COMSATS Newsletter

Commission on Science and Technology for Sustainable Development in the South (COMSATS)

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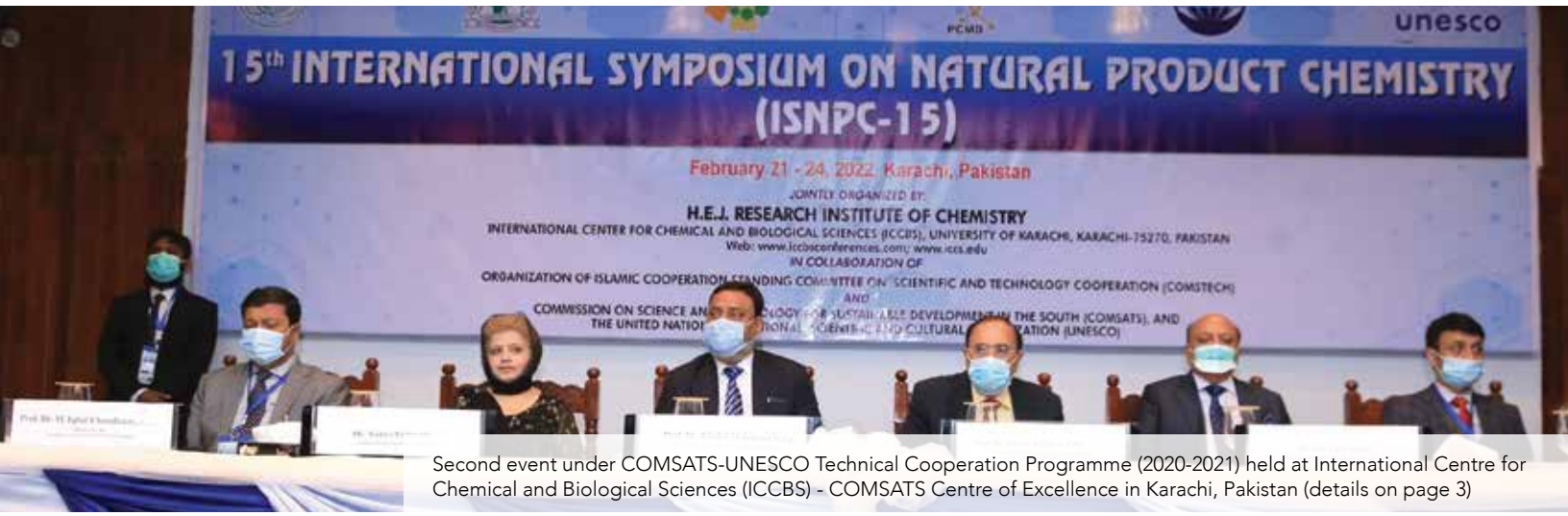

Second event under COMSATS-UNESCO Technical Cooperation Programme (2020-2021) held at International Centre for Chemical and Biological Sciences (ICCBS) - COMSATS Centre of Excellence in Karachi, Pakistan (details on page 3)

Inside this Issue

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From Editors' Desk

Over the years, the world has seen rapid developments on various planes due to advancements in science and technology brought about by successive industrial revolutions. Concomitantly, nature of development challenges has also evolved and taken varied forms affecting economies around the world in numerous ways. Among many factors that have aided countries' response to such challenges is 'education', which has helped them not only transcend the global challenges but also build and strengthen their indigenous capacities for them to pass on crucial learning to scientifically lagging countries.

The 2030 Agenda for Sustainable Development has given utmost importance to education to help "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". Realizing the transformative potential of education, countries have, inter alia, championed and incorporated the concept of knowledge-based economy in their national plans with high hopes of achieving prosperity and sustainability. Such a growth, however, is not possible without equal and just representation of all genders in every field. Among other things, this inclusive development requires sound policy frameworks to encourage and help participation of women in all sectors of economy, especially those relating to STEM fields.

Realizing the need for advocacy of such issues, the global community celebrates 'International Day of Education' and 'International Day of Women and Girls in Science' in January and February, respectively. The larger aim of these Days is to highlight the role of education as a tool for peaceful development while also recognizing the importance of engaging girls and women in science, technology and innovation to achieve Global Goals.

With Volume 2022 starting with this issue, we would be introducing components under 'Women in Science' purview with an aim to highlight the valuable role played and being played by women towards science & technology, research and development and related advocacy. We hope that readers would find the contents of this section inspiring and informative for which we also welcome contributions in the form of scientific or opinion articles, insights, report reviews, etc.

In other developments during the reporting period, COMSATS continued its South-South Regional (Asia-Pacific) Technical Cooperation Programme (2020-21) with UNESCO while also conducting capacity building and awareness raising events in collaboration with ANSO (China) and ICESCO (Morocco) on themes relating to COP26, and leadership and innovation. COMSATS Centres of Excellence remained active in their respective fields and a glimpse of scientific developments at their ends and those happening in COMSATS Member States are given in relevant sections of this Newsletter.

We look forward to receiving feedback and suggestions for improvement in future issues of this Newsletter and COMSATS' work.

COMSATS-ICESCO Webinar on COP26

On 15th February 2022, COMSATS co-organized a webinar 'Adaptation and Mitigation: Joining Efforts to Activate Climate Action' with the Islamic World Educational, Scientific and Cultural Organization (ICESCO), Morocco. The event aimed to deliberate on the outcomes of the United Nations Climate Change Conference (COP26) and related pledges made by the Islamic world and African continent.

The hybrid event was also supported by UNESCO Office for the Maghreb, Morocco; the Climate Change Competence Center (4C Maroc), Morocco; the Regional Center for Renewable Energy and Energy Efficiency (RCREEE), Egypt; and the United Cities and Local Governments of Africa (UCLG), Morocco.

