



# IEI NEWS



July 2020

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Sir R N Mookerjee

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A CENTURY OF SERVICE TO THE NATION

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International Conference of Civil Engineers at Bhubaneswar

## Disaster Mitigation and Management in Global Context

Odisha State Centre of the Institution organised International Conference on 'Disaster Mitigation and Management in Global Context' during 7-8 March, 2020 under the aegis of Civil Engineering Division Board, IEI. The International Conference was co supported by Odisha Society of Americas, Siksha O Anusandhan (SOA), Deemed to be University, Bhubaneswar and College of Engineering & Technology Bhubaneswar. Mr Satya Narayan Pradhan, IPS, Director General, National Disaster Response Force (NDRF), Ministry of Home Affairs, Government of India, graced the inaugural session as Chief Guest. In his address, Mr Pradhan



highlighted about the role of NDRF in creating community awareness and preparedness in dealing with disasters, relief operation involving men and materials during rescue operation

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IEI Centenary Webinar

## Leadership and Change Management in VUCA World

IEI is now embarked upon organising Centenary Webinar Series on contemporary topics related to education, science, engineering and technology. The first Webinar of the series was organized on 6 June, 2020. The speaker during the occasion was Mr Ajay Sharma, Leadership Coach and CEO, TPC Global. Er Narendra Singh, President, IEI graced the occasion with his august presence. Maj Gen (Dr) S Bhattacharya, VSM (Retd), Secretary & Director General, IEI, welcomed the speaker, President, IEI and the audience. Mr Sharma, in his address, lucidly explained the significant aspects of volatility, uncertainty, complexity and ambiguity (VUCA) and the changing role of leadership in present pandemic crisis. The speaker explained leadership as a process to share responsibilities and thereby empowering people to achieve the organizational goal and mentioned that successful leaders focus on sustaining superior performance by aligning people around mission, vision, values and empowering leaders at all levels by providing right service to the customers through collaborative leadership all over the organization. Mr Sharma in his address explained the significance of leadership behavior and its implication on VUCA World, which include appreciation and recognition of the contribution by the team members, accountability, high degree of acceptability for new ideas, evaluation of success as well as failure etc. He explained the leadership competencies in changed scenario, which include strong ethics, transparent flow of communications, clear mission, vision and goals, integrity, focus on team etc. Mr Sharma emphasized on the changing role of leadership during the pandemic crisis through adoption of technological disruption with flexibility and agility. Secretary & Director General, IEI summed up the Proceedings of the event and proposed the vote of thanks.

## From the President's Desk.....



India is one of the major suppliers to the global food basket since it is a leading producer for a wide array of food products. During nationwide lockdown, contrary to wide spread apprehension, there were no disruptions in the flow of essential food supplies, which is remarkable. The lockdown period coincided with the country's peak harvesting time for different seasonal crops. However, uninterrupted supply of all essential food products during the crisis proved that the four pillars of food security, namely availability, access, stability and utilization remain intact. Food security leads to nutritional sustainability, which is the most significant tool to build up individual immunity to overcome health crisis at all levels. It is imperative that agricultural productivity be given fresh impetus. Many agencies including Central and State Governments came together to ensure harvesting of crops with enhanced farm mechanization, and speedy inter-state movement of agro commodities.

In the context of 'Atmanirbhar Bharat', achieving self sustainability and self reliance in agriculture is one of the most cost effective alternative to enhance Indian economy, which include branding and global selling of local farm products to increase India's post Covid global export share and enhance rural prosperity.

To cope up with the requirement of increased agricultural productivity, it is the right time to implement more technology driven agricultural processes, that leads to agro-technology based ecosystem, that include precision farming, yield mapping, variable rate seeding, application of osmo-dehydration technology for fruits and vegetable preservation, post harvest processing and marketing of horticultural crops. This would results revenue generation and utilization of agro-horticulture processed by-products and residue for developing a sustainable food chain.

As mentioned earlier, IEI is conducting Centenary Webinar Series to highlight the views of experts in various fields that include engineering and technology, motivation, management, leadership etc. Two Webinars of this series were organized last month, when renowned erudite speakers shared their views and expertise.

I request all State and Local Centres of the Institution to come forward and conduct Webinars on emerging issues, which would go a long way to enrich the knowledge base of our corporate members.

# Disaster Mitigation and Management in Global Context

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and the steps involved in restoration of normalcy, pre and post disaster management operations, etc. Mr Pradeep Kumar Jena, IAS, Additional Chief Secretary, Special Relief Commissioner, Government of Odisha & Managing Director, Odisha State Disaster Management Authority and Mr Lalit Das, IPS, CMD, Odisha State Police Housing & Welfare Corporation graced the occasion as Guests of Honour. Mr Jena, in his address, spoke on the best engineering and management practices and techniques for disaster mitigation and protecting the infrastructure, human life and assets. Mr Das, in his address, shared his experience and involvement in tackling the challenges posed by the super cyclone in 1999, during his tenure as SP in the Jagatsingpur district, Odisha. Mr Ashok Basa, Past President, IEI and Chairman, International Advisory Committee and Member, Disaster Risk Management Committee, World Federation of Engineering Organizations (WFEO) in his address expressed his satisfaction over the leading performance of Odisha Disaster Management Authority in handling various challenges of disasters faced in Odisha, and its quick response in providing manpower for extending rescue operation in others states of the country on several occasions. Mr V B Singh, Council Member, IEI and Chairman, Civil Engineering Division Board (CVDB), IEI presided over the function and in his address focused on the adoption of NBC 2016 and all the updated IS Codes for construction of earthquake and wind resistant structures including the cyclone shelters throughout the country, which can protect the life of crores of people. Earlier, Prof (Dr) Khiroda Kumar Rout, Chairman, Odisha State Centre and Council Member, IEI delivered the welcome address. Prof (Dr) P K Parhi, Immediate Past Chairman, Odisha State Centre, IEI spoke on the theme of the Conference as well as briefed about various topics to be covered by the invited speakers in different technical sessions. Mr B C Tripathy, Convenor, in his address mentioned the background of the International Conference and various other activities undertaken by the Odisha State Centre, IEI. The inaugural session concluded with the vote of thanks by Prof (Dr) S S Dash, Honorary Secretary, Odisha State Centre. A Technical Proceedings was released during the function by the Chief Guest and other dignitaries present on the dais. The inaugural session was well attended by the Council Members and Corporate Members of IEI, invited and sponsored delegates, academicians, researchers, Government officials, student delegates, Committee Members, professionals, field experts, meteorologists, city development authority personnel, engineers from various Government and non Government organizations, and building material manufacturers from different parts of the country and abroad.

The other highlights of the event include addresses and Keynote lectures delivered by leading academicians, scientists, researchers and other professionals hailing from different reputed organizations from India as well as abroad. Technical Sessions included invited/keynote lectures from notable personalities like Prof Sriman Kumar Bhattacharyya, Deputy Director & Professor, Civil Engineering Department, IIT Kharagpur on 'Management and Mitigation of Disasters-A Perspective'; Prof Chandan Ghosh, Civil Engineering Department, IIT Jammu on 'Perspectives of Disaster Management in India'; Prof Achintya N Bezbaruah, Associate Professor of Civil and Environmental Engineering and Director, NAE Grand Challenges Scholars Program, North Dakota State University, USA, on 'Post Disaster Safe Water Supply: State of the Art and Future Innovations'; Prof Sarat Kumar Das, Department of Civil Engineering, IIT-ISM Dhanbad on the topic, 'Sustainability and Resilient Infrastructure for Disaster Mitigation'; Dr Sarat Chandra Sahu, Former Director, Regional Meteorological Science Centre, Bhubaneswar on the topic 'Climate Change and its Impact on Extreme Weather Events with Special Reference to Eastern Coast'; Mr Lingaraj Gouda, GM, Odisha State Disaster Management Authority and Director, Designs, Water Resources Department, Government of Odisha on 'Earthquake Resistant Design of RC Buildings and the importance of Ductile Detailing', etc.

Besides, the technical sessions also included presentations by various eminent speakers on various emerging areas like : natural, biological and manmade disasters, need for global policy to ensure and provide international disaster management plan, current disaster management scenario at global level, ensuring strong disaster resistant structures, application of IT in disaster management, case studies of disaster management in India and other countries, adoption of suitable Codal Provisions towards the safety and stability of infrastructures affected by disasters etc.

During Valedictory Function, Prof Achintya N Bezbaruah, Associate Professor of Civil and Environmental Engineering, North Dakota State University, USA and Mr Rajendra Nayak, Chief Engineer (Designs), PWD, Govt of Odisha, were the Chief Guest and the Guest of Honour respectively. Prof (Dr) S S Dash, Organizing Secretary placed the following recommendations which emanated from the two day National Conference:

*Various mitigation strategies for cyclones include: Early warning systems to alert the public in advance to move to safer locations; Provision of cyclones shelter houses to which people can take shelter during cyclones; Providing initial medical treatment to victims trapped in collapsed structures; Managing and coordinating food, shelter and first aid for victims; Providing bulk distribution of relief supplies; Operating a system to assist family reunification; Providing assistance for public health and medical care needs. Maintenance of embankments should be crafted with fine workmanship to mitigate flooding risk during cyclones; In coastal towns and cities, building design specifications need to be revised for ensuring structural safety. Cyclone resilient structures must be constructed; Ageing test and assessment of retrofitting requirements should be mandatory for major city buildings beyond 15 to 20 years old; Coastal Zone Regulatory Authority should be created under central auspices with state counterpart organizations covering the entire coastline of the country for management of marine resources and reserve forests; Suitable guidelines should be framed by States for construction of hoardings; Evacuation routes in disaster management plans should be delineated prior to onset of monsoons; Telecom systems need to be robust wherein coastal mobile towers must be able to bear winds at speeds of 250 km/hr; Alternative channels of communications should be set up including VF/HUF sets, satellite phones, community radio, internet and loud speakers for communication during the crisis; Underground power cable and utility lines should also be planned in a manner, so that they are functional and financially viable; Strong linkages should be developed among the stakeholders in effective cyclone management include road, rail and civil aviation authorities, disaster management agencies, defense, police, power, telecom, health, water and sanitation authorities, print and electronic media, NGOs, organizations of public and private sector across coastline and citizens; Enforcement of use of NBC and other Building Codes for building approvals and adopting disaster resilient design of structures; Application of ICT and IoT for quick identification of losses and damages made and also in Disaster Management Handling; Implementation of innovative agricultural practices and technology for climate mitigation and adaptation to face the challenges of El Nino and intense tropical cyclones and to avoid food insecurity and poverty; Adoption of performance based design of structures for high rise and irregular structures; Application and use of new and innovative construction materials like: high performance concrete, fibre reinforced concrete, fibre reinforced polymers, etc; Development of GIS based National Data Centre for Disaster Management and installation of early warning and hazard detection equipments; Developing area specific and hazard specific advance mitigation plans through stable administrative set up for disaster mitigation, preparedness and relief; Establishment of Nodal Institutions for training and research in the area of disaster management in different zones for training and grooming the team members for providing best disaster management operation.*



## 167<sup>th</sup> Birth Anniversary of Sir R N Mookerjee

Sir Rajendra Nath Mookerjee was the First elected President of the Institution. To commemorate the contributions to the nation as an engineer, the Council of The Institution of Engineers (India) decided to institute an Annual Lecture to be delivered at the Annual Convention of the Institution, now redesignated as the Indian Engineering Congress. The first lecture was delivered during the Diamond Jubilee Celebrations of the Institution.



