

CSIR IN MEDIA



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**NEWS BULLETIN
16 TO 20 JUNE 2022**



Dindigul Campus Connect

CSIR-CECRI

20th June, 2022



CSIR-Central Electrochemical Research Institute (CSIR-CECRI) in Karaikudi has found a technology to capture the polluting Carbon-di-oxide (CO₂) from thermal power plant flue gas. The know-how has been transferred to Summits Hygronics in Coimbatore. This technology find its applications in thermal power plants, submarines, biogas enrichment, automotive sector and direct air capturing in highly polluted cities, thereby minimising CO₂ concentration and global warming. The captured CO₂ can also be converted into value-added industrially important chemicals like methanol, formic acid and adipic acid. This technology is in alignment with one of the United Nation's "Sustainable Development Goals on Climate Action" (SDG 13) and Government of India's mission on "Carbon Capture, Utilisation and Storage (CCUS)."

The Research Department of Tamil in association with GTN Research and Development Cell organised a one-day seminar on 'Tamizhlal Virivom' (Let us expand our horizon through Tamil) on June 17. S. Sujatha, Convener and Head, Department of Tamil, welcomed the gathering. Principal P.Balagurusamy delivered the presidential address. College secretary K.Rethinam and Director Durai Rethinam presided over the seminar. B.R.Kavitha, Assistant

Professor of Tamil, introduced the resource person K. Parthiba Raja, Assistant Professor of Tamil, Sacred Heart College, Tirupattur. Mr. Raja said Tamil is one of the very few languages of the world with a classical past and a robust literary tradition that continues to this day. Despite many foreign occupations and outside influences, this noble language always shined, producing vibrant literature for over 2,000 years. S.Masiladevi proposed the vote of thanks. Around 150 students took part in the seminar.

IIT Mandi turning farmers of Kamand valley into Farmer Producer Companies with NABARD

CSIR-IHBT

20th June, 2022

Hamirpur/Mandi (HP), June 20 (UNI) Kamand valley Society, Mandi and IIT Mandi have been organizing farmers in the surrounding areas into farmer producer companies (FPC) supported by NABARD (Agreement signed in Feb 2020).

To increase productivity in a scientific way, they are working with the model Local community - NGO (EWOK) - Academia (IIT Mandi, CSIR-IHBT), - Industry (Nature Biotech Products).

EWOK keeps organizing interactive sessions to bring all the stakeholders in this model together to address the issues faced by farmers of Mandi district regarding the cultivation of targets, the last session was held on 7th June 2022. They have been distributing seeds to the local farmers, a total of 60 farmers have received the seeds this year.

Highlighting the recent developments, Ms. Sandhya Menon, Executive Director Operations, EWOK Society, IIT Mandi, said, “I take this opportunity to thank CSIR-IHBT unit for mission aroma and IIT Mandi for providing land to install oil extraction unit and other support. The past three years have proved that not only does Junglee Gendha cultivation help farmers in using their abandoned land but also can increase incomes from Rs. 1200 to Rs. 10000 per bhiga of land. And the best way for this to go forward is if farmers take ownership to make it successful in the future. I appeal to all interested farmers to join with EWOK and run a profitable organization which will help their families and future generations.”

There is great demand for essential oil extracted from the ‘Tagetes’ which is commonly known as ‘Junglee Genda’. EWOK has been motivating the farmers in the cultivation of Tagetes on the lands abandoned by them due to the wildlife menace. This practice is helping the farmers to earn additional income from their neglected lands. An oil extraction unit

provided by CSIR-IHBT Palampur as part of Aroma Mission Phase 2 has been installed by EWOK with the land support from IIT Mandi in Salgi village.

The unit is easily accessible to the farmers from Kataula, Batheri, Katindhi, Sakrayar, Kamand, and Navlay Panchayats. The value addition is helping the local farmers to earn around INR 9000- INR 11000 from one bhiga land.

World Food Safety Day celebrated at CSIR-CFTRI

CSIR-CFTRI

18th June, 2022

Mysuru, June 18:- World Food Safety Day was celebrated at CSIR-CFTRI on June 7 under the aegis of AFST(I) and CSIR-CFTRI, Mysuru. Students and teachers from various schools and colleges of Mysuru were invited to make them aware of food labeling and food adulteration. The programme started with an introduction to World Food Safety Day by Dr R P Singh, Chairman, Students' Committee AFST(I).