The event was physically hosted at the headquarters of the Hassan II International Environmental Training Center in Rabat. It had a virtual gathering of over 110 from 36 countries, including Algeria, Bangladesh, Burkina Faso, Cameroon, Canada, Chad, Congo, Ethiopia, Egypt, France, Gabon, Gambia, Greece, Guinea, Japan, Jordan, Kazakhstan, Libya, Madagascar, Mali, Morocco, Niger, Nigeria, Pakistan, Palestine, Rwanda, Senegal, Saudi Arabia, Sri Lanka, Tanzania, Turkey, Togo, Jamaica, UK, USA, and Yemen.

During his welcome address, Dr. Raheel Qamar, Head of ICESCO's Science and Technology Sector, hoped that the webinar would help increase awareness on the significant change that international partnership and cooperation can bring to climate change mitigation and adaptation.

In his recorded video-message for the occasion, Prof. Dr. Ashraf H. Shaalan,

Chairperson COMSATS Coordinating Council, emphasized on the need to incorporate challenges related to climate change as an agenda in policy making at national and global levels.

Speaking on the occasion, Dr. Najat Zarrouk, Director of the African Local Government Academy (ALGA) of UCLG-Africa, shared the role of UCLG in encouraging voluntary actions to mitigate climate change and move toward a more resilient and low-emission society.

In his remarks, Dr. Mohammad Alaoui, Head of the Department of Natural and Exact Sciences, UNESCO Office for the Maghreb, opined that all countries need to become more resilient in view of the fact that climate change further exacerbates poverty and inequality situations.

Ms. Kenza Khallafi, Partnerships Officer at Mohammed VI Foundation for the Protection of the Environment, opined that development finance institutions have a vital role to play in supporting developing countries transitioning towards climate-smart, resilient, and inclusive economies.

The guest of honour, H.E. Mr. Simon Martin CMG, Ambassador of the UK to the Kingdom of Morocco, urged both the developed and developing countries alike to come together to protect environment and adhere to the Paris Agreement on Climate Change. His Excellency also highlighted the significance of having more effective mobilization of financial resources' from national and international sources to help developing countries in strategizing and developing transformative approaches to climate change adaptation and mitigation.

The webinar featured presentations by Mrs. Rajae Chafil, Director of 4C Maroc; Dr. Jauad El Kharraz, Executive Director of RCREEE; Dr. Daouda Ben Oumar Ndiaye, Lead Climate Change Expert at Islamic Development Bank (IsDB); Mr. Mazen Malkawi, Regional Advisor for Environmental Health and Climate Change, WHO Representative; Mrs. Nasma Jrondi, Expert in Sustainable Development, Mohammed

VI Foundation for the Protection of the Environment; Prof. Manal Fawzy Ahmed, Chair, Egyptian National MAB Commission to UNESCO; and Mr. Taffere Tesfachew, Acting Managing Director for The Technology Bank for Least Developed Countries.

These speakers provided comprehensive overview of decisions adopted at COP26, touching upon topics such as low-carbon energy innovation systems; climate change resilient health systems; air climate programme – decarbonisation of the Moroccan economy; climate change adaptation and mitigation: perspective from LDCs, LLDCs and SIDS; and preparations for and objectives of COP27.

Discussions during the panel discussion sessions related to: main cross-cutting factors relating to the climate change; gender and women empowerment as contributors to sustainability; industry 4.0 technologies compatible with climate change mitigation and adaptation; role of intergovernmental and international organizations in integrating mitigation and adaptation strategies in development activities; emerging areas of capacity building to drive the successful implementation of COP26; innovative measures for scaling up and replicating climate finance; how COP26 aims to realize climate action to support post-pandemic inclusive recovery; and the need for Islamic world to contribute to environmental conservation by development and implementation of initiatives and programmes aimed at managing adverse effects of climate change.

15th International Symposium on Natural Product Chemistry (ISNPC-15)

Under the framework of COMSATS-UNESCO Technical Cooperation Programme 2020-2021, COMSATS collaborated with the International Centre for Chemical and Biological Sciences (ICCBS), Karachi; Ministerial Standing Committee on Scientific and Technological Cooperation of the Organization of Islamic Cooperation (COMSTECH), and the United Nations Educational, Scientific, and Cultural Organization (UNESCO) to organize 15th International Symposium on Natural Product Chemistry (ISNPC-15) from 21st - 24th February 2022.

Opening the event, Prof. Dr. M. Iqbal Choudhary, Director ICCBS, considered the Symposium a networking platform to help inspire ideas that may culminate in novel projects and initiatives aimed at advancing the understanding and implementation of natural product chemistry in the region. He acknowledged the support of COMSATS, UNESCO and other partner organizations in making it possible.

In his video message, Prof. Dr. M. Ashraf Shaalan, Chairperson COMSATS Coordinating Council, emphasized that the scientific and technological progress in the area of natural product chemistry and the prominent role it played in scaling-up bio-industrial technologies strongly led to economic gains and would continue to affect the economic landscape even more deeply in the coming years.

In her video message, Ms. Patricia McPhillips, UNESCO Representative in Pakistan, opined that the progress and development of different nations around the world is inextricably linked to the resources they utilize. She stated that North-South and South-South cooperation is vital for strengthening the technological capacity, capabilities, and sustainability of developing countries.

Prof. Dr. Atta-ur-Rahman delivered the inaugural lecture entitled 'Some Adventures in Natural Product Chemistry and Higher Education'. His lecture highlighted new concepts pertaining to novel possibilities in the field of natural product chemistry, such as synthesis of new therapeutic molecules, development of new approaches and methodologies for creating and enhancing the structural variation of natural products, and identification of new materials with novel properties.

The technical undertakings of the Symposium were organized under 14 plenary and parallel invited

lectures delivered by more than 60 internationally recognized foreign speakers from academia and industry. More than 200 papers on multidisciplinary topics were presented, including oral and poster presentations.

The forum combined several modes, including online and offline/physical conferencing and cloud livestreaming to meet the COVID-19 prevention and control requirements.

The event was joined physically and virtually by individuals from 21 countries, including Azerbaijan, Bangladesh, Burkina Faso, Cameroon, Canada, China, Egypt, Germany, Greece, Iran, Iraq, Kazakhstan, Nepal, Nigeria, Pakistan, Sri Lanka, Sudan, Sweden, Turkey, United Kingdom, and USA.

