



# I.E.I NEWS

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A CENTURY OF SERVICE TO THE NATION

Volume 28

Number 2

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

### Forest Fire-National Disaster Awareness

Forest fire is not a new concept in present era but now a days the threat of forest fire looms large over the vast cover of green vegetation. As the global temperature is rising, increasing incidents of forest fires are increasing the temperature of earth. The forests are prone to the wildfire because of large spell of winter in which the precipitation is scanty. Every year India witnesses many incidents of forest fire in a vast geographical area. This is one of the biggest threat to our biodiversity and wild life. Every year many animals lost their life in wild fire. There are 104 National Parks and more than 500 Wild Life Sanctuaries in the Country. These National Parks and Wild Life Sanctuaries are under the great threat of wild fire. Uttarakhand is a Himalayan state which holds large number of species of wild flora and fauna. Some of these wild animals and plants holds a great importance in our environment. Every year Uttarakhand witnesses large number of wild fires. Being an ecologically sensitive zone, these wild fires damage a large geographical area of state.

Uttarakhand has a total area of 53,483 sq km, out of which 86% is mountainous and 65% is covered by forest. Most of the northern part of the state is covered by high Himalayan peaks and glaciers. As per report available about the forest fire, four National Parks are the most vulnerable to fire incidents. These National Parks are: Jim Corbett National Park, Govind Wildlife Sanctuary and National Park, Nanda Devi Forest Division and Rajaji National Park and Tiger Reserve. Most of the fire incidents occur in the month of April & May. From 2010 to 2020, in last ten years, more than 600 incidents were reported in these four National Parks and Wild Life Sanctuaries. Among these, the Rajaji National Park witnessed about 70% of the total reported fire incidents.

Forest fires are part of the natural seasonal cycle of growth, decay and combustion, and are ignited by lightning strikes. However, human have played long a significant role in modifying fire regimes by changing the season and frequency of burning and, consequently, vegetation composition and structure. Fire is also a serious threat to native forests in many parts of tropical and non-tropical developing countries. In India, forest ecosystems are under severe threat due to recurrent fires apart from anthropogenic pressures which cause land degradation, soil erosion and reduced productivity. Fire frequency is expected to increase with human-induced climate change, especially where precipitation remains the same or is reduced. A general but moderate increase in precipitation,



together with increased productivity, favours generation of more flammable fine fuels. Unsustainable development and forest management practices could also contribute to enhanced forest fires. Monitoring and management of forest fires are, therefore, very important in tropical countries such as India where 55% of the total forest cover is prone to fires annually, causing adverse ecological, economical and social impacts. Studies of impacts of tropical wildfires on environment indicate high emissions of carbon, trace gases and aerosol particles. There is widespread concern about the loss of biodiversity, effects on atmospheric chemistry and increase in surface albedo and water runoff due to biomass burning. Thus, mapping the timing and the extent of fires is important as fire is a prominent change agent affecting ecosystem structure and the cycling of carbon and nutrients as well as is a globally significant cause of greenhouse gas emission. In India, Total land area is 3,287,263 sq km, out of which 712,249 sq km area is covered by forest and about 55% of the forest area, which is predominantly covered by deciduous forests, is prone to fires every year causing loss more than 100 million USD. Researchers regard the origin of forest fires in India as mostly anthropogenic. This needs to be properly surveyed and inventoried especially since the number of incidences of forest fires is increasingly affecting the legally protected nature conservation areas.



Uttarakhand has witnessed number of fire incidents in the past. Being a Himalayan state, the ecology of Uttarakhand is quite sensitive. Uttarakhand has a large area under its forest cover. It has highest number of forest cover in the northern states. Uttarakhand also an abode of many flora and fauna which are protected by National Parks, Sanctuaries and Bio-sphere Reserves. Some of these flora and fauna are even listed in International Union of Conservation and Nature (IUCN) as critically

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

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endangered. Moreover, forest fire increases the rate of extinction of species. As per FSI, Uttarakhand forest are divided in the following types:

- Tropical Moist Deciduous Forest
- Tropical Dry Deciduous Forest
- Subtropical Pine Forest
- Himalayan Moist Temperate Forest
- Tropical Moist Deciduous Forest
- Plantation/Trees Outside Forest



These forests are prone to forest fires. The duration of forest fire in state is from April to June. The peak fire incidents are reported in the month of May and June. The forest fire in the state is categorised in three types:

- ❖ Ground fires
- ❖ Surface fires and
- ❖ Crown fires

Ground fire spread on the top of organic matter. It mostly consume matter like duff, musk or peat, present beneath the surface litter of the forest floor. Surface fire spread very rapidly and mostly survive upon the small vegetation and surface litter. Crown fire burns the top trees and shrubs without having any close link with surface fire.

### REASONS FOR FOREST FIRE

- Lack of rain and moisture in the forests: Uttarakhand receives good amount of precipitation but it is concentrated mostly in the monsoon months and leave a long spell of nine months without rain. In this long spell the deciduous forests become vulnerable to forest fire. The rain and snow is important to maintain the moisture in the ground which helps in preventing the forest fire. If winter do not get sufficient amount of rain, it makes the forest floor and biomass too dry and extremely vulnerable to fire.

- Uttarakhand is in the lap of Himalayas and villages in Uttarakhand are in the middle of forests of Himalayas. Uttarakhand have large expense of chir pine forest. As per traditional practices the people are burning these to reduce the slippery chir pine needle and to ensure fresh green grass for their live stocks. When the ground has sufficient moisture, the fire remain in control but if there is no winter rain, it can go out of control.
- Burning of agricultural biomass in agricultural fields is very common in entire north India. Sometimes the fire escapes from the fields and reaches into forests and National Parks.
- A large area of Uttarakhand is hilly terrain which makes it very difficult to control forest fire. To reach a site which is often away from road head is difficult. Many places in national parks and forests have no foot track and bridge path to reach site.
- Technology has helped in detection of fire, but there are still lot of challenges like mobilisation of department of workforce on a particle site because of less number of vehicle and fire extinguishing equipment.

### FOREST FIRE MITIGATION MEASURES

- The National Park authorities and forest department officials have to create awareness generation programs in the villages at the surroundings of the national parks and wild life sanctuaries.
- The National Park authorities must follow rotational burning/controlled burning of forest floor so that the litter and bio mass would not accumulate in any particular zone.
- During the peak season of the forest fire burning, authorities can create master control room to monitor the situation.
- The forest department and National Park officials must create watch towers in the surroundings of National Parks.
- The forest department can create crew stations for tackling the situation immediately so that the forest fire can be controlled easily in its initial phases.
- All ground crew stations must be connected to the wireless communication network so that they can get proper information from master control room.
- The forest department officials and other persons must be equipped with efficient fire-fighting tools.
- The National Park authorities must adopt suitable technologies to reduce fuel load on forest floor:
- The National Park authorities must continue their awareness campaign about forest fire and its impact on wild life.





## Safety in Mobility

The Safety and Quality Forum (SQF) of the Institution and Delhi State Centre, IEI organized the 17th Safety Convention during 17-18 March 2021 at New Delhi on the theme **Safety in Mobility**. Mr Vinod Kumar Yadav, Former Chairman & CEO, Railway Board, Ministry of Railways and Ex-officio Principal Secretary to the Government of India, graced the function as Chief Guest and Er Narendra Singh, President, IEI as Guest of Honour.



Mr Indresh Kumar Pandey, Director General (Road Development) & Special Secretary, Ministry of Road Transport & Highways (MoRTH), Government of India and Council Member, IEI, presided over the function. While addressing the august gathering, Mr Pandey raised concern on the rising road accidents and referred it as one of the pandemic in the area of safety, wherein nearly 1.5 lacs of deaths and nearly 4.0 lacs of accidents are reported annually. Mr Pandey stressed that daemon of road accidents can only be removed by adopting the strategy of implementation of three Es; Engineering, Education & Enforcement. Mr Pandey further apprised about various initiatives taken by MoRTH in this regard. He mentioned that revision of Motor Vehicle Act is one of such initiative by which enforcement has been made coercive. MoU has been signed with 11 IITs/ NITs for creating nationwide Institutional frame work for building team of competent Road Safety Auditors and development of Intelligent Transport System for reducing accidents by saving most vulnerable groups, pedestrians and two wheelers from accidents, Mr Pandey added. Mr Ram Niwas Rajpoot, Chairman, Board of Governors (BOG), SQF and Special Invitee to the Council, IEI welcomed the guests, speakers and dignitaries and mentioned about the aims and objective of Safety and Quality

Forum of the Institution. Mr Dinesh Kumar, Chairman, Delhi State Centre and Council Member, IEI mentioned that Safety Convention is the flagship event of Delhi State Centre of the Institution, which has been developed to accelerate the interactions with the experts from all walks of life to find out meaningful solutions for everyday problems in terms of man and machine. Mr Pradeep Chaturvedi, Chairman, Interdisciplinary Coordination Committee and Council Member, IEI in his address briefed about the theme. Guest of Honour, Er Narendra Singh, President, IEI congratulated the organizers of the event for providing the platform to the industries and academia to collaborate on safety issues for increasing productivity. President, IEI in his address suggested that all Fora of IEI may also organize their programs in other regions by rotation for creating greater awareness on relevant issues. Chief Guest, Mr Vinod Kumar Yadav, Former Chairman, & CEO, Railway Board, Ministry of Railways, Government of India and Ex-officio Principal Secretary to the Government of India congratulated The Institution of Engineers (India) for organizing the Safety Convention on different safety issues. Mr Rajesh Prasad, IRSE, Director (Operations), Rail Vikas Nigam Limited delivered the Key-note address. On this occasion, a Souvenir as well as a book on the topic 'Practices in Construction' authored by Mr K B Rajoria, Past Chairman, Delhi State Centre and SQF, IEI was released. Mr Praveen Kumar Singh, Director, Safety and Quality Forum, IEI proposed the vote of thanks.

On the occasion, Safety Awards were presented to the selected industries. Further, National Safety Award and National Quality Award, Eminent Engineering Personality Award and Special Contribution Award were also presented during the event.

The inaugural session was followed by two Plenary Sessions and three Technical Sessions, organized in hybrid mode. In the first Plenary Session, Mr S K Nirmal, Secretary General, Indian Roads Congress delivered presentation on the topic 'Road Safety'. In the second Plenary Session, Dr Rajendra Kumar Bhandari, Former Director, CSIR CBRI, Roorkee, Distinguished Visiting Professor, Centre of Excellence in Disaster Mitigation and Management,

*Contd. on page 5*

## IEI Technical Webinar under the aegis of Textile Engineering Division Board

### Technical Textile in Defence Applications

West Bengal State Centre of the Institution organized Technical Webinar on the topic, **Technical Textile in Defence Applications** under the aegis of Textile Engineering Division Board (TXDB) of IEI on 19 March, 2021. Mr Sandip Kumar Deb, Chairman, West Bengal State Centre extended warm welcome to the Panelists, Moderator, guests and attendees. Prof (Dr) Ms G



**Prof Abhijit Majumdar**

Thilagavathi, Chairman, Textile Engineering Division Board, IEI expressed her views on the need and scope of organizing such events. The eminent Panelists, namely, Prof Abhijit Majumdar, Institute Chair Professor, Department of Textile & Fibre Engineering, IIT Delhi, New Delhi; Mr Birendra Nath Bandyopadhyay, President, Kusumgar Corporates Private Limited, Mumbai and Dr Biswa Ranjan Das, Scientist D & Assistant Director, DRDO - Defence

Materials & Stores Research & Development Establishment, Kanpur graced the function with their virtual presence. Prof Abhijit Majumdar in his address highlighted the exhaustive research carried out on the production of body armour of Defence people. With the help of research data and figures, he lucidly presented various stages of design, manufacturing, and testing of the body armour. Prof Majumdar also explained the propagation of bullet impact forces and how such horizontal propagation can be maximized by reducing the vertical propagation. During the occasion, Mr Birendra Nath Bandyopadhyay highlighted the manufacturing of Defence textiles using woven fabrics through the application of latest machineries.



**Dr Biswa Ranjan Das**



**Mr Birendra Nath Bandyopadhyay**

He also discussed in detail the manufacturing of garments for extreme cold climatic condition for camouflaging purpose, starting from the selection of desired raw materials to the chemical processing. Mr Bandyopadhyay also presented different design and manufacturing aspects of parachutes for application at various altitudes and loads. Dr Biswa Ranjan Das in his address covered the research activities of wide range Defence items by means of sufficient facts and figures. He elaborated the production of life jacket for Defence forces staying

in glacier region. Dr Das also explained different stages of production of NBC (Nuclear, Biological & Chemical) protected clothing, both breathable and non-breathable for achieving the most advanced version and less cost. He also covered the need and stages of production of face-lots, gloves, over-boots, light altitude clothing/gear, windcheater as well as their moisture management. Prof Sadhan Chandra Ray, Former Professor & Head, Department of Jute & Fibre Technology, University of Calcutta, Kolkata and the Moderator of the event made the summary of the presentations and extended the thanks to the Panelists on behalf of the host Centre. A separate question-answer session was held, when the attendees interacted with the Panelists on various issues of Defence textiles. Dr Raju Basak, Joint Honorary Secretary of the Centre proposed the vote of thanks.



**Prof Sadhan Chandra Ray**

## Design and Construction of Eco-friendly Flexible Pavements

The Civil Engineering Division of the Institution hosted its tenth Technical Webinar on **Design and Construction of Eco-friendly Flexible Pavements** on 25 February 2021. The webinar covered topics like flexible pavement structure, design of flexible pavement as per recent IRC SP 59, which involves use of geosynthetics in flexible pavement for gaining traction and case studies of successful projects. The webinar also covered use



Dr G L Sivakumar Babu

of geosynthetics to reduce construction time, cost and CO<sub>2</sub> emissions. In the webinar, IIT Pave software demonstration recommended by IRC was also taken up to provide the attendees with an overview about use of the software. Mr V B Singh, Chairman, CVDB, IEI welcomed the Panelists, Moderator and provided an overview about the issues that will be taken up and deliberated during the webinar. He mentioned that conducting technical activities on areas of topical interest has always been prioritized at the Institution in order to ensure that such ventures continue to run in a smooth, flexible and ubiquitous manner during this global pandemic time and beyond, when the Civil Engineering Division has been regularly hosting cloud based events in the form of technical webinars. The initial induction to the webinar topic was obtained by Dr G L Sivakumar Babu, President, Indian Geotechnical Society, New Delhi & Professor, Department of Civil Engineering, Indian Institute of Science (IISc), Bangalore. He highlighted the issue of pavement failure owing to the factors like lack of drainage and confinement. Prof Babu explained the fatigue cracking phenomenon through stages like crack initiation (tensile strain induced), crack propagation (tensile stress induced) and thereafter interaction of asphalt layer and foundation. He dwelt upon phenomenon like 'foundation rutting' which arises from lack of adequate load spreading, granular layer or soil and water related problems. Prof Babu thereafter explained the advantages associated with the use of geosynthetics as reinforcement in roadways and went on to explain how resilient modulus is affected with the induction of Geocell and Geogrid reinforcements in elastic and elastic shakedown range, plastic shakedown and incremental collapse range. He spoke on desirable material properties for base aggregate, role of geogrid in enhancing resilient modulus, discussed the permanent deformation studies carried out and resulting pressure distribution in base layers as well as the variation in stress distribution angle. He also shared data on influence of various road construction activities in terms of GHG emissions in Indian context and went on to explain how use of geosynthetics can lower the carbon footprint. While speaking on pavement drainage, Prof Babu discussed the framework of risk based design of the pavement subsurface drainage system and presented a risk assessment in context of Indian subcontinent to determine the probability of failure of the permeable layer while constructing 2, 4 and 6 lane roads and concluded that when geogrid is considered over compacted gravel as highway reinforcement the carbon saving obtained is fairly encouraging.



Dr Ratnakar R Mahajan

Prof Babu was followed by Dr Ratnakar R Mahajan, Technical Manager, Maccaferri India South East Asia. Dr Mahajan discussed various pavement failure mechanisms like reflective, thermally induced, surface/traffic induced, rutting and fatigue which adds to the maintenance cost. To counter this one needs to think of strategies at the initial stages of construction which will safeguard the roads/pavements on long term basis, Dr Mahajan added.

He mentioned that some of the strategies can be stabilizing the subgrade against moisture intrusion, strengthening road base and sub-base allowing the efficient drainage of infiltrated water and enhancing the stress absorption and moisture proofing capabilities. He emphasized on the use of sustainable geosynthetics made of polymers, steel, fiberglass and natural materials. He went on to mention that use of geosynthetics leads to soil stabilization and provides tensile reinforcement to soil and aggregate structures. Dr Mahajan explained the mechanisms like interlocking (allows lateral confinement), better load distribution to sub-grade and the tension membrane effect which are associated with the use of sub-grades and provides longevity to the structures. He also touched upon factors like rib strength, junction strength and junction efficiency which determine the efficacy of a geogrid. Thereafter design aspects of Geogrid Reinforced Flexible Pavements as per the provisions of IRC 37 and IRC SP59 were discussed. While discussing asphalt failure, Dr Ratnakar Mahajan spoke on mechanisms involved like fatigue/alligator crack, longitudinal and transverse cracks, rutting, edge breaking and haunching along with IRC 82-2015 Code of practice for maintenance of bituminous road surfaces. While explaining the mechanism of 'overlay stress absorption', Dr Mahajan proposed geosynthetics solutions like asphalt reinforcement which provides a lateral restraint within the asphalt, resulting a manifold increase in the service life of the pavement by relieving and redistributing stress concentration. While discussing sustainable geosynthetics solutions for drainage, Dr Mahajan spoke how pavements can be weakened by water in one or more of the following ways like reduction in strength of unbound materials and subgrade; pumping, faulting, cracking and shoulder deterioration and phenomenon like stripping and cracking resulting from pore pressure within the AC layer. He elaborated on how drainage geocomposites can address problems like surface water accumulation, sub-surface capillary rise and frozen roads. Dr Mahajan went on to explain how geotextile based composites can facilitate separation and filtration, resist ultraviolet and biological deterioration, prevent rotting and acting as an water-proofing and stress relieving agent. Dr Ratnakar R Mahajan brought in the various clauses of the relevant guidelines like IRC SP 59: 2019 (which discusses use of geosynthetics in road pavements and associated works), IRC 34: 2011 (deals with procedure of road construction in areas affected by water logging, flooding and/or salt infestation), IRC:SP:42 (guidelines for road drainage). Dr Mahajan shared the results of the extensive field trial stretch testing that has been carried out on reinforced and unreinforced sections and superior results obtained in case of the former. Finally, Dr Mahajan concluded while demonstrating the eco-friendly aspect associated with the use of geosynthetics along with other associated benefits like reduced vertical and lateral deformation, enhanced bearing capacity of the soil, allowing effective use of marginal/recycled/locally available materials, improved Traffic Benefit Ratio (TBR) and Base Course Reduction (BCR), less periodical maintenance, reduced construction and operational cost and most importantly lower carbon footprint. The moderation was obtained by Mr Akhilesh Soodan, Assistant Manager Technical (Marketing), Maccaferri Environmental Solutions Private Limited, who also proposed the formal vote of thanks on conclusion.



Mr Akhilesh Soodan

The webinar witnessed encouraging participation from professionals, practitioners, researchers and students who were enriched from the valuable insights shared by the Panelists.



## Energy Conservation – Opportunities and Challenges in Oil and Gas Industries

**Tiruchirappalli Local Centre** of the Institution organized Technical Webinar on the topic **Energy Conservation – Opportunities and Challenges in Oil and Gas Industries** under the aegis of Chemical Engineering Division Board (CHDB) of IEI on 18 March, 2021. Prof (Dr) N Kumaresan, Chairman, Tiruchirappalli Local Centre and Moderator of the Session extended his warm welcome to all the attendees, Panelists and Guests.



Mr P N Maran

Mr P Rajamani, Council Member and Chairman, Electrical Engineering Division Board (ELDB), IEI addressed the virtual audience and expressed his views on the need and scope of organizing such events. Eminent Panelists, namely, Mr P N Maran, Chief General Manager, Oil & Natural Gas Corporation (ONGC), Karaikal; Mr Purushothkumar Santhana Mahalingam, Field Engineer, CUDD Energy Services in Odessa, Texas, USA and Dr N Stalin, Department of Petrochemical Technology, Anna University, Tiruchirappalli graced the occasion and enlighten the audience with their views and expertise. Mr P N Maran in his address emphasized on various petroleum products like, auto parts, coating, foam, adhesives, carpeting etc. He also highlighted the mechanisms of extracting oil from the ground level of earth and focused on the process of oil extraction adopted by ONGC. The speaker further outlined the process of gas plant



Mr Purushothkumar Santhana Mahalingam

installation and its challenges. In the near future, the gas-based economy, sources of bio-fuels, utilizations of electricity driven transport system, use of H<sub>2</sub> as alternate fuel, digital innovations in the energy system will be the key parameters for sustainability as stated by Mr Maran. Dr N Stalin discussed on the topic, 'Energy Efficiency in Oil & Gas Industry' and highlighted various contemporary issues on oil and gas industries to increase the energy level.

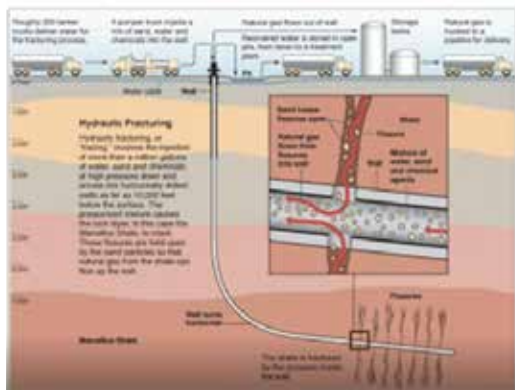


Dr N Stalin

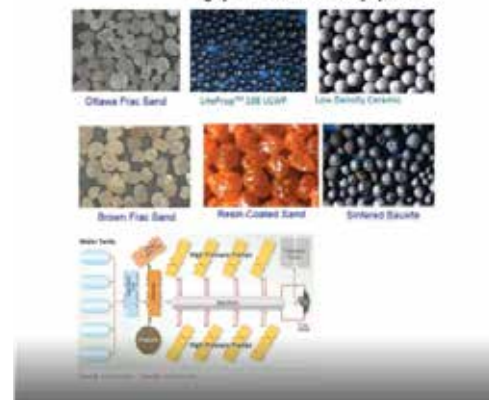
Mr Purushothkumar in his address highlighted the petroleum product life cycle and their active roles in gas processing techniques. After the fruitful deliberations, Prof Kumaresan, Moderator of the event summarized the presentations and extended the thanks to the Panelists on behalf of the host

Centre. In his concluding remarks, he explained that the energy efficiency and energy conservation are distinctly different; however, both play the key roles in reducing the amount of energy used. Energy efficiency is about reducing the energy intensity of a process or activity so that less energy is required to provide the same product or service, which can be achieved by introducing more efficient technologies, equipment or processes, he added. He further stated that enhancing energy efficiency is an important issue for oil and gas companies to improve productivity, lower operating costs and reduce environmental impacts. A separate questionnaire session was held and all the attendees interacted with the Panelists on various issues of Green Engineering and Climate Change. Mr A Anand, Honorary Secretary, Tiruchirappalli Local Centre proposed the vote of thanks.

### Hydraulic Fracturing



### Types of Proppant



## Safety in Mobility

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IIT Roorkee & Chairman, Forum on Engineering Interventions for Disaster Mitigation, Indian National Academy of Engineering deliberated on the topic 'Challenge of Disaster Risk Resilience and Total Safety of Infrastructure Development'.

In the first Technical Session titled 'Safety in Energy Sector', Mr O T Sharma, Gas Authority of India Limited (GAIL), Vijaipur, Mr Ajaya Kumar Harit, Director, Aayka Waterproofers Private Limited, Haryana, Mr Sumit Kumar Singh, Senior Manager, ReNew Power Limited and Mr Rinku Aggrawal, HoD, Corporate Safety, Tata Power Delhi Distribution Limited presented Case Studies. During the second and third technical sessions, authors presented papers through their virtual presence.

In the second Technical Session titled 'Industrial Safety-A', Dr H R P Yadav, Secretary and Director General, IEI presented his paper on the topic 'Role of Alternative Fuels in Vehicular Emission - A Way Forward to Transportation

Sector'. In his presentation, Dr Yadav highlighted various ways and means to reduce vehicular emissions. Mr Ajendra Agarwal, Head, EHS, GE T&D Limited presented lecture on the topic 'Safety Process in GE T&D'. Mr Alok Sharma, Chief General Manager-F&S, Indraprastha Gas Limited deliberated on 'Explosion in CNG Cylinder of a TATA Truck at Dwarka Sector 20 CNG Station'. Mr Mittal Jayswal, Officer, Fire & Safety, J K Lakshmi Cement Limited made his presentation on the topic 'Digital Safety Systems'. Mr Rajesh, Member, Delhi State Centre Committee presented his paper on the topic 'Smart Fire Alarm Panel SIA and Wi-fi App Design and Application'.

In the third Technical Session titled 'Industrial Safety-B', Md Abu Sayeed, Environment, Health and Safety (EHS) Manager, Reckitt Benckiser (Bangladesh) Limited presented lecture on the topic 'Reckitt Benckiser Chittagong Factory- Zero Production Interruption during COVID 19'. Mr Justin Shaji, EHS-Manager, Reckitt Benckiser Private Limited, Hosur, made his presentation on the topic 'Reactor - Internal Inspection by Telescopic Camera' and Mr Ashok Kumar, Site EHS Manager, Reckitt Benckiser India Private Limited, Sitarganj, Uttarakhand deliberated on the topic 'Installation of New Sanitizer Line'.

## Design of Efficient Power Systems by Application of Optimization Techniques

**Punjab & Chandigarh State Centre** of the Institution organized Technical Webinar on the theme **Design of Efficient Power Systems by Application of Optimization Techniques** under the Aegis of Electrical Engineering Division Board (ELDB), IEI on 17 March, 2021. At the outset, Mr Sukhvir Singh Mundi, Chairman, Punjab and Chandigarh State Centre, IEI welcomed the Panellists of the Session, Dr J S Dhillon, Professor, Department of Electrical & Instrumentation Engineering, Sant Longowal Institute of Engineering and



**Dr J S Dhillon**

Technology, (Deemed-to-be-University) Longowal, Punjab and Mr Jotinder Singh, Former Engineer-in-Chief, Punjab State Power Corporation Limited, Patiala, Moderator of the Session, Dr Rajni Bala, Assistant Professor (Sr Scale), Baba Banda Singh Bahadur Engineering College, Fatehgarh Sahib, Jalandhar, dignitaries and participants. Mr Mundi stated that IEI is fully committed to arrange such technical webinars for the betterment of society. Mr P Rajamani, Chairman, Electrical Engineering Division Board (ELDB), IEI explained the importance of theme of the Webinar in present scenario and emphasized on specialized areas of interest regarding application of different optimization methods in power systems. Chairman, ELDB, IEI further opined that the discussion during Webinar brings together innovative research outcomes, programs, algorithms and approaches that consolidate the present state and future challenges for power systems. Prof (Dr) Swapn Bhaumik, Chairman, Committee for Advancement in Technology and Engineering (CATE) in his address highlighted the steps taken by IEI to enhance and contribute towards the recent trends in technological developments. He requested all students, academicians, research scholars to submit research papers in journals so as to reflect the influence of the experience of deliberations by the speakers. He assured that IEI will continue to contribute in exchanging ideas between experts and students in future too.



**Mr Jotinder Singh**

Dr Dhillon started his deliberation with defining the optimization problems in detail by explaining constraints and variables and focused on constituting and representing problems in a simpler manner. He demonstrated economic dispatch, which determines the allocation of electricity demand among the committed generating units to minimize the operating costs subject to physical and technological constraints.

Dr Dhillon lucidly explained generation of thermal power, classical economic dispatch, transmission loss, ramp rate, prohibited operating zones (POZ) and so on. He outlined different nature of solutions to the optimization problems, which are feasible, infeasible, stationary, local or

relative, absolute or global etc. He explained different types of optimization techniques and optimization procedures and categorized equality and inequality constraints. Other topics in the discussion include: Economic load dispatch problem with equality and inequality constraints, Transmission losses, considering various generator constraints like valve point loading, Prohibited operating zones and ramp rate limits etc. The speaker explained different aspects of constrained optimization problems, including Penalty Function method, Exterior and Interior Penalty Functions etc. The deliberation further include classification of meta-heuristic methods and various optimization techniques, namely Swarm Intelligence based Algorithms, Bio-inspired Algorithms, Nature science based Algorithms and Natural phenomenon based Algorithms. Some common features of these techniques were elaborated too in terms of exploration, exploitation and computation time. Also the coordination of renewable energy sources: solar, wind power plants were discussed.



**Dr Rajni Bala**

Mr Jotinder Singh in his address highlighted the current status of electrical power systems in the country and the need of the optimization techniques in order to improve the distribution of power. His lecture focused on operational procedure of power systems in an optimal manner by optimum utilization of various recourses. He discussed the need of renewable energy as the alternative to thermal power, which not only reduce the load on thermal power plant, but also very helpful in reducing the CO<sub>2</sub> content in the air. He discussed further about the environmental benefits of renewable energy. He also discussed the power section organization in detail and compared overhead lines and underground cables for transmission of electric power. He discussed about peak and off peak hours for using electricity, rural electrification in efficient and optimal manner and distribution network planning in an optimized and cost effective manner. He mentioned that effective control on power generation and distribution will be the most important parameter in contributing towards the nation's economy. A brief question-answer session at the end of the event was organized. Moderator of the session, Dr Rajni Bala summed up the proceedings and placed the recommendations in brief as follows.

*Computational tools for optimization of power system should be elaborated further for better control; Issues and challenges for integration of renewable energy sources in power system need to be explored further; More study and research is recommended about the effect of energy efficient devices on the efficiency of power system.*

Dr Baljit Singh, Honorary Secretary, Punjab and Chandigarh State Centre extended vote of thanks to the speakers, dignitaries and participants at the end of the session.

### 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 June 2021.

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

Dr H R P Yadav  
Secretary and Director General



## Artificial Intelligence and Data Science

**Udaipur Local Centre**, IEI organized Technical Webinar on the theme **Artificial Intelligence and Data Science** on 20 March, 2021 under the aegis of Computer Engineering Division Board (CPDB), IEI. Eminent Panelists, namely Prof Dharm Singh Jat, Department of Computer Science, Namibia University of Science and Technology, Namibia, Dr Hemant Purohit, Assistant Professor, Department of Information Sciences & Technology, Volgenau School of Engineering - George Mason University, Mason, Fairfax, VA, USA and Mr Nikhil Pareek, Faculty, Machine Learning, Centre for Computer Science Education and Outreach, The University of Texas, Dallas, USA graced the function with their virtual presence and shared their views and expertise with the august audience. Moderator during the session, Prof Piyush Javeria, Professor & Director, Faculty of Engineering, Pacific University, Udaipur introduced the Panelists and highlighted the importance of the theme. Mr Yawanti Kumar Bolia, Chairman, Udaipur Local Centre, IEI delivered the welcome address. Mr B S Patel, Council Member and Chairman, Computer Engineering Division Board, IEI congratulated Udaipur Local Centre for organizing the webinar on this significant topic and stated that in the current perspective, Artificial Intelligence is proving very useful in combating infectious diseases. Prof (Dr) Swapan Bhaumik, Chairman, CATE in his address stated the appropriateness of theme.



Prof Dharm Singh Jat

Prof Dharm Singh Jat deliberated his lecture on the topic 'Artificial Intelligence and Edge Computing: The Driving Force of Industry 4.0'. In his lecture, Prof Jat highlighted that the key essence of Industry 4.0 is to enhance the efficiency of industrial processes by means of utilization of connectivity, computing, Data, IoT, Artificial Intelligence and Machine Learning and Industry 4.0 is focused on creating smart and secured environment in the manufacturing processes. The speaker lucidly explained different stages associated with the implementation of Industry 4.0, which include; Initiate connectivity to implement basic levels of data collection, analysis and communication; Process optimization: Increasing networking and digitization; Improvement of existing procedures and optimizing the use of assets; Increasing automation and upgrading other standards to reduce costs; Maximize collating and leveraging data with advanced algorithms; Creating digital thread throughput for the entire process; Implementation of new cyber security measures to address risks of increased connectivity; Implementation of new business models and using the collected data and insights to create new revenue streams and value of customers and manufacturing new products based on the insights digitally gathered from the clients and so on. Prof Jat in his lecture, outlined the concept and applications of Smart Factories and Cyber Physical Systems (CPS) and stated that, within the modular structured Smart Factories of Industry 4.0, the Cyber Physical systems monitor the physical processes, create a virtual replica of the physical world, which leads to the decentralized decision making process. He explained CPS as a system of collaborating computational elements controlling physical entities. CPS are physical and engineered systems whose operations are monitored, coordinated, controlled and integrated by a computing and communication core and allow to add capabilities to the physical systems by merging computing and communication with physical processes, Prof Jat outlined. He also deliberated on Artificial Intelligence, Deep Learning, IoT, Smart Cities & Industry 4.0 and the application of AI to combat the Covid 19 pandemic and felt that the connectivity of smart cities and Industry 4.0 may create huge opportunities to join the physical and the digital world and it can develop the public and private sector's effectiveness, expand financial benefits and improve the standard of living. Prof Jat further explained the



Dr Hemant Purohit

applications of Edge Computing paradigm in manufacturing processes, Blockchain Technology, conceptual model of Edge Computing Architecture in Industry 4.0 etc. The speaker stated that the intelligent edge is the foundation for future digital business and its ecosystems and by bringing powerful computing capabilities closer to the edge where data originates and processed with machine learning, helping to accelerate the fourth industrial revolution.

Dr Hemant Purohit in his address, stated that, to render essential services to the future cities, it is necessary to focus on Machine Learning, Artificial Intelligence, Human Information Laboratory and Natural Language Processing to improve the lifestyle of citizens. He further elaborated this process with number of practices, which include; -Human centred Computing by integrating human science and computer science, Social Media Mining for crisis communication, Semantic Analysis for human behaviour modeling, Text Comprehensive Modeling for cyber defence etc. Dr Purohit explained about the role of human annotations for developing effective Machine Learning systems for social media and mentioned the comparative studies between Periodic Algorithm and Near Real Time Algorithm. Dr Purohit emphasized on better understanding of the real time decision making of human annotators under different environmental constraints and human factors with contribution to the learning errors of AI models. While concluding, he stated that Human - AI collaborative approach can be obtained in scalable stream data processing for emergency services, considering the opportunities with CitizenHelper-Adaptive system and Crowdsourcing Annotation.



Mr Nikhil Pareek

Mr Nikhil Pareek in his lecture explained, how the applications of Machine Learning establish new dimensions in neuroscience, which results revolutionary development in the treatment of human brain. He further added the use of AI in pollution control, use of Machine Learning in handling cyber attacks, assistance of AI in checking atrocities on women, and utilization of AI in assisting senior citizens to augment memory power for better living. Mr Pareek explained that Machine Learning provides insightful information to the computers by leveraging algorithms that is learned from data in an iterative manner. While the concept of Machine Learning (ML) has been around for a long time, to automate the application of complex mathematical calculations, Big Data has been gaining momentum over the last several years, he added. The speaker further explained different aspects of pattern recognition and stated that, Machine Learning is undoubtedly, one of the most exciting subsets of Artificial Intelligence, which completes the task of learning from data with specific inputs to the machine. He explained further that the Machine Learning process starts with input of training data, which are known or unknown data to develop the Machine Learning algorithm. To test the correct functioning of this algorithm, new input data is fed into the constituted Machine Learning algorithm for checking the prediction and results and if the prediction is not as per expected result, the algorithm is re-trained multiple numbers of times until the desired output is found, the speaker explained. He mentioned that this methodology enables the Machine Learning algorithm to continually learn on its own and produce the most optimal answer that will gradually increase in terms of degree of accuracy over time.



Prof Piyush Javeria

A brief question answer session was organized at the end of the session. Moderator of the Session, Prof Piyush Javeria summed up the Proceedings. Mr Chandra Prakash Jain, Honorary Secretary, Udaipur Local Centre proposed the vote of thanks.



# IEI Celebrates World Water Day

Theme : Valuing Water

The World Water Day was celebrated by the Institution all over the country on March 22, 2021. Reports of celebration received from various Centres are highlighted here.

## STATE CENTRES

### Bihar

Bihar State Centre, IEI observed World Water Day on 22 March 2021 at Patna. Keynote Speaker during the function, Prof (Dr) Santosh Kumar, Chairman, Indian Water Resources Society, Bihar in his lecture advocated for the management of fresh water resources, stressed on the necessity of conservation of water resources in day-to-day life of common people and recycling and reusing of waste water. Dr B K Sahay, Technical Advisor, Bihar State Disaster Management Authority and Past Honorary Secretary, Bihar State Centre, IEI deliberated his address on the theme. Dr Arun Kumar Shrivastava, Council Member, IEI and Mr Rabindra Kumar Sinha, Past Secretary, Indian Water Resources Society, Bihar also graced the occasion. Kumar Abhay Pratap Singh, Honorary Secretary, Bihar State Centre was also present on the occasion. At the beginning, Mr Nishi Kant Prasad Sinha, Chairman, Bihar State Centre and Council Member, IEI, delivered the welcome address. Mr B N Singh, Past Honorary Secretary, Bihar State Centre proposed the vote of thanks.

### Haryana

Haryana State Centre, IEI observed World Water Day on 22 March 2021 through virtual mode. Keynote Speaker during the function, Mr Prashant B Kapadia, Chief Growth Officer, CIMCON Software (I) Private Limited delivered lecture on the theme. Earlier, Dr (Ms) Vrinda Krishanlal Gupta, Chairman, Haryana State Centre and Council Member, IEI, welcomed the dignitaries and participants.

### Puducherry

Puducherry State Centre, IEI observed World Water Day at Puducherry Technological University (PTU) on 22 March 2021. Chief Guest, Dr R Sivacoumar, Senior Principal Scientist, CSIR-NEERI, National Environmental Engineering Research Institute, Chennai delivered lecture on the theme. Dr S Kothandaraman, Principal, Pondicherry Engineering College, Puducherry was present on the occasion and addressed the audience. Earlier, Prof (Dr) Raman Saravanane, Chairman, Puducherry State Centre and Council Member, IEI, welcomed the participants. Prof (Dr) B Radjaram, Honorary Secretary, Puducherry State Centre proposed the vote of thanks.

### Telangana

Telangana State Centre, IEI, in association with Jalamandali Engineers Association organized World Water Day on 22 March 2021 through virtual platform. Mr M Dana Kishore, IAS, Managing Director, Hyderabad Metropolitan Water Supply & Sewerage Board (HMWSSB) graced the function as Chief Guest. Guests of Honours on the occasion Dr M Satyanarayana, Executive Director, HMWSSB; Mr A Krishna, ENC & Director (Operation-I), HMWSSB; Mr R Sunil Kumar, Global President, United Federation Travel Agents Association (UFTAA); Mr V L Praveen Kumar, Director, Revenue & UFW, HMWSSB; Mr D Sridhar Babu, Director (Project-1), HMWSSB; Mr

P Ravi Kumar, Director (Projects – II), HMWSSB; Mr M Swamy, Director (Operations-II), HMWSSB; Mr M Devanand, Chief Engineer, Greater Hyderabad Municipal Corporation (GHMC) also deliberated on the theme. Earlier, Mr T Anjaiah, Honorary Secretary, Telangana State Centre welcomed the audience. Dr G Rameshwar Rao, Chairman, Telangana State Centre and Council Member, IEI, presided over the function.

### Uttar Pradesh

Uttar Pradesh State Centre of the Institution observed World Water Day on 22 March 2021 and organized webinar on the theme of the day. Keynote speaker during the function, Mr Phanish Kumar Sinha, President, Indian Network on Participatory Irrigation Management in his deliberation emphasized on preservation of ground water and application of micro and deep irrigation to reduce water wastage. At the beginning, Mr Rajesh Kumar Trivedi, Chairman, Uttar Pradesh State Centre and Council Member, IEI welcomed the guests and participants. The programme was ended with vote of thanks delivered by Mr Prabhat Kiran Chaurasia, Honorary Secretary, Uttar Pradesh State Centre.

## LOCAL CENTRES

### Agra

Agra Local Centre, IEI observed World Water Day on 22 March 2021 at Agra. On the occasion, Dr V K Saraswat, Director, Institute of Engineering & Technology, Dr B R Ambedkar University, Khandari Campus, Agra was the Chief Guest and Mr V K Gupta was the Keynote speaker. Mr Devendra Singh Chaudhary, Honorary Secretary, Agra Local Centre welcomed the guests, dignitaries and audience and at the end of the session, also proposed the vote of thanks.

### Ahmednagar

Ahmednagar Local Centre of the Institution observed World Water Day on 22 March 2021 on virtual mode. Mr Satish Khade, an entrepreneur working in the field of water related issues delivered lecture on the theme. Explaining why people participation is required in awareness on water related issues, Mr Satish Khade explained that exorbitant ground water extraction, emission of CO<sub>2</sub>, surface water pollution, global warming, increasing population, changing lifestyle of people and uncertain rain pattern are some of the factors, which leads to the extinction of plant and animal species on the earth. Earlier, Mr Manohar Mukund Anekar, Honorary Secretary, Ahmednagar Local Centre delivered the welcome address.

### Aligarh

Aligarh Local Centre, IEI organised a Lecture programme on the occasion of World Water Day on 22 March 2021 at Aligarh. Chief Guest of the occasion, Prof S S Alam, Former Chairman of Aligarh Local Centre talked about the importance of water in different spheres. Mr Kul Bhushan Varshney, Chief Engineer, Nagar Nigam, Aligarh addressed the audience regarding conservation of water. Earlier, welcome address was delivered by Prof Mohammad Kamil, Former Chairman of Aligarh Local Centre.

### Angul

Angul Local Centre, IEI observed World Water Day by organising a webinar on the topic 'Valuing Water: In the context of Odisha' on 22 March 2021. Chief Speaker, Mr Nanda Kumar Mohapatra, Ex-Chief Engineer, Minor Irrigation, Odisha delivered lecture on the topic. Dignitaries, namely Mr A P Panda, ED (S&P), NALCO, Mr S Acharya, Ex ED, NALCO, Mr N K Mondal, GGM(Smelter), Mr S R Patnaik, GGM (O & M), CPP, Mr A P Mohanty, Ex- DGM, NALCO graced the occasion and made the event a grand success. Earlier, Mr Sangram Keshari Samantaray, Chairman, Angul Local Centre welcomed the dignitaries and participants. Mr Siba Ram Panda, Honorary Secretary, Angul Local Centre introduced the Chief Speaker to the participants and at the end of the session, proposed the vote of thanks.



## Aurangabad

Aurangabad Local Centre, IEI observed World Water Day on 22 March 2021 through virtual mode. Mr Deelip Dattaray Tawar, Chief Engineer and Chief Administrator, Command Area Development, Water Resources Department, Aurangabad was the Chief Guest on the occasion. Earlier, Chairman, Aurangabad Local Centre, Dr D C Gour, delivered the welcome address. Prof Sandeep Bhagwanrao Mundhe, Honorary Secretary, Aurangabad Local Centre proposed the vote of thanks.

## Bareilly

Bareilly Local Centre, IEI observed World Water Day on 22 March 2021 by organizing a seminar on the theme of the day. Chairman, Bareilly Local Centre, Mr Sudhir Kumar Gupta in his welcome address briefed about the theme. Mr K B Agrawal, Founder Chairman of Bareilly Local Centre in his address, mentioned that water has enormous and complex value for households, food, culture, health, education, economics and the environmental integrity. Dignitaries on the occasion, Mr H C Gupta, Mr S C Sundrani, Mr M K Agrawal, Mr Ram Chandra, Dr Chhavi Sharma and Dr Pankaj Sharma also shared their views and experiences on the theme. Mr Mahendrakumar Agarwal, Honorary Secretary, Bareilly Local Centre proposed the vote of thanks.

## Belagavi

Belagavi Local Centre, IEI observed World Water Day on 22 March 2021 at Belagavi. On the occasion, Chief Guest, Mr H G Raghavendra Suhasaa, IPS, Inspector General of Police, Northern Range, Belagavi, Karnataka in his address focussed on efficient use of water and share his experience in flood management during the heavy floods in Krishna Basin in the Northern part of Karnataka in the year 2019. Keynote Speaker, Prof Aravind Galagali, Member, Steering Board (MSP) Ministry of Water Resources, Government of Karnataka spoke about integration and control of water usage and subsequent mitigation of the anticipated crisis of water. Mr Basavanneppa G Dharenni, Honorary Secretary, Belagavi Local Centre proposed the vote of thanks.

## Bokaro Steel City

Bokaro Steel City Local Centre, IEI observed World Water Day on 22 March 2021 at Bokaro and organized a lecture programme on the theme. Chief Guest, Mr Sharad Gupta, Chief General Manager, Water Management Department, SAIL, Bokaro Steel Plant inaugurated the function, delivered the inaugural address on the theme and stressed upon recycling of water, rain water harvesting, replenishing ground water level etc. Guest of Honour, Mr N P Srivastava, General Manager and HOD of Environment Department, SAIL, Bokaro Steel Plant spoke about universal availability of safe drinking water and sanitation. Mr Lambodar Upadhyaya, General Manager, Water Management Department, SAIL and Mr Nitesh Ranjan, AGM, Environment Division, SAIL, Bokaro Steel Plant presented papers during the technical session. Earlier, Mr Yogendra Nath Singh, Chairman, Bokaro Steel City Local Centre welcomed the dignitaries and spoke about the importance of the day.

## Brahmapur

Brahmapur Local Centre, IEI organised World Water Day on 22 March 2021 at Brahmapur. Chief Guest of the event, Dr Hemant Kumar Panda, Director, Soil Conservation & Watershed Development, Government of Odisha, in his address, advocated for water conservation, water utilization at right time and place and further stressed on application of micro level irrigation, drift irrigation etc. Chief Speaker during the function, Dr Chitta Ranjan Mohanty, Professor & HoD, Civil Engineering Department, Parala Maharaja Engineering College, Brahmapur deliberated on economic theories of water resources. Earlier, Dr Arun Kumar Padhi, Chairman, Brahmapur Local Centre welcomed the Chief Guest, Speaker, dignitaries and participants. Mr Surendra Kumar Panigrahi, Honorary Secretary, Brahmapur Local Centre introduced the Chief Guest and Chief Speaker.

## Coimbatore

Coimbatore Local Centre, IEI in association with Department of Civil Engineering, Dr N G P Institute of Technology, Coimbatore observed World Water Day on 22 March 2021 in cloud mode. Chief Guest, Professor Subimal Ghosh, Convener of Interdisciplinary Program in Climate Studies and Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Mumbai delivered lecture on the topic 'Climate Services for Water Management' and focussed on raising awareness on water crisis and sustainable management of freshwater resources. Dr P R Muthupriya, Professor and Head and Mr Manoj K M, Department of Civil Engineering, Dr N G P Institute of Technology, Coimbatore were present on the occasion and welcomed all. Dr H Ram Mohan, Honorary Secretary, Coimbatore Local Centre proposed the vote of thanks.

## Dhanbad

Dhanbad Local Centre, IEI observed World Water Day on 25 March 2021 at CSIR-CIMFR, Dhanbad, when the technical deliberation was organized on the theme in the august presence of Dr Pallabi Das, Scientist, CSIR-CIMFR, Dhanbad, Dr Pradeep Kumar Singh, Chairman, Dhanbad Local Centre, Dr Satyendra Kumar Singh, Honorary Secretary, Mr R Prasad, Past Honorary Secretary, Mr Amar Nath, Past Honorary Secretary, Mr B K Samanta, Past Chairman of Dhanbad Local Centre and other dignitaries. Earlier, Dr Pradeep Kumar Singh, Chairman, Dhanbad Local Centre welcomed all. Dr Satyendra Kumar Singh, Honorary Secretary, Dhanbad Local Centre proposed the vote of thanks.

## Dharwad

Dharwad Local Centre, IEI observed World Water Day on 23 March 2021 at Dharwad. Chief Guest on the occasion, Mr B Y Bhandiwaddar, Superintending Engineer and Professor, Water and Land Management Institute, (WALMI), Dharwad delivered lecture on the theme. Earlier, Prof (Dr) Ramesh Laxman Chakrasali, Chairman, Dharwad Local Centre welcomed the Chief Guest and the dignitaries present on the occasion.

## Durgapur

Durgapur Local Centre, IEI observed World Water Day on 18 April 2021 at Durgapur by organising a Lecture Meeting on the theme of the day. On this occasion, Key note speaker, Mr Srikanta Mondal, Executive Engineer, Asansol Durgapur Development Authority delivered lecture on the topic, 'The Value of Water & Disposal of Wastewater' and discussed about water conservation, usage of water in rational and sustainable manner, waste water treatment. Earlier, Prof (Dr) Kartik Chandra Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI, presented the welcome address. Mr M K Biswal, Honorary Secretary, Durgapur Local Centre presented introductory address and proposed the vote of thanks at the end of the function.

## Gorakhpur

Gorakhpur Local Centre, IEI observed World Water Day on 22 March 2021. Speaker of the day, Dr Govind Pandey, Dean-Infrastructure & Planning, MMMUT Gorakhpur in his address stressed on judicious usage of water and rain water harvesting'. Earlier, Mr Dharendra Chaturvedi, Chairman, Gorakhpur Local Centre welcomed the speaker and audience. Mr Ved Prakash Gupta, Honorary Secretary, Gorakhpur Local Centre proposed the vote of thanks.

## Gwalior

Gwalior Local Centre of the Institution observed World Water Day on 21 March 2021 and organized a technical seminar on the theme of the day. Speaker of the session, Mr Sanjay K Andwan, Chief Engineer, Public Health Engineering Department (PHE), Government of Madhya Pradesh mentioned that water must be carefully managed during every part of the water cycle – from fresh water abstraction, pre-treatment, distribution of water by local



bodies, consumption by public, collection of waste water, post-treatment and return back to the environment. Dr Deepak Rastogy, Associate Professor, Civil Engineering Department, Madhav Institute of Technology and Science, Gwalior deliberated lecture and highlight the importance of conserving water and its value. Mr Rajender Singh Bhadoriya, Ex-Chief Engineer, Public Health Engineering Department, Gwalior Region, Government of Madhya Pradesh, lectured on the theme and mentioned that observance of World Water Day raises awareness of the global water crisis and the core focus of the observance is also to support the achievement of UN Sustainable Development Goals. Mr U S Pandey, Ex-Superintending Engineer, PHE; Mr R K Batra, Ex-Professor and HoD, Civil Engineering Department, IPS Institutions; Mr Rahul Khanvilkar, HRM, Diverselynx India Private Limited, Noida and Mr R K Khetan, Visiting Professor, Vikrant Institute of Technology and Management also delivered lecture on the theme. Earlier, Mr Prabhat Kumar Bhargava, Chairman, Gwalior Local Centre delivered the welcome address. Mr P Y Khanwilkar, Honorary Secretary, Gwalior Local Centre proposed vote of thanks.

### Jammu

Jammu Local Centre, IEI observed World Water Day on 22 March 2021 by organising a seminar on the theme. Mr G S Jha, Chairperson, J & K Water Resources Regulatory Authority, Government of Jammu and Kashmir graced the function as Chief Guest and Mr Manesh Bhat, Chief Engineer, Jal Shakti, PHE Department, Jammu, the Guest of Honour. At the outset, Dr (Prof) Sanjay Khar, Chairman, Jammu Local Centre delivered the welcome address. During the technical sessions, papers were presented by Mr P K Nanda, Mr B L Rawal, Mr Vinod Kumar, Mr Vijay Kumar Sharma, Mr Ranjeev Sawhney, Mr Sachin Tickoo and Mr Muneer Hussain. All the speakers advocated for conservation of water and requested stakeholders to value this precious resource which is going to be scarce, if not cared presently. Mr Chanchal Paul Sharma, Honorary Secretary, Jammu Local Centre conducted the proceedings of the seminar and proposed the vote of thanks.

### Jamshedpur

Jamshedpur Local Centre, IEI observed World Water Day on 24 March, 2021 and organised a webinar on the occasion. Speaker of the event, Mr Gaurav Anand, Chief Manager, Business Excellence, Tata Steel Utilities and Infrastructure Services Limited (TSUISL), in his address focussed on various problems and challenges associated with water conservation, that include sewage tapping into water bodies, proper solid waste management, open defecation, non-point source of pollution, rain water harvesting, identification of pollution load from other sources etc. Earlier, Mr Anurag Saxerna, Chairman, Jamshedpur Local Centre delivered welcome address. Mr Pravesh Kumar Dhawan, Honorary Secretary, Jamshedpur Local Centre proposed the vote of thanks.

### Kalaburagi

Kalaburagi Local Centre observed World Water Day on 24 March 2021 at Kalaburagi. Speaker during the function, Dr Shashikant R Mise, Professor and Coordinator of Environmental Engineering, Post Graduate Programme, Department of Civil Engineering, P D A College of Engineering, Kalaburagi deliberated lecture on the theme of the day. Mr Babu Sidramappa More, Chairman, Kalaburagi Local Centre delivered the welcome address. Dr Baburao Neelkantappa Sherikar, Honorary Secretary, Kalaburagi Local Centre proposed the vote of thanks.

### Kanpur

Kanpur Local Centre, IEI in association with Department of Civil Engineering, Harcourt Butler Technical University (HBTU), Kanpur, The Institution of Electronics & Telecommunication Engineers, Kanpur and IEEE, Uttar Pradesh Section observed World Water Day on 22 March 2021 at Kanpur. Theme speaker during the event, Dr Deepesh Singh, Assistant Professor, Department of Civil Engineering, H B T U Kanpur delivered lecture on the

topic 'Valuing Water : A Blue Gold for Future'. Prof Pradeep Kumar, Head, Department of Civil Engineering, HBTU, Kanpur and Prof Narendra Kohli, Chairman, The Institution of Electronics & Telecommunication Engineers, Kanpur also graced the event. Dr Rajat Kumar Khare, Honorary Secretary, Kanpur Local Centre proposed the vote of thanks.

### Kanyakumari

Kanyakumari Local Centre, IEI observed World Water Day on 22 March 2021 through online platform. Keynote speaker of the day, Mr Pravin G Ingole, Scientist, CSIR - NEIST, North East Institute of Science and Technology, Jorhat, Assam delivered lecture on the theme. Mr V Sivathanu Pillai, Chairman, Kanyakumari Local Centre, IEI welcomed all. Dr M Marsaline Beno, Vice Principal, St Xavier's Catholic College of Engineering, Nagercoil also addressed the audience. Mr V Muthum Perumal, Honorary Secretary, Kanyakumari Local Centre proposed the vote of thanks.

### Madurai

Madurai Local Centre, IEI observed World Water Day on 22 March 2021 at Madurai. Chief Guest of the function, Mr M Dhanbalan, Former Chief Engineer, Tamilnadu Water Supply and Drainage (TWAD) Board in his address explained different aspects of water valuation, water audit, integrated approach to meet the challenges of water security, water conservation etc. He further explained smart water management, monitoring and control of water consumption, water conservation through rain water harvesting, reducing water leakage and wastage etc. Earlier, Mr K Vijaya Kumar, Immediate Past Chairman, Madurai Local Centre extended warm welcome to the dignitaries and participants. Mr P Rajamani, Council Member and Chairman, ELDB, IEI, briefly introduced the theme.

### Meerut

Meerut Local Centre of the Institution observed World Water Day on 22 March 2021 at Meerut. On the occasion, Keynote Speaker, Mr S K Kumar, Chairman, Indian Water Resources Society, Meerut deliberated lecture on the theme of the day mentioning that water, the precious resource is nearing extinction and it is our duty to save it, revive it and flourish it for the coming generations and recommended a realistic water pricing policy framework. At the beginning, Mr Rajneesh Kumar, Chairman, Meerut Local Centre delivered the welcome address. Mr Mr Mohan Lal Jain, Honorary Secretary, Meerut Local Centre proposed the vote of thanks.

### Muzaffarpur

Muzaffarpur Local Centre, IEI observed World Water Day on 22 March 2021 through online mode. Chief Guest, Dr Amresh Kumar Rai, Department of Civil Engineering, Darbhanga College of Engineering, Department of Science and Technology, Government of Bihar deliberated lecture on the theme of the day and talked about the importance of water and its forecasted demand in future. Thereafter, Mr Anjani Kumar Srivastava, Retired Deputy General Manager, Hindustan Aeronautics Limited also presented lecture on the theme. The webinar was started with welcome address by Dr Anjani Kumar Mishra, Chairman, Muzaffarpur Local Centre, IEI. Mr Narendra Kumar Jha, Honorary Secretary, Muzaffarpur Local Centre proposed the vote of thanks.

### Nagpur

Nagpur Local Centre, IEI in association with Association of Consulting Civil Engineers, Nagpur Centre observed World Water Day on 24 March 2021 through online platform. Keynote speaker of the session, Dr Ramesh Daryapurkar, Chief Executive Officer, Lars Enviro Private Limited, Nagpur deliberated on the multidimensional values of water and its' comprehensive assessment. Mr Sumant Mundle, Chairman, Association of Consulting Civil Engineers (India) also emphasized on the importance of this precious commodity. Earlier, Prof (Dr) Rakesh L Shrivastava, Chairman, Nagpur Local Centre and Council Member, IEI, welcomed the guests and invitees.



Mr Mahendra Shaligram Kadu, Honorary Secretary, Nagpur Local Centre proposed vote of thanks.

### **Neyveli**

Neyveli Local Centre, IEI observed World Water Day by organizing a technical webinar on 22 March 2021. Speaker, Dr S Mohan, Institute Chair Professor, Environmental and Water Resources Engineering Division, Department of Civil Engineering, Indian Institute of Technology Madras delivered lecture on the theme. Earlier, Mr A Sekar, Honorary Secretary, Neyveli Local Centre welcomed the Chief Guest and participants of the webinar and at the end, proposed the vote of thanks.

### **North Bengal**

North Bengal Local Centre, IEI Observed World Water Day on 22 March 2021 at Jalpaiguri and organised a table discussion on the theme. During deliberation, Mr Suman Konar, mentioned that valuing water means recognizing and considering all the benefits provided by water in economic, social and ecological dimensions. Mr Asim Mahapatra, Mr Chinmoy Ghosh, Mr G K Panda, Mr P K Saha, Mr Nimai Mukherjee, Mr U K Mondal, Mr K Kabiraj, Mr G Bairagi also joined in the discussion. Mr G K Panda, Past Chairman of North Bengal Local Centre proposed the vote of thanks.

### **Palghat**

Palghat Local Centre, IEI observed World Water Day on 24 March 2021 by organizing webinar on the theme of the day. Speaker of the event, Dr Drissia T K, Senior Scientist & TPA, Co-ordinator for Subcentres, ED's Secretariat, Hydrology and Climatology Research Group, Centre for Water Resources Development and Management (CWRDM), Kozhikode in her address explained water scarcity assessment using statistical methods and hydrological modelling including the application of Soil Water Assessment Tool (SWAT). Earlier, Mr K Unni Krishnan, Chairman, Palghat Local Centre, IEI welcomed the Keynote speaker and participants. Mr A Ramesh, Honorary Secretary, Palghat Local Centre proposed the vote of thanks.

### **Roorkee**

Roorkee Local Centre observed World Water Day on 22 March 2021 at Roorkee. Dr Sanjay Kumar Jain, Scientist G, National Institute of Hydrology (NIH), Roorkee delivered lecture on Water Related Disasters in Himalayan Region. He also shared various modern techniques being employed by NIH water related study. Earlier, Prof (Dr) Achal Kumar Mittal, Chairman, Roorkee Local Centre welcomed the audience and discussed about the importance of the day. Dr Mohd Ashraf Iqbal, Honorary Secretary, Roorkee Local Centre proposed the vote of thanks.

### **Rourkela**

Rourkela Local Centre Observed World Water Day on 22 March 2021 in hybrid mode. Speaker, Dr (Ms) Sanat Nalini Sahoo, Department of Civil Engineering, National Institute of Technology Rourkela delivered lecture on the topic 'Remote Sensing and GIS Tools for Sustainable Water Resources Management'. Earlier, Dr Hara Mohan Jena, Honorary Secretary, Rourkela Local Centre, welcomed the members and guests and explained brief objective of the theme and at the end of the session, proposed the vote of thanks.

### **Saurashtra**

Saurashtra Local Centre of the Institution observed World Water Day on 22 March 2021 by organizing technical webinar on the theme of the day. On the occasion, Speaker, Mr Neelkanth Bhatt, Civil Engineering Department, Lukhdhirji Engineering College, Morbi delivered the lecture on the theme and explained about how water touches every aspect of our lives. At the beginning, Mr Ranchhod Kanjibhai Babaria, Honorary Secretary, Saurashtra Local Centre delivered the welcome address.

### **Sunabeda**

Sunabeda Local Centre, IEI observed World Water Day on 22 March 2021 through virtual platform. Chief Speaker during the event, Mr Laxmi Narayan Gouda, Chief Manager (Services), Hindustan Aeronautics Limited elaborated on various dimensional aspects of water. Mr Nirod Chandra Behera, Chairman, Sunabeda Local Centre inaugurated the meeting.

### **Tiruvallur**

Tiruvallur Local Centre, IEI observed World Water Day on 22 March 2021 through online platform. Chief Guest, Mr A Peter Ranjan, Author of 'Neer Uyirin Ver' & 'Principles of Water Treatment' delivered lecture on the theme and mentioned the importance of water advancement goals and explained the significance of pH levels for ground water improvisation. Earlier, Mr G Jeyarajan, Chairman, Tiruvallur Local Centre, IEI presented the welcome note. At the end, Dr L Ramesh, Honorary Secretary, Tiruvallur Local Centre proposed the vote of thanks.

### **Trichur**

Trichur Local Centre, IEI observed World Water Day on 22 March 2021 through virtual mode. Speaker, Dr K Jayachandran, General Manager, The Fertilisers And Chemicals Travancore (FACT) Limited, Kochi delivered lecture on the theme of the day. Earlier, Mr V G Sankaranarayanan, Chairman, Trichur Local Centre delivered welcome speech and highlighted the importance of the day. Mr Sasidharan Achari M N, Honorary Secretary, Trichur Local Centre proposed the vote of thanks.

### **Upper Assam**

Upper Assam Local Centre observed World Water Day on 22 March 2021 through online Platform. Mr Sasanka Pratim Deka, Chairman, Upper Assam Local Centre presented the welcome address. During technical sessions, papers were presented by Ms Mayuri Deka, Safety Officer, Assam Petrochemicals Limited, (APL) on the theme, Mr Rakesh Kalita, Deputy Manager(Excavation), NEC, Coal India Limited on 'Policies and Laws related to Water Conservation' and Mr Uddipan Kashyap, HSE Officer, DNPL on the topic 'Rainwater Harvesting'. Mr Debajeet Sarma, Honorary Secretary, Upper Assam Local Centre proposed the vote of thanks.

### **Visakhapatnam**

Visakhapatnam Local Centre of the Institution observed World Water Day on 22 March 2021 through online platform. Chief Guest, Mr D Tirumala Rao, Superintending Engineer, Vamsadhara Project delivered lecture on 'Sardar Gouthu Latchanna Thotappalli Barriage Project'. Prof (Dr) K Venkatasubbaiah, Vice President, IEI graced the function with his kind virtual presence. Earlier, Mr K Venkata Rama Mohana Rao, Honorary Secretary, Visakhapatnam Local Centre delivered the welcome address. Dr B Venkataramana, Chairman, Visakhapatnam Local Centre and Council Member, IEI briefed the audience about the theme.

### **Warangal**

Warangal Local Centre, IEI observed World Water Day on 22 March 2021 through virtual platform. Prof K V Jayakumar, Professor (HAG), Civil Engineering Department and Advisor, Special Programmes to the Director, National Institute of Technology Warangal was the Chief Guest of the day and delivered lecture on the theme. Prof Jaykumar opined that nature based solutions have the potentials to rebalance the water cycle and improve human health and livelihoods, which include new plantation, reconnecting rivers to floodplains, restoring wetlands etc. Earlier, Dr Chintham Venkaiah, Chairman, Warangal Local Centre, IEI welcomed the virtual audience. Dr S Srinath, Honorary Secretary, Warangal Local Centre proposed the vote of thanks.



# IEI Celebrates World Engineering Day for Sustainable Development 2021

*Theme*  
**Engineering for A Healthy  
Planet: Celebrating the  
UNESCO  
Engineering Report**

World Engineering Day for Sustainable Development was celebrated by the Centres of the Institution all over the country on March 04, 2021. Brief accounts of the celebration as received from various Centres are reported hereunder.

## STATE CENTRE

### Punjab & Chandigarh

Punjab & Chandigarh State Centre, IEI in association with Babbar Akali Memorial Khalsa College, Garhshankar, Punjab observed World Engineering Day for Sustainable Development on 4 March 2021 through online platform. Prof (Dr) T S Kamal, Council Member and Chairman, Electronics and Telecommunication Engineering Division Board, (ETDB), IEI was the Chief Guest and Dr Jagpal Singh Ubhi, Professor, Electronics and Communication Engineering Department, Sant Longowal Institute of Engineering and Technology, Sangrur was the Key Speaker of the event. Earlier, Mr Sukhvir Singh Mundi, Chairman, Punjab & Chandigarh State Centre and Council Member, IEI delivered the welcome address. Prof (Dr) Baljit Singh, Honorary Secretary, Punjab & Chandigarh State Centre proposed the vote of thanks.

## LOCAL CENTRES

### Belagavi

Belagavi Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March 2021 vide online platform. Dr Karisiddappa, Vice Chancellor, Visvesvaraya Technological University, Belagavi was the Chief Guest on the occasion and spoke on the theme. Earlier, Prof (Dr) Sidramappa Vaman Itti, Chairman, Belagavi Local Centre, IEI welcomed the participants. Mr Basavanneppa G Dharenni, Honorary Secretary, Belagavi Local Centre, IEI proposed the vote of thanks.

### Brahmapur

Brahmapur Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March 2021 at Brahmapur. Prof (Dr) Ranjan Kumar Swain, Principal, Parala Maharaja Government Engineering College, Government of Odisha graced the function as Chief Guest. Chief Speaker of the event, Mr Rabindra Kumar Sahu, Deputy Director, Water & Soil Conservation Mission, Government of Odisha deliberated on the objectives and methodologies of soil and water conservation. Mr K B Choudhury, Former Senior General Manager, Southco, Odisha emphasized on the use of solar power. Initially, Mr Arun Kumar Padhi, Chairman, Brahmapur Local Centre in his welcome address highlighted the adoption of advanced engineering methodologies for development of the society and uplifting the life style of common people. Mr Surendra Kumar Panigrahi, Honorary Secretary, Brahmapur Local Centre proposed the vote of thanks.

### Gwalior

Gwalior Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March 2021 at Gwalior by organising a Seminar. Dr Chhavi Shighal, Director (Technical), Global Education Consultant Services delivered lecture in this occasion and stated that engineers are required to collaborate solutions for sustainable development. Mr Balbir Sikarwar, Executive Engineer, Gwalior Municipal Corporation in his lecture stressed on municipal solid waste management to keep the cities clean, protect the environment and at the same time minimise the cost through recovery of energy and resources through Waste to Energy technologies, such as Anaerobic Digestion, Incineration,

Pyrolysis and Gasification. Mr R K Datey, Executive Director (Retd.), Madhya Pradesh Power Generation Company Limited, (MPPGCL), in his address opined that engineers should exercise harvesting clean energy through grid-tie systems and focus on finding solutions of worldwide food shortages. Mr Rahul Sharma, Manager, Engineering & Design, NHPC Limited in his lecture mentioned that technological advancement in mega structure construction not only accelerate the job progress, but also make the structure durable and serviceable for long run with strength and reliability. Mr Vinay Ojha, M/s Hing Rolling Shutter Fabricator deliberated on the status of steel market and mentioned that steel production growth is still positive in most of the regions. Mr Rahul Khanvilkar, HRM Diverselynx India Private Limited, Noida, Mr R K Khetan, Visiting Professor, Vikrant Institute of Technology and Management (VITM), Gwalior, also delivered lecture on this occasion. Earlier, Mr Prabhat Kumar Bhargava, Chairman, Gwalior Local Centre delivered the welcome address. Vote of thanks proposed by Mr P Y Khanvilkar, Honorary Secretary, Gwalior Local Centre.

### Jamshedpur

World Engineering Day for Sustainable Development was observed by Jamshedpur Local Centre, IEI on 4 March, 2021 through virtual mode. The function was started with welcome address by Mr Anurag Saxena, Chairman, Jamshedpur Local Centre. The Keynote Speaker for the function, Mr Asish Kumar Garg, Senior Manager, Instrumentation, Tata Steel Limited, Jamshedpur while deliberating on the theme, mentioned that in today's context, climate change is the most important topic and that the world is perilously close to the tipping point beyond which there is little hope of stopping the march to oblivion. The only way to prevent this catastrophe is to stop emission of carbon to net zero before further rise in temperature, he opined. The speaker further elaborated that moving to a circular economy is a formidable challenge in a highly competitive, market driven world as traditionally, designers and innovators do not consider environmental sustainability when marketing their products and services and the sad reality is that, environment sustenance considerations lead to increased business cost. The speaker recommended innovative engineering and technology solutions, which are crucial to effective delivery of environment sustainability. Sound Engineering solutions are essential to achieve UN Sustainable Development Goals, which include provision for clean water, clean air and nutritious food to the society, he added. The function concluded with a vote of thanks by Mr Pravesh Kumar Dhawan, Honorary Secretary, Jamshedpur Local Centre.

### Kancheipuram

Kanchipuram Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March 2021 through online platform. Keynote Speaker on the occasion, Mr M Manoharan, Ex-General Manager, Ashok Leyland deliberated lecture on the theme of the day. Mr D Arthur Jebastine Sunderraj, Department of Mechanical Engineering, St. Joseph's Institute of Technology, Chennai also discussed on the theme. Earlier, Prof (Dr) K Palanikumar, Chairman, Kancheipuram Local Centre and Council Member, IEI delivered the welcome address.



## Kota

Kota Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March 2021 at Kota. On the occasion, a technical lecture was organized on the theme of the day. Chief Guest during the session, Dr Vijay Sardana, Principal, Government Medical College, Kota and Chief Controller, Associated Group of Hospitals, Kota explained in detail, applications of bio-medical engineering including magnetic resonance imaging, cardiac implants, bionic eye, applications of tele-medicine and robotics in healthcare sector etc. Guest of Honour, Prof (Dr) Anil K Mathur, Dean, Faculty Affairs, Rajasthan Technical University, Kota opined for leveraging of technologies for a healthy planet, which require increased collaboration between those who create the tools and those who understand to face the challenges within the systems and act as the matchmakers between the technology partners, problem solvers and philanthropists, that leads to purposeful relationships to shape and implement innovative ideas for sustainable development. Speaker of the day, Prof (Dr) B P Suneja, Dean, Faculty of Engineering & Architecture, Rajasthan Technical University, Kota deliberated lecture on the topic 'New Education Policy vis-a-vis Healthy Planet'. Earlier, Mr Anand Bardava, Chairman, Kota Local Centre welcomed the distinguished guests, speakers, dignitaries and participants. Mr Jasmat Singh, Convener of the programme extended the vote of thanks.

## Sunabeda

Sunabeda Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March, 2021 via online mode. Chief Speaker of the event, Prof (Dr) M S Bobji, Department of Mechanical Engineering, Indian Institute of Science, Bangalore deliberated lecture on this occasion and explained sustainable development from different perspectives through facts and figures. Earlier, Mr Arabinda Swamy, Honorary Secretary, Sunabeda Local Centre welcomed the audience.

## Tiruvallur

Tiruvallur Local Centre, IEI observed World Engineering Day for Sustainable Development on 24 March 2021 at Tiruvallur. Mr P Muthuramalingam, Virogreen India Private Limited, Gummidipoondi, deliberated on new start

ups on e-waste management. Earlier, welcome address was delivered by Mr G Jeyarajan, Chairman, Tiruvallur Local Centre. Dr L Ramesh, Honorary Secretary, Tiruvallur Local Centre mentioned the importance of engineering advancements towards achieving UN Sustainable Development Goals.

## Upper Assam

Upper Assam Local Centre observed World Engineering Day for Sustainable Development on 4 March 2021 through virtual mode. Mr Sasanka Pratim Deka, Chairman, Upper Assam Local Centre delivered the welcome address. Five technical papers were presented during the technical session. Ms Mayuri Deka, Safety Officer, Assam Petrochemicals Limited (APL) presented paper on the theme of the day. Mr Uddipan Kayashap, HSE Officer, DNPL deliberated on the topic 'Innovation for Sustainability'; Mr Devanga G Borah, Manager, Production, APL, discussed on the topic 'Sea Water Desalinization'; Mr Rakesh Kalita, Deputy Manager, Excavation, NEC, Coal India Limited on 'Sustainable Agriculture' and Mr Rakesh Rajkhowa, Senior Engineer, Mechanical, DNPL on 'Human Development by Implementing ICT'. Mr Debajeet Sarma, Honorary Secretary, Upper Assam Local Centre proposed the vote of thanks.

## Varanasi

Varanasi Local Centre, IEI observed World Engineering Day for Sustainable Development on 4 March 2021 in association with the Department of Agricultural Engineering, Institute of Agricultural Sciences, Banaras Hindu University (BHU) through hybrid mode. Prof V K Chandola, Professor, Department of Agricultural Engineering, Institute of Agricultural Sciences, BHU deliberated lecture on the theme of the day. Prof A S Raghubanshi, Professor & Director, Institute of Environment & Sustainable Development, Banaras Hindu University deliberated lecture on the topic 'Engineering for Sustainable Future: Challenges and Opportunities'. Prof Vinod Kumar Mishra, Department of Genetics and Plant Breeding, Institute of Agricultural Sciences, BHU presented lecture on the topic 'Bio-Fortification : Engineering the Solution to Sustainable Livelihood'. Earlier, Prof (Dr) Siddh Nath Upadhyay, Chairman, Varanasi Local Centre, IEI presented the welcome address. At the end of the session, Mr Santosh Kumar, Honorary Secretary, Varanasi Local Centre proposed the vote of thanks.

## Announcement



## World Environment Day

5th June 2021

### Theme: Ecosystem Restoration

World Environment Day takes place every year on 5 June. It is the United Nations' flagship day for promoting worldwide awareness and action for the environment. Over the years, it has grown to be the largest global platform for environmental public outreach and is celebrated by millions of people across the world. This year's observance of World Environment Day will be on the theme of 'ecosystem restoration' and focus on resetting our relation with nature. It will also mark the formal launch of the UN Decade on Ecosystem Restoration 2021 – 2030.

2020 was a year of reckoning, facing multiple crises, including a global pandemic and the continued crises of climate, nature and pollution. In 2021, we must take deliberate steps to move from crisis to healing: and in so doing, we must recognize that the restoration of nature is imperative to the survival of our planet and the human race. The UN Decade on Ecosystem Restoration 2021 – 2030 is intended to massively scale up the restoration of degraded and destroyed ecosystems to fight the climate crisis, prevent the loss of a million species and enhance food security, water supply and livelihoods.

Reviving natural carbon sinks – such as forests and wetlands – could help close the climate emissions gap by 25% by 2030. Replanting with native

tree species can also help buffer some of the expected devastating effects of a warming planet, such as increased risk of forest fires. Currently, 3.2 billion people – 40% of the world's population – suffer from the continued degradation of ecosystems, for example by losing access to fertile soil or safe drinking water.

The United Nations General Assembly has declared the years 2021 through 2030 the UN Decade on Ecosystem Restoration. United Nations Environment Programme (UNEP) and the Food and Agriculture Organization (FAO) of the United Nations together with the support of other partners will lead the event to prevent, halt, and reverse the loss and degradation of ecosystems worldwide. It aims at reviving hundreds of millions of hectares, covering terrestrial as well as aquatic ecosystems. A global call to action, the UN Decade draws together political support, scientific research, and financial muscle to massively scale up restoration.

To achieve restoration at the required scale, incentives and financial investments must be made in changing the way lands and oceans are exploited, in research and education, and in inspiring a movement of people, businesses and governments through celebrating success stories.

# News-in-Brief

The following are the brief account of Technical Activities organised by various Centres and Fora of the Institution.

## STATE CENTRES

### Punjab & Chandigarh

Organized Technical Talk through online platform on the topic 'Effluent Water Treatment and Solid Waste Disposal Practices in Chandigarh' on 20 February, 2021. On the occasion, Mr Daljit Singh, Former Engineer-in-Chief and Technical Advisor, Water Supply & Sewerage Board, Punjab graced the function as Chief Guest. Key speaker during the function, Mr Shailender Singh, Chief Engineer, Municipal Corporation, Chandigarh deliberated on different aspects of construction and demolition waste management. Dr A S Balgir, IOFS (Retd), Additional General Manager (SAG), Indian Ordnance Factories, Department of Defence Production, Ministry of Defence, Government of India graced the occasion with his kind virtual presence.

Organized Technical Talk-cum-Webinar on 'Development Activities of Hydro Power Projects – Critical to Successful Implementation' on 27 March 2021. Mr R R Tanwar, Council Member and Chairman, Centre's Coordination Committee, IEL was the Chief Guest of the webinar and mentioned that hydropower and renewable sources of power are the best form of energy security. Key Speaker of the day, Mr N D Arora, Vice-President (Hydro), CESC Limited shared his experiences related to Hydro Power Projects and mentioned that to meet the country's energy demand at a faster pace and make up for the lost time, development of mega hydropower projects is an essential requirement.

Organized Technical Talk-cum-Webinar on 'Underground Drainage System of Chandigarh and its Maintenance' on 30 March 2021. On the occasion, Dr A S Balgir, IOFS (Retd), Additional General Manager (SAG), Indian Ordnance Factories, Department of Defence Production, Ministry of Defence, Government of India was the Chief Guest. Mr Vijay Premi, Executive Engineer, Public Health, Municipal Corporation Chandigarh was the Key Speaker on the theme.

Organized Technical Talk-cum-Webinar on 'Management of Safety in Drivages of Tunnel related with Electrical Installation' on 31 March, 2021. Chief Guest during the function, Mr Jotinder Singh, Former Engineer-in-Chief, Punjab State Electricity Board emphasized on safety considerations in all stages of tunnel construction and operation. The Key speaker of the event, Mr R R Tanwar, Council Member and Chairman, Centres Coordination Committee, IEL explained the regulatory requirements associated with the control of electricity in underground mines and tunnels.

Organized Technical Talk-cum-Webinar on 'Execution & Commissioning of 720 MW Mangdechhu Hydro Power Plant in Bhutan' on 24 March 2021. Chief Guest, Mr R R Tanwar, Council Member and Chairman, Centre's Coordination Committee, IEL in his deliberation mentioned that Mangdechhu is one of the ten hydroelectric projects being developed by Royal Government of Bhutan to generate 10 GW hydropower with support from Government of India. Key speaker, Mr A K Mishra, Managing Director, Mangdechhu Hydroelectric Project Authority, Bhutan shared his experience related to this project. Prof (Dr) T S Kamal, Council Member and Chairman, Electronics and Telecommunication Engineering Division Board, IEL graced the function as Special Guest.

### Kerala

Organized webinar on the topic 'Start-up – Do's and Don'ts' on 10 February 2021. Speaker, Dr Krishna Kumar, Founder & CEO, TravelSpoc, Resfeber Infosolutions Private Limited, deliberated lecture on the topic and discussed about characteristics of start ups, different issues regarding growth, innovations etc.

## LOCAL CENTRES

### Belagavi

Organized Lecture Meeting via online platform on the topic 'Basics of Remote Sensing & GIS' on 23 February, 2021. Speaker on the occasion, Dr V M Devappa, Professor, Department of Civil Engineering, SG Balekundri Institute of Technology (SGBIT), Belagavi deliberated lecture on the topic.

Organized Lecture Meeting via online platform on the topic 'Solid Waste Management in Current Situation' on 30 January, 2021. Speaker, Mr Rahul Bannur, Department of Civil Engineering, SGBIT, Belagavi deliberated lecture on the topic.

### Coimbatore

In association with Department of Textile Technology, Kumaraguru College of Technology Coimbatore organised webinar on 22 January 2021. Chief Guest, Dr V R Giri Dev, Professor and Head, Department of Textile Technology, Anna University, Chennai delivered lecture on the topic 'Salt Free Reactive Dyeing'.

In association with Department of Textile Technology, PSG College of Technology, Coimbatore organized webinar on 18 February 2021. Chief Guest, Mr V Vasudevan, Executive Director, Manufacturing Operations, Himatsingka Seide Limited, Bangalore deliberated lecture on the topic 'Production Management in Textile Chemical Processing'.

Organized webinar in association with Department of Electronics and Communication Engineering, Kumaraguru College of Technology, Coimbatore on 20 February 2021. Chief Guest, Mr P Chinnadurai, Project Associate, Jasmin Infotech Private Limited., Chennai deliberated lecture on the topic 'Recent Trends on Consumer Technology and Audio'.

Organized online webinar in association with Department of Civil Engineering, KPR Institute of Engineering and Technology, Coimbatore on 24 February 2021. Chief Guest, Dr E S M Suresh, Professor and Head, Civil and Environmental Engineering Department, National Institute of Technical Teachers Training and Research (NITTTR), Chennai delivered lecture on the topic 'GIS Application in Solid Waste Management'.

Organized online webinar in association with Department of Textile Technology, Kumaraguru College of Technology, Coimbatore on 26 February 2021. Chief Guest, Mr D Jayaraman, Assistant Director and Head of the Department – Spinning, The South India Textile Research Association, Coimbatore delivered lecture on the topic 'Technical Textiles – Prospects in India in Medical Textiles'.

### Kanpur

Jointly with Uttar Pradesh Textile Technology Institute Kanpur, The Institution of Electronics and Telecommunication Engineers, Kanpur Centre and IEEE, Uttar Pradesh Section organized Lecture Meeting on the topic 'Quality Management – Zero Defect & Quality Circles' on 25 February, 2021. Guest Speaker on the occasion, Mr N B Singh, Ex-General Manager, British India Corporation Limited, Kanpur deliberated on the concept of Zero Defect since

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# Engineering Staff College of India

Autonomous Organ of The Institution of Engineers (India)  
(An ISO 9001: 2015 Certified Institution)  
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## CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMMES (CPDPs) FOR THE MONTH OF JUNE 2021

Name of the Course	Scheduled Dates
● Convergence for Synergy: One day workshop on SDG Goal 13 – Climate Action	03rd Jun, 21
● Big Data Analytics using Hadoop & PySpark	07 - 11 Jun 21
● Information Security Management System (ISMS - ISO 27001) Implementation	07 - 11 Jun 21
● Welding Technologies and NDT Techniques (Theory & Practical Orientation)	07 - 11 Jun 21
● Maintenance of Transmission lines (To include topics like thermal imaging, hotline maintenance- Bare hand techniques, use of helicopters and robots etc.)	07 - 11 Jun 21
● Uncertainty Measurement	07 - 08 Jun 21
● Flood Computation and Flood Disaster Management	07 - 11 Jun 21
● Application of GIS, GPS & RS in Environmental Data Management	08 – 10 Jun, 21
● BOSS Linux Administration	14 - 18 Jun 21
● Leadership and Team building Skills for Organization Development	14 - 17 Jun 21
● Quality Assurance & Quality Control in Civil Engineering Construction Projects	15 - 17 Jun, 21
● Heat Exchangers Design and Performance Evaluation in Power Plants & Process Industry	15 - 18 Jun, 21
● Performance Evaluation of Sewage Treatment Plants – Practical Aspects and Field Visits	16 - 18 Jun, 21
● Web Development using Angular 8	21 - 25 Jun 21
● Conflict Management, Decision Making and Problem Solving Skills	21 - 24 Jun 21
● ISO 9001:2015 QMS - Lead Auditor Training (CQI - IRCA - UK Certified)	21 - 25 Jun 21
● Planning, Design and Implementation of Water Supply Network and Distribution using GIS	21 - 25 Jun 21
● Hands-on Training – Design, Construction, O&M and Estimation of Sewerage Network System & STP	22 – 25 Jun 21
● Distribution Network Planning and Analysis employers GIS Application	22 - 24 Jun 21
● Concepts of ITS in Transportation and Taxonomy of ITS	23 - 25 Jun 21
● Advanced Excel Report Generation & Analytics	28 Jun-02 Jul 21
● Operation, Maintenance and Performance Monitoring of Centrifugal Pumps and Compressors (With Practical Pumps and Compressors)	28 Jun - 01 Jul 21
● Cost reduction by Energy Auditing, Management & Design of Solar Energy Systems	28 Jun - 02 Jul 21

### For detail information please contact:

Engineering Staff College of India  
Old Bombay Road, Gachibowli, Hyderabad – 500 032  
Landline: 040-66304128 & Mobile: +91 7382137177; Email : [mis@escihyd.org](mailto:mis@escihyd.org) URL : [www.escihyd.org](http://www.escihyd.org)



## IEI - Springer Journal



ISSN Print: 2250-2149  
ISSN Online: 2250-2157

SCOPUS Indexed



ISSN Print: 2250-0545  
ISSN Online: 2250-0553

SCOPUS Indexed



ISSN Print: 2250-2106  
ISSN Online: 2250-2114

SCOPUS Indexed



ISSN Print: 2250-2483  
ISSN Online: 2250-2491

SCOPUS Indexed



ISSN Print: 2250-2122  
ISSN Online: 2250-2130

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# News-in-Brief

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inception, Quality Circle and its effect on Quality Management Systems etc. Prof Mukesh Kumar Singh, Director, Uttar Pradesh Textile Technology Institute, Kanpur and Prof Narendra Kohli, Chairman, The Institution of Electronics and Telecommunication Engineers, Kanpur Centre also graced the function.

## Muzaffarpur

Organised webinar on 28 February, 2021 on the topic 'Microsoft Machine Learning Tools'. Chief Speaker, Prof Nikhil Kumar, Computer Science and Engineering Department, Government Polytechnic, Muzaffarpur, Department of Science and Technology, Government of Bihar presented lecture on the topic and deliberated on diversified applications of Machine Learning tools.

## Neyveli

Organized Lecture Meeting on 11 January 2021 through online platform. Speaker, Dr Harish Ramani, Chief Executive & Technology Officer, Tevel Cyber Corps Private Limited deliberated lecture on the topic 'Cyber Security on Personal Gadgets' and highlighted different aspects of cyber etiquette and discipline.

## Palghat

Organised webinar on the topic 'IIoT – A Powerful Combination for the Future' on 21 February, 2021. Speaker during the session, Dr Leena N, Assistant Professor, Department of Electrical and Electronics Engineering, NSS College of Engineering, Palakkad, explained the significance of the powerful blend of two most dynamic technologies, Artificial Intelligence (AI) and Internet of Things (IoT), two discrete innovations that significantly impact different industry verticals.

Organised webinar on the topic '9 Mantras to Save One Unit per Day for Domestic Consumers' on 17 February 2021. Speaker during the function, Dr G Muruganath, Professor & HoD, Department of Electrical and Electronics Engineering, Ahalia School of Engineering and Technology, Ahalia Health, Heritage & Knowledge Village, Palakkad emphasized to follow nine mantras to save one unit electricity per day for the domestic consumers., that include; Switching off the equipment after use; Regular cleaning of AC filter and use of natural lighting; Using star rated equipment; Using LED study lamp; Regular defrosting of the refrigerator; Usage of heavy equipment in off-peak hours; Avoid leaving the equipment in standby mode; Optimal water usage and temperature setting and; Replace the maximum utilized light with a solar LED.

## Ranipet

Organised an industrial visit at Vellore Co-operative Sugar Mill, Vellore on 26 February 2021 headed by Mr M Salai Manalan, Honorary Secretary, Ranipet Local Centre. The industrial visit provides deep insight about different stages of sugar production.

## Saurashtra

Organized Webinar in association with Darshan Institute of Engineering & Technology, Rajkot on 31 March 2021 on the theme 'What Skills are Needed for becoming a good Electrical Engineer?' Speaker, Mr Bhavin D Kanani, Assistant Professor, Electrical Engineering Department, Darshan Institute of Engineering & Technology, Rajkot deliberated lecture on the topic.

## Tiruchirappalli

Jointly with Computer Society of India, Tiruchirappalli Chapter, Indian Institute of Welding, Tiruchirappalli Branch, Indian Institute of Metals, Tiruchirappalli Chapter and Indian Welding Society, Southern Zone organized a technical lecture on 2 March 2021 through virtual mode. Speaker, Dr G Jagajothi, Professor and Dean Research, Department of Electronics and Communication Engineering, Mount Zion College of Engineering and Technology, Pudukkottai delivered lecture on the topic 'Introduction to Internet of Things and Smart Sensors'. As part of the presentation, the speaker highlighted that the Internet of Things plays the pivotal role of an expert's technical tool by empowering physical resources into smart entities through existing network infrastructures and its prime idea is to provide smart and seamless services at the user end without any interruption.

Organized Lecture Meeting on 30 March 2021 through virtual mode. Speaker, Dr S Ramabalan, Principal, E G S Pillay Engineering College, Nagapattinam delivered lecture on the topic 'An Insight about Nanobots and Microbots' and deliberated on the applications of Nanorobotics, Biological Nanobots, Nanomachines, Micro and Millirobots etc.

## Tirunelveli

Organized technical seminar on the topic 'Super Capacitors – Recent Trends and Application' on 4 March 2021 through online platform. Speaker, Dr P S Suja Pon Mini, Francis Xavier Engineering College, Vannarapettai delivered lecture on the topic.

Organized technical seminar on 5 March 2021 on the topic 'Deprogramming and Reprogramming for Success'. Speaker, Mr S Srinivasanragavan, Vice President, Virtual Infrastructure Managed Services, Chennai deliberated lecture on the topic.

## Tiruvallur

Organised Technical Lecture on the topic 'Quality Management in Thermal Power Plant Execution' on 9 February, 2021 through online mode. Chief Guest and Speaker of the event, Mr R Magesh Kumar, Manager, BHEL, Power Sector Southern Region deliberated lecture on the topic and explained about various aspects of execution, quality planning, control, opportunities for technological improvement in thermal power plant etc.

Organised technical lecture on the topic 'Emerging Trends in Rolling Stock (Coaches) in Indian Railways' on 9 March 2021 through virtual mode. Chief Guest & Speaker of the day, Mr Veerasami Venkatesan, Senior Section Engineer, Carriage & Wagon, Principal Chief Mechanical Engineer Office, Southern Railways deliberated lecture on the topic and explained about the emerging trends in rolling stocks, execution of carriage & wagon interiors in various aspects, quality planning, control and technological improvement.

# I.E.I NEWS

ISSN 0971-3352

Owner : The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700 020  
Printer : Dr H R P Yadav, Secretary & Director General  
Publisher : Dr H R P Yadav, Secretary & Director General  
Published from : 8 Gokhale Road, Kolkata 700 020  
Printed from : M/s Florence Offset Process Pvt. Ltd.  
6A S N Banerjee Road, Kolkata 700013  
Editor : Dr H R P Yadav, Secretary & Director General

**President : Er Narendra Singh**

**Editor : Dr H R P Yadav**

**Associate Editor: Mr Kingshuk Sen**

*Special Contributors:* Dr N Sengupta,  
Mr S Chakraverty, Mr T Chakraborty, Ms A Dutta,  
Mr P Chakraborty, Ms H Roy, Mr S Bagchi

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Telephones: 91-33-2223 8311/14/15/16; Web: <http://www.ieindia.org>; E-mail: [iei.technical@gmail.com](mailto:iei.technical@gmail.com)