Sir Rajendranath Nath Mookerjee had the vision of an engineer and the comprehension of an intellectual. Born on June 23, 1854, he rose on the Indian scene in the nineteenth century and continued to serve the engineering profession till the thirties of the twentieth century. He passed away on May 15, 1936. The life story of Sir Rajendra Nath is the story of a great businessman, equally great at heart, generous of instinct and charitable of soul, who brought glory to everything he touched.

Born in typical middle-class family, Sir Rajendra Nath lost his father when he was six. Having matriculated from the London Missionary Society's Institution of Kolkata, he joined the engineering department of Presidency College, Kolkata. The satisfactory execution of the construction of Palta Water Works for the city of Kolkata, gave him the confidence and experience that enable this self-made man, in later life, to build an industrial colossus and a trading conglomerate.

Sir Rajendra Nath was the President of the Indian Science Congress in 1921 and in 1931, the Calcutta University conferred on him the Honorary Degree of Doctor of Science. He was the First President of The Institution of Engineers (India) during the session 1920-21. He was knighted after his successful construction of the Victoria Memorial Building at Kolkata.

Deep interest of Sir Rajendra Nath Mookerjee in all kinds of social welfare work brought into being many a charitable institution. Essentially a man of science, Sir Rajendra Nath practised technology for the development of this country.

West Bengal State Centre, IEI in association with Durgapur Local Centre, IEI observed 167<sup>th</sup> Birth Anniversary of Sir R N Mookerjee, the Founder President of The Institution of Engineers (India) on 23 June, 2020 through organising a Webinar. Mr Amit Ranjan Dasgupta, Former Executive Director (Projects), SAIL, ISP & DSP was the Commemorative Speaker during the occasion. Mr Dasgupta, in his deliberation on the topic 'History Make in India', explained the major achievements in product development & project implementation, involvement of foreign companies and capital, emerging issues in engineering education and Industry 4.0. Er Narendra



Singh, President, IEI, graced the occasion with his august presence, deliberated the presidential

address on the occasion and remembered the contribution of Sir R N Mookerjee towards the engineering fraternity. Prof (Dr) Kartik Chandra Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI briefed the life sketch of Sir R N Mookerjee. Earlier, Mr Sandip Kumar Deb, Chairman, West Bengal State Centre & Council Member, IEI delivered the welcome address. Mr Manoj Kumar Biswal, Honorary Secretary, Durgapur Local Centre, IEI introduced the Speaker. The programme ended with the concluding remarks from Maj Gen (Dr) S Bhattacharya, VSM (Retd), Secretary & Director General, IEI. Mr Kalipada Das, Honorary Secretary, West Bengal State Centre, IEI proposed the vote of thanks. The programme was attended by Dr T M Gunaraja, Immediate Past President, IEI, Mr Sisir Kumar Banerjee, Past President, IEI, Prof (Dr) Samiran Choudhuri, Past President, IEI, Council Members, IEI and Corporate Members of the Institution from different parts of the country.

### IEI Centenary Webinar

## Transforming Engineering Education: Emerging Scenario

As a part of the IEI Centenary Webinar Series, the second Webinar was organized on the topic 'Transforming Engineering Education: Emerging Scenario' on 15 June, 2020, where two experts, Prof Raghunath K Shevgaonkar, Vice Chancellor, Bennett University & Former Director, IIT Delhi and Mr B V R Mohan Reddy, Executive Director, CYIENT enlightened the audience with their thought provoking speech. The program was well attended by the laudable personalities all over the country and graced



with the benign presence of Er Narendra Singh, President, IEI. Mr B V R Mohan Reddy, while delivering Lecture on Engineering Education and Forthcoming Challenges, explained the realism of COVID 19 in lives and livelihood and focused on emerging outcome in post pandemic era in terms of work, life and learning. Mr Reddy explained the Hybrid Education Model,

that leads to synchronous learning and able to retain the balance between online and offline education. The speaker in his address emphasized on development of professional and soft skills, student centric experimental learning, faculty development programme, integration of digital strategies, adaptation of appropriate learning platforms and so on. Prof Raghunath K Shevgaonkar, in his address, explained different aspects of multidisciplinary engineering education, the sustainability issues of higher education in future, achievement of higher order cognitive skills etc. Prof Shevgaonkar recommended future learning platform as an amalgamation of ICT enabled learning, human interactions with ICT and human interaction only. The speaker also lucidly explained the forthcoming challenges in such a blended learning platform including development of learning content, laboratory exposure, IT support, interactions within students and faculties and stressed on creation of competent workforce with higher caliber and intellect level through a integrated curriculum. The speaker mentioned COVID 19 as a reset button for right amalgamation of knowledge, skills, value, sustainability and other intangible factors, that leads to a new paradigm of education to create a healthy and sustainable society. Er Narendra Singh, President IEI in his address mentioned that at the post pandemic era, quality of education needs reforms. Mr Pradeep Chaturvedi, Chairman, Interdisciplinary Coordination Committee in his address opined on transforming engineering education from efficiency to efficacy and mentioned that engineers have a larger role to play in policy making. Prof (Dr) Swapan Bhaumik, Chairman, CATE summed up the Proceedings of the event. Earlier, Maj Gen (Dr) S Bhattacharya, VSM (Retd), Secretary & Director General, IEI, welcomed the speakers, President, IEI and the audience. Mr Suneel Grover, Chairman-BOG, National Skill Development Forum, IEI, proposed the vote of thanks.

## Agriculture and Smart Village for Sustainable Development

**Karnataka State Centre** of the Institution in association with reputed Agricultural & Horticultural Institutions organized National Conference on **Agriculture and Smart Village for Sustainable Development** during 7 – 8 February, 2020 under the aegis of Agricultural Engineering Division Board (AGDB), IEI. The objective of the Conference is to provide insight regarding; Restructuring of villages through unique engineering and technology for better living standards: Involvement of industry and academia to bring new insight for skill developments of village youths to create employment for enhancing rural economy and application of IoT: Artificial Intelligence and precision farming to increase agricultural production. Mr Prabhakar D Hamigi,



Chief Operating Officer (Chief Engineer), Karnataka Rural Road Development Agency, Government of Karnataka, inaugurated the Conference by lighting the Lamp. Mr B Nijalingappa, IFS (Retd), Director, Jalamrutha Rural Development & PRD, Government of Karnataka also graced the occasion with his august presence. Mr Prabhakar D Hamigi and Mr B Nijalingappa, stressed the urgent need of developing rural infrastructure, better roads and connectivity, drinking water, rural sanitation, healthcare and education, solar lighting etc, to improve the living conditions of the rural people and adoption of new technologies such as soil and water conservation, precision farming, agricultural mechanization and better marketing facilities to enhance agricultural production and hence rural economy. Dr M Chowde Gowda, Council Member, IEI & Chairman, Agricultural Engineering Division Board (AGDB), IEI and Conference Co-ordinator, presided over the Inaugural session. Earlier, Mr M Nagaraj, Honorary Secretary, Karnataka State Centre welcomed the gathering. Dr M Nemichandrappa, Convener of the

programme proposed the vote of thanks. A Proceedings was released in this occasion by the dignitaries present on the dias.

During technical sessions, number of Papers were presented embracing the theme and sub theme, which include; Application of IoT and Cellular Technology to enable smart villages and agricultural production; Rain water harvesting in urban and rural areas; Development and evaluation of pyramid structure to enhance the shelf life of vegetables and fruits; Application of Mechatronics in Agriculture; Aquaponics as a next generation solution for doubling farmer's income; Experimental analysis of grey water treatment in rural areas using nano metal oxides; etc.

During Valedictory Session, Mr Ramachandra Gowda, Former Cabinet Minister, Government of Karnataka graced the function as the Chief Guest and Dr H Shivanna, Former Vice Chancellor, University of Agricultural Sciences, Bengaluru as Guest of Honour. Dr M Chowde Gowda, Council Member, IEI welcomed the guests and invitees. Mr Jasmail Singh, Chairman, Karnataka State Centre and Council Member, IEI presided over the function. Dr C K B Nair, Director, Bravee Multiskilling Academy presented the recommendations emanated from the outcome of the deliberations during the technical sessions. Mr M Nagaraj, Honorary Secretary, Karnataka State Centre proposed the vote of thanks.

**Recommendations emerged out of the deliberations include;**

*There is an urgent need for development of villages with infrastructural facilities including better roads, drinking water, education, sanitation, health care etc, on par with urban living conditions to avoid migration of rural youths to cities; Creating awareness among the villagers on the technologies that are available for harnessing of solar energy for lighting, precise use of available drinking water and maintenance of surroundings of the village neat and clean and free from garbage to prevent contaminant diseases; Creating awareness on the technologies that have been developed such as adoption of improved agricultural machinery and equipment, precise use of irrigation water, precision farming, crop processing and better marketing to enhance crop production and hence rural economy; Training of rural youths on skill development to be done on priority basis to create better employment opportunity and hence living conditions.*

## Sustainable Energy Technologies

**Kanpur Local Centre** of the Institution organized All India Seminar on **Sustainable Energy Technologies** during 8-9 February 2020 under the aegis of Environmental Engineering Division Board. Mr Ajay Kumar, Managing Director, Kanpur Electricity Supply Company (KESCO), Kanpur was the Chief Guest during the inaugural session. Mr Ajay Kumar in his speech mentioned that availability of cheap and quality power supply for domestic as well as industrial applications is the greatest task for societal development and power is to be provided in adequate and in a reliable manner. He encouraged the applications of hydro wind and solar powers, as they have least impacts on environment and solar power has huge potential, which may be explored for powering our nation in future. He further stressed on improvement in conversion efficiency of solar cells and reduced cost of solar plants and mentioned that latest developments in technologies of storage batteries made them much reliable with longer life. Mr Kumar opined that transmission and distribution approach, methodologies, norms and regulations should be modified to optimize the supply of power from capacity mix, i.e. coal, gas, hydro, solar and wind in grid in a manner to put minimum impacts on the environment. Earlier Prof Debi Prasad Mishra, Organizing Chairman welcomed the Chief Guest and all participants. Mr Vivek Asthana, Organizing Secretary, proposed the vote of thanks.



In the technical session, Key Note Speaker Prof Debi Prasad Mishra, Department of Aerospace Engineering, IIT Kanpur, while deliberated on the topic 'Emerging Sustainable Energy Technologies', mentioned that there is a worldwide concern for attaining energy security with rapid depletion of limited sources of fossil fuels and escalation of its cost and in addition to it, there is an urgent requirement to reduce greenhouse gases emission as perennial problems of global warming and climate change, the great threat

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## Energy Efficiency in HVAC & R Industry and Air Pollution Control

**Jharkhand State Centre** of the Institution in association with The Indian Society of Heating, Refrigerating and Air Conditioning (ISHRAE), Ranchi Chapter, organized All India Seminar on the theme **Energy Efficiency in HVAC & R Industry and Air Pollution Control** during 8-9 February, 2020 under the aegis of Mechanical Engineering Division Board. The Chief Guest during the function, Mr Sanjay Kumar Verma, Director (Commercial), MECON Limited, Ranchi, discussed different aspects about energy consumption by steel industry and further stressed on the environmental pollution due to steel industry. Guest of Honour during the function, Mr Ajay Kumar, Chief General Manager (Utilities), SAIL-CET in his address stated that HVAC industry is passing through a transformation phase, when industry is migrating towards environment friendly refrigerants and energy efficient products are entering the market. The



Keynote speaker, Mr C D Goswami, Executive Director (Technical Services), MECON Limited, Ranchi, highlighted initiatives taken on raising energy efficiency of HVAC

equipment and stressed on the initiatives to reduce energy consumption, which will result in health benefit, improved quality of life etc. He discussed how to improve indoor air quality and reduce carbon footprint. Earlier, Mr Siyaranjan Kumar Singh, Chairman, Jharkhand State Centre and Council Member, IEI welcomed the august audience. Mr Jitendra Kumar, Honorary Secretary, Jharkhand State Centre proposed the vote of thanks. A Technical Exhibition was organized in this occasion.

During Technical Sessions, technical presentations were obtained by reputed industries, which include; DCL Bulk Technologies Private Limited, who had discussed about new material handling products range and its application, different aspects of bulk loading systems, Aeration equipment and air slide system, complete range of flow control gates, dust collectors, wagon loading systems etc; Armacell India during their presentation mentioned about engineered insulation systems for oil and gas industry; F Harley & Company Private Limited discussed on the topic 'High Volume Surge Load Application : Dry Fog the Ultimate Solution'; Dr S B Aradhya and V T Naresh, Clair Engineers Private Limited, Hyderabad presented a Paper on Air Pollution Control Solutions for Process Industries.

Dr Neeraj Priyadarshi, Principal, BITT Polytechnic, Ranchi presented Invited Lecture on Renewable Energy System with Solar Refrigeration for Rural Applications. In his talk he mentioned that a large proportion of people in developing countries live in rural or remote locations where grid electricity is unavailable and emphasized on the applications of PV solar energy in refrigeration in rural regions; Mr S P Sharma, DGM, NTPC Limited presented Paper on 'Managing Environment for Human Longevity'; Mr Sourav Prasad deliberated on the Lean approach to energy efficiency & sustainability; Mr P K Behera, General Manager, Heavy Engineering Corporation Limited, Ranchi deliberated on the topic 'Solar Energy Initiatives for Agricultural Purposes' and explained the application of solar energy in irrigation; Mr Kirti Avishek, Assistant Professor, Department of Civil and Environmental Engineering, BIT Mesra presented paper on the topic 'Municipal Solid Waste Management Using GIS for Ranchi'. In his talk he highlighted waste management through suitable site selection for landfill sites, and waste transfer route optimization under limited availability of data. Mr Sanjay Dhar, General Manager, MTI, SAIL delivered a motivational speech on this occasion.

## Sustainable Energy Technologies

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to the existence of life. At the same time, as stated by Prof Mishra, the galloping energy demands due to adaptation of market driven materialistic life style results lot of pressure to meet the manufactured demands of energy for making common people to lead a maniac life. Hence researchers across the globe are exploring to devise methods for harnessing sustainable energy technologies. The speaker opined that the renewable energy sources is projected to exceed in principle, the world's current energy demand and hence is considered to be attractive to explore various kinds of resources as it is expected to have a significant share in the future global energy portfolio.

Dr Keshav Kant, Former Professor, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, the Keynote speaker, while presented his Paper on "Dimethyl Ether – A Prospective Future Fuel", explained the prospects of using Dimethyl Ether (DME) as a substitute for Petroleum Diesel, which can be produced by Indirect or Direct synthesis of Synthetic gas (Syngas) obtained from the gasification of Lignocellulosic biomass of any kind.

Mr Amitosh Verma, Manager, NTPC, Bilhaur Solar Power Project, Kanpur presented an Invited Lecture on the topic '225 MW Solar Power Project, Salient Features and Optimization of Land required / Capital Expenditures'. The talk highlights the fact & figures regarding various aspects of the solar power project being used as sustainable energy alternative and covered an analysis of how to maximize the utilization of the solar energy. The presentation aimed to facilitate the academicians and researchers' to explore optimization of land use & capital investments along with smooth power output.

Mr Vijay Kumar, Indian Institute of Technology, Kanpur, presented a Lecture on 'Renewable and Non Renewable Energies – An overview of Solar Hot Water System'.

Mr Kunal Singh, Manager, BHEL, 1x660 MW Panki TPP Extn., Kanpur delivered Invited Lecture on 'BHEL's commitment towards Sustainable Energy Solutions'. The topic covers the major areas in which BHEL has developed systems / solutions for providing the greener technology to mitigate the impact on environment. The Lecture also covers the range of Solar systems provided by BHEL to different developers.

Mr Vivek Asthana, Superintending Engineer, Uttar Pradesh Power Corporation Ltd, Kanpur presented Invited Lecture on 'Future of Power Scenario'.

Prof Onkar Singh, Department of Mechanical Engineering, School of Engineering, HBTU, Kanpur delivered Invited Lecture on 'Sustainability in Climate Change' and recommended the retrofitting of existing thermal power plants with the suitable mechanism for carbon sequestration and looking for using solar energy to generate carbon-free power, which can significantly help in meeting out the challenge of restricting global warming and the implications of climate change.

Prof Praveen Pandey, Professor and Director, KIPM College of Engineering and Technology, Gorakhpur delivered Invited Lecture on 'Hydrogen: A Promising Fuel for Sustainable World of Future'. The speaker presents hydrogen as a fuel for sustainable world of future and examines the climate mitigation possibilities through hydrogen and challenges and efforts needed for its uses. Prof Pandey discussed different hydrogen production method which are renewable with storage options, hydrogen power generation technology, safety and cost issues related to its full fledged commercialization, etc.

# One Day Seminars/Workshops Conducted by Various Centres of IEI

## STATE CENTRE

**West Bengal State Centre** of the Institution in association with Institution of Mechanical Engineers UK as Knowledge Partner and Conveyor & Ropeway Services Private Limited as Technology Collaborator organised One Day Seminar on the theme **Alternative Means of Clean and Green Mechanised Urban Transportation - Present Challenges and Future Horizons** on 31 January, 2020 under the aegis of Mechanical Engineering Division Board, IEI. The Seminar was aimed to focus on present situation of on-road city transportation, particularly in metro cities and urban areas, and its associated constraints and blockheads; such as acute shortage of road connectivity, congestion, acute air pollution due to emission from vehicles and ways of overcoming the same, by setting path forward for alternate means of mechanised urban transportation/commutation system, which would be environment friendly also. Its mission is to serve the Societal Causes like Pollution-free transport; Avoid loss of life and injuries on roads; Transportation, devoid of congestion factors; Elimination of congestion and loss of time for commuters and provision of alternative transport means in cities; Reduce the use of Fossil Fuel, the main contributor for pollution and health hazards; Improved road space availability; Urban commutation, which has become a nightmarish challenge for commuters and Planners; Increase in business activities in cities and gravitate population for economic reasons, which are mutually dependent; However, increase in



induction of more and more fossil fuel powered vehicles also lead to pollution, congestion and casualties. Considering all the above aspects, The Institution of Engineers (India) felt that it is the appropriate time for deliberation on above topic and setting path line for way forward along with appropriate authorities. Prof (Dr) Ajoy Kumar Ray, Director, JIS Institute of Advanced Studies & Research graced the function as Chief Guest. Mr Shekhar Chakravarty, Managing Director, Conveyor & Ropeway Services Private Ltd, and Chairman, Southern Asia Region, Institution of Mechanical Engineers, UK delivered Keynote Lecture on the topic 'Challenges And Future Of Urban Transportation – Clean & Green Ways'. Mr Sanjiv Mhetre, General Manager (Mechanical), Indian Port Rail & Ropeway Corporation Limited delivered Lecture on the topic 'Trend in Ropeway Transportation in Port And Allied Sectors'. Other distinguished speakers during the occasion include; Mr Yatish Kumar, Chairman & Managing Director, Braithwaite & Co Limited and Chairman, Mechanical Engineering Division, West Bengal State Centre, IEI and Mr Ravi Kochak, Retd Additional Board Member, EU, Indian Railways, and Vice Chairman, Southern Asia Region, Institution of Mechanical Engineers, UK. Mr Sujit Kumar Banerji, Council Member, IEI was present during the function and addressed the audience. Mr Safikul Islam, Co-Chairman, Mechanical Engineering Division, West Bengal State Centre, IEI proposed the vote of thanks. Mr Syama Prasad Datta, Former Chief Engineer, Public Works Department, Government of West Bengal, Adviser, Aarvee Associates, Hyderabad, and Former Chairman, Rural Development Forum, IEI chaired the technical sessions. Eminent speakers presented Papers during the technical session, that include; Dr Bidhan Chandra Roy, Managing Director, Roy Urbatronics Private Limited, Adviser, Transportation, AECOM, Former Director, Consulting Engineering Services (India) Ltd, Former visiting Professor, IIT Mumbai & Jadavpur University, Kolkata on the topic 'Green Transportation : Global Vision In Indian Context'; Mrs Rachana Mukherjee, Director, Conveyor & Ropeway Services Private Limited on the topic 'Non-Linear 'Curvo' Ropeway System', Mr Samiran Sen, Chairman, Transport Infrastructure Committee, Government of West Bengal and Former Executive Director, Consulting Engineering Services (India) Limited, on the topic 'Social Parameters in Alternative Means of Urban Transportation'; Mr Rajesh Prasad, Executive Director, Rail Vikas

Nigam Limited on the topic 'Transport Infrastructures In City Of Kolkata & West Bengal' and Mr Santanu Sengupta, Former Managing Director, Westing House Saxby Farmer Limited and Britannia Engineering Limited on the topic 'Monorail and Its Prospect In Indian Cities'. During Validictory Function, Mr Dipta Sundar Mallick, Executive Director, Development Consultants Private Limited briefed the Proceedings of the day. Mr Kashmir Lal Mallik, Immediate Past Chairman, West Bengal State Centre chaired the session. Mr Anirban Datta, Convener, Mechanical Engineering Division, West Bengal State Centre proposed the vote of thanks.

## LOCAL CENTRES

**Kanchepuram Local Centre** of the Institution in association with Department of Information Technology, Sri Sairam Institute of Technology, Chennai organized One Day Seminar on the topic **Virtual Reality and Augmented Reality in Robot Training** under the aegis of Computer Engineering Division Board on 13 February, 2020. The objective of the Seminar was to explore the importance and create an in-depth knowledge about Virtual Reality and Augmented Reality in Robot Training. Mr Karthick B, Managing Partner, Dream X, Chennai, Mr Sai Karthick S, Software Developer VR, Dream X, Chennai and Mr Senthamizh, AR VR Technologist were the Guest speakers during the occasion. Mr Sai Karthick S, Software Developer VR, Dream X, Chennai delivered Lecture on Robotics, Augmented Reality and Virtual Reality. Mr Senthamizh, AR VR Technologies Dream X, Chennai delivered Lecture on Augmented Reality Components and Applications of AR VR Robotics and explained application of AR to improve Human-Robot communication, Medical Robots equipped with AR etc. Mr Karthick B, Managing Partner, Dream X, Chennai delivered Lecture on Robotic Programming using Augmented Reality and Virtual Reality. Earlier, Prof (Dr) K Palani Kumar, Chairman, Kanchepuram Local Centre welcomed all.



**North Bengal Local Centre** of the Institution organized One Day Seminar on the topic **Employment of Circuit Simulation Tools in Engineering Applications** on 14 March, 2020 under the aegis of Electronics & Telecommunication Division Board, IEI. Mr Mirwaiz Rahaman, Department of Electronics and Telecommunication Engineering, Jalpaiguri Government Engineering College explained significant aspects of Simulation Program with Integrated Circuit Emphasis (SPICE) tool. He also explained the design of Half Adder and Full Adder circuit in OrCAD Capture. Mr Alokesh Mondal, Department of Electronics and Telecommunication Engineering, Jalpaiguri Government Engineering College explained different aspects of PSpice software, which is mainly used to create electronic schematics as well as electronic prints



for built-up printed circuit boards (PCBs). Dr Santanu Das, Associate Professor, Department of Electrical Engineering, Jalpaiguri Government Engineering College emphasised on DC & AC Sweep Analysis. Dr Das explained that DC sweep analysis corresponds to change of voltage, current or power across a component in DC circuit when input voltage is changed from one value to another, whereas AC Sweep Analysis corresponds to change of voltage, current, or power when frequency of AC sinusoidal voltage is changed from one value to another. Earlier, Prof (Dr) Gautam Das, Chairman, North Bengal Local Centre welcomed all. Dr Santanu Das, Honorary Secretary, North Bengal Local Centre proposed the vote of thanks.

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## Advances in Mobile Communication and Challenges in Mobile Computing

**Durgapur Local Centre** of the Institution organized All India Seminar on the theme **Advances in Mobile Communication and Challenges in Mobile Computing** during 4-5 March, 2020 under the aegis of Electronics and Telecommunication Engineering Division Board, IEI. Dr Tanmoy De, Associate Professor, Department of Computer Science and Engineering, NIT Durgapur graced the function as Chief Guest and Key Note speaker. In his address, the speaker deliberated on recent trends in Optical Fiber Networks, Wavelength Division Multiplexing (WDM), Fixed versus Flexible Frequency Grid system in Optical Networks, WDM optical network architectures etc. Dr De further explained the emerging research issues namely, Routing and Wavelength Assignment, Wavelength Convertible Networks, Multi Fiber Networks, Wavelength Rerouting, Virtual Topology Design, Virtual Topology Reconfiguration, Traffic Grooming, Optical Multicast Routing, Survivable Networks, Hybrid Optical Wireless Network, capability etc. Guest of Honor, Prof (Dr) P K Sinha, Principal, Durgapur Institute of Advanced Technology and Management (DIATM) emphasized on the vast advancements in mobile



wireless communication systems and explained about the development of Mobile wireless technologies. Guest of Honour, Mr T K Dutta, Former DGM, SAIL, RDCIS in his address presented a case study on Wireless Communication & Control System for Stacker cum Reclaimer Machines in RMHP, DSP. Guest of Honour, Dr Chandan Koner, Professor & HOD, Department of Computer Science and Engineering, Dr B C Roy Engineering College, Durgapur spoken on advances of mobile technology and different aspects of 5G communication technologies. Special Guest, Mr Eshan Chattaraj, Senior Software Engineer, Webel IT Park Durgapur deliberated on mobile cloud computing. Mr Barun Kumar Das, Former General Manager, SAIL, Durgapur Steel Plant explained mobile communication as a path to advancement of technology. Earlier, Prof (Dr) K C Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI delivered the welcome address.

During Valedictory Function, the Valedictory Address was delivered by Dr Parag Guhathakurta, Department of Computer Science and Engineering,

NIT Durgapur, on the topic 'Studies on Some Aspects of Routing and Quality of Service in Mobile Networks'. Guest of Honour during the function, Dr P Bhattacharyya, GM, Rahul Foundation discussed about the mobile computing and explained that Mobile computing is human-computer interaction in which a computer is expected to be transported during normal usage, which allows for transmission of data, voice and video. Earlier, Prof H B Goswami, Council Member, IEI delivered the welcome address, explained the issues of mobile applications and requirement of power management of mobiles and deliberated on latest 6G technologies and its limitations.

Recommendations emanated from the two-day deliberations include;

*The tax element of mobile communication need to be reduced for more usage; It should be ensured that websites and website content are accessible from all possible devices and to all users. According to the World Wide Web consortium (W3C), which is responsible for web standards and web accessibility, there is a significant overlap between making a website and making its content accessible for mobile devices and people with disabilities. The anomalies are to be removed; The growth of mobile usage brings with it concerns about security issues. As the extension to mobile devices increases an organisation's security risks, mobile solutions must effectively balance information access and information protection. Security and identity management are strategically important and should include mobile device security policies, asset discovery and inventory, information security, encryption and authentication, secure coding processes for mobile applications, and ongoing risk assessment, security testing and threat monitoring. Governments integrate mobile security policies, standards and protocols into their existing information technology policies; 5G Technology is not only going to be one of the top trends in mobile app development but also, it will be of great significance in 2020 and beyond. The first thing that comes with the 5G network is the speed, which is stated to be 100 times faster than the 4G network. If we talk about 2020, it's still time for 5G to get in the groove, but by year-end, we can expect to see a shift from currently used 4G services to the 5G wireless network. Telecom industry should give this service at minimal cost to the village people if necessary with a subsidy. This will help in disaster management and a tool for agricultural applications; With such a wide scope of the 5G services, the app developers are required to design the apps accordingly, so that the user can avail faster network speed to enhance the performance; Research areas in the domain of AI should be developed through AI Ops, AI-enabled chips, Automated machine learning, Interoperability among neural networks need to be explore further; Advances and Applications in Mobile Computing offers guidelines on how mobile software services can be used in order to simplify the mobile users' life. Further study and research on these areas may be motivated and financed.*

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**Tuticorin Local Centre** of the Institution organized One Day Seminar on the topic **Strategies for Safe Operation of Chemical Plants** under the aegis of Chemical Engineering Division Board on 06 March, 2020. The Chief Guest in the Inaugural Function, Mr G Selvaraj, Former Chief Engineer, Tuticorin Thermal Power Station, in his address mentioned the inherent hazards associated with the Chemical Plants and mentioned the strict adherence to the laid down safety norms for sustainable plant operation and best



safety environment. Mr I Maria Michael Raj, Former Senior Scientific Officer, Department of Atomic Energy, Heavy Water Board and Convener of the Seminar, while delivered his Lecture on the topic 'Safety Management in Heavy Water Plant', highlighted that the strategies and policies for safe operation and maintenance of Chemical Plant must include safety of employees, equipments and surrounding environment. Papers were presented embracing the theme and sub theme, which include; Safe Electrical Maintenance; Innovations & Good Practices in Mechanical Maintenance; Safety & Productivity Enhancement Strategies in Industries; Condition Monitoring Techniques for Safe Operation; etc. Earlier, Mr S Aribu Sulthan, Immediate Past Chairman, Tuticorin Local Centre delivered thw welcome address. Mr A Ravichandran, Honorary Secretary, Tuticorin Local Centre proposed the vote of thanks.

# Webinars

Due to COVID 19 outbreak, IEI has organised Seminars and Conferences in online platform. Brief reports of the Technical Activities as received from various Centres are reported hereunder.

## Research Based Implementations on Social Media Mining and Sentiment Analysis

The Institution of Engineers (India), Punjab & Chandigarh State Centre in collaboration with Baba Banda Singh Bahadur Engineering College, Fatehgarh Sahib, Punjab organized Webinar on 20 May, 2020 on the topic **Research Based Implementations on Social Media Mining and Sentiment Analysis**.



Dr. Gaurav Kumar, Founder Director, Magma Research and Consultancy Services was the Expert Speaker during the Webinar. Prof (Dr) T S Kamal, Council Member, IEI and Chairman, Electronics and Telecommunication Engineering Division Board, IEI presided over the function. Earlier, Mr Sukhbir Singh Mundi, Chairman, Punjab & Chandigarh State Centre and council Member, IEI welcomed the audience. Dr Baljit Singh, Honorary Secretary, Punjab and Chandigarh State Centre proposed the vote of thanks.

## Industrial Application of Power Electronics

Agra Local Centre, IEI in collaboration with Electrical Engineering Department, Raja Balwant Singh Engineering Technical Campus Bichpuri, Agra organized Webinar on the topic **Industrial Application of Power Electronics** on 19 May 2020. Speaker during the occasion, Prof (Dr) Arun Kapoor, Former Professor, Department of Electrical Engineering, IIT-BHU, introduced the audience about the application domain of Power Electronics. He further mentioned the significant role of Power Electronics in connecting renewable energy sources to the electric grid. Prof Kapoor further explained the applications of power electronics in traction systems, battery charging stations, space craft's power supply design, IC design, telecommunication, military defense, medical application (X-Ray, MRI) etc. Mr Devendra Singh Chaudhary, Honorary Secretary, Agra Local Centre, IEI proposed the vote of thanks.

## Recent Advancement in Civil Engineering

Agra Local Centre, IEI, in collaboration with Civil Engineering Department, Rajkiya Engineering College Kannauj, UP organized Webinar on **Recent Advancement in Civil Engineering** on 30 May, 2020. Dr Kumar Venkatesh, Associate Professor, Civil Engineering Department, Moti Lal Nehru National Institute of Technology, Prayagraj, the Keynote speaker during the occasion delivered Lecture on soft computing process of condensation. Mr Ajay Kumar Duggal, Associate Professor, Civil Engineering Department, National Institute of Technical Teachers Training and Research, Chandigarh, explained application of geosynthetic process during construction of roads. Dr Dipesh Singh, Associate Professor, Herbert Butler Technical University Kanpur briefed about new infrastructure and smart city developments. Mr Devendra Singh Chaudhary, Honorary Secretary, Agra Local Centre, IEI proposed the vote of thanks.

## Seismic Retrofitting: Structural Safety & Building Codes

Bareilly Local Centre, IEI organized Webinar on the topic **Seismic Retrofitting: Structural Safety & Building Codes** on 11 June, 2020. Dr

Achal Kumar Mittal, Senior Principal Scientist, Structural Division Engineering Division, CSIR-Central Building Research Institute Roorkee, the Keynote speaker during the occasion, delivered Lecture on 'Basics of Earthquake Engineering, Retrofitting & Case Studies' wherein, he explained that seismic retrofitting of monument structures requires compliance with restrictive constraints related to the preservation of original artistic and structural features. He mentioned that any conceived intervention must achieve structural performance, yet still respect the appearance and structural mechanism of the original and be as minimally invasive as possible. Therefore, as stated by the



Speaker, traditional retrofit strategies may not be suitable for such purposes, and structural engineers need to develop specific techniques. The speaker presented a case study on innovative materials, explained applications of composites, fiber-reinforced plastics (FRP) for design, analysis, and explained installation of the retrofit for the Medieval Bell Tower in Serra San Quirico Ancona, Italy, where a FRP tie system is applied to the inner walls and anchored at the base by a reinforced concrete slab, independent of the tower's foundation. The speaker explained that the intervention enhances the seismic capacity of the structure and is fully provisional as it may be removed by heating the FRP with a hot air jet. The design process consisted of preliminary finite-element simulation and on-site structural assessment. Earlier, Mr Sudhir Kumar Gupta, Chairman, Bareilly Local Centre delivered the welcome address. Mr Awadesh Kumar, Assistant Professor, Civil Engineering Department, Invertis University, Bareilly conducted the Session and proposed vote of thanks.

## Mathematical Modeling

Kalpakkam Local Centre of the Institution organized Webinar on the topic **Mathematical Modeling** on 23 April, 2020. Speaker during the function, Mr Joseph Winston in his Lecture introduced about mathematical modeling, various elements in building and solving mathematical models, simulation, case study, etc.



## Understanding Metering Pumps

Kalpakkam Local Centre of the Institution organized Webinar on the topic **Understanding Metering Pumps** on 26 May, 2020. Speaker during the function, Mr S Suresh in his Lecture explained technical specifications, characteristics, diaphragms, valve configuration, material of construction etc of Metering Pumps. He also explained working principle of Peristaltic pumps, a significant variety of metering pump, widely used in R&D laboratories, pharmaceutical industries and hospitals. Earlier Mr M. Shanmuga Sundaram, Honorary Secretary, Kalpakkam Local Centre, IEI welcomed all present in the Webinar.



## IoT Live Workshop in using NodeMCU

Kanyakumari Local Centre, IEI in collaboration with The Institution of Electronics and Telecommunication Engineers (IETE) Trivandrum Centre, Nagercoil Professional Activity Centre and in association with Riyasaa Labs Nagercoil organised three-day Webinar during 8-10 June, 2020 on the topic **IoT Live Workshop using NodeMCU**. The objective of the Webinar is to deliberate and explore the basics, advanced concepts and methodologies of IoT to design, build and deploy solutions using NodeMCU, along with



holding discussions on various technologies and protocols including new generation IoT friendly applications and physical layer protocols. During the technical sessions, emerging areas of IoT were deliberated,

that include; IoT and its Application, Software and Sensor Technologies, Cloud Technologies, Build and Deploy IoT etc. Earlier, Mr V Sivathanu Pillai, Chairman, Kanyakumari Local Centre, IEI delivered the Welcome address.

## Enhancing the Upbringing of Learning in Technical Education with Digital Platform for Conducive Outcome

Kota Local Centre of the Institution organized a Webinar on the topic **Enhancing the Upbringing of Learning in Technical Education with Digital Platform for Conducive Outcome** on 24 May, 2020. The objective of the Webinar was to provide insight on digital learning in changing landscape for technical education of Rajasthan; Introducing various E-learning platforms for adapting in teaching without any hurdles; Learning about mobilizing the available online resources and churning out the best in Covid-19 situation, etc. Smt Shuchi Sharma, IAS, Principal Secretary, Higher Education, Government of Rajasthan graced the function as Chief Guest. Prof R A Gupta, Hon'ble Vice Chancellor, Rajasthan Technical University, Kota delivered Special Address during the function. A Panel Discussion was organized in this occasion, chaired



by Mr Daria Singh Yadav, Director, Technical Education (Polytechnics) & Chairman, Board of Technical Education, Rajasthan. Panelists deliberated over the session include; Dr D K Palwalia, Dean, Academic Affairs, Rajasthan Technological University, Kota, Dr S K Bisnoi, Principal, Government Engineering College, Barmer and Mr Kapil Solanki, Senior Faculty Teachers Training Center & Learning Resource Development Center, Jodhpur. Earlier, Mr Anand Bardava, Chairman, Kota Local Centre delivered the welcome address. Mrs Rajul Goyal, Principal, Government Polytechnic College, Jhalawar coordinated the Meeting and proposed the vote of thanks.

## An Insight into how we think our Perceptions Change our Decision Making

Kota Local Centre of the Institution organized a Webinar on the topic **An Insight into how we think our Perceptions Change our Decision Making** on 30 May, 2020. Mr K M Tandon, Former Senior Vice President & Advisor, DCM Shriram, Kota was the speaker during the session. Mr Anand Bardava, Chairman, Kota Local Centre delivered the welcome address. Mr Sunil Bohra, Honorary Secretary, Kota Local Centre proposed the vote of thanks.

## How to become a Scientist

National Design and Research Forum (NDRF), IEI in collaboration with the well known News Paper Hindu Thamizh Thisai, The Hindu Group had organized a five-day Webinar on the topic **How to become a Scientist**

during 04-08 June 2020. On 4 June, Padmashri Dr Mylswamy Annadurai, Chairman-BOG, NDRF & Vice President, Tamil Nadu State Council for Science & Technology, delivered Lecture on the topic 'How to become a Space Scientist'; Dr S R Ramanan, Former Director, Meteorological Department, Chennai, on 'How to become a Weather Scientist' on 5 June 2020; Lecture on 'How to become a Defence Scientist' by Dr V Dillibabu, Scientist, DRDO and Director, NDRF on 6 June 2020; Dr T V Venkateswaran, Division Head, Science Communication Training, Vigyan Prasar, Department of Science and Technology, Government of India on the topic 'How to become a Scientist in Science and Technology Department' on 7 June 2020 and Dr B Venkatraman, Outstanding Scientist & Director, Resource Management & Public Awareness Group, Indira Gandhi Centre for Atomic Research, Kalpakkam on the topic 'How to become an Atomic Scientist' on 8 June 2020.



## Research Opportunities for Engineering Faculty Members Post COVID-19

National Design and Research Forum (NDRF), IEI had organized a Webinar on the topic **Research Opportunities for Engineering Faculty Members Post COVID-19** on 13 June 2020. Padmashree Dr Mylswamy Annadurai, Chairman-BOG, NDRF, in his opening address on the topic 'New Opportunities for Collaborative Research', highlighted the importance of collaborative research and funding opportunities in the country. Dr V Dillibabu, Director, NDRF delivered Lecture on 'Emerging R&D Trends and Expectations from Academic Research'. Dr Anjana Jain, Senior Principal Scientist, National Aerospace Laboratories, CSIR, Bangalore, delivered Lecture on 'Research Opportunities for Engineering Faculty Post Pandemic Disease COVID-19'. Dr K Ramachandra, Former Director, NDRF delivered Lecture on 'The Paradigm Shift in R&D Focus Areas and Funding Agencies Post COVID-19'. The Webinar was well attended by participants from various educational Institutions and Industries.



## Additive Manufacturing: Applications, Future Trends & Research Opportunities

National Design and Research Forum (NDRF), IEI had organized a Webinar on the topic **Additive Manufacturing: Applications, Future Trends & Research Opportunities** on 27 June 2020. Prof (Dr) K P Karunakaran, Mechanical Engineering Department, Indian Institute of Technology Bombay delivered Lecture on 'Additive Manufacturing Techniques & Electron Beam AM'. Prof (Dr) J Ramkumar, Department of Mechanical Engineering, Indian Institute



of Technology Kanpur on 'Additive Manufacturing for Medical, Agriculture and other Applications' and Dr U Chandrasekar, Program Director, Wipro 3D, Bengaluru on 'AM for Aerospace, Defence and Strategic Sectors'. Earlier, Padmashree Dr Mylswamy Annadurai, Chairman-BOG, NDRF welcomed the distinguished Speakers and the august audience. Dr V Dillibabu, Director, NDRF proposed the vote of thanks.

# News-in-Brief

The following is a brief account of Technical Activities organised by various Centres of the Institution.

## STATE CENTRES

### Bihar

Celebrated World Engineering Day for Sustainable Development on 4 March, 2020. Mr D K Shukla, IFS, Chairman, Bihar State Biodiversity Board, Patna was the Chief Guest & Keynote Speaker during the function and Mr Ranjan Pandey, Head, Bureau of Energy Efficiency Cell, SDA, Patna was the Guest of Honour.

### Telangana

Observed National Technology Day on 11 May 2020 on the theme 'On Data Analytics and Challenges of Analyzing Corona Virus – COVID-19 Data'. Mr P S Praveen, Blockchain Monk, Country Manager – Transaction, Network Services India, the Chief Guest during the session delivered his Lecture on 'Opportunities and Challenges in Crypto currency for Indian INB-2020'. A web based Panel discussion was organized in this occasion.

A technical talk was organized through online platform on 'Biomedical Waste Management during COVID-19' on 13 May, 2020. Mr Sanjiv Kumar, Vice President, National Head, Industrial Waste Management, Ramky Enviro Engineers Limited deliberated on the topic and enlightened on biomedical waste management rules and guidelines of Covid Waste Management and its precautions.

Celebrated 218<sup>th</sup> Birth Anniversary of General Sir Arthur Thomas Cotton on 15 May 2020 through online platform. Mr Ch. Veeraiah, Chief Engineer (Retd), Irrigation Department, and Former Irrigation Consultant, Government of Andhra Pradesh graced the occasion as Chief Guest and shared the thought of General Sir Arthur Thomas Cotton.

### Tripura

Tripura State Centre jointly with Delhi State Centre of the Institution organized Seminar on "Retrofitting of Structures" on 8 January, 2020. Mr. R K Majumdar, Past Chairman, Tripura State Centre & Former Director, UD Department, Tripura made a presentation on the theme as Expert Speaker.

Organized Seminar on 15 February, 2020. Mr Jitendra Kumar Singh, Scientist C, The National Institute of Electronics & Information Technology (NIELIT) Agartala, delivered Lecture on the topic 'Cyber Security'.

Tripura State Centre jointly with Assam State Centre of the Institution and Indian Building Congress (IBC), Tripura & Assam Centre organized Seminar on "Disaster Management" & "5G Mobile Technology" on 16 February, 2020. Mr. Kapil Baran Bhowmik, Assistant General Manager, HUDCO Limited, Guwahati delivered Lecture on "Retrofitting of Non-Engineered Structure."

Organised Seminar on 22 February, 2020 on the topic "Traffic Trend in Agartala and Vision 2025" in august presence of Ms Koyel Debbarma, Deputy Superintendent of Police (Traffic), Tripura and Mr Bijoy Debbarma, Chief Inspector of Motor Vehicle, Transport Department, Government of Tripura.

Observed National Science Day in association with Department of Science, Technology & Environment, Government of Tripura on 28 February, 2020 and arranged a Seminar on the theme "Women in Science". Dr Dilip Kumar Das, Hon'ble Member, Tripura Legislative Assembly, Agartala inaugurated the Seminar and Dr Basant K Agarwala, Chairman, Tripura State Pollution Control Board, Agartala, graced the occasion as Chief Guest. Mr Animesh Das, IAS, Director, Department of Science, Technology & Environment,

Government of Tripura and Mr Dibakar Deb, Principal, Techno College of Engineering Agartala also graced the occasion as Special Guests. Dr Shaon Ray Chaudhuri, Associate Professor and Head, Department of Microbiology, Tripura University made a presentation on the topic as Special Speaker.

Observed World Engineering Day for Sustainable Development and arranged a Seminar on the theme "Sustainability in Infrastructure Development in India" on 4 March, 2020. Mr N K Dutta, Former Engineer-in-Chief & Secretary, PWD, Tripura inaugurated the programme. Mr B Nandy Majumdar, Former Chief Engineer, PWD, Tripura also graced the occasion as Special Guest. Dr Swapan Bhaumik, Professor, Mechanical Engineering Department, NIT Agartala & Chairman, CATE, IEI was the Keynote speaker during the function.

## LOCAL CENTRES

### Alwar

Alwar Local Centre observed World Engineering Day for Sustainable Development on 4 March, 2020 in the august presence of Mr Bhanwar Jitendra Singh, Hon'able former Union Minister, Government of India as the Chief Guest and Mr Tikaram Julli, Hon'ble Labour Minister, Government of Rajasthan. Mr Inderjeet Singh IAS, Collector & District Magistrate, Mr S N Modi, Vice Chairman, National Safety Council, Rajasthan Chapter, Mr O P Tiwari, Vice President Havells India Ltd, Mr Mukesh Jain, Chief Inspector of Factories & Boilers graced the occasion as the Guests of Honor.

One the same day, Alwar Local Centre, in association with Factories & Boilers Inspection Department, Government of Rajasthan and sponsored by National Safety Council, Rajasthan Chapter celebrated 49th National Safety Day on the theme 'Enhance Performance by use of Advanced Safety & Health Technology'.

### Kalpakkam

A short term certificate course was conducted on "Mechanical Draughtsmanship" during January – February, 2020 with the objective to help the technicians to explore their skills by introducing to the computer aided drafting, basic strength of materials, fundamentals of machine design, material science etc.

### Sunabeda

Observed World Telecommunication and Information Society Day on 17 May 2020.

### Tiruchirappalli

Lecture on 'Technology Intervention in Combating Covid 19' held online on 19 May, 2020. Dr V Sampath Kumar, Professor, Department of Electronics and Instrumentation Engineering, Vimal Jyothi Engineering College deliberated technical talk on the topic.

Lecture on 'Electrotherapies for Virus based Human Cancers: Another Look' was held through online platform on 26 May, 2020. Dr Raji Sundararajan, Professor, School of Engineering Technology, Purdue University, USA was the speaker during the occasion.

Observed World Telecommunication and Information Society Day on 2 June, 2020. The Speaker during the function was Dr Narasimha Sarma N V S, Director, Indian Institute of Information Technology Tiruchirappalli (IIIT), Tiruchirappalli, Tamil Nadu.

### Vallabh Vidyannagar

Organised 33rd Sardar Patel Memorial Lecture on the topic of "Balance of Socio-Political-Technological Development Necessary for a Brighter Future of India" on 22 June, 2020 through Webinar. Chief Guest of the function was Shri Ishwarsinh Thakorabhai Patel, Minister of State, Co-operation, Sports, Youth and Cultural activities (Independent Charge), Transport (State Minister) and the Expert Speaker was Mr Sunilbhai Mehta, All India Co-Intellectual President, Rashtriya Swayamsevak Sangha.



# WORLD ENVIRONMENT DAY

# 2020

## Theme : Biodiversity

World Environment Day was celebrated by the Centres of the Institution all over the country on 5 June, 2020. Brief accounts of the celebration as received from various Centres are reported hereunder.

### STATE CENTRES

#### Gujarat

Gujarat State Centre of the Institution in association with Department of Civil Engineering, Indus University, Ahmedabad celebrated World Environment Day through online platform on 10 June 2020. Distinguished speakers during the function: Dr S P Aggarwal, Scientist/Engineer- SG & Head, Water



Resources Department, Indian Institute of Remote Sensing, Dehradun, Dr S K Singh, Professor & Dean, Department of Civil and Environmental Engineering, Delhi Technological University, Delhi, Mr Roland Knitschky, Cooperation Expert, DWA, Germany, Mr M K Jadav, Secretary, Water Resources Department,

Government of Gujarat, Mr M P Raval, Special Secretary, Water Resources Department, Government of Gujarat, Mr H U Kalyani, Chief Engineer (NG) & Additional Secretary, Government of Gujarat enlighten the audience with their valuable presentations on the theme. Earlier, Prof. Dr-Ing Anupam Kumar Singh, Director – ITE, Indus University welcomed the audience. Mr Shyam Varghese, Honorary Secretary, Gujarat State Centre proposed the vote of thanks.

#### Haryana

Haryana State Centre, IEI celebrated World Environment Day on 5 June, 2020 through online cloud Meeting. Keynote speaker during the session, Dr A R Chaudhri, Professor & Chairman, Department of Geology, Kurukshetra University in his speech explained 'Biodiversity' as the variety and variability of living beings on planet earth.



The speaker explained that biodiversity represents the wealth of biological assets available on earth and encompasses microorganism, plants, animals and ecosystems such as coral reefs, forests, rainforests, deserts, etc. He mentioned that the growing population, industrialization, technology, all are impacting biodiversity in our planet which should be preserved in order to

maintain the ecological balance. The meeting was attended by Mr K C Sethi, Former Vice-President, IEI, Dr (Ms) Vrinda Krishanlal Gupta, Chairman, Haryana State Centre and Council Member, IEI, Mr Suneel Grover, Chairman BOG, National Skill Development Forum, IEI and other eminent engineers. The meeting ended with the vote of thanks to the Keynote speaker, dignitaries present and audience.

#### Kerala

The Institution of Engineers (India), Kerala State Centre in association with IEEE Kerala Section celebrated World Environment Day on 3 June 2020 through a Webinar. Speaker during the session, Dr (Ms) Sultana Bashir, Conservative Climate Change and Sustainability Professional & Former Regional Technical Advisor for Biodiversity in her address mentioned that the pandemic has given us a new opportunity for changing the way we look at life on earth and more on the environment and it call for a new world order which should be less harming to the environment. She emphasized on addressing seriously the environment verses development, short term verses long term goals for sustainability and delinking the economic activities from environmental degradation.

#### Meghalaya

Meghalaya State Centre of The Institution celebrated World Environment Day on 5 June, 2020. Mr J B Poon, Former Chairman, Meghalaya State Centre, the speaker during the function, mentioned that the



pandemic has demonstrated the power of nature to heal itself and mentioned that during lockdown, nature restores itself through reduced vehicular and industrial pollution, which results cleaner air and the size of the hole in the ozone layer is reduced due to the positive impact of the lockdown on the planet. Earlier, Mr M Marbaniang, Chairman, Meghalaya State Centre and Council Member, IEI welcomed all. Mr R Kharwanlang, Honorary Secretary, Meghalaya State Centre proposed the vote of thanks.

#### Punjab & Chandigarh

Punjab & Chandigarh State Centre of the Institution celebrated World Environment Day on 5 June, 2020 through online platform. Mr P S Bhogal, Council Member, IEI in his address discussed that biodiversity is comprised of several levels, starting with genes, individual species, communities of creatures and finally entire ecosystems, such as forests or coral

reefs, where life interplays with the physical environment and these myriad interactions have made earth habitable for billions of years. Prof (Dr) T S Kamal, Chairman, Electronics and Telecommunication Engineering Division Board, IET was present during the function and graced the audience. Earlier, Mr S S Mundi, Chairman, Punjab & Chandigarh State Centre and Council Member, IET, welcomed all present in the function. Dr Baljit Singh, Honorary Secretary, Punjab & Chandigarh State Centre proposed vote of thanks.



## Rajasthan

The Institution of Engineers (India), Rajasthan State Centre organised World Environment Day on 5 June 2020 through online platform. The guest speaker of the Day, Prof Anil K Mathur in his address enlighten the audience about biodiversity and its significance. Prof Sudhir Kumar, Eminent Environmentalist spoke about the natural demand and supply rule and underlined the huge potential of nature to create reforms. He further opined that the natural resource consumption be optimized by coining the term sustainable development. Earlier, Mr Sajjan Singh Yadav, Chairman, Rajasthan State Centre and Council Member, IET delivered his welcome address.



## Uttar Pradesh

The Institution of Engineers (India) Uttar Pradesh State Centre in association with Babu Banarasi Das Northern India Institute of Technology, Lucknow celebrated the World Environment Day on 05 June 2020. A Webinar was organized in this occasion, which was well attended by eminent academicians, faculty members and research scholars of various universities across the country. Prof (Dr) Devendra Swaroop Bhargava, (Retd), the noteworthy Environmental Engineer was the guest speaker of the day. Dr Bhargava in his address highlighted few technological solutions which can be implemented as a novel technique to promote water quality of Ganga River and also explained the use of chlorinated water as a preventive solution to resist COVID 19 virus on surfaces, floor and recommended drinking of chlorinated water, which can be beneficial in fighting with the virus. Mr V B Singh, Council Member, IET also addressed the audience in this occasion. Earlier, Mr. Rajesh Kumar Trivedi, Chairman, Uttar Pradesh State Centre and Council Member, IET, delivered the welcome address. Mr P K Chaurasia, Honorary Secretary, Uttar Pradesh State Centre proposed the vote of thanks.

## West Bengal

The Institution of Engineers (India), West Bengal State Centre observed World Environment Day on 5 June 2020 and organised a Panel Discussion through Webinar to mark the occasion. Eminent Panellists enlighten the audience through their thought provoking speech, namely Dr Akhil C Banerjee, Emeritus Professor, National Institution of Immunology, New Delhi, Mr Asish Kumar Samanta, IFS, Director, Alipur Zoological Garden, Kolkata, and Mr Saurabh Chaudhuri, IFS, CCF, South West Circle, West Bengal Forest Development Corporation. Dr Akhil C Banerjee, Emeritus Professor, National Institution of Immunology, New Delhi emphasized towards the

hosts of different pandemic viruses, including COVID-19 and pointed out on co-existence of them with other living species including human being within biodiversity. He also stressed on importance of therapeutic options on virus borne pandemic till the availability of vaccine. Mr Ashish Kumar Samanta, IFS, Director, Alipur Zoo, Kolkata and Mr Saurabh Chaudhuri, IFS, CCF, South West Circle, West Bengal Forest Directorate also discussed on the theme in detail. Mr Avinash Singh, Chairman, Environment Engineering Division, West Bengal state Centre explained the significance of the day and theme. Dr Atanu Raha, Former Principal Chief Conservator of Forests, West Bengal, the Moderator during the Panel Discussion, emphasized upon the pandemic situation, natural calamity and locust invasion in India and their cumulative impact on Biodiversity. Earlier, Mr Sandip Kumar Deb, Chairman, West Bengal State Centre and Council Member, IET welcomed the audience. Mr Kalipada Das, Honorary Secretary, West Bengal State Centre proposed the vote of thanks.



## LOCAL CENTRES

### Agra

The Institution of Engineers (India), Agra Local Centre celebrated World Environment Day on 5 June 2020 by organising a Webinar. Keynote speaker of the Day, Mr Dinkar Saxena, noted Expert in Air Emission Control, Waste Water Treatment etc delivered Lecture on the theme. Earlier, Dr Ashok Yadav, Chairman, Agra Local Centre welcomed the audience. Mr Devendra Singh Chaudhary, Honorary Secretary, Agra Local Centre proposed the vote of thanks.

### Aligarh

Aligarh Local Centre, IET celebrated World Environment Day on 5 June 2020 by organising a Webinar. Speaker during the occasion, Dr Hismi Jamil Husain, Head, Biodiversity Division, Tata Steel Limited, Jamshedpur delivered Lecture on the topic 'Solutions are in Nature' and covered different aspects of our lives, where nature plays a major role. The speaker further focused on adopting natural ways and means to lead the life and stressed on protecting water bodies from pollution. Earlier, Prof (Dr) Nadeem Khalil, Honorary Secretary, Aligarh Local Centre delivered the welcome address. Mr Suresh Chandra Gupta, Chairman, Aligarh Local Centre proposed the vote of thanks.

### Alwar

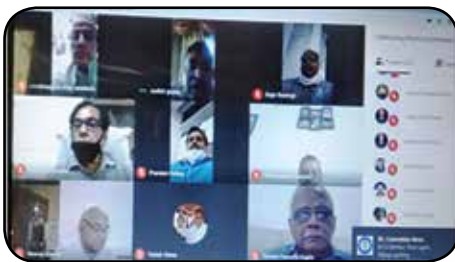
Alwar Local Centre of the Institution organized World Environment Day on 5 June 2020 through online cloud meet. The Chief Guest during the function, Dr M P S Chandrawat, Environment Expert and Speaker of the day focussed on conservation of natural habitat, humans, flora present in the universe. Earlier, Mr Subhash Chandra Joshi, Chairman, Alwar Local Centre welcomed the members and audience. Mr Raj Deep Sharma, Honorary Secretary, Alwar Local Centre proposed the vote of thanks.





## Bareilly

The Institution of Engineers (India), Bareilly Local Centre celebrated World Environment Day on 5 June 2020 through online platform.. Mr R N Bhargava,



CMD, Ecomen Laboratories Pvt. Ltd & Secretary General, Club of Lucknow was the Chief Guest & Keynote Speaker during the function. During deliberation, he mentioned that Biodiversity is the variation of Earth's

terrestrial, freshwater and marine species as well as their habitats and it is vital to the survival of all life on earth and is also the cornerstone for the goods & services of the environment that allow human societies to thrive. Biodiversity provides us with food, water and resources as well as services such as climate control, pollination, flood mitigation and cycling of nutrients. Mr K B Agrawal also delivered lecture on biodiversity. Earlier, Mr Sudhir Kumar Gupta, Chairman, Bareilly Local Centre welcomed all present on the Day. Mr Saheb Singh, Honorary Secretary, Bareilly Local Centre proposed the vote of thanks.

## Bokaro Steel City

The Institution of Engineers (India), Bokaro Steel City Local Centre observed World Environment Day on 5 June 2020. The Chief Guest, Mr N P Srivastava, General Manager (ECD) and Head of Environment Department, SAIL, Bokaro Steel Plant inaugurated the function and spoke about extreme relevancy of the theme during offing corona virus pandemic throughout the world and explained in detail the pros and cons including food chain cycle linkage of COVID-19. He strongly advocated for pro-nature human activities including adherence to food chain philosophy. Mr Nitesh Ranjan, Senior Manager (ECD), and Mr C P Sahay, Ex-DGM (Traffic), SAIL, Bokaro Steel Plant also delivered their lectures. Earlier, Mr Yogendra Nath Singh, Chairman, Bokaro Steel City Local Centre welcomed all present in the function and spoke about importance of the day and mentioned that human being is the part of ecosystem and cannot survive in isolation. Mr Deo Prasad Jha, Honorary Secretary, Bokaro Steel City Local Centre proposed vote of thanks.

## Brahmapur

The World Environment Day was celebrated by The Institution of Engineers (India), Brahmapur Local Centre on 5 June 2020 through organising a Webinar. Chief Guest of the Day, Dr Rajat Kumar Panigrahi, Principal, Government Industrial



Training Institute, Brahmapur in his speech outlined how waste is becoming wealth in our day to day life. Mr Anand Subudhi, Former Engineer-in-Chief, Department of Water Resources, Odisha and Mr Ashutosh Patra, Former Joint Director, Agriculture, Government of Odisha and Immediate Past Chairman, Brahmapur Local Centre also graced the occasion as speakers and expressed their views to the audience. Earlier, Dr Arun Kumar Padhi, Chairman, Brahmapur Local Centre delivered welcome address to the august gathering. Mr Surendra Kumar Panigrahi, Honorary Secretary, Brahmapur Local Centre proposed the vote of thanks.

## Dhanbad

Dhanbad Local Centre of The Institution observed World Environment Day in association with CSIR-CIMFR, Dhanbad on 5 June 2020. Dr Bably

Prasad, Senior Principal Scientist, CSIR-CIMFR, Dhanbad delivered Lecture on "Effect of Water Pollution on Aquatic Biodiversity and its Remedial Measures". Earlier, Dr Pradeep Kumar Singh, Chairman, Dhanbad Local



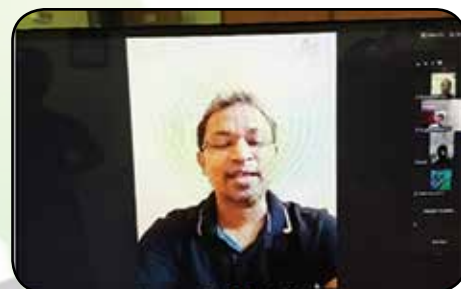
Centre welcomed all present in the function. Mr H N Karmakar, Mr D N P Singh, , Dr M K Singh, Past Chairmen and Mr R Prasad , Mr Amar Nath, Past Honorary Secretaries of the Centre also attended the

meeting. Dr Satyendra Kumar Singh, Honorary Secretary, Dhanbad Local Centre proposed the vote of thanks.

## Durgapur

The Institution of Engineers (India), Durgapur Local Centre observed World Environment Day on 5 June 2020 through virtual platform. Mr Debabrata Dutta, Associated with Sister Nivedita Educational Trust, Ramakrishna Mission, Narendrapur & Former Programme Manager, Financial Software & System (P) Ltd, the speaker during the function while deliberating on the

theme of the day explained the significant aspects of Ecosystem, Technology, Urbanization, Prosperity and Green Economy for sustainable growth. Deliberating on pandemic situation and human civilization, the speaker mentioned effects of

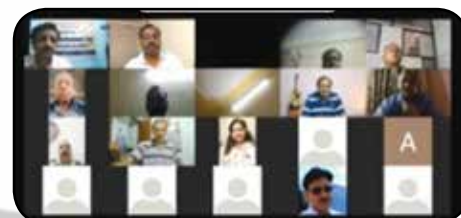


deforestation, encroachment on wildlife habitats, intensified agriculture and acceleration of climate change, that leads to upset the delicate balance of nature. Earlier, Prof. (Dr) Kartik Chandra Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI welcomed the speaker and the audience. Mr M K Biswal, Honorary Secretary, Durgapur Local Centre proposed the vote of thanks.

## Faridabad

Faridabad Local Centre, IEI celebrated World Environment Day on 5 June 2020 through digital media. Distinguished speakers presented papers on the theme of the day. Mr I S Chauhan, Architectural & Structural Consultant explained how biodiversity boosts ecosystem productivity and mentioned

that a healthy biodiversity provides a number of natural services for everyone. Mr I S Oberoi, Building Rehabilitation Consultant explained that sustainable building design reduces the negative impact on the

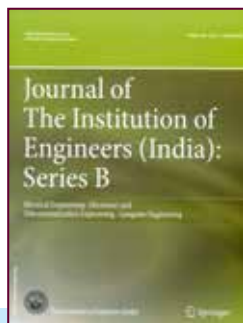


environment, which results improvement in human health during building's life cycle. Mr Ankur Mittal, Manager, National Council for Cement and Building Materials, Faridabad and Dr Pradeep Kumar Dimri, Associate Professor, J C Bose University of Science & Technology, YMCA, Faridabad also deliberated on "Biodiversity". Dr Sudeshna Chakraborty stated that the well-being of humanity, the environment and the functioning of the economy ultimately depend upon the responsible management of the planet's natural resources. Mr Sameer Kumar presented a lecture on the theme and explained how digital technologies are affecting Biodiversity. Earlier, Mr Sndeeep Handa, Chairman, Faridabad Local Centre delivered welcome address and briefly introduced the theme. Mr Kuldip Raj Gupta, Honorary Secretary, Faridabad Local Centre proposed the vote of thanks.

**Special Issue**

**Data Science for Global Crisis: COVID-19 and Beyond**

- \* AI and Data Science for management of post-COVID scenario
- \* Social network analysis for COVID-19 management
- \* Diffusion models for characterizing COVID-19 pathogen
- \* Predictive models of pandemic evolution exploiting AI techniques
- \* Real time forecast of a pandemic like COVID-19
- \* Modeling, Estimation and Prediction of Outbreak spreading behavior, contact tracing
- \* Spatiotemporal disease dynamics
- \* Multi sensing system for automatic symptoms analysis and prediction of COVID-19
- \* Models for financial market reactions to COVID-19
- \* Risk Profiling: forecasting, assessment, and management
- \* Pandemic prevention and control
- \* Modeling the direction and volumes of trade flows in global crisis
- \* Modeling and Forecasting the economic crisis as a result of a pandemic
- \* Innovations on online learning for formal education and universities,
- \* Innovation in Information technology in COVID-19 patient tracking
- \* Information technologies in hospital management during an epidemic or pandemic
- \* Applications of the Internet of Things in healthcare to address COVID-19 challenges
- \* Effective Mass Sanitization
- \* Access to COVID-19 education and resources
- \* Access to Remote education
- \* Impact of Social Distancing, Quarantines and Lockdown
- \* Effective existing Space conversion and utility
- \* Supply chain management of necessary commodities
- \* Impact of lockdown on the bottom of the pyramid
- \* Post COVID-19 redevelopment/rehabilitation
- \* Impact of the pandemic on people's psychology and on social development



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**Special Issue**

**Micro and Nano Self Assembly**

- ❖ Bio-inspired self-assembly
- ❖ Active self-assembly
- ❖ Heterogeneous integration
- ❖ Directed self-assembly
- ❖ Autonomous movement
- ❖ Controlled self-assembly
- ❖ Energy-dissipating Systems
- ❖ Microsystems, Microfabrication
- ❖ Polymers, Manufacturing
- ❖ Nanofabrication
- ❖ Atomic force microscopy
- ❖ Biosensors
- ❖ Nanostructures
- ❖ High Aspect Ratio, Etch Rate
- ❖ Double-shelled octahedron
- ❖ Scanning Electron Microscope
- ❖ Photocatalysis
- ❖ Sacrificial Layer and other relevant areas
- ❖ Oxidation of saturated CH bonds
- ❖ Quantum Wire



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**Special Issue**

**Creating a Circular Economy: Myth or Reality**

- ❖ What are the major issues and challenges of each phase of circular economy (e.g. take, make, distribute, use and recover) within industrial supply chain?
- ❖ Is there any best practice within each phase of circular economy?
- ❖ What innovation could be suggested in each phase to enhance sustainability performance?
- ❖ What role individual organisation, industry consortium, and policymakers should play to adopt circular economy in businesses?
- ❖ Is there any difference and similarity of circular economy adoption in developed and emerging economies?
- ❖ Could we measure circular economy performance and suggest means for improvement?
- ❖ How could technology play major role in adopting circular economy?
- ❖ What are the various measures related to resource and energy efficiency that have been undertaken in order to achieve circular economy?
- ❖ How reduce, reuse and recycle principles have been practiced across the society in order to adopt circular economy?
- ❖ What resources, strategies, and competences are required to implement circular economy?
- ❖ How circular economy is related to sustainable development goals?
- ❖ How social wellbeing and gender equality are related to circular economy?
- ❖ Is there any synergy between physical and mental health wellbeing, and circular economy?
- ❖ Could circular economy help achieve greater sustainability across industries?
- ❖ How effective waste management helps achieve greater sustainability?
- ❖ How is adoption of circular economy facilitated through advanced information and communication technologies (e.g. Industry 4.0, Internet of Things, Block chain, big data and 3D printing)?



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**Special Issue**

**Wind Tunnel Techniques from Hypersonic to Hypersonic Flows**

- ❖ Wind tunnel design and construction
- ❖ Utilization of wind tunnels for aeronautical and non-aeronautical applications
- ❖ Model fabrication
- ❖ Model supports
- ❖ Wind tunnel measurements
- ❖ Use of CFD for improved wind tunnel design
- ❖ Use of computers in wind tunnel operation and testing
- ❖ Validation of CFD results with wind tunnel measurements
- ❖ Balance design and fabrication
- ❖ Integration of EFD / CFD and digital / analogue wind tunnels
- ❖ Use of water tunnels for testing aeronautical and non-aeronautical models
- ❖ Data capture and analysis and case studies



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## WATER MANAGEMENT FORUM

A Peripheral body of the Institution of Engineers (India)

**The Institution of Engineers (India)**

Gujarat State Centre, Bhaikaka Bahvan, Law Garden Road,  
Ahmedabad-380 006.

Tel.: (079) 26400811, Email: [watermanagementforum@gmail.com](mailto:watermanagementforum@gmail.com)

Website: [www.wmf-iee.org](http://www.wmf-iee.org)



### NATIONAL POSTER COMPETITION ON “WATER CONSERVATION” – 2020 FOR SCHOOL STUDENTS

Water Management Forum has launched National Poster Competition with a view to make children aware about need of conserving the precious resource of water and also involve their parents in the above noble cause. **The competition is open for all students of India studying in standard V to Standard XII from 15<sup>TH</sup> JULY 2020 to 30<sup>th</sup> September 2020. The winners will be awarded cash prizes.**

#### Entry rules

The participants shall bear the expenses towards the material required for preparing the posters and no cost in this regard would be borne by Water Management Forum or The Institution of Engineers (India).

#### The theme for the poster competition is “WATER CONSERVATION”

All posters must contain the following details at the back of the poster.

(In English and capital letters only)-

Name of student, class, Section, School, full school address, father/mother's name, telephone number of school and parents along with STD code, signature of School Principal. Posters not signed by the school Principal or sent directly by student/parent to the Water Management Forum will not be accepted.

There will be two following Categories in the competition

Junior – From V <sup>th</sup> to VIII <sup>th</sup> standard	Senior- From IX <sup>th</sup> to XII <sup>th</sup> Standard
--	---

The Poster will have minimum A 3 Size of 30 cm X 42 cm, and maximum A 1 Size of 60cm X 84 cm. There will be no restriction on type of colors to be used.

All entries to be sent **by post** to the registered office of the Forum at:

**The Director, Water Management Forum, The Institution of Engineers (I),**

**Bhaikaka Bhavan, Opp Law Garden, Ellisbridge, Ahmedabad 380006.**

**Email - [watermanagementforum@gmail.com](mailto:watermanagementforum@gmail.com).**

#### Awards

Three best posters in both categories shall be selected by the Jury of three independent eminent persons appointed by the Forum. Winners shall be conferred upon an award, a certificate and cash prize. **1<sup>st</sup> Prize shall be Rs. 10,000/-; Second prize Rs. 5000/- and the third prize shall be Rs. 2000/- Awards/Prize shall be declared during October 2020 by the Jury.**

**Published by: WATER MANAGEMENT FORUM,  
Peripheral body of The Institution of Engineers (India), Contact: [www.wmf-iee.org](http://www.wmf-iee.org)**

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Engineers whose qualification is BE / BTech or equivalent, recognized by the Statutory Authority or Government of India and who are having 5 years or more experience, having membership of a recognized professional society and having maintained continuous professional development at satisfactory level, can submit application in the prescribed format to the PE Cell, The Institution of Engineers (India), 8 Gokhale Road, Kolkata-700020.

For details pls visit the following link :

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## Important Notice

It has been observed that there are many Corporate Members of IEI whose mobile number/email id is not registered with IEI till date. Non availability of the mobile numbers and email ids precludes us not only from providing our full range of services but also from participation in the Online Election Process.

The Corporate Members whose mobile number/email id is not registered with IEI are therefore requested to kindly communicate their mobile no. and email id along with membership number to [datamemb@ieindia.org](mailto:datamemb@ieindia.org) by 10 August 2020.

For any further clarification, one may feel free to speak to us at (033)40106248/ 246/ 269/ 299.

Maj Gen (Dr) S Bhattacharya, VSM (Retd)  
Secretary and Director General

## IEI Join Hands with Various Certification Bodies to Nurture Engineers

IEI and The Institute of Cost Accountants of India have signed a MoU on 27 May 2019, Kolkata, to offer a course exclusively for engineers- "Executive Diploma in Cost & Management Accounting for Engineers". Here is a wonderful opportunity for all corporate members of IEI to enhance knowledge in the domain of finance and understand the framework of costing, accounting system etc. in various decision making processes.

IEI also ties up with Project Management Associates (PMA), on 3 Jun 2019, at Chennai, in an exclusive collaboration to build a project mindset through Project Management education "IPMA's level C and D Certification Programme" in the country. The program offers a golden opportunity for project professionals to acquire key knowledge and concepts in Project Management, based on the approach followed by the world's leading authority on competence based Project, Program & Portfolio Management- International Project Management Association (IPMA).

IEI members have the exclusive facility of enrolling in the courses at a discounted fee!

For details, Corporate Members may login to their respective dashboard (<https://www.ieindia.org/WebUI/IEI-Registration.aspx>) and submit their application under Certification --> IPMA.

Please visit [www.ieindia.org](http://www.ieindia.org) under Certification for details. For further clarification you may call at: 033-40106304 or Email at [certification@ieindia.org](mailto:certification@ieindia.org)

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