Second Term of ANSO-BIDI School Concluded

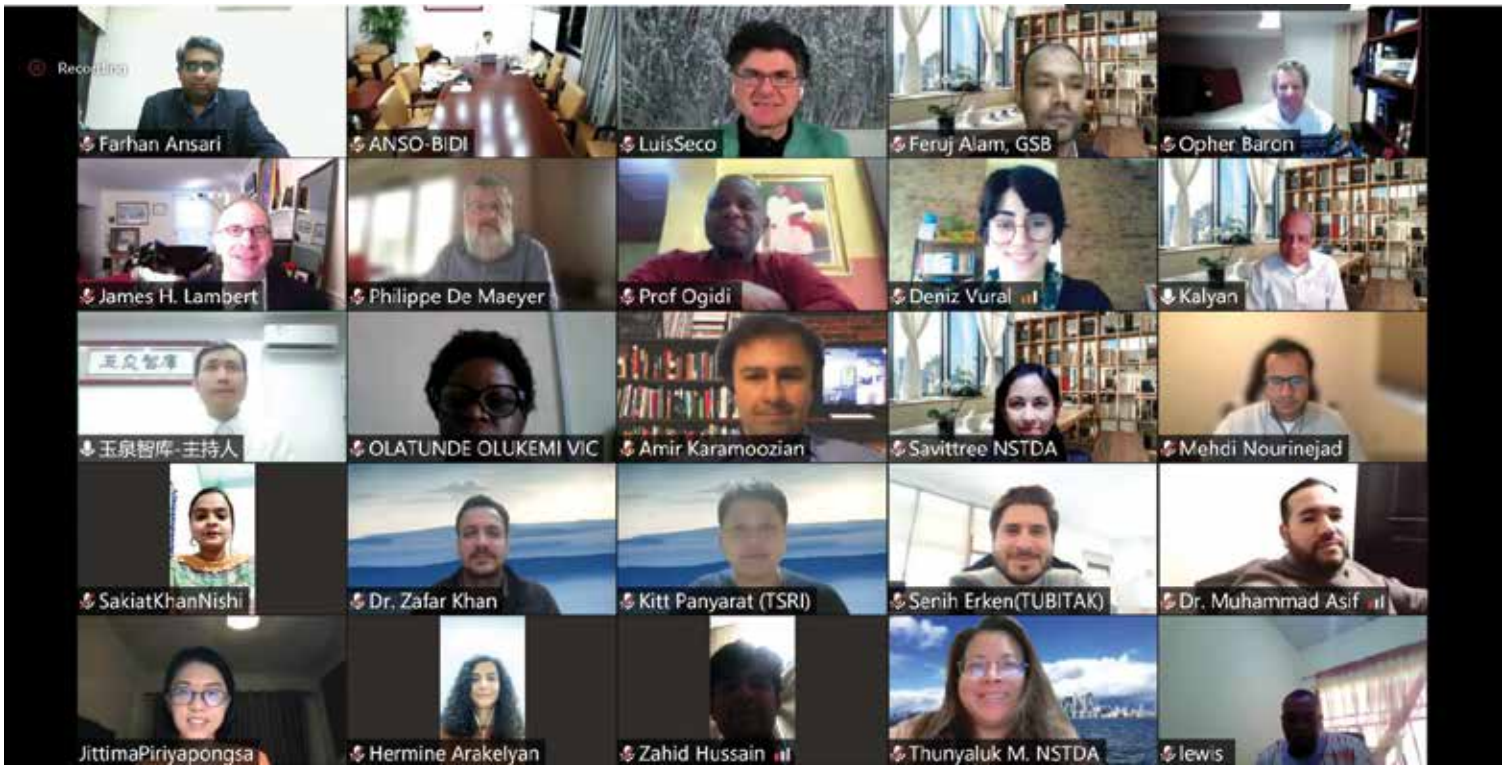
Under the Belt & Road International Innovation Development Institute Network (ANSO-BIDI Institute Network) of the Alliance of International Science Organizations (ANSO) and with the support of COMSATS and ANSO, the Centre for Environmental Economics of the University of Chinese Academy of Sciences (CEE-UCAS), China, organized the second term of online ANSO-BIDI School on 'Innovation, Sustainable Development and Leadership Enhancement' from 17th November 2021 to 26th January 2022.

The School provided emerging leaders and policy-makers with knowledge and techniques for evidence-based decision making and policy formulation to better respond to management needs of the national and global socio-economic challenges.

The two and a half months long training consisted of nine modules during which distinguished speakers delivered lectures on various topics related to the theme of the training. These included professors from well-known universities and leaders of prestigious international organizations from Belgium, Canada, China, Sweden, Switzerland, and USA.

The topics covered in the expert lectures pertained to: economic policies against climate change; sustainability, technology and leadership risk: the new commodity; disruptive technologies: autonomous vehicles; pandemic socio-technical and supply chain resilience of industrial region; manufacturing and technology in China; and disruptions of priorities in engineering systems. Fruitful discussions and Q&A sessions during the modules facilitated exchange of ideas and knowledge among the participants.

Around 150 participants from various countries benefited from the training course, including 85 trainees belonging to COMSATS Centres of Excellence of COMSATS in Egypt, Iran, Kazakhstan, Nigeria, Pakistan, Sri Lanka and Syria.



SOME ACTIVITIES OF COMSATS' CENTRES OF EXCELLENCE

TÜBİTAK-Türkiye Elected as ANSO Board Member

The Scientific and Technological Research Institution of Turkey (TÜBİTAK), Türkiye, has been selected to the Board of the Alliance of International Science Organizations (ANSO), the highest management body of the Alliance. ANSO is a non-profit, non-governmental international scientific organization founded in 2018 by the Chinese Academy of Sciences (CAS) and 36 other international science and education institutions from around the world.

ANSO is committed to promoting shared development, sustainable development and the advancement of the United Nations Sustainable Development Goals through catalyzing and implementing concrete international cooperation initiatives in Science, Technology & Innovation and Capacity Building.

Developments Regarding TÜBİTAK-Supported Adenoviral Vector-Based COVID-19 Vaccine

The adenoviral vector-based vaccine developed at Ankara University Cancer Research Institute with the patronage of TÜBİTAK's COVID-19 Platform and approved by the Ministry of Health has entered Phase 1 clinical trials.

After completion of the trials, the vaccine will be prepared for administering orally or nasally, which is the most efficient way for vaccination as it serves as a guard against coronavirus on regions where the virus enters the body first. Moreover, there are other advantages to it,such as rapid production and low cost.

TÜBİTAK-Türkiye Participates in Introductory Meeting of TEKNOFEST 2022

Prof. Dr. Hasan Mandal, President of TÜBİTAK, Türkiye, attended the TEKNOFEST 2022 introductory meeting held in Baku, Azerbaijan, on 7th February 2022. Türkiye's major technology and aviation fair will hold its first edition abroad in the capital city of Azerbaijan.

On the sidelines, Prof. Mandal also held meetings with the officials of the Azerbaijan Science Development Foundation (SDF) and Azerbaijan National Academy of Sciences (ANAS) – the two partner organizations of TÜBİTAK.

International Day of Women and Girls in Science Observed at TÜBİTAK-Türkiye

TÜBİTAK, Türkiye, organized a panel discussion titled 'Women's Power in Science and Technology' marking the International Day of Women and Girls in Science (February 11).

On the occasion, leading women scientists of Türkiye shared their personal stories, acknowledged the impact of women academics and researchers in their fields, while also gave advice to students for becoming successful scientists.

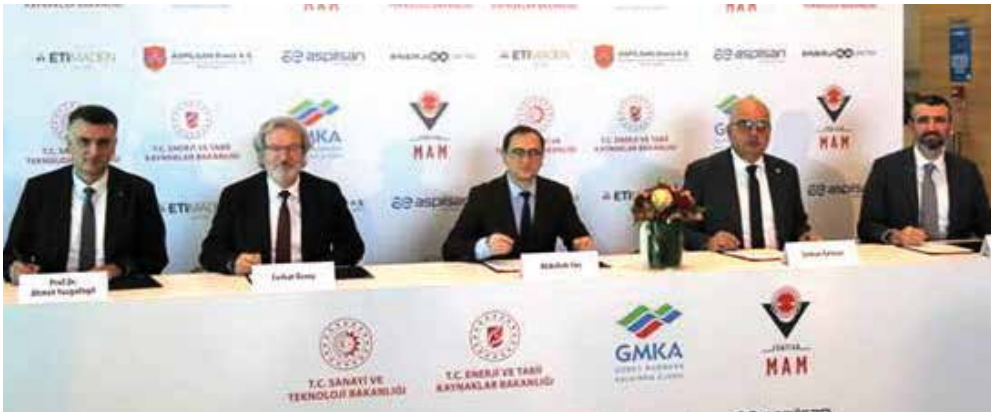
Green Hydrogen Plant Cooperation Protocol Signed

Turkey's first green hydrogen plant, South Marmara Development Agency (GMKA) has been announced to be established under a cooperation agreement between GMKA, Enerjisa Üretim, Eti Maden, Turkey's Scientific and Technological Research Council's Marmara Research Center (TÜBITAK MAM) and Aspilsan Energy (dailysabah.com, 17th February 2022).

Under the cooperation agreement, production and use of green hydrogen through public-private partnership will contribute to Turkey's energy transformation process by helping to gradually achieve 100% replacement of fossil fuels.

CSIR-FORIG Identifies Compound Against Black Pod Fungus

The Forestry Research Institute of CSIR (CSIR-FORIG), Ghana, has identified citronella oil extract as highly potent against fungus that causes black pods disease in cocoa. The Institute has



conducted several trials to check the concentration of the extract ideal for controlling the cocoa black pod fungus.

CSIR-FORIG is seeking approval from the Ghana Cocoa Board (COCOBOD) for application of this extract on cocoa in the fields.

Scientist at CSIR-Ghana Develops Portable Virus/ Bacteria Detecting Device

A scientist at the Institute of Industrial Research (IIR) of the Council for Scientific and Industrial Research (CSIR), Ghana, Dr. Eric Ashalley, has developed a biosensing device that can detect and categorize various bacteria and viruses, including SARS COV-2 (COVID-19 virus), using light-matter interaction and with 99.87 percent accuracy.

Developed collaboratively with a research team from the University of North Texas, USA, the design of this device is based on advanced artificial intelligence-based nanophotonic concepts, bridging the fields of computer science and nanotechnology. The United States Patent Office has issued a patent to Dr. Ashalley that has been published online in the Photonics Research Journal.

Launching of Centres for Internationalisation

Under the "Building Internationalization in Pakistan (B-International)" project of the European Union, the Centres for Internationalization were launched on 2nd February 2022, through a Microsoft Teams Live event.

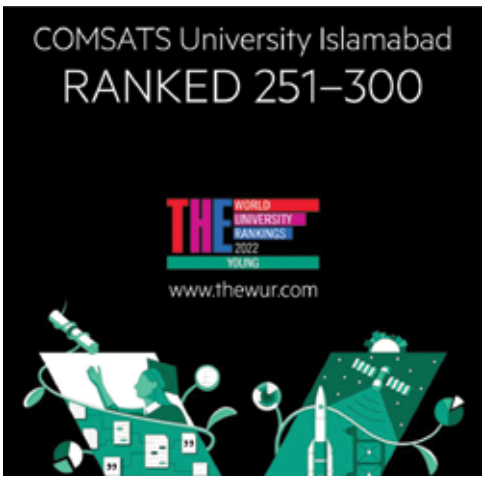
Besides, COMSATS University Islamabad (CUI), Pakistan, speakers from Cardiff Metropolitan University, British Council Pakistan, National University of Science and Technology (NUST), Lahore University of Management Sciences (LUMS), and Pakistan Institute of Fashion and Design participated in the virtual launching.

These Centres will provide a dedicated resource for students, staff, and members of the international virtual community, and will be a hub for international activities, connecting peers both nationally and internationally, and giving access to international experiences from within the boundaries of the campus.

Rector of IUIU-Uganda Visits CUI-Pakistan

The Rector of Islamic University in Uganda (IUIU), Uganda, Prof. Ismail Simbwa Gyagenda, visited CUI, Pakistan, on 17th February 2022, and held a meeting with Prof. Dr. Muhammad T. Afzal, Rector CUI.

The two Heads explored potential areas of collaboration between CUI and IUIU and agreed to engage in joint academic and research activities on bilateral basis and develop stronger academic ties between students, faculty members and researchers of both universities.



Women in Leadership

Eng. Ruba Ajjour, Manager of Climate Change Studies at Royal Scientific Society (RSS), Jordan

Jordan's development achievements are under threat due to the negative impacts of climate change. Climate change is affecting directly and indirectly various socio-economic aspects of life, most notably water supply, food and health security, threatens biodiversity, increase desertification, and contributes to the destruction of arable lands, all of which affect the quantity and quality of crops.

The Royal Scientific Society (RSS), through its Climate Change Studies Division, in cooperation with all stakeholders seeks to contribute to the development of a scientifically informed methodology to address climate change through building the capacities of local communities and institutions within the public and private sectors.

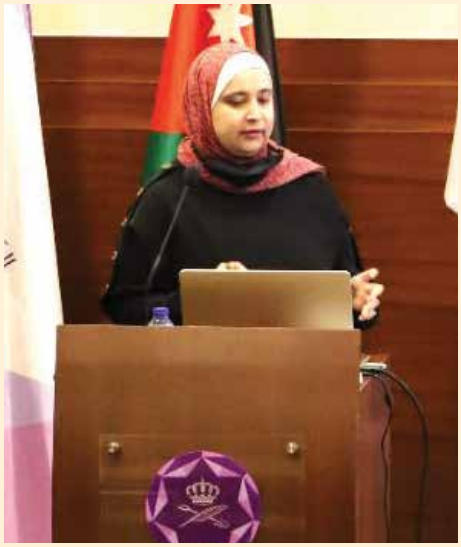
The Manager of Climate Change Studies Division at the RSS, Eng. Ruba Ajjour, said in a press statement that climate change is already affecting all aspects of life and are expected to negatively affect the country's development and economic growth, the matter that needs systematic efforts and well planned climate action.

Ms. Ajjour indicated that the department cooperates closely with stakeholders from line ministries, international organizations, civil society institutions, universities and schools to mitigate and adapt to climate change. The department has worked on the implementation of several projects, some were in the form of applied pilot projects, while others were carried out in the form of technical support and capacity-building as well as conducting technical analysis and preparing national reports.

In terms of addressing the issue of greenhouse gas emissions, Ms. Ajjour explained that the department, in cooperation with the Ministry of Environment and with the support of the UN Development Program (UNDP), has prepared the Jordan's first and second Biennial Update Reports on climate change, which included national inventories of greenhouse gas emissions of all economic activities in all sectors. The results of these reports are used as a base when preparing national sectoral strategies and when evaluating projects submitted for international funds.

With the support of the German Agency for International Cooperation (GIZ), the division has provided technical support to the Ministry of Environment regarding the analysis of available mitigation scenarios to be included in the updated version of Nationally Determined Contributions (NDCs). This document was officially submitted to the UNFCCC Secretariat in which Jordan announced its intention to reduce 31% of its greenhouse gas emissions from all sectors by 2030.

The division has also worked with the Information Technology Center at RSS with the support of the World Bank to implement the Measurement, Reporting and Verification system (MRV) which is a computerized national system that links several ministries and institutions with the Ministry of Environment. The MRV system aims at tracking greenhouse gas emission reduction for renewable energy and energy efficiency projects in order to develop national periodic reports for the Ministry of Environment to monitor the implementation of climate related plans.



In the agricultural sector, the department, in cooperation with the Ministries of Environment and Ministry of Planning and through the support of the Adaptation Fund, has implemented a project to strengthen the resilience of the communities working in agriculture against climate changes. This was done through carrying out a training workshops in Jordan Valley and Wadi Musa and through providing support to small projects aiming at changing the crop pattern to better adapt to climate change.

Ms. Ajjour explained also that the department, in cooperation with the Information Technology Center at RSS, has developed an early warning system in the form of a mobile application and a web platform to enable farmers to access information about expected extreme weather events in order to be better prepared and to take the necessary precautions to protect their crops.

The information reaches users through the application in the form of warning messages with practical measures and best practices to be carried out under those weather conditions.

Finally, Eng. Ruba highlighted the fact that Jordan is among the first countries within the region that realized early the importance of having a comprehensive action plan and the need to have full cooperation among all sectors to address the impacts of climate change.

Notable Female Scientists from History

Marie Salomea Skłodowska Curie (1867 – 1934)

Marie Salomea Skłodowska Curie was a Polish-French physicist and chemist known for her pioneering research on radioactivity and discovery of two radioactive elements – polonium and radium. Marie was the first woman to receive a Nobel Prize and only woman to win the Nobel Prize twice and in two different scientific fields.

Born on 7th November 1867, in Warsaw, Poland, Marie studied physics, chemistry, and mathematics at the University of Paris, where she enrolled in 1891 and obtained her Doctorate in June 1903. In 1895, she married Pierre Curie, a French physicist, and later succeeded him as the Head of the Physics Laboratory at the Sorbonne and after his tragic death in 1906 as the Professor of General Physics in the Faculty of Sciences – the first woman to hold this position.

Working along side her husband, Marie investigated radioactivity, building on the work of the German physicist Roentgen and the French physicist Becquerel. In July 1898, the Curies announced the discovery of a new chemical element, polonium and by December of the same year, the discovery of another element, radium. The Curies, along with Becquerel, were awarded the Nobel Prize for Physics in 1903 for research on radiation phenomena. In 1911, she won a second Nobel Prize in chemistry for discovery of polonium and radium. The radioactive element 'curium' is named after her and Pierre Curie.

