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A 3-Day International Conference on Emerging Issues of Environmental Degradation, Natural Hazards and Water Security (2-4 June 2024)



A 3-Day International Conference on “Emerging Issues of Environmental Degradation, Natural Hazards and Water Security” was jointly organized by the Pakistan Academy of Sciences (PAS) and the Chinese Academy of Sciences (CAS) from 2-4 June 2024 at the PAS auditorium, Islamabad. Prof. Dr. Tasawar Hayat, Fellow PAS was the Focal Person of this International Conference. Prof. Dr. Xiangke Wang and Prof. Dr. Jian Lin from CAS and their accompanying team of academicians also contributed significantly to organize this conference.

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The main objective behind the organization of this Conference was to unite leading international and national experts, academicians, researchers, policymakers, and industrial professionals to exchange knowledge, research findings, and practical solutions regarding the pressing challenges of environmental degradation, natural hazards and water security. About 140 participants including invited speakers and participants from abroad (China, Canada, Denmark, Malaysia, Uzbekistan, UK, USA) and from local Pakistani Universities & Research Institutions, attended the event physically and or virtually. The local participants and academicians included those from QAU, GCU-Lahore, Peshawar University, NUST-Islamabad, PMAS-Rawalpindi, and others.

In his opening address, Prof. Dr. Aslam Baig (H.I., S.I., T.I) highlighted the main objective behind the organization of this International Conference. He mentioned that the main aim of the Conference was to unite national and international leading experts, academicians, researchers, policymakers, and industrial professionals to exchange knowledge, research findings, and practical solutions regarding the pressing challenges of environmental degradation, natural hazards and water security.

Prof. Dr. Kauser Abdulla Malik (H.I., S.I., T.I.), President of the Pakistan Academy of Sciences also presented his keynote address. He highlighted that since its inception, the Pakistan Academy of Sciences has been playing a critically important role in serving as a National Think Tank. He thanked the Higher Education Commission for its all-time support to the Academy in fulfilling its aims and objectives for the benefit of academicians, and researchers in the domain of pure and applied sciences. The event was inaugurated by Prof. Dr. Mukhtar Ahmed (H.I., S.I.) Chairman Higher Education (HEC), Government of Pakistan. In his inaugural address, the Chairman HEC highlighted that we, the human beings are the major cause of environmental degradation leading to air, soil and water pollution, as well as climate change and water scarcity; and therefore, we are the ones who have to provide solution for its remedy.

In total, one Plenary Lecture was presented in the Inaugural Session by Dr. Awais Khan from Cornell University, USA, while thirty-one (31) lectures were presented by eminent local and foreign speakers in seven (7) Technical Sessions of this International Conference. Topics ranging from Nano-porous Nanomaterials, Uranium extraction from seawater, global warming and climate change, chemical technology for detection of nuclear pollutants in seawater, Phytoplankton diversion in the Arabian Sea, Conversion of salt water to drinking quality level water, Plant microbe interactions for restoration of contaminated soils, Seismotectonic implications, Submarine geohazards, Conductive membranes for photoelectrocatalytic applications, Construction of MXenes composites to enhance U(VI) immobilization capability, Retention of radionuclides by cementitious

materials, Oleo-chemical waste valorization, Plant politics and phytoremediation, Fabrication of ceramic thin films, Threats of emerging viral infections through Bats, Environmental threat of Benzophenone, Role of bioenergy, Impact of Climate change on groundwater quality and biodiversity, implications of biochar-based biofiltration systems, and Monitoring of industrial polluted streams through effective machine learning tools, and many others. This conference has offered several benefits to Pakistan and the region such as the following:

- Access to Enhanced Knowledge and Expertise,
- Exposure to international best practices and innovative solutions,
- Policy Development and Viable Implementation Plans,
- Development of Regional Collaboration and Networking,
- Development of Long Term Sustainable Strategies,
- Better Disaster Preparedness and Management against issues related to environmental degradation, natural hazards, water security, and climate change.

The conference concluded that the menace of environmental degradation, climate change and water security, have been mainly induced by the unplanned pumping and excessive use of groundwater resources, unplanned disposal of untreated domestic, industrial and agricultural wastes in potable water courses, and many others. There is a dire need to address these issues through collaborative thinking and planning both at the local and regional levels to mitigate these issues.



25th Conference of the Islamic World Academy of Sciences (IAS) on Water-Energy-Food-Ecosystem Nexus for the Security of the OIC Countries (22-24 July 2024)



Pakistan Academy of Sciences (PAS) in collaboration with the Islamic World Academy of Sciences (IAS) organized the 25th Conference on “Water-Energy-Food-Ecosystem Nexus for the Security of the OIC Countries”, from July 22-24, 2024 at the PAS Auditorium, Islamabad. Prof. Dr. Kauser Abdulla Malik, President PAS; Prof. Dr. M. Aslam Baig, Secretary General PAS; and Prof. Dr. Tasawar Hayat, Fellow and Former Secretary General, PAS (Chief Organizers), addressed and welcomed the conference delegates and participants. Prof. Dr. Adnan Badran, President, IAS; was invited as a Guest of Honor, and Ms. Taghreed Saqer, Executive Secretary, IAS; and Ms. Najwa Daghestani, Programs Manager, IAS; also played a significant role in the organization of this conference. Syed Yousaf Raza Gillani, Chairman Senate, and Sherry Rehman, Member Senate, were invited as the Chief Guests at the occasion.

The main objective behind the organization of this conference was to unite leading international and national experts, academicians, researchers,

policymakers, and industrial professionals to exchange knowledge, research findings, and to find practical solutions regarding the pressing challenges and issues related to the "Water-Energy-Food-Ecosystem Nexus" for the security of the OIC Countries.

Over 140 scientists, academicians, scholars, industrialists, and policymakers from Pakistan and 13 delegates from OIC countries including Bangladesh, Jordan, Lebanon, Malaysia, Palestine, South Africa, Sudan, and Uzbekistan, attended the event physically/virtually. The local invited speakers, academicians, and participants of this conference included those from Quaid-i-Azam University, Islamabad; Federal Urdu University, Islamabad; University of Peshawar; University of Karachi; University of Agriculture, Faisalabad; Government College University, Lahore; National University of Science and Technology, Islamabad; PMAS-University of Arid Agriculture, Rawalpindi; Forman Christian College, University, Lahore; and others.

In total, 25 lectures were presented by eminent local and foreign speakers in seven (7) Technical Sessions of this Conference. The first Technical Session was devoted to 3 Key Note Lectures on the subjects of (a) Higher Education, Science and Technology Imperatives for Socio-economic Development; (b) Managing Water-Energy-Food Security-Ecosphere Nexus; and (c) Role of Renewable and Nanotechnologies in Energy Security in the 21st century. The 4th Technical Session was devoted to three thematic lectures: (a) Integrated Water Resource Management for Sustainable Agriculture; (b) Renewable Energy Solutions for Sustainable Food Production; and (c) Enhancing Food Security through Ecosystem-Based Approaches. In the remaining 5 Technical Sessions, lectures were delivered on topics ranging from challenges and opportunities in achieving SDGs, Biodiversity Nexus and Security, biochar innovation for enhancing food security and ecosystem health, the impact of size and thickness of performance of nanoparticles, malnutrition, and dementia among elderly in OIC Countries, the impact of local stress and external shocks on food systems, good water governance through the integration of science with socio-cultural dimensions, Influencing policy and practice for enhancing groundwater quality, identification of rare-earth elements in Northern Pakistan, the impact of pollutants on human health and climate change, the impact of industrial revolution on environment, climate

triggered threats, global warming and climate change triggered threats, and many others.

During the concluding session, Prof. Dr. Kauser Abdulla Malik, Prof. Dr. M. Aslam Baig, Prof. Dr. Tasawar Hayat, and Prof. Dr. Adnan Badran, thanked the IAS delegates from OIC member states, IAS Fellows, PAS Fellows, Invited Speakers, and the participants. Prof. Dr. Tasawar Hayat highlighted the several benefits of this IAS conference for the OIC Member States, such as:

- Access to Enhanced Knowledge and Expertise
- Exposure to International Best Practices and Innovative Solutions
- Policy Development and Viable Implementation Plans
- Development of Regional Collaboration and Networking
- Development of Long Term Sustainable Strategies for Better Preparedness and Management against issues related to the "Water-Energy-Food-Ecosystem Nexus".

While addressing the concluding session, Prof. Tasawar Hayat said that there is a dire need to address issues of the "Water-Energy-Food-Ecosystem Nexus" for the Security of the OIC Countries and this can be achieved through collaborative thinking and planning both at the local and the OIC regional level to mitigate these issues.



A Two-Day ANSO-PAS Workshop on Emerging Viral Infections: Insights from Molecular Studies at University of Baltistan, Skardu, Pakistan (11-12 May 2024)

Climate change and vanishing glaciers are posing challenges for the vulnerable communities in the North of Pakistan. One of the possible challenges is emerging viral infections that could affect the local human, animal, and plant populations. Another important factor is the region that connects great mountainous ranges (Karakoram, Hindukash and Himalaya) connecting China, Pakistan, Nepal, India, and central Asia. This unique characteristic makes this region very important for preparing the community response and preparedness for possible threats of emerging viruses.

To elaborate the growing concerns, the 2-Day Workshop was organized by the Alliance of International Science Organizations (ANSO) and the Pakistan Academy of Sciences (PAS) entitled "Emerging Viral Infections: Insight from Molecular Studies" at the University of Baltistan, Skardu, from 11-12 May 2024 in collaboration with the University of Baltistan Skardu, Directorate Health Services Baltistan, Quaid-i-Azam University Islamabad, Federal Urdu University of Arts, Science and Technology, and the Pakistan Biological Safety Association. About 110 academicians, scientists and post-graduate students attended the event. Dr. Zabta Khan Shinwari (Prof. Emeritus, Quaid-i-Azam University, Islamabad) graced the workshop with his presence and introduced the mission and mandate of ANSO with reference to the workshop.

Dr. Ashraf Hussain, Director Health Services Baltistan, an esteemed presence at the event, emphasized the pressing challenges and intricate nuances in managing current viral outbreaks. Additionally, he briefed on the state of health services in Baltistan was provided, outlining efforts and initiatives undertaken to address healthcare needs in the region and to ensure equitable access to medical facilities for all residents. Dr. Saaed Khan, President of the Pakistan Biological Safety Association (PBSA), provided insights into the challenges associated with HIV treatment, shedding light on critical aspects pertinent to public health and safety.

Dr. Muhammad Ali, Principal investigator of the ANSO collaborative research project entitled Molecular detection and characterization of bat-borne viruses from Pakistan gave a talk on "Emerging Viruses, their early detection and interventions: Scenario-based learning." He emphasized the critical importance of proactive early detection and intervention strategies in combating emerging viruses. Through scenario-based learning, he highlighted the urgency for scientific communities to collaborate seamlessly, in order to effectively tackle future pandemics and safeguard global health security.

ANSO-PAS Workshop "Emerging viral infections: Insights from molecular studies" University of Baltistan, Skardu May 11-12, 2024 (two-days)



The workshop, with a particular emphasis on practical sessions tailored to address emerging viral infections from a molecular perspective, provided the participants with hands-on experience. Speakers and trainers included Prof. Zhengli Shi (Wuhan Institute of Virology, Chinese Academy of Sciences) Dr. Ishtiaq Hussain (Associate Professor University of Skardu), Dr. Ikram Ullah (Assistant professor Hazara University, Mansehra), Dr. Ali Talha Khalil (Assistant professor, Molecular Biology, Lady Reading Hospital, Peshawar), Dr. Qandeel Zahra Zameer (Scientific officer (GBEPA) , Dr. Javed Muhammad Assistant professor (The University of Haripur) General Secretary (Pakistan Biological safety association), Dr. Sidra Rehman (Researcher, Department of Biotechnology, Quid-i-Azam University Islamabad), Mr. Amjad Khan

(Researcher, Department of plant sciences, Quaid-i-Azam University Islamabad). The workshop concluded with Dr. Ali delivering a succinct takeaway message: "In the face of emerging viral infections, molecular insights are invaluable tools for proactive detection, swift intervention, and effective management. Let us remain vigilant, collaborate tirelessly, and harness the power of molecular techniques to safeguard global health." The workshop aimed to provide participants with practical skills and insights into addressing emerging viral infections from a molecular perspective. It sought to foster collaboration and equip attendees with the knowledge necessary to effectively manage and mitigate the impact of these infections on public health.

Lecture Organised by the Punjab Chapter of the Pakistan Academy of Sciences (23 May 2024)

The Punjab Chapter of the Pakistan Academy of Sciences, has carried out a series of lectures/programs for the year 2024, on the current topics of high interest to human life. The first talk as per program related to "Human Genome: Advances and Prospects" was delivered by Prof. Sadaf Naz, School of Biological Sciences, University of the Punjab, on 23 May, 2024 at F.C. College University, Lahore. In addition to students and the faculty, most of the fellows of PAS from the Lahore area attended the talk. A zoom link to the talk was also provided for online participation. These talks plan to highlight the latest advances in the field of science and how these can benefit the mankind, thus stimulating interest amongst the students and researchers, and assist them in making options for pursuing their future careers. The lecture was followed

by an open discussion, which was actively participated by the audience. Prof. Kauser A. Malik, President Pakistan Academy of Sciences, while chairing this meeting stressed upon the need to popularise and promote scientific teaching and research in the country. He pledged maximum possible support from the Pakistan Academy of Sciences in achieving these objectives. Prof. M. Waheed Akhtar, Secretary, Punjab Chapter, PAS, stated that in addition to the popular lectures at different institutions in the Punjab Province, symposia on areas of national importance as well as hands-on workshops on topics of wide applications shall be organised under the lecture/program for the year 2024.



Participation of Dr Shujaul Mulk Khan, Member PAS, in the 18th International Society of Ethnobiology (ISE) Congress 2024 at Cadi Ayyad (Qazi Ayyaz), University Marrakech, Morocco

The 18th ISE congress “Biodiversity and Cultural Landscapes: Scientific, Indigenous and Local Perspectives” was organized by the International Society of Ethnobiology, Cadi Ayyad University, Global Diversity Foundation, the Centre for Development and Environment, Institut de Recherche pour le Développement, the Moroccan Biodiversity and Livelihoods Association and numbers of other local organizations at Cadi Ayyad (Qazi Ayyaz), University Marrakech, Morocco. The pre-congress events were organized in a high elevation cultural landscape of the Zerkten village situated in the Atlas Mountains where a proper training workshop was arranged for the 'Emerging Ethnobiologists' on 11-14 May, 2024 the Zerkten School Complex, Atlas, Marrakech in Morocco.

The main event, i.e., the 18th ISE Congress, was held at Cadi Ayyad University from 15-19 May 2024. This momentous event brought together 500+ academics, activists, practitioners, and visionaries from 72 different countries. More than 300 oral and 100+ posters presentations from all around the globe portrayed a beautiful glimpse of diversity in terms, of academia, researches, cultures, traditions and colors. The event covered innovative sessions, inspiring keynote speakers, and a liberating unconventional format! Via delving into

biodiversity and cultural landscapes as conceptualized and contested by de-colonial, Indigenous, and local practitioners and scholars.

The event ended with the announcement of the new ISE Board where Dr Shujaul Mulk Khan (member Pakistan Academy of Sciences), was elected as president of this prestigious International Society of Ethnobiology. Dr Shujaul Mulk Khan, announced the 19th Congress of ISE to be held in the last week of July 2026 at Cairns Australia. He welcomed all the participants, their students and collaborators to the upcoming congress and urged the importance of team work for making the earth planet a better place to live in general and ISE a successful forum in particular. Dr Shujaul Mulk Khan was accompanied by Dr Abdullah from Quaid-i-Azam University who is the Asian representative in the ISE. Prof Dr Zabta Khan Shinwari, the co-chair of Ethics Committee of ISE participated in the event virtually.

This congress turned into a huge success while exploring the rich connections between biodiversity and cultural landscapes, celebrating the intimate relationships between people, animals, and plants. Details may be viewed as webpage: <https://www.ethnobiology.net/> and <https://www.isecongress2024.org/>.

