G20 Research and Innovation Initiative Gathering (RIIG) Conference on Materials for Sustainable Energy

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India has taken over the year-long G20 Presidency in December 2022. One of the side events during the G20 Presidency is the Research and Innovation Initiative Gatherings (RIIGs) which is being held at multiple locations in India (viz. Ranchi, Dibrugarh, Diu and Shimla) and is being hosted by various scientific departments (CSIR, DBT, SERB & MoES). Science and Engineering Research Board (SERB) has been identified as the Indian front face of the G20 RIIG. India is hosting five G20 RIIGs during India's G20 Presidency year, including Research and Innovation Ministers' meeting.



Troika (Indonesia, India & Brazil) with DG-CSIR



DG-CSIR addressing the Gathering

The G20 RIIG Inception Meeting was held at Kolkata on 8 February 2023, which was a curtain-raiser event for the RIIG Conferences.

Subsequently, the CSIR-led G20 RIIG Conference on "Materials for Sustainable Energy" took place in Ranchi on 2 March 2023. It encompassed inaugural, technical and valedictory sessions, a plenary lecture on "Strategy towards Low-Carbon Transition driving India towards Net-Zero", special sessions for interventions, suggestions and presentations by foreign delegates and a panel discussion. The deliberations centred around three priority areas viz, a) 21st Century Challenges Related to Energy Materials & Devices, b) Solar Energy Utilisation and Photovoltaic Technology, and c) Materials and Processes for Green Energy.

Twenty foreign delegates from ten G20 member countries, six invited guest countries and an international organisation joined the RIIG Conference. Additionally, 38 delegates and special invitees from various scientific departments, research and academic institutions and industry from India participated in the event.

Dr Srivari Chandrasekhar, Secretary, Department of Science and Technology (DST), and the Chair of the RIIG events in India, while welcoming the G20 delegates and special invitees, stressed that many G20 nations, including India, have enormous mineral and material wealth which should be sustainably used for meeting our energy requirements. The G20 delegates from Indonesia and Brazil, the other two Troika countries, echoed the importance of the conference in their opening remarks.

Welcoming the participants, Dr Kalaiselvi, Secretary, DSIR and Director General, CSIR, specified that the theme of the G20 under India's Presidency, "*Vasudhaiva Kutumbakam*" or "One Earth, One Family, One Future", in a way, underscores the need for the entire world to come together and focus on sustainable energy so that we can have one global future with net-zero emissions. She called upon G20 nations to join hands in researching and developing technological solutions for sustainable energy storage, distribution and management.

The conference drew leading experts from esteemed institutions such as IITs, IISERs, and CSIR Labs, industry representatives from companies such as Godi India Pvt. Ltd., and think tanks like NITI Aayog and Indian Energy Storage Alliance. Well-known energy experts and policymakers, including Dr V.K. Saraswat (Member, NITI Aayog), Dr G. Satheesh Reddy (Scientific Adviser to Raksha Mantri), Prof. Ashok Jhunjhunwala (IIT, Madras), Prof. Vijayamohanan K. Pillai (IISER, Tirupati), Dr Rahul Walawalkar (President, Indian Energy Storage Alliance), Dr Ashish Lele (Director, CSIR-NCL, Pune), Dr Anjan Ray (Director, CSIR-IIP, Dehradun),



All Participants at G20 RIIG Conference, Ranchi

Mr Saba Kalam (International Solar Alliance) and many others deliberated on the main and sub-themes of the conference.

The panel discussion and inputs from foreign delegates highlighted that sustainable supply chains and renewable resources are essential elements for effective energy transition and achieving net-zero goals of nations while ensuring affordable energy access for all. G20 deliberations on Sustainable Materials for Energy converged towards the understanding that these need to rapidly evolve with due considerations of resources and capabilities available locally while adopting best practices available internationally - including the relatively new areas of storage materials, green hydrogen, CCUS, digital infrastructure, AI/ML, and physical as well as cybersecurity of energy supply systems. It was unanimously agreed that sharing experiences regularly in a structured manner and building capacities for the next generation of sustainable development professionals will help achieve these common goals.

DG-CSIR, Dr N. Kalaiselvi summarised the highlights of the conference. She touched upon the main points presented, which included carbon pricing, alternate materials and green energy, and emphasised the need for open sharing of technologies among G20 countries. She acknowledged that though science is universal, technology may be region specific. Dr Kalaiselvi remarked that a paradigm shift is necessary for how to generate and shift to sustainable energy sources.