During World War I, she established mobile radiology units to help doctors treat over a million wounded soldiers. She also established Radium Institute in 1932 with her sister Bronislawa as its director.

The importance of Curie's work is reflected in the numerous awards bestowed on her. She received many honorary science, medicine and law degrees and honorary memberships of learned societies throughout the world. Besides, Nobel Prize, she also received the Davy Medal of the Royal Society in 1903 and one gram of radium in recognition of her service to science in 1921 by President Harding of the United States.

Marie was a member of the Conseil du Physique Solvay from 1911 until her death and since 1922 she had been a member of the Committee of Intellectual Co-operation of the League of Nations. Her work is recorded in numerous papers in scientific journals and she is the author of Recherches sur les Substances Radioactives (1904), L'Isotopie et les Éléments Isotopes and the classic Traité' de Radioactivité (1910).

Despite her success, Marie continued to face great opposition from male scientists in France, and she never received significant financial benefits from her work. By the late 1920s her health began deteriorating and she died on 4th July 1934, from leukemia caused by exposure to high-energy radiation from her research.

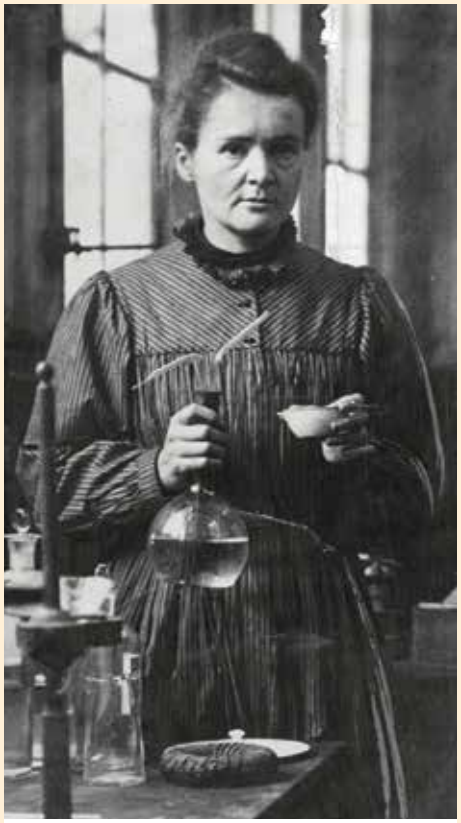


Image Source: Associated Newspapers/ Shutterstock.com

"You cannot hope to build a better world without improving the individuals. To that end each of us must work for his own improvement, and at the same time share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful."

Source: Multiple including BBC, Britannica, and The Nobel Prize

Women Scientists from COMSATS Member States Awarded "2022 OWSD-Elsevier Foundation Award"

Three women scientists from COMSATS Member States of Sri Lanka, Bangladesh and Yemen have won "2022 OWSD-Elsevier Foundation Award for Early-Career Women Scientists in the Developing World" for their research on climate change helping to achieve UN SDG13 (Climate Action), SDG14 (Life Below Water) and SDG15 (Life on Land). (eurekalert; 11th February 2022).

This year's award recognizes climate change as a key challenge of present times as well as that a quarter of all women are engaged in agriculture, which makes them more vulnerable to both climate change and resource scarcity.

The winning researches pertained to: turning waste into man-made soil; conversion of plastic into products for community trade; use of microbes for carbon storage and soil quality; and prevention of soil erosion and encourage soil 'plasticity'.

The prize criterion also takes into account the winners' commitment to leadership, mentoring and engagement within their communities, including the use of innovative technologies in their research.

This year's winners are:

- Abeer Ahmed Qaed Ahmed of Al-Saeed University, Yemen, for her work on microbiology- and nanotechnology-based solutions to pressing problems, such as carbon emissions, drug-resistant pathogens, and fossil fuel dependence.
- Gawsia Wahidunnessa Chowdhury of the University of Dhaka, Bangladesh, for her work on conservation of aquatic ecosystems and threatened species in Bangladesh.
- Ashani Ssavinda Ranathunga of University of Moratuwa, Sri Lanka, for her work on turning industrial and agricultural waste into anthropogenic (man-made) soil for soft ground improvement and mine rehabilitation.
- Heyddy Calderon of the Instituto de Geología y Geofísica, Nicaragua, for her work to provide secure and sustainable water sources for vulnerable populations in Central America.
- Flor de Mayo Gonzalez Miranda of San Carlos University, Guatemala, for her work on engineering better landslide prevention for vulnerable areas in Guatemala.
- Myriam Mujawamariya of the University of Rwanda, for her research on the responses of native tree species in Rwanda to climate change.

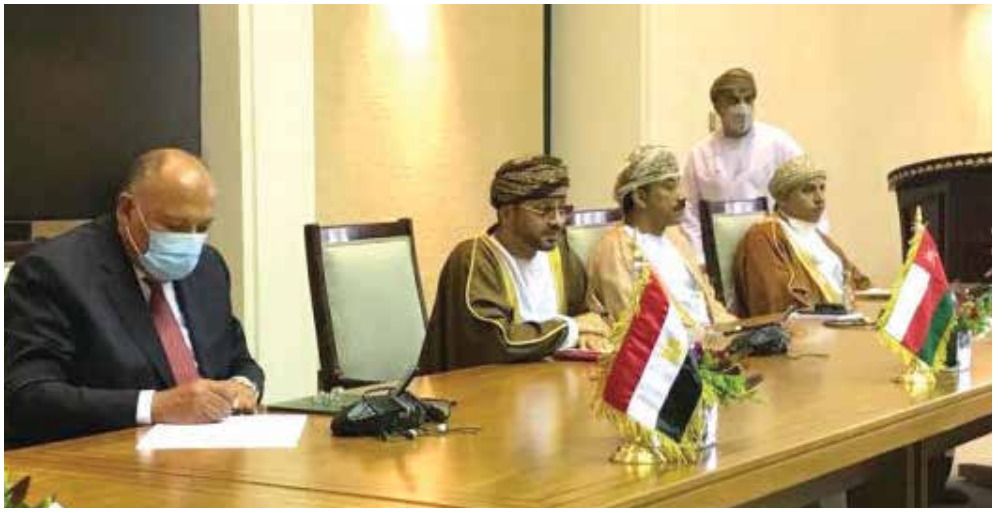
Established in 2013, the Award is decided by a panel of distinguished scientists and includes a cash prize of US$ 5,000, facilitation to attend scientific gatherings, and networking opportunities.

Zimbabwe's RE Sector to Get Investment from UN SDG Fund

Zimbabwe's renewable energy sector is in the process of receiving investments worth US$ 10 million from the United Nations Sustainable Development Goals (SDG) Fund – a programme that aims to catalyze clean energy developments in the southern African country. Zimbabwean government will also be investing US$ 35 million through Infrastructure Development Bank of Zimbabwe in the programme that is expected to commence in April 2022 (energycapitalpower.com).

The programme has been collaboratively developed by UNESCO, UNWOMEN, UNDP and the Government of Zimbabwe, and will garner private capital for the attainment of all SDG goals through establishment of a Renewable Energy Fund (REF). Zimbabwe's huge solar, wind and hydropower energy potential remains largely untapped. The programme serves as an urgent solution to utilize these resources while meeting other development objectives pertaining to the dimensions of access to electricity, climate mitigation, and women and youth empowerment.

The programme will also help train



Zimbabwean workforce in ICT, renewable energy and STEM fields.

TİKA of Turkey to Start New Projects in Pakistan

Turkish Cooperation and Coordination Agency (TİKA) is expected to start more than 50 projects in Pakistan during 2022 to help organizations foster young talent (dailysabah.com; 23rd January 2022).

TİKA programme coordinator for Pakistan, Muhsin Balci, made the announcement at TİKA's 30th anniversary during his visit to the digitization center for the preservation of rare books in a library founded by TİKA at Quaid e Azam University in January 2022.

In the past, TİKA in Pakistan has also set up five water filtration plants, installed 60-kilowatt solar energy panels at the Lakki Marwat District Hospital, and set-up Emergency Department of the District Headquarter Hospital Upper Dir in the province of Khyber Pakhtunkhwa. Since its establishment, TİKA has done 30,000 projects in 150 countries from the Balkans to Africa, and Middle East to Latin America.

Egypt Signs Agreement with Oman in IT and Education

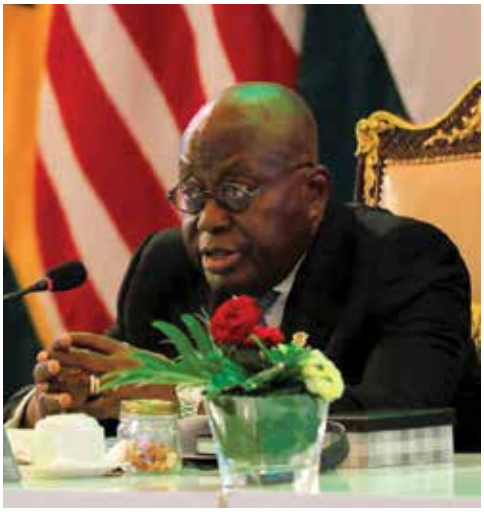
Egypt has signed a Memoranda of Understanding (MoU) with Oman and outlined operational programmes in a number of areas, including information technology, and education (dailynewsegypt.com; 23rd March 2022).

The MoU was one of the cooperation agreements signed as one of the meetings' outcomes of the 15th session of Egyptian-Omani Joint Committee held in Muscat, Oman. The session was held under the chairmanship of Minister of Foreign Affairs, Sameh Shoukry, and his counterpart, Badr bin Hamad Bin Hamoud Al-Busaidi.

During the session, the committee also reviewed earlier ongoing cooperation agreements. The bilateral cooperation stipulated in the MoU also include dimensions of political, security, economic, commercial, industrial, judicial, development, educational, media, labour, and social development levels.

Ghana to Establish Vaccine Plant in 2024

Ghana plans to indigenously produce its own vaccines against SARS-CoV-2



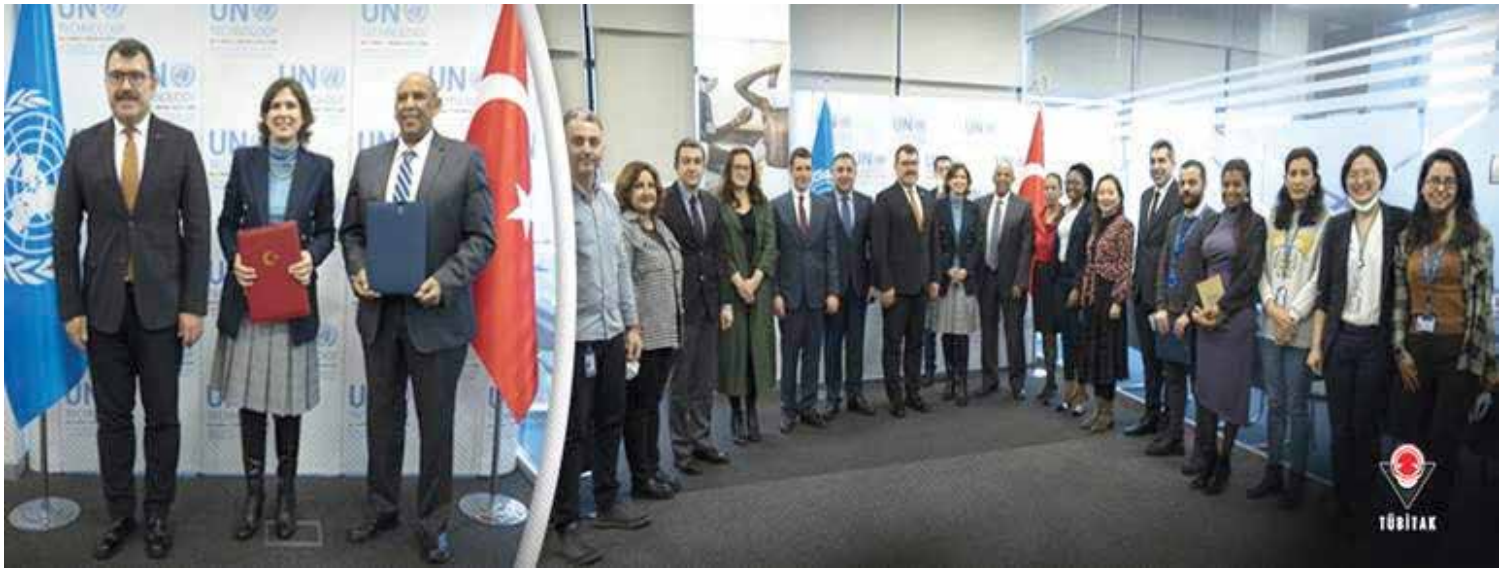
as well as tuberculosis and malaria in January 2024 (pulse.com; 20th February 2022). A National Vaccine Institute would be established for this purpose that would lay out a strategy in this regard.

President of Ghana, H.E. Mr. Nana Akufo-Addo, announced the setting up of a domestic vaccine manufacturing unit for COVID-19 and other vaccines in his state address in the parliament on 16th February 2022. The aim is to strengthen research and development for vaccine production.

Currently, Ghana is partnering with German biotechnology company, BioNTech SE, for packaging BioNTech mRNA vaccines in Africa, as a first step in the chain of domestic vaccine production, which will improve vaccine supply in Africa.

Bangladesh Enters into S&T Cooperation with South Korea

Bangladesh is cooperating with South Korea in S&T under a recently strengthened cooperation agreement (Dhaka Tribune, 2022). The MoU was presented to H.E. Mr. Yeafesh Osman, Minister of Science and Technology of Bangladesh, by Ambassador of South Korea to Bangladesh, H.E. Mr. Lee Jang-



keun, on 27th January 2022. It had been countersigned by South Korean Minister of S&T and ICTs, H.E. Mr. Lim Heysook, on 30th December 2021.

This MoU strengthens the implementation of the two governments' Agreement of 1995 on Scientific and Technological Cooperation. Formation of a Joint Committee for coordinating the matters related to the execution of the cooperation was also agreed. Other points agreed in the MoU pertain to a number of areas and types of cooperation.

According to the Ambassador Lee, the MoU lays an important institutional foundation for S&T cooperation between the two countries.

Bacterial Strain Generates Valuable Chemicals to Reduce GHG Emissions

Potential of bacteria to break down carbon dioxide into industrial chemicals has been explored through research led by Northwestern University and LanzaTech (Science Daily; 21st February 2022). Under the reported research (published in Nature Biotechnology; 21st February 2022), bacteria's ability to break down lactose to make yogurt and sugar to make beer provided the basis for exploiting bacteria to break down waste carbon dioxide (CO_2) to make valuable industrial chemicals. This is being done through a strain of bacteria engineered specifically for the purpose.

Selected bacterial strain was engineered and optimized and was able to successfully convert CO_2 into acetone and isopropanol (IPA). The new gas fermentation process involved removes GHGs from the atmosphere, and reduce dependence on fossil fuels which are used to generate acetone and IPA in existing processes of production.

The research report established that this process reduced GHGs emissions by 160% compared to conventional processes. Utilized on large scale, the new process could provide a huge environmental relief amidst rising concerns regarding exacerbating climate crisis and rapidly growing pollution of the planet.

Generation of acetone and IPA from fossil resources comes with a huge toll on climate. The new research provides a more sustainable option of producing acetone and IPA that have a global market of over US$ 10 billion. IPA is widely used in World Health Organization-recommended sanitizer formulas useful against SARS-CoV-2 virus.

Acetone is used as plastics and synthetic fibers solvent used in a number of products and processes.

Türkiye Signs Agreement with UN Technology Bank

The Government of Türkiye and the UN Technology Bank for Least Developed Countries (UN Technology Bank) have signed a five-year Financial Agreement to support world's 46 least developed countries (LDCs) for their development in science, technology and innovation in reaching the Sustainable Development Goals.

Signed on 3rd February 2022 at the UN Technology Bank's headquarters in Gebze, Türkiye, the Agreement will provide financial or in-kind support to the UN Technology Bank and in this context, up to 1.7 million USD per year will be transferred to the UN Technology Bank for the next five years (2022-2026).

Scholarships/Fellowships for Member States by COMSATS' Centres of Excellence

Students from COMSATS' Member States are welcome to benefit from the following offers from COMSATS' Centres of Excellence:

- Hundred (100) scholarships for students/researchers for postgraduate studies at all campuses of COMSATS University Islamabad (CUI), Pakistan.
- Five (05) post-graduate scholarships, for Masters of Science in Mathematics at Lahore Campus of COMSATS University Islamabad (CUI), in collaboration with the International Centre for Theoretical Physics (ICTP), Italy.
- Five (05) post-doctoral fellowships at the International Center for Chemical and Biological Science (ICCBS), Pakistan.
- Five (05) post-doctoral fellowships at the National Research Centre (NRC), Egypt.
- Two (02) PhD scholarships at the Al-Farabi Kazakh National University (KazNU), Kazakhstan.
- Long-term (1-2 years) and short-term (less than 6 months) fellowships for foreign scholars for collaborative research at Tianjin Institute of Industrial Biotechnology (TIB), Chinese Academy of Sciences.

For further details on the scholarships, please visit www.comsats.org or write to farhan@comsats.org.

Fourth Term of ANSO-BIDI School for Innovation, Sustainable Development and Leadership Enhancement (2022)

Under the ANSO-BIDI Institute Network of the Alliance of International Science Organizations (ANSO) and with the support of COMSATS and ANSO, the Centre for Environmental Economics of the University of Chinese Academy of Sciences (CEE-UCAS), China, is organizing the fourth term of three-month long training course on "Innovation, Sustainable Development and Leadership Enhancement".

The School aims to provide emerging leaders and policy makers with knowledge and techniques for evidence-based decision making and policy formulation to better respond to the management needs of the national and global socio-economic challenges.

Starting Date: May 04, 2022

For further details, visit:
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