Aruna Kumar, Senior Technical Officer, Department of Food Analytical and Quality Control Laboratory, CFTRI, rendered a lecture-cum demonstration on food safety, food labeling and current regulations for manufacturers.

The keynote address was delivered by Dr Alok Kumar Srivastava, President, AFST(I).

Dr Sridevi Annapurna Singh, Director, CSIR-CFTRI, addressed the students on safety aspects of food and had an interactive session with students and responded to the queries regarding nutrition and food safety.

A quiz competition was arranged for students of different categories. While, CSIR-CFTRI School won the first prize, Sri Sathya Sai Baba High School and Government High School, Vontikoppal secured second and third prizes, respectively. Students of three colleges also participated in the quiz and SBRR Mahajana First Grade College won the prize. CSIR-CFTRI director distributed the prizes on this occasion.

The demonstration of detection of adulteration in food samples by the staff of CSIR-CFTRI was also shown to students.

The programme culminated with a vote of thanks by Dr Nandini P Shetty, secretary, AFST(I). (MR)

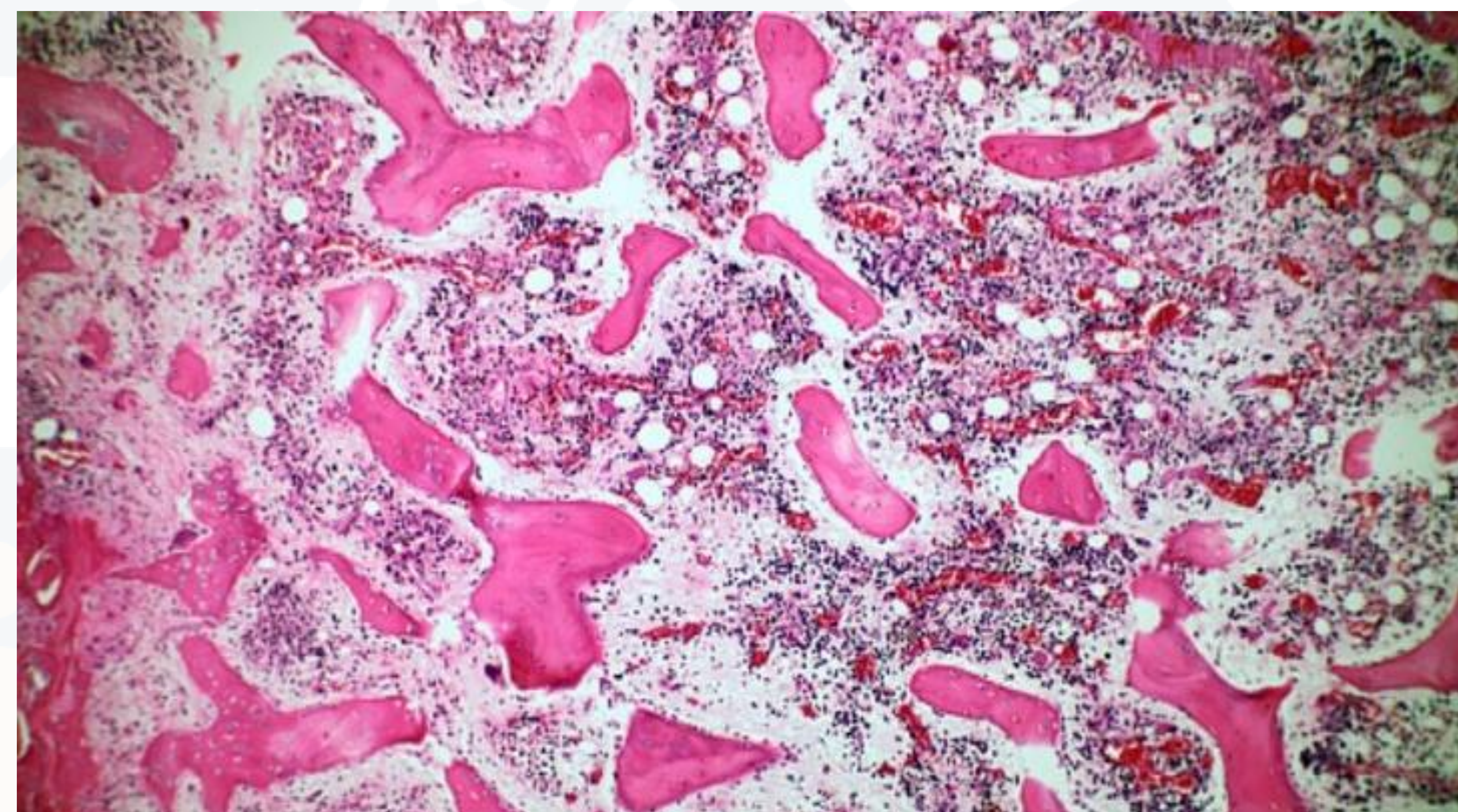


AMPRI-Bhopal Researchers Develop Immunosensor For Early Breast Cancer Detection

CSIR-AMPRI

18th June, 2022

Breast cancer today is one of the leading causes of cancer death in women across the world with an estimated 2.2 million breast cancer cases being diagnosed globally in 2020 alone. There are numerous invasive and non-invasive ways for early detection of breast cancer. However, they have several limitations. For instance, it can sometimes generate low-quality images or morphological structures.



Invasive ways are more accurate but can be painful, expensive and time-consuming.

To overcome these issues, researchers from CSIR-Advanced Materials and Process Research Institute (AMPRI) Bhopal have developed a highly sensitive electrochemical immunosensor for the detection of breast cancer biomarker CD44 antigen.

To the unaware, CD44 antigen is a cell-surface glycoprotein involved in cell-to-cell interactions, cell adhesion and migration. In humans, the CD44 antigen is encoded by the CD44 gene on chromosome 11. Studies have shown that CD44 remains one of the major molecules linked with breast cancer and other forms of tumours. Thus, its early detection can act as a crucial biomarker for exploring the development of breast cancer at a very early stage.

As per an India Science Wire report, the immunosensor has been developed using graphene oxide with a large surface area consisting of different functional chemical groups on its surface, making it a suitable electrode material in electrochemical immunosensor fabrication with high sensitivity. Graphene oxide on its own has quite a low conductivity. To boost this, they've made use of highly conductive materials like ionic liquids.

To further improve its properties, nanocomposite gold nanoparticles were also combined. The resultant GO-IL-AuNPs hybrid nanocomposites were also previously used by several researchers to develop an electrochemical sensor for the detection of dopamine in urine and a voltammetric biosensor for the detection of 2,4-dichlorophenol up to nanomolar concentration.

Researchers synthesised an electrochemical immunosensor constructed using GO-IL-AuNPs on a glassy carbon electrode to detect CD44 antigen.

They made use of various methods to validate the structural and functional capabilities of the synthesised nanomaterials using UV -- visible spectroscopy, FTIR spectroscopy, Raman spectroscopy, X-ray diffraction (XRD), field-emission scanning electron microscopy and transmission electron microscopy.

The novel process showed excellent electrochemical detection performance against the CD44 biomarkers. Moreover, the work highlighted that the developed immunosensor had a wide detection range as well as an extremely low limit of detection compared to other biosensors.

Week-Long Yoga Day Celebrations by CSIR-NIScPR with SVASTIK Started Yesterday

CSIR-NIScPR

18th June, 2022

CSIR-NIScPR is planning a week-long celebration to educate the public about the benefits of yoga in leading a healthy lifestyle. Prof. Ranjana also discussed the CSIR-NIScPR SVASTIK initiative, which aims to communicate India's traditional knowledge with scientific foundations to society through popular channels.



As part of International Day of Yoga 2022, the CSIR-National Institute of Science Communication and Policy Research (NIScPR) in New Delhi, in collaboration with the SVASTIK team, launched a week-long celebration. On this occasion, a virtual platform hosted a seminar on "Scientific Understanding of Yoga" on June 17, 2022.

Dr. Charu Lata, the Senior Scientist at CSIR-NIScPR and project coordinator for SVASTIK, provided opening remarks. She discussed the history of yoga and the role that Prime Minister Narendra Modi played in bringing it to the global stage.

Prof. Ranjana Aggarwal, Director of the CSIR-NIScPR, greeted the guest and other dignitaries. In her speech, she emphasized the importance of yoga in balancing the body, mind, and human relationship with the world. Yoga emphasizes the values of mindfulness, moderation, discipline, and perseverance.

Yoga, when applied to communities and societies, offers a path to long-term sustainability. She stated that large-scale genomic studies had validated meditation's positive impact on human well-being.

She stated that in keeping with this year's theme, "Yoga for Humanity," CSIR-NIScPR is planning a week-long celebration to educate the public about the benefits of yoga in leading a healthy lifestyle.

Prof. Ranjana also discussed the CSIR-NIScPR SVASTIK initiative, which aims to communicate India's traditional knowledge with scientific foundations to society through popular channels.

Subhash Kesarwani, Director (NGS), NTIPRIT, DoT, Govt. of India, delivered the keynote address. In his speech, Kesarwani emphasized the importance of practicing yoga to keep the body free of toxins and the mind free of tensions. He talked about eating healthy and exercising regularly to boost body's immunity and prepare it to fight diseases. The lecture was followed by an interactive session in which participants asked yoga expert Kesarwani questions about various yoga practices.

Charu Verma, Senior Principal Scientist, CSIR-NIScPR, concluded the programme with a vote of thanks. The event was attended by CSIR-NIScPR staff and students, and it was live-streamed on Facebook and YouTube.

Gujarat: India's First Road Constructed From Steel Slag Inaugurated In Surat

CSIR-CRRI

16th June, 2022

Steel Minister Ram Chandra Prasad Singh on Wednesday, June 16, inaugurated a six-lane highway in Gujarat's Surat, made of steel slag -- a first for the country. The road constructed using 100 per cent steel-processed slag is a real example of converting "waste into wealth" and improving the sustainability of steel plants, the minister said.



"Steel Minister inaugurated the first six-lane highway road made by using steel slag at Surat, Gujrat. While inaugurating the road, the Minister impressed upon the need to promote the circular economy and resource efficiency by converting all waste into wealth," the Ministry of Steel said in a statement. Slag is a by-product of steel manufacturing.

The use of such material in road construction shall not only increase its durability but also help in reducing the cost of construction as slag-based materials have better properties than natural aggregates, Singh said.

The use of steel slag in road construction will also address the shortage of natural aggregates in the country. The production of steel slag in India from different process routes is likely to increase by 2030. Steel maker AMNS India said the six-lane road of 1 kilometre was constructed using around 1 lakh tonnes of processed steel slag from its manufacturing plant in Hazira.

The road has been jointly made with the Central Road Research Institute (CRRI) -- a laboratory of the Council of Scientific and Industrial Research (CSIR), ArcelorMittal Nippon

Steel (AMNS) India said in a statement. AMNS India CEO Dilip Oommen said, "Supported by the CRRI, we are proud to have developed an alternative to natural aggregates in road construction, which is of international standards, cost-competitive and reduces the burden on natural resources."

Mukesh Kumar, Director of Steel Research & Technology Mission of India (SRTMI), said slag is a by-product which comes out during manufacturing of steel through three processes, namely basic oxygen furnace (BOF) route, electric arc furnace (EAF) and induction furnace (IF).

"This is a breakthrough for the industry as far as utilization of slag is concerned. Slag was being used only for only landfilling," the industry expert said.

CSIR-NML Jamshedpur launches R&D training in Material and Metallurgical Engineering

CSIR-NML

16th June, 2022

Jamshedpur, June 16: A forty-five day training programme organized by CSIR-National Metallurgical Laboratory, got underway on June 14 and will be conducted till July 30. The theme of this training programme was 'Industrial R&D Training on Materials and Metallurgical Engineering.' The national training program was launched under the banner of Council of Scientific and Industrial Research in the realm of CSIR Integrated Skill Initiative Program.



The objective of the program was to provide training and exposure to the engineering students by improving their employability and industry-oriented skills on theoretical concepts in the domain of materials and metallurgical engineering. This training program was expected to improve the understanding of the participants in various areas of materials and metallurgical engineering. These domains include mineral processing, process metallurgy, materials characterization, advanced materials and computational materials science.

On the launch of this 45 day training programme, emcee Pragati Jha welcomed the participants. Chief Scientist & Head KRIT Division of CSIR-NML, Dr. Mita Tarafder provided a detailed presentation on CSIR-NML and CSIR Integrated Skill Training Initiative. She also gave a brief on the various types of training programs conducted by CSIR-NML including societal, professional, corporate and summer/winter internship for undergraduate students, M.Tech/Ph.D. dissertation guidance, apprentice training for ITI / Diploma / Graduate engineers, and international training in the field of materials and metallurgy.

The inaugural program concluded with a talk by Dr Mita Tarafder. More than 100 participants from several organizations across the country attended the virtual programme.



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