Bangladesh Academy of Sciences
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GLOBAL EVENT

Global Science Governance: Highlights from the 17th TWAS General Conference and the Rio Declaration 2025

The 17th General Conference of The World Academy of Sciences (TWAS) convened in the vibrant city of Rio de Janeiro, Brazil, from 29 September to 2 October 2025. Marking a historic return to inperson global science diplomacy after the COVID-19 pandemic, the conference brought together nearly 300 TWAS Fellows and Young Affiliates under the resonant theme: "Building a Sustainable Future: The Role of Science, Technology, and Innovation for Global Development." Hosted by the Brazilian Academy of Sciences, this high-level assembly served as a critical forum for scientists, policymakers, and academic leaders from over 60 countries to strategize on advancing the Sustainable Development Goals (SDGs) within the Global South. The agenda was rigorously focused on the dual-edged nature of Artificial Intelligence (AI) ethics, the escalating impact of climate change on food security, and the necessity of fostering scientific excellence in the Caribbean and Latin American regions.

A highlight of the proceedings was the presentation of the prestigious TWAS Apex Award to Professor Luiz Davidovich. An Emeritus Professor and world-renowned quantum physicist, Davidovich captivated the audience with a plenary talk on the frontiers of modern physics.

Scientific Diplomacy in Action: *(Left) TWAS President Professor Quarraisha Abdool Karim, FRS, presenting the historic Rio Declaration; (Right) Distinguished delegates and scientists from the Global South attending the 17th TWAS General Assembly in Rio de Janeiro.*

The Bangladesh Academy of Sciences (BAS) maintained a formidable and highly visible presence, demonstrating the nation's growing influence in the international scientific arena. A distinguished 9-member delegation represented the country, including BAS Secretary Dr. Yearul Kabir, Associate Secretary Dr. Tofazzal Islam, and Executive Council Member Dr. Anwar Hossain, alongside Fellows Dr. Mirza Hasanuzzaman and Dr. Aliya Naheed, and Expatriate Fellow Dr. Muhammad Morshed. The delegation also included TWAS Young Affiliates Dr. Tasrina Rabia Choudhury, Dr. Abul Bashar Mir Md Khademul Islam, and Dr. Sabrina Elias. A highlight for the national community was the formal Induction Ceremony, presided over by TWAS President Professor Quarraisha Abdool Karim. During this ceremony, several BAS members—including Dr. Yearul Kabir (2023), Dr. Mirza Hasanuzzaman (2024), and 2025 inductees Dr. Anwar Hossain, Dr. Aliya Naheed and Dr. Muhammad Morshed—were officially draped with TWAS lapel pins and certificates. The occasion was made even more poignant by the presence of Mr. Moazzum Bajwa, the grandson of Nobel Laureate Professor Abdus Salam, who founded TWAS in 1983 to empower scientists in developing nations.

Newly inducted and current TWAS Fellows from Bangladesh representing the nation's growing scientific leadership (left). Right: The Bangladeshi delegation pictured with TWAS dignitaries: (center) TWAS President Professor Quarraisha Abdool Karim, FRS; (third from right) former TWAS President Professor Mohamed Hag Ali Hassan; and (second from left) TWAS Executive Director Professor Marcelo Knobel.

Beyond the celebratory inductions, the conference culminated in the adoption of the Rio Declaration, a strategic three-page document outlining the commitment of the scientific community to global sustainability. In a notable display of scientific diplomacy, the assembly also voiced strong support for a resolution regarding the Israel-Gaza conflict, reflecting the academy's concern for humanitarian crises affecting the Global South. Furthermore, the meeting addressed the critical gender gap in STEM, urging national academies to proactively nominate more women scientists to strengthen the diversity of the TWAS platform. As the scientific community looks toward the 18th TWAS Conference in Bangkok, Thailand, in 2027, there is a burgeoning call for Bangladesh to begin laying the groundwork to host a future session. Bringing the "best of the best" to Dhaka would provide an unparalleled catalyst for our national Science, Technology, and Innovation (STI) ecosystem, cementing our role as a leader in the global scientific landscape. *Credit: news piece was originally drafted by BAS Expatriate Fellow, Dr. Muhammad Morshed.*

Nurturing the Future of Science: BAS-Professor Emeritus Dr. Sultan Ahmed Choudhury Scientific Talent Nurture Scholarship Award Ceremony

The Bangladesh Academy of Sciences (BAS) celebrated a major milestone in its commitment to scientific excellence on Saturday, 25 October 2025, at the National Science and Technology Complex, Agargaon, Dhaka. The Professor Emeritus Dr. Sultan Ahmed Choudhury (SAC) Scientific Talent Nurture Scholarship Award Ceremony recognized the academic brilliance of 200 meritorious students from various schools and colleges across the nation.

The ceremony was chaired by Prof. Dr. Zahurul Karim, President of BAS, and graced by Prof. Dr. Chowdhury Rafiqul Abrar, Hon'ble Adviser to the Ministry of Education, as the Chief Guest. Mrs. Zakia Rouf Choudhury, Chairperson of the SAC Memorial Trust Fund, attended as the Special Guest, alongside Prof. Dr. ZN Tahmida Begum, Vice President of BAS and Convener of the Scholarship Award Committee, who served as the Guest of Honour. The proceedings were skillfully moderated by Prof. Dr. Yearul Kabir, Secretary of BAS.

Chief Guest Prof. Dr. Chowdhury Rafiqul Abrar (left), Hon'ble Adviser to the Ministry of Education, delivering his address to an august gathering (right) of distinguished BAS Fellows, Associate Fellows, and scholarship recipients from schools and colleges across the nation.

Honoring a Legacy of Philanthropy

The event commenced with a tribute by Prof. Dr. Yearul Kabir, who highlighted the life and magnanimity of the late Professor Emeritus Dr. Sultan Ahmed Choudhury. He described Dr. Choudhury's vision of creating a self-sustaining fund to support gifted yet resource-poor students—a legacy that continues to flourish.

In a moving address, Mrs. Zakia Rouf Choudhury shared personal reflections on her father's life, noting his profound dedication to his patients and his paternal love for all children. She reaffirmed the family's commitment to this cause, noting their recent decision to increase the endowment fund to ensure the scholarship's continuity despite fluctuating bank interest rates.

A Vision for a Science-Minded Generation

The Chief Guest, Prof. Dr. C. R. Abrar, emphasized that this ceremony was not merely a distribution of awards but a "proud celebration of Bangladesh's progress in scientific research." He remarked that the torch of scientific pursuit is now held by the younger generation, stating:

"Investing in a science-minded generation is the cornerstone of sustainable development. These scholarships are not just awards; they are an investment in the innovators who will lead tomorrow's Bangladesh."

Prof. Abrar further noted that in a world where global competition is driven by knowledge and technology, Bangladesh is making significant strides through science-based policies in agriculture, health, and renewable energy. He urged the recipients to view science not just as a laboratory discipline, but as a force for societal change and human welfare.

Proud faces of the awardess with Chief Guest, Prof. Dr. C. R. Abrar, trustee Mrs. Zakia Rouf Choudhury, Prof. Dr. Zahurul Karim (BAS President), Professor Dr ZN Tahmida (BAS Senior Vice President) and Prof. Dr Yearul Kabir (BAS Secretary).

Encouraging the Next Generation of Scientists

Prof. Dr. ZN Tahmida Begum and Prof. Dr. Zahurul Karim both extended their heartfelt congratulations to the 200 awardees. Prof. Karim expressed his deep gratitude to the SAC family for their unwavering support of the Academy's mission to popularize science. The ceremony concluded with the distribution of certificates and awards, leaving the young scholars inspired to pursue careers dedicated to innovation and national service.

ACADEMY LECTURES

Academy Lecture: Migratory Birds as Global Vectors for Multidrug-Resistant Pathogens by Dr. Muhammad Morshed, Expatriate Fellow, BAS

The Bangladesh Academy of Sciences (BAS) organized a prestigious Academy Lecture on 30 October 2025 at the Independent University, Bangladesh (IUB) in Dhaka, featuring a profound discourse on the intersection of wildlife ecology and global health. The lecture, titled "Migratory birds facilitate the global transmission of multidrug-resistant pathogenic Escherichia coli and other pathogens," was delivered by the eminent scientist Prof. Dr. Emdadul Haque Chowdhury, Fellow of BAS and former Vice-Chancellor of Bangladesh Agricultural University (BAU). The event was graced by Prof. Dr. Zahurul Karim, President of BAS, who served as the Chief Guest, while Dr. Ashrafus Safa, Head of the Department of Life Sciences at IUB, presided over the occasion. The session was skillfully moderated by Prof. Dr. Shah M. Faruque, Fellow of BAS, who introduced Prof. Chowdhury by highlighting his transformative contributions to veterinary pathology and his leadership in agricultural research.

Prof. Dr. Emdadul Haque Chowdhury, *Fellow, BAS, delivering his Academy Lecture on the role of migratory birds in the global spread of AMR. A distinguished audience of BAS Fellows, IUB faculty, and researchers attending the Academy Lecture at the Independent University, Bangladesh.*

During his technical presentation, Prof. Chowdhury addressed the escalating global threat of Antimicrobial Resistance (AMR), a crisis that compromises the efficacy of antibiotics and endangers both human and animal health. He elucidated how migratory birds, which travel vast distances along major flyways, act as mobile reservoirs and vectors for resistant bacteria. Given that Bangladesh lies beneath two major migratory routes, Prof. Chowdhury's team conducted rigorous active surveillance from 2021 to 2024, analyzing over 850 environmental samples from key wetlands. The findings were groundbreaking, marking the first detection of Avian Influenza Virus (AIV) subtypes H4N2, H4N6, and H7N9 in migratory birds within Bangladesh. Furthermore, bacteriological analysis revealed that over 31% of samples harbored pathogenic E. coli with multi-drug resistance to critical antibiotics, including meropenem, colistin sulfate, and gentamicin, often carrying specific β-lactamase resistance genes.

Left: Chief Guest Prof. Dr. Zahurul Karim, *President of BAS, highlighting the critical role of wildlife surveillance in national health policies. Seated on the dais are Dr. Ashrafus Safa (Chair, left) and Prof. Dr. Shah M. Faruque (Moderator, right), both of whom shared insights during the technical session. Right: A commemorative group photo featuring the speaker, distinguished guests, and faculty members of Independent University, Bangladesh (IUB).*

The lecture concluded with a strong advocacy for a coordinated "One Health" framework, integrating surveillance, biosecurity, and public awareness to mitigate the transboundary dissemination of AMR. Prof. Chowdhury emphasized that the close phylogenetic relationship between the isolates found in Bangladesh and those in Europe and Asia confirms the role of avian migration in spreading high-risk pathogens across borders. The session, attended by approximately 120 Fellows, faculty members, and young researchers, sparked an engaging dialogue on the necessity of wildlife-inclusive health policies. In the accompanying photographs, (1) Prof. Dr. Emdadul Haque Chowdhury is seen delivering his keynote address; (2) a wide view captures the attentive participants at the IUB Lecture Gallery; (3) Chief Guest Prof. Dr. Zahurul Karim shares his insights on national scientific strategy; (4) Dr. Ashrafus Safa and Prof. Dr. Shah M. Faruque lead the technical discussion; and (5) a commemorative group photo features the speaker alongside BAS dignitaries and IUB faculty members.

Academy Lecture: Heavy Metals, Heavy Consequences—Navigating the Environmental and Health Risks in Bangladesh by Dr. Muhammad Morshed, Expatriate Fellow, BAS

The Bangladesh Academy of Sciences (BAS) convened a high-impact Academy Lecture on 17 December 2025 at the BGE Gallery of Mawlana Bhashani Science and Technology University (MBSTU), Tangail. The lecture, titled "Heavy Metals, Heavy Consequences: Understanding the Environmental and Health Risks in Bangladesh," was delivered by the distinguished scientist Prof. Dr. Md. Anwarul Azim Akhand, Fellow of BAS and Vice-Chancellor of MBSTU.

The event was graced by Prof. Dr. Haseena Khan, Member of the BAS Executive Council and former Secretary of the Academy, who served as the Chief Guest. Prof. Dr. AKM Mohiuddin, Chairman of the Department of Biotechnology and Genetic Engineering (BGE) at MBSTU, presided over the session, which was professionally moderated by Prof. Dr. Yearul Kabir, Secretary of BAS.

Left: Prof. Dr. Md. Anwarul Azim Akhand, *Vice-Chancellor of MBSTU and Fellow of BAS, delivering his keynote address on the critical risks of heavy metal contamination. Right: A packed house of over 150 faculty members, researchers, and students at the BGE Gallery, MBSTU, attending the prestigious Academy Lecture.*

In his comprehensive presentation, Prof. Akhand addressed the escalating environmental and public health crisis posed by heavy metal toxicity in Bangladesh. He highlighted how rapid industrialization and anthropogenic activities have intensified the concentration of arsenic and chromium in the nation's soil, water, and food chain. The lecture underscored a sobering reality: millions of citizens remain at risk for debilitating conditions such as arsenicosis, skin cancer, neurological disorders, and immunotoxicity. Prof. Akhand noted that while arsenic exposure primarily stems from contaminated groundwater, chromium pollution is largely driven by Improper Industrial Waste Disposal.

Right: Chief Guest Prof. Dr. Haseena Khan, *Former Secretary of BAS, addressing the assembly on the importance of translational research in solving national health crises. Middle: Prof. Dr. Yearul Kabir, Secretary of BAS, introducing the speaker and outlining his distinguished academic and professional journey. Left: Prof. Dr. AKM Mohiuddin, Chairman of BGE at MBSTU, delivering the Chairperson's remarks.*

A centerpiece of the lecture was Prof. Akhand's groundbreaking research into the molecular mechanisms of heavy metal pathogenesis, specifically the correlation between exposure and the surge of Reactive Oxygen Species (ROS). His findings provide a significant breakthrough in "Green Therapeutics," demonstrating that specific bioactive extracts from indigenous plants and mushrooms—laden with high-potency antioxidants—can effectively neutralize arsenic-induced oxidative stress and organ damage in murine models. Complementing this therapeutic approach, Prof. Akhand unveiled his work on the isolation of specialized chromium-resistant bacteria. These microbial strains offer a revolutionary, low-cost tool for the bioremediation of industrial wastewater, providing a dual-action strategy: cleansing the environment at the source while offering biological protection to the population.

The significance of these discoveries was further underscored by the Chief Guest, Professor Haseena Khan, an Independence Award recipient and former Secretary of BAS. In her address, she lauded the lecture as a masterclass in "translational science," noting that Prof. Akhand's work bridges the gap between fundamental molecular research and practical, cost-effective mitigation strategies for Bangladesh's most pressing environmental health crises. She particularly emphasized the inspiring leadership of Professor Akhand, who, despite his demanding responsibilities as the Vice-Chancellor of MBSTU, has maintained a high-caliber research laboratory that continues to produce globally competitive and locally relevant scientific literature.

The session concluded with a vibrant, high-level Q&A session involving over 150 faculty members, researchers, and students. The dialogue centered on the urgent necessity of integrating such homegrown scientific discoveries into national science-based policy interventions, particularly for the protection of marginalized communities living in heavy metal hotspots.

Institutional Governance: Joint Meeting of the Outgoing and Newly Elected BAS Councils

A historic Joint Meeting of the Bangladesh Academy of Sciences (BAS) Council was convened on Thursday, 04 September 2025, at the Academy's headquarters in the National Science and Technology Complex, Agargaon, Dhaka. This high-level assembly brought together the leadership of the Outgoing Council (July 2022 – June 2025) and the Newly Elected Council (July 2025 – June 2028) to ensure a seamless transition of the Academy's governance and strategic initiatives

A Legacy of Excellence and Transition: *Members of the Outgoing (2022–2025) and Newly Elected (2025–2028) BAS Councils gathered for a commemorative group photo following the joint meeting held at the Academy Office, National Science and Technology Complex, Dhaka.*

The meeting served as a platform to reflect on the significant achievements of the previous term while setting the agenda for the upcoming triennial. Under the collective wisdom of the nation's most distinguished scientists, the joint session focused on strengthening the Academy's role in national policy advice, international scientific diplomacy, and the promotion of excellence in science and technology. The transition marks a renewed commitment by the incoming leadership to uphold the Academy's mission of fostering a science-driven future for Bangladesh.

Orchestrating Excellence: Preparations for the 15th BAS Science Olympiad 2026

The organizational groundwork for the nation's premier science competition commenced with a Joint Meeting of the Organizing Committee and Centre Coordinators for the 15th BAS Science Olympiad 2026. Held on Wednesday, 19 November 2025, at the Bangladesh Academy of Sciences headquarters in Agargaon, the session focused on the strategic planning and logistical coordination required to host this large-scale event. Prof. Dr. Mohammad Kaykobad, a distinguished Fellow of BAS and Convener of the committee, presided over the meeting.

As the Academy prepares to engage thousands of young minds across the country, the committee members and regional coordinators discussed enhancing the reach and impact of the 2026 Olympiad. The deliberations emphasized standardized evaluation protocols, digital registration improvements, and the vital role of regional centers in identifying and nurturing grassroots scientific talent. Under the leadership of Prof. Kaykobad FBAS, the meeting concluded with a unified roadmap to ensure the 15th edition further cements the Olympiad's reputation as the gold standard for science promotion in Bangladesh

Unity for Science Promotion: *Members of the 15th BAS Science Olympiad 2026 Organizing Committee and Centre Coordinators gathered at the National Science & Technology Complex following a strategic planning session presided over by Convener Prof. Dr. Mohammad Kaykobad.*

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