIVES

WIT faculty offers a diversity of courses related to AI, remote sensing, environment, and robotics, such as

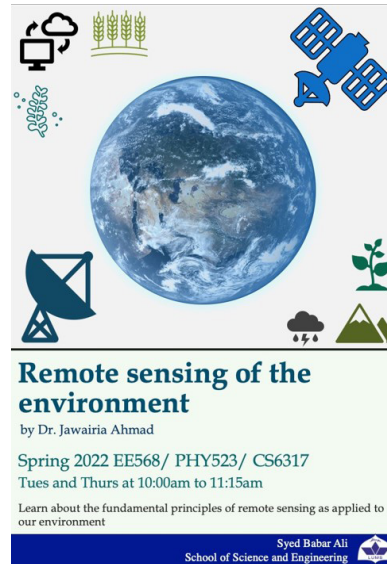
- Introduction to Environmental Sciences by Dr. Fozia Parveen
- Socio-ecological Systems and Sustainability by Dr. Talha Manzoor
- Remote Sensing of the Environment by Dr. Jawairia Ahmad
- Intelligent Sustainable Systems by Dr. Abubakr Muhammad and Dr. Hassan Jaleel

ACHIEVEMENTS



Assistant Engineers from the Irrigation Department, Khyber Pakhtunkhwa at the LUMS Digital Sustainable Agriculture Facility

- WIT conducted a successful trial of Soil Moisture Sensors and IoT Weather Stations with Almoiz Industries Ltd. at five locations of Faisalabad and Okara for a complete sugarcane crop cycle.
- In collaboration with PepsiCo and WWF Pakistan, WIT contributed to the recharge of groundwater aquifer with the help of various interventions, which include rainwater harvesting and water recycling. For this purpose, WIT has installed two projects on two sites.
- WIT integrated a digital canal gauge on the dashboard of the Punjab Irrigation Department (PID). The development allows PID to retrofit new technologies with their existing telemetry system and the dashboard, paving the way for PID to scale up indigenously made canal telemetry technologies.
- WIT has signed an MOU with PID to instrument the complete Lower Bari Doab Canal (LBDC) with Digital Canal Gauges and Soil Moisture Sensors, which will assist PID to calibrate their GIS based demand estimation models, and Digital Canal Gauges will help them efficiently monitor and control the water distribution.
- The Centre completed the deployment of 125 sensors at 36 sites with Nestle. The project is part of Nestle's effort to achieve water neutrality and it is expected that the project will help conserve 100+ million litres of water.
- Deployments were extended to the Swat Valley to monitor snow melt, stream water level and climate parameters. During the 2020 flash floods, data from the network of weather stations showed a strong correlation with the flooding event. WIT is currently working to expand its network for application to disaster risk mitigation in the northern areas.
- In collaboration with Namal Institute, Mianwali, and SEECs NUST, WIT has deployed a hydroinformatics test bed for flood prediction applications in the Namal Lake watershed. The project will install sensors and gather data to develop and test a hydrological model of the watershed.
- WIT deployed Pakistan's first snow monitoring weather station under the forest cover at Gabin Jabba, Swat. The deployment is a part of the catchment level study of snowfall, snowmelt, and river flows using in situ sensors and GIS and remote sensing. The aim is to predict water



Some of the courses offered by WIT



supply from the snow water equivalent in the northern areas.

- NARL delivered a portable, floating Water Quality Monitoring System to UET Peshawar, Jalozi Campus. Dr. Asif Khan, Chairman Civil Engineering Department, received the technological product that can map the water quality parameters of open water channels and record the geotagged information.

HIGH-END EQUIPMENT

NARL procured high-end equipment, which included high precision RTK GPS, multispectral camera, compact Lidar by Velodyne, Baby Shark long endurance VTOL drone among other things.

The Baby Shark 260 VTOL drone, the first of its kind in Pakistan, conducted its first flight. The drone boasts 2.5 hours long endurance and long-distance flight with a maximum speed of 100 km/hr and maximum flying height of 3,000 m. It will be used for long-range agricultural mapping, inspections and surveys with a multispectral camera over various districts in Punjab.

TECHNOLOGY FOR PEOPLE INITIATIVE

The Technology for People Initiative (TPI) is an applied research and design centre. It utilises technology to catalyse development in the public sector, assist government led service delivery for citizens, and improve data accessibility to facilitate informed decisions for good governance. TPI designs innovative, low-cost, and practical solutions to problems prevalent in the public and development sector. Its work spans the themes of education, health, cultural heritage, media, crime and justice, and social protection.



“TPI aims to revolutionise service delivery by making it more efficient and transparent. Over the years, the Centre has heavily invested in technological innovation to catalyse development and has raised general awareness among citizens. To achieve practical impact, we focus on developing locally relevant customised technologies informed by needs assessments that draw upon the knowledge of experts from multiple domains. We have successfully delivered in the areas of Culture and Heritage, Law and Justice, Governance, GIS Mapping and Satellite Imagery, Health, Education, and Media. To ensure sustainability, we have partnered with government departments and local stakeholders in Punjab and Khyber Pakhtunkhwa.”

Dr. Muhammad Fareed Zaffar
Director

NEWS AND EVENTS

- Wilfrid Laurier University, in collaboration with LUMS, was awarded the SSHRC Insights Grant titled, ‘Epigraph and Petroglyphic Complexes of the Upper Indus: Digital Preservation and Promotion of Written and Visual Cultures’ in April 2021. The CAD \$353,920 grant also has University of Toronto and University of Sydney as collaborators.
- Led by Dr. Murtaza Taj, work started on the project ‘Digital Preservation of Pakistan’s Heritage: Upper Indus Petroglyphs and Inscriptions’ in August 2021. The aim of the project is to digitally document and preserve the inscriptions, epigraphs, and petroglyphs on rocks in the flood basin of Diامر Bhasha Dam. Work is almost completed in the Gichi Nala – Chilas II district with work on Chilas VII – XV which started in mid-January 2022.
- TPI’s Child Protection project in collaboration with UNICEF, Oxford Policy Management, and provincial governments is currently underway. Technical field assessments have been successfully conducted for Khyber Pakhtunkhwa (KP), Sindh, Islamabad Capital Territory (ICT) and Azad Jammu and Kashmir (AJK) while software development for Balochistan and Gilgit-Baltistan is already underway. Technical field assessments for Punjab are set to begin soon.
- TPI has continued its partnership with Dr. Ali Usman Qasmi and Dr. Ali Raza, Associate Professors at the Mushtaq Ahmad Gurmani School of Humanities and Social Sciences (MGSHSS), for the LUMS Digital Archive Project; a research repository that aims at collecting, cataloguing and preserving rare material of historical significance and making them available to researchers.
- TPI is collaborating with the Government of KP and IGC for the project, ‘Cross Verification of

Revenue Data using Third-Party Data, which focuses on improving tax revenue collection through remote sensing to identify areas to be included in tax records of the region. Currently, a website is being developed, which packages financial data to allow access and understanding by even the least tech-savvy of users. A machine learning model has been developed to allow zooming in from a macro level analysis onto individual plots.

- As part of the 'Dynamic Financial Data Analytics for Policy and Governance' project, the Punjab Finance Department and TPI, in partnership with the Sub-National Governance Programme (SNG), are working to introduce evidence-based budgeting by creation of a financial dashboard to automate financial analysis and budget forecasting. A budget execution report and an initial prototype of the dashboard has already been developed. Training to users of the dashboard to ensure effective implementation and efficiency in budgeting practices is expected in early 2022.

FIELD ACTIVITIES

- TPI team visited Sindh, AJK and KP for a field assessment of the provincial governments' technological capacity to implement a Child Protection Information Management System (CPIMS). The team also elicited the input of government and civil society stakeholders on the design and implementation of the system.
- TPI team conducted field testing in Balochistan and Gilgit Baltistan (GB) for the customised CPIMS prototype developed for these provinces. This included testing the system with identified key users for training and feedback, which will be incorporated in the final system.
- TPI has worked in the Chilas region (GB) to document details of images on rocks and boulders on the bank of the Indus River and next to the Karakoram Highway. These have been documented using a laser scanner that can capture details up to 1mm accuracy and DSLR cameras with multiple lenses.
- TPI team liaised with personnel at the Punjab Government's Finance Department to conduct a needs analysis and a field assessment of the provincial government's technological capacity. This was to evaluate their current capacity constraints, ascertain their capability to implement the financial dashboard that is being created for them, and to elicit the input of local bureaucrats on the design and implementation of the dashboard. Quarterly



TPI team with GB Government representatives for field testing of the CPIMS

meetings were held with the Finance Department, SNG and Septem Systems to get feedback on the on-going development of the said financial dashboard.

- Dr. Sameen Ali, Assistant Professor, MGSHSS, participated in a talk on inclusive budgeting and development with the Finance Minister, Punjab in June 2021.

PROJECTS

Analysing the Motivational Factors Underlying COVID-19 Vaccine Hesitancy Among the Population in Pakistan: A Survey Study

- The study illustrates how the interrelations between the COVID-19 context, social influences, conspiracy narratives and misinformation, religious sentiments, and lack of trust in doctors, science, and the state, play a role in driving vaccine hesitancy in Pakistan.

Susceptibility to Misinformation: A Mixed Methods Study Investigating the Effects of Misinformation on COVID-19 Perceptions and Responsiveness

- Using an embedded research design deploying both quantitative and qualitative tools, TPI examined the pervasiveness of belief in COVID-19 misinformation in Pakistan and investigated the socio-cultural factors influencing people's susceptibilities to falling for misinformation.

Understanding the Impact of the COVID-19 Pandemic on Female Health Workers in Pakistan

- Being on the pandemic's front lines has exposed female health workers to increased risk, as well as physical and emotional burden due to strenuous workdays and fear of contagion. The project uses mixed methods research to capture the narratives, reflections, and challenges of the female healthcare workers in Pakistan amid the pandemic.

NATIONAL CENTRE IN BIG DATA AND CLOUD COMPUTING

Winning a competitive government bid in 2018 from among 57 competitors that pitched across Pakistan, the National Centre in Big Data and Cloud Computing (NCBC) was established in 11 universities across Pakistan with its secretariat at LUMS.



“Data is the new gold. It is a gold mine that keeps getting bigger and bigger. The National Centre in Big Data and Cloud Computing offers collaborative research and development where twelve labs from eleven universities across Pakistan come together to address challenges of local and global relevance using the power of data analytics and large scale cloud computing.”

Dr. Naveed Arshad
Director

The NCBC now has 12 labs operating at eleven universities, spread across the country. Each of these labs has a core area of focus.

The Centre focuses on human resource development in the specialised field of big data and cloud computing and its practical applications. The role of big data analytics and cloud computing is growing in many businesses and application domains and has become extremely critical to economic growth and national competitiveness. NCBC aims at becoming the leading hub of innovation, scientific research, knowledge transfers to local economy, and training in the area of data science, data analytics, and cloud computing.

RESEARCH AND DEVELOPMENT DOMAINS

LUMS hosts two labs of the NCBC: Sustainable Energy Informatics Lab and the Distributed Computing Lab. The former conducts state-of-the-art research and developments in areas related to renewable energy analytics, smart grids and energy efficiency, while the latter operates in the domain of cellular networks, cloud management service orchestration, internet of things and edge-data analytics among many others.

These two labs work closely with entities of national and international significance. These include Central Power Purchasing Agency, Power Information Technology Company, Google, Facebook, Zong, and many others. Several start-ups are also coming out of NCBC and one example is the Energy Informatics Inc. that is providing data forecasting and data analytics services for distribution companies and wind farms. Other labs of the Centre are working in the areas of genomics, smart manufacturing, agriculture informatics, computer vision and image processing, traffic management, crime analytics, language analytics, and many others.



NATIONAL DATA PORTAL

A major contribution of the Centre to the big data and cloud computing landscape of Pakistan has been the launch of the first National Data Portal in the country. This is a free repository of data that has been collated, refined and put in a consistent format by a dedicated team and is now accessible to anyone and everyone to use, may it be for economics, social analysis, energy, or agriculture or any field.

The Portal allows professionals from diverse areas to use readily available data to solve relevant issues in communities.

NATIONAL CONFERENCE IN BIG DATA AND CLOUD COMPUTING

NCBC holds a yearly workshop which is a meeting point of local and international experts in related fields. As part of the conference, talks are held by international experts from academia, industry, and government. Ideas are exchanged at panel discussions that explain how big data and cloud computing technologies can be used to solve problems of national importance as well as how to meet sustainable development goals.

Hand-on tutorials are also conducted to familiarise students and participants with the current research and its applications in the area of machine learning, high performance computing, and cloud computing.

CENTRE FOR CHINESE LEGAL STUDIES

Founded in October 2019, the Centre for Chinese Legal Studies (CCLS) is a groundbreaking initiative for research in, and the promotion and teaching of, Chinese legal studies in Pakistan. The Centre aims to become the premier regional and global hub for shared legal resources and an exchange of knowledge between Pakistan's academics, students, and legal and business professionals, and their counterparts abroad to build capacity and local legal expertise.



“The Centre for Chinese Legal Studies at LUMS, a first-of-its-kind initiative, is dedicated to becoming Pakistan’s premier hub for legal knowledge pertaining to Chinese law and practices. We are committed to equip present and future lawyers, academics, and other relevant local stakeholders with the necessary understanding of Chinese law and the legal frameworks that govern relations between the two states.”

Prof. Sikander Ahmed Shah
Director

FLAGSHIP ACHIEVEMENTS

CCLS partnered with the Hanns Seidel Foundation (HSF) Pakistan. The collaboration ran for a period of three months during which, both conducted academic research on ‘Legal and Regulatory Strategies for the Coordination and Commercial Oversight of Pakistan’s Response to COVID-19’. As part of the project agreement, CCLS produced two policy papers and four op-eds on the topic.

The policy paper was the core deliverable of the project with the HSF. Authored by Professors Sikander A. Shah and Uzair J. Kayani, with assistance from Khadijah Ahmed, Namra Gilani, Ayesha Alam Malik, and Mujtaba Momeni, the paper examines the extant legal and regulatory regime relating to the provision of healthcare services – particularly in light of the pandemic.

CCLS also entered into an MoU with the Pakistan-China Institute (PCI) to promote mutual cooperation through joint research and academic work.

OP-EDS

The Belt-and-Road Initiative and Digital Economy: A Focus on Digital Connectivity in the China-Pakistan Economic Corridor

Co-authored by Abeer Mustafa, Former Assistant Manager, CCLS and Maneha Tariq, Research Assistant, CCLS, the article discusses how during and in the aftermath of the COVID-19 pandemic, the world came to realise the significance of the digital space and its potential benefits.

United They Stand

Written by Mujtaba Momeni and Khadijah Ahmad, the op-ed highlights the efforts of the Iranian

establishment, armed forces, domestic tech-based firms, and academic institutions in the battle against COVID-19. The op-ed also drew parallels with Pakistan and provided recommendations on how Pakistan can improve its healthcare outcomes.

Human Rights and the COVID-19 Response

Ayesha Alam Malik and Khadijah Ahmad reflected on measures adopted by the State of Pakistan to curb the spread of COVID-19. The authors highlighted how the International Covenant on Civil and Political Rights (ICCPR) allows for the limitation of certain rights in the interest of public health and safety.

The Effectiveness of Anti-Hoarding Legislations

Professors Sikander A. Shah and Uzair J. Kayani dissect anti-competitive behaviour in light of the Rational Choice Theory and assert that practices of hoarding can only be avoided if the costs associated with such behaviours are heightened to outweigh any possible financial gains from indulging in them.

CONFERENCES

CPEC: Pakistan-China Security and Strategic Cooperation

The virtual conference was attended by Senator Mushahid Hussain Sayed, Chairman Defence Committee; Professors Uzair J. Kayani and Sikander A. Shah and members of PCI and the LUMS community.

China and the Environment: Lessons for Pakistan

The conference highlighted how Chinese activities impact the global environment and the lessons Pakistan can glean from China's current environmental governance model. Speakers included Dr. Khalid Mir, Associate Professor, LUMS, and Ahmad Rafay Alam, renowned environmental lawyer and activist.

Poverty Alleviation, COVID-19 and CPEC – Connecting the Dots

The conference featured an expert panel. The panellists included



Dr. Sania Nishtar, Special Assistant to Prime Minister on Poverty Alleviation; Senator Mushahid Hussain Syed, Chairman Foreign Affairs Committee of the Senate of Pakistan; Masood Khalid, Former Ambassador of Pakistan to China, and Professor Xia Qingjie, Peking University, China.

Rise of China: Pakistan's Opportunities and Challenges

The conference featured Dr. Moeed Pirzada, who emphasised the need for Pakistan to move away from one-dimensional perceptions of strategic partners to understand diversity in the population and politics of neighbouring countries for effective diplomacy.

Commercial Courts in a Global Context

The CCLS Team attended a seminar organised by the University of Oxford. The panellists included international experts, judges and lawyers from Pakistan, the UK, Singapore, and China.



Members of the Chinese delegation at the CCLS inauguration ceremony

CENTRE FOR BUSINESS AND SOCIETY

The Centre for Business and Society (CBS), created in 2019, is a multidisciplinary, inclusive and responsive platform that brings efforts and conversations at the intersection of business and society onto a wider stage of influence.

It engages with diverse groups including business, government, policymakers, civil society, practitioners and the academic community to contribute to solving today's business and societal challenges. The core objective of the Centre is built on focus areas vital to Pakistan's social and economic sustainability, including social, ethical and environmental responsibility, diversity and inclusivity.



In line with the emergent needs of practitioners and academia in Pakistan, CBS brings to the fore important conversations that have been absent from the current narrative within the landscape of Pakistani business schools. These are conversations around responsible business, promotion of inclusive and sustainable business environments and the means to impact the evolution of the regulatory and policy environment. The Centre intends to start these conversations to create impact through transdisciplinary work that is representative of real issues in the Pakistani society and provide solutions to the same.

Dr. Zehra Waheed
Director

FAST FACTS

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THEMATIC PILLARS

The CBS blueprint draws largely from the 2030 Agenda for Sustainable Development, and the 17 Sustainable Development Goals (SDGs). The Centre's thematic pillars revolve around the themes: education, gender, health, reduced inequalities, environment, sustainability, governance, public policy, social entrepreneurship, capacity building, diversity, and inclusiveness.

INITIATIVES

CBS Ambassadors for Change Programme

The CBS Ambassadors for Change Programme is a vigorous initiative in which volunteers from across all schools of LUMS conduct Mathematics and English classes for alumni of The Citizens Foundation (TCF) schools. Student volunteers teach TCF alumni and help them succeed in their university applications. This programme has engaged over 50 student volunteers from LUMS as coordinators, learning coaches and teachers. Volunteering on the weekends and interacting with underprivileged students has given these LUMS students the opportunity to learn, engage and respond to problems being faced by members of the marginalised communities around them. The impact created by this programme also extends to the cohort of over 200 TCF students who developed English and Mathematics skills

through this initiative. This will play a significant role in helping these students gain admission in higher education institutions. So far, three rounds inclusive of an on-campus chapter in 2019-20, a successful virtual chapter in 2021, and one in Spring 2022 have been held.

CBS Internship Programmes

CBS conducts internship programmes that give students the opportunity to develop professional skills and gain experience of working in office environments. Every year, the Centre organises a six-week long CBS Summer Internship in which interns work under the supervision of the CBS team on impactful projects that are designed in accordance with their skillsets and goals. In addition to this, the Centre organises immersive internship programmes with student placements at organisations that give them valuable grassroots level experience. One such programme was the three-month long Massive Open Online Course (MOOC) Summer Internship in which LUMS students worked on the innovative redesigning of the teaching and learning experience in the growing domain of distance learning.

Student-Centric Activities on Key Policy Issues

Student Competitions are a part of CBS' Student Engagement Programme (StEP) that provide a space for students to interact, engage, learn and respond to pertinent issues through a myriad of innovative activities.

The first Annual Public Policy and

Governance Student Competition in 2018 gave students across LUMS the opportunity to present their research in support of a policy change in thematic areas of Gender Inclusion, Institutional/Governance Reforms and Social Policy.

Moreover, following the Centre's mandate of ethics and social responsibility, the photography competition, Click for Change, was held in collaboration with PhotoLUMS in Fall 2019 and encouraged students to capture moments that reflect instances and issues with inclusiveness in our society.

In Spring 2021, the CBS Social Impact Fund invited students with innovative and impactful social projects and ideas to apply and get an opportunity to win seed money to further expand their projects/ideas. A second photography competition was organised in Fall 2021 revolving around SDG 13: Climate Change Action, on the theme of 'Visualizing the Truth: Can You Capture the Urgency of the Climate Crisis?'

Impact on the Wider LUMS Community

To provide a platform for discourse, CBS organised several talks and sessions:

- Talk by Dutch Ambassador, Ardi Stoios-Braken on the role of women in the workplace
- Talk by Dr. Asghar Zaidi on promoting and protecting the rights of older persons in Pakistan
- Talk by Dr. Peter Lund-Thomsen on the ethics and cultural challenges in fieldwork



Scene from *Barri*, a play by Ajoka Theatre to commemorate International Day of Elimination of Violence Against Women and Human Rights

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Seminars and Talks

- Panel talk on breast cancer awareness
- Panel talk on smog awareness
- Panel talk on religious diversity and inclusivity
- Panel talk on menstrual health and period poverty
- Workshop on communicating with confidence for women at LUMS
- Virtual forum on why think tanks matter in times of crisis
- Virtual panel talk on strategies for coping with stress during COVID-19
- Sustainability webinar series on pressing environmental concerns including the climate crisis, air pollution and water sustainability
- PlasQuit awareness campaign in collaboration with LUMS Environmental Action Forum

Impactful Discourse on Gender

Every year, CBS organises an International Conference on Gender, Work and Society (ICGWS) that explores a new theme related to women and gender in every edition. The theme of the first conference held by CBS (then known as the Social Enterprise Development Centre) was Challenges, Opportunities and Prospects for Women's Economic Empowerment. For the second conference, it was Bringing Together Feminist and Postcolonial Insights. The theme of the third conference in this series will be Future of Equalities, Diversity and Inclusion in South Asia and Beyond.

Altogether, these conferences have attracted over 170 research papers and cases with attendance from Pakistan, USA, UK, India, Denmark, the Netherlands and Canada.

In 2020, CBS partnered with UAE based organisation, Ananke, on The Girl Summit. The virtual summit commemorated the International Day of the Girl Child with the theme 'My Voice, Our Equal Future' and featured more than 75 guest speakers from around the world. The topics discussed in these sessions ranged from gender equality, period poverty, gender sensitivity, challenging social norms, innovation and emerging tech, privilege, agency, decision making in the context of gender equality, identifying barriers to girls' education and harnessing the power of

data to empower girls.

Women's Entrepreneurship and Supplier Diversity

The Gender Inclusive Sourcing Initiative was a joint collaboration between CBS, WEConnect International and the Chartered Institute of Procurement and Supply of Pakistan (CIPS). This initiative aimed to immerse women in the local supply chain and successfully increase local, regional and global business opportunities for women-owned businesses (WOB) by connecting them with buyers, including heads of supply chains of large corporations and government agencies. CBS played an important role during the survey phase of this initiative by translating surveys into Urdu to increase their accessibility in Pakistan. The Centre engaged the LUMS Literary Society for this translation project. Then it led the analysis of the collected responses by engaging Dr. Shakeel Sadiq Jajja and Dr. Hassan Rauf from the Business School as consultants who analysed the data and organised the survey findings in a report. This report will be part of a wider report that will be published by WEConnect International. The findings of the report produced by CBS contributed to the content development of modules for virtual workshops on 'Women Empowerment in Supply Chains in Pakistan' and creating pledges for buyers to source from WOBs, which will contribute to increased gender-inclusive sourcing and have a positive impact on women empowerment in Pakistan.

HIGHLIGHTS



Dr. Arshad Ahmad, Vice Chancellor, LUMS, Mrs. Perwin Ali, Author, *A Free Spirit* and Dr. Alnoor Bhimani, Dean, Suleman Dawood School of Business at the inauguration of the LUMS Bookstore and the book launch of Mrs. Ali's autobiography

In 2019, CBS became the first centre from Pakistan to become part of the prestigious Network for Business Sustainability, a network whose membership includes centres from Northwestern's Kellogg School of Management, Harvard Business School, Rotterdam School of Management, Edinburgh University Business School, Ivey Business School and Copenhagen Business School among others. LUMS, CBS (and Pakistan) is now also represented through the Sustainability Centres Community's advisory board for 2021-2024, and Dr. Zehra Waheed, Director CBS, has been appointed as a member of its advisory board. This membership enables CBS to more effectively collaborate with colleagues engaged in sustainability and SDG-related research globally, while also allowing the Centre to become part of impactful conversations taking place in other parts of the world, especially the Global South.

In addition to this membership, CBS is also a part of the CAREC Think Tanks Network (CTTN) and the University of Pennsylvania's Think Tanks and Civil Societies Program (TTCSP).



Panel talk on smog awareness in collaboration with LUMS Environmental Action Forum

PROJECTS IN THE PIPELINE

In the coming months, the Centre is going to continue its focus on establishing new relationships with international bodies, local charitable organisations and various government departments. There will also be an increased focus on strengthening existing partnerships and harnessing the collective strengths of all internal

stakeholders at LUMS such as faculty and students to create sustainable impact on the wider Pakistani society.



Attendees at CBS organised training, Applying Monitoring and Evaluation of Best Practices for the Public Sector





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