



IEI NEWS

November 2020

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A CENTURY OF SERVICE TO THE NATION

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IEI Technical Webinar

Advancement in Tunnel Technology

The Civil Engineering Division Board of The Institution of Engineers (India) organized an engaging and informative Technical Webinar on the theme, **Advancement in Tunnel Technology** on 6 October 2020. The webinar offered opportunity for close to 600 participants to engage and learn from leading tunneling experts and gain expert level insight from the renowned Panelists namely, Mr Milon Mukhopadhyay, Ex Managing Director, Normet India Private Limited and Dr Nishant Shrivastava, Vice President (Structures & Tunnels), M/s Consulting Engineering Group Limited.



Mr Milon Mukhopadhyay

The panel was moderated by Mr D C Mitra, Chief Executive, Rail & Power Infrastructure, Texmaco Rail & Engineering Limited.



Dr Nishant Shrivastava

Mr Milon Mukhopadhyay initiated the discussion providing a detailed insight on major technological developments in tunneling and sub surface construction since 1970, covering advancements in Geo Physical survey for geological mapping of the strata ahead of the face inside tunnel, rock anchoring systems with emphasis on various

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IEI Technical Webinar

Medical Textiles for fighting with Covid-19

West Bengal State Centre of the Institution organized IEI Technical Webinar on the topic, **Medical Textiles for Fighting with Covid-19** under the aegis of Textile Engineering Division Board of IEI on October 10, 2020. Eminent Panelists, namely,



Mr Siddhartha Chakrabarti

Mr Siddhartha Chakrabarti, Managing Director, Pyro Tex Industries, GmbH, Germany; Dr Anasuya Roy, Founder & CEO, Nanosafe Solutions, a healthcare technological start-up incubated at IIT Delhi, Prof Sourabh Ghosh,



Dr Anasuya Roy

Institute Chair Professor, Department of Textile & Fibre Engineering, IIT Delhi, enlightened the audience with their views and expertise. The session was moderated by Prof Sadhan Chandra Ray, Former Professor & Head, Department of Jute & Fibre Technology, University of Calcutta, Kolkata and Chairman, Textile Engineering Divisional Sub-Committee, West Bengal State Centre of the Institution. Mr Siddhartha Chakrabarti while delivering his lucid presentation on

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From the President's Desk.....

As housing demand in India is continuously growing, different government schemes are being implemented to cater to the need of mass housing for the poor and lower income group people. Use of appropriate Cost-effective Eco-friendly Construction Technologies (CECT) in housing sector in India has the potential to be the most appropriate in terms of economy and acceptability. The reduced cost of building, enhancement of comfort level and non-compromise on safety may establish appropriateness of CECT, which will also act as a market force and demand for such technologies is expected to grow-up. Construction technologies need to be environment-friendly as well.



The trend of conversion from temporary to permanent or semi-permanent structures is likely to continue in view of economic upliftment of common people and different government schemes on providing durable shelters to people of economically weaker section. It is expected that a large number of buildings with durable and easily available conventional materials like brick, sand, cement, steel reinforcement; etc. will be constructed in near future and demand of such building materials will shoot up.

Construction costs in India are increasing at around 50 percent over the average inflation levels, only in respect of the standard types of housing. Higher cost levels are registered for using better finishes and amenities. Construction cost of this order is beyond the affordability of the economically weak and low-income groups of population as well as a large section of the middle-income groups. Therefore, there is a need to adopt cost-effective construction methods either by upgradation of traditional technologies using local resources or applying modern construction materials and techniques with efficient inputs leading to economic solutions. This has become the most relevant aspect in the context of the large volume of housing to be constructed in both rural and urban areas and the consideration of limitations in the availability of resources such as building materials and finance.

National Building Code 2016 (NBC 2016) needs to be followed during construction of buildings. Various research and development bodies in the country are putting their efforts to develop environment-friendly building materials. Now-a-days green buildings are in great demand. Recently IEI has organised two well-attended webinars on this subject, where experts deliberated on materials like Compressed Stabilised Earth Block, Ferro-cement Concrete, Bamboo, Hollow Concrete Blocks, Ferrocement roofing elements; etc as alternate cost-effective and eco-friendly building materials and rat-trap bond masonry wall, RCC filler slab, bamboo-mat based wall system called 'Ekra' walling

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Medical Textiles for fighting with Covid-19

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the topic, explained in brief different aspects of medical textiles including global market share. Mr Chakrabarti explained about the antibacterial application of various protecting devices during Covid-19 situation, which are of market demand. Mr Chakrabarti mainly focused on the role of Pyro-Tex Industries in preventing Covid-19 virus at large scale and highlighted the features and applications of newly developed anti-bacterial and anti-virus Pyro-Tex Medic fibre, which can kill the corona and other viruses while coming in contact. He also briefly elaborated about the application of the fibre in various areas like, high



Prof Sourabh Ghosh

thermal resistance, flame resistant, hydrolysis, anti-piling etc. Dr Anasuya Roy deliberated on the topic, 'Universal Masking to Combat Covid-19: A Textile Engineering Perspective'. She briefly introduced the impact of SARS-CoV2 (Covid-19) virus on human beings and highlighted various techniques and mechanisms for optimizing the protection from corona virus. During the lecture, Dr Roy covered the need of various types of cloths and the number of layers used in manufacturing face masks including their merits and demerits. She emphasized on the repeated use of mask after washing in regular interval keeping in view



Prof Sadhan Chandra Ray

of two aspects namely, cost involvement and waste management. Dr Roy also mentioned in details on the manufacturing, testing and application of NSafe antiviral and reusable Mask as developed by herself, which has become popular not only in India but also abroad. She also focused on NSafe mask that can be washed for 50 times which is much higher than other branded masks. Further, Dr Roy briefly elaborated the antiviral treated products like rub-safe and water containers for daily usages during corona pandemic. Prof Sourabh Ghosh discussed the topic, 'To Mask or not to Mask? What are the Scientific Evidences?'. During his discussion, Prof Ghosh highlighted various possibilities on asymptomatic characteristics of infected individuals. He also focused on how respiratory droplets are affecting the human body. He enlightened the utilities of N95 masks as better surgical equipment to reduce the risk of transmission. Prof Ghosh showed with suitable diagrams how the existing textile materials can suitably be converted into medical textiles. Earlier, Prof Sadhan Chandra Ray, Moderator of the session welcomed the participants and Panelists on behalf of the Chairman, West Bengal State Centre, IEI and introduced the theme of the webinar. After the presentations, an interactive session was held, when questions were asked by the participants from different zones on various issues related to medical textiles. Fruitful deliberations were obtained based on the clarifications raised by the participants. Participants expressed their interest to participate similar type of event in future to be organized by the Institution. Mr Kali Pada Das, Honorary Secretary, West Bengal State Centre proposed the vote of thanks.

Advancement in Tunnel Technology

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rock bolts and anchoring system, WET Shotcrete technology involving eco friendly accelerator and modern spraying equipments and Geo-technical problem solving and water ingress control through state-of-the art injection technology. He mentioned that the need for tunneling and sub-terrain constructions arises from human quest of exploring the sub-surface space especially for developing efficient transport infrastructure. Mr



Mr D C Mitra

Mukhopadhyay mentioned that with the increase in urbanization, the need to utilize underground space for building railway and road tunnel, market, car-parking facilities, large cavern for storage materials, defense facilities and irrigation structures has become imperative. He added that tunneling poses variety of challenges for the engineers in the form of construction under different soil, geological conditions and difficult terrains. He mentioned that the problems encountered include like sudden water ingress during excavation, unpredicted geological impediments and many others can be mitigated through use of advanced technologies that assist in safe, speedy and cost optimized construction of underground structures. He went on to mention the extensive list of work associated with the tunneling process which needs to be carried out at the same location making it time intensive. Mr Mukhopadhyay dwelt on the provisions and scopes under EFNARC providing specifications and guidelines for the use of specialist products for Mechanized Tunneling (TBM) in soft ground and hard rock, European Specification for sprayed concrete and guidelines for specifiers and contractors and also Austrian Guideline for sprayed concrete application and testing while speaking on NATM (New Austrian Tunneling Method). While speaking on the breakthrough technological development

in geophysical survey he spoke on the usage of portable survey instrument for fault tracking in the strata ahead of the excavation face using TSP technology. He dealt at length with designing and fabrication essentials mentioning functions of rock bolting like anchoring to overburden mass, determining design specification for rock reinforcement as per rock class using the Barton Chart and estimation of Rock Mass Quality, rock bolt types-



ductile, energy-absorbing and temporary, evolution of shotcrete and sprayed concrete, extensive robotic application with the objective of optimization of cost and operational cycle time. Mr Mukhopadhyay further emphasized on the need to adopt safe, reliable, durable and productive underground construction approaches involving technical support from experts, reliable equipments and performing product solutions which are eco-friendly and meet tender specifications. He mentioned about the growing preference for sprayed concrete and the critical parameter involved in its usage, alkali-free accelerators like Ettringite which are eco and structure friendly, comes with lower strength difference with base mix, responsible for less dust rebound, exhibits improved sulphate resistance while using standard OPC

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Ocean Energy – Applications and Way Forward

The Institution of Engineers (India) organized IEI Technical Webinar on the theme **Ocean Energy: Applications and Way Forward** on 16 October, 2020 under the aegis of Marine Engineering Division Board, IEI. Mr Joseph



**Mr Prasad Vinayak
Dudhgaonkar**

M Panickar, Int PE (India), Pace Architecture, Engineering and Planning, the Moderator during the Webinar session, welcomed the Panelists and the participants present during the occasion. Number of professionals in India and abroad attended the Webinar to listen three eminent panelists, namely, Mr Prasad Vinayak Dudhgaonkar, Scientist E, Energy and Fresh Water Group, National Institute of Ocean Technology, Chennai, Ministry of Earth Sciences, Government of India, Dr Subramaniam

Neelamani, Senior Research Scientist, Coastal Management Program, Environment and Life Sciences Research Center, Kuwait Institute for Scientific Research, Kuwait and Dr R Venkatesan, Scientist G & Head, Ocean Observation Systems, National Institute of Ocean Technology, Chennai, Ministry of Earth Sciences, Government of India. Mr Dudhgaonkar, during his deliberation on Ocean Renewable Energy Development, explained different forms of ocean energy including wave energy, hydrokinetic energy, ocean thermal energy etc and stressed on harnessing ocean resources in coastal areas and islands to enhance self reliance by means of generation and application of ocean energy. Mr Dudhgaonkar elaborated that temperature differences in between ocean surface and deep sea results generation of thermodynamic power cycle, that leads to ocean and thermal energy conversion. In his lecture, he further explained the fixed oscillating water column principle for wave energy generation, different wave energy floating devices, functional aspects of wave powered navigational buoy, breakwater based wave energy plants, axial and cross flow hydraulic turbines, turbines with floating platforms etc. He explained salient features of ocean thermal energy conversion (OTEC), power cycle for ocean thermal gradient, open and closed cycle OTEC, turbine configurations of ocean energy and so on. Dr Subramaniam Neelamani deliberated on the significance and potential of wave energy from atmospheric and economic point of view. The speaker elucidated physical



**Dr Subramaniam
Neelamani**

potential of ocean renewable energy and focused on different modes of renewable power generation, improvement in the system efficiency and economic aspects for further commercialization of ocean power. Dr



Dr R Venkatesan

Neelamani discussed in detail the estimation of ocean energy potentials in terms of OTEC, sailing gradients, marine bioconversion offshore winds, wave and tidal energy etc. The speaker shown the comparative analysis of resource potential, technical potential, economic potential and market potential for ocean energy generation, global distribution of ocean power technologies, benefits of OTEC, significance of global wave energy density, different principles of wave energy conversion, which include point absorber, overtopping breakwater reservoirs, attenuator, oscillating water columns and inverted pendulum method. The speaker concluded with focus on renewable and pollution free ocean energy generation with immense opportunity for further innovation, cost reduction and efficiency improvement.

Dr R Venkatesan, in his address discussed different aspects of tidal energy including applications of tidal energy turbine, development of offshore wind turbine for deep water and so on. Dr Venkatesan explained the objective of National Offshore Wind Energy Policy, which include promoting research and development in the offshore wind energy sector and investment in energy infrastructure. He explained the significant features of offshore oil and gas exploration, offshore mariculture, coastal aquaculture and different energy generation mechanisms from the sea waves. The speaker explained further ocean state forecast, storm surge warning, coastal geospatial applications, installation of onshore and offshore wind data collection platforms, design of sub structure for offshore wind turbines, applications of low temperature thermal desalination, different aspects of biomimetics etc. The erudite speaker concluded with major stress on development of ocean energy from concept to commercialization and establishment of an equitable environmental mitigation measures. A brief question-answer session was also held after deliberation, where the Panelists clarified the queries raised by the participants. Dr Nilanjan Sengupta, Director(Technical), IEI proposed the vote of thanks.



Mr Joseph M Panickar

Advancement in Tunnel Technology

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and most importantly responsible for rapid setting. This was followed by a short insight on procedure followed for in-situ strength checking on Wet Shotcrete Test Panels as per EFNARC & EN on test moulds prepared as per EN 14488-1. State-of-the art technologies in tunneling like usage of 'sprayed concrete linings', use of foam were also touched upon, analyzing substrate for selection of proper grouting materials and methodology, usage of hydrophobic and hydrophilic chemical grouts like PU, Acrylate, Colloidal Silica Gel etc. He finally concluded with some supportive case studies of some ongoing as well as completed tunneling projects.

Dr Nishant Shrivastava, who followed Mr Mukhopadhyay, in his presentation, provided supplementary inputs in the areas of tunnel planning, tunnel geology, construction technology adopted, ground improvement techniques and tunnel lining design, design and construction and funding of projects. While speaking on the configuration of TBM, he spoke on the various components like cutterhead, tunnel shield, concrete panel,



NATM



TBM



conveyor belt and trailing gear and their functions. He spoke at length on the Ground Improvement Techniques in vogue comprising of reinforcing elements like rock bolts, Swellex bolts or rock anchors which are provided

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Building with Arches, Vaults and Domes for a Sustainable Future

The Institution of Engineers (India), under the aegis of the Civil Engineering Division Board, organized IEI Technical Webinar on the topic, **Building with Arches, Vaults and Domes for a Sustainable Future** on 20 October 2020. The Webinar was aimed at reviving interest amongst enthusiasts about the architecture of arches, vaults and domes (AVD) that have served as influential and pervasive symbols marking the architectural evolution.



Ar Satprem Maini

The panel comprised of renowned personalities in the form of Ar Satprem Maini, Architect/Director, Auroville Earth Institute, UNESCO Chair Earthen Architecture and Dr Mahesh Varma, who is the Director of Nandadeep Designers and Valuers Private Limited & Hone Structural Health Monitoring (India) Private Limited. The curation of the entire proceeding was done in an extremely professional manner by Mr Inderdeep Singh

Oberoi, Director, A D Global Synergies Private Limited, who moderated the event. The Webinar evoked tremendous response and was attended by around 380 people.

Ar. Satprem Maini, explained the resistance and resilience of Arches, Vaults and Domes (AVD) vis-a-vis earthquakes, with a case study on AVD in Arg-e Bam in Iran. He cited and illustrated major AVDs built by the Auroville Earth Institute with compressed stabilized earth blocks and its free spanning technique. His presentation included a brief overview of the terms and terminologies associated with AVD structures, stability notions, stability calculations, resilience of such structures to seismic disturbances and construction techniques adopted by Auroville Earth Institute (AEI). He presented an elaborate case study of the largest dome in the World-Global Vipassana Pagoda, located at Mumbai with the main dome spanning over a length of 85.15 m with a rise of 26.27 m constructed over a period of eight years (2000-2008) and inaugurated in 2009 by Honorable Former President of India, Smt Patibha Devisingh Patil. He spoke on the construction methodology adopted in the construction of the pagoda which comprises of shaping the interlocking stones, laying the interlocking stones with lime mortar, building the main dome and filling the haunch and finally building the main dome and the auxiliary dome. Speaking on stability issues and the forces in play in an AVD, Ar. Maini mentioned that to ensure stability of arches, the following principles must be adhered to: the Line of Thrust (LT) must remain in the middle third of the arch section and pier, LT must always follow the shape of an inverted catenary curve irrespective of the shape and size of the arches. While explaining the influence of the Arch/Vault thickness on stability, he stated that the minimum thickness of the arch, in order to allow LT to remain in the middle third, must be $t \geq S/5$ and $t \geq S/6$ for Semicircular Arch



Dr Mahesh Varma

and Egyptian Arch respectively where t is the thickness and S the span. According to Ar. Satprem Maini, the influence of the mortar on stability is pronounced as it helps to hold the structure together. This is an additional safety exercise carried out to render more stability to arches over and above the stability values obtained through funicular method. He discussed the 'Catenary Method', developed by Gaudi, which establishes a correlation between the compressive stress in an arch and the tensile stress in a chain to determine the ideal shape of an arch or a vault. In this connection, he also mentioned that the masonry with vertical loads to be built on the haunches

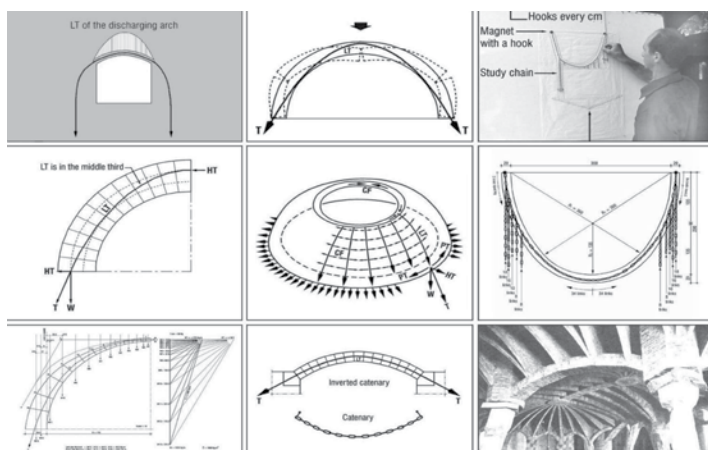


Mr Inderdeep Singh Oberoi

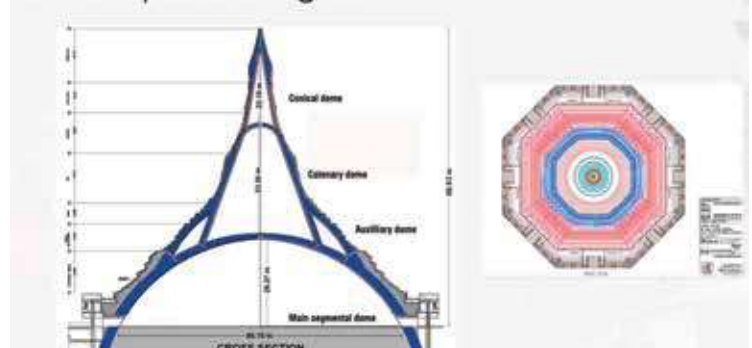
is most of the time not harmonious and hence it is better to materialise the loads with varying thicknesses from the bottom to top involving optimization technique. He thereafter discussed 'Funicular Method' used to calculate the intensity of the forces acting in an arch which defines the progressive change of the line of thrust in the arch rendered stable using optimization. While speaking on the evaluation of stability in Domes, Ar. Maini

mentioned that Square domes which are generated by the intersection of two vaults (i. e. groined and cloister domes), have forces identical to those of vaults and hence the stability analysis also resembles that of vaults, while, a circular dome created by the rotation of an arch around a vertical axis, creates circular forces, which cannot be calculated yet and requires a different approach for stability analysis. If arches or vaults are stable, domes of the same section will necessarily be stable but the opposite is not true. Ar. Maini, thereafter, went on to explain at length the issues like, neutralization of the thrust, acoustics of vaulted structures characterized by echo and reverberation, arch, vault & dome behaviour under seismic activity and their ability to withstand such calamities vis-à-vis a RCC structure. Finally, he spoke about the various techniques adopted at AEI to build ADV structures using CSEB like Egyptian Shaped Vault with the Nubian Technique and the use of 'Free Spanning Technique' to construct Catenary Vault with special reference to Bull Eye/ Lunette, Segmental Vault, Hemispherical Dome on Pendentives, Segmental Cloister Dome, Equilateral/ Equilateral Groined Vault, Semicircular Vault, Segmental Groined Vault etc. He also cited examples of Dhyanalinga Dome, Cloister Dome of Karneshwar Nataraja Temple and Sharanam Conference Hall to establish the efficacy of the construction methodology adopted at AEI.

Dr Mahesh Varma, who spoke immediately after Ar. Maini, presented analytical aspects of AVD, including a case study on the construction of the Global Pagoda including its design with the Finite Element method for Thrust Line Analysis (FETLA) that he developed. He also presented some of his other projects. Dr Varma's design philosophy revolves around the fact that the topology of the structure is most important factor in design of AVD structure. While speaking on the inherent capability of AVD structures to withstand natural disasters, Dr Varma mentioned that Masonry structures have multiple load paths to transfer loads and can withstand with presence



Global Vipassana Pagoda



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IEI Celebrates World Habitat Day

Theme Housing for All: A Better Urban Future

The World Habitat Day was celebrated by the Institution on October 5, 2020. Brief accounts of celebration as received from various Centres are reported hereunder.

STATE CENTRES

Gujarat

Gujarat State Centre, IEI in association with Shree Swaminarayan Institute of Technology, Gandhinagar observed World Habitat Day on 5 October, 2020 through cloud mode. Mr Navinchandra B Vasoya, Past President & Council Member, IEI and Member, Executive Council, World Federation of Engineering Organisations, graced the function as Chief Guest and Prof (Dr) Ing. Anupam Kumar Singh, Director, Indus Institute of Technology and Engineering (IITE), INDUS University, Ahmedabad, the Guest of Honour and addressed the audience. Dr Jigar V Pandya, Consultant – Engineering Research, SAP Infracon was the Keynote speaker during the occasion. Prof (Dr) Hitesh H Vandra, Principal, Shree Swaminarayan Institute of Technology, Gandhinagar also addressed the gathering and explained the importance of the theme of the day. Earlier, Mr Hiro Udhavdas Kalyani, Chairman, Gujarat State Centre and Council Member, IEI welcomed all. Mr Shyam Varghese, Honorary Secretary, Gujarat State proposed the vote of thanks.

Telangana

Telangana State Centre of the Institution observed World Habitat Day on 5 October, 2020 at Hyderabad. Mr Kanna Suresh Kumar, OSD (Housing), Greater Hyderabad Municipal Corporation (GHMC) and Former Chief Engineer, GHMC graced the function as Chief Guest and addressed the gathering. Earlier, Dr G Rameshwar Rao, Chairman, Telangana State Centre and Council Member, IEI welcomed the audience. Mr T Anjaiah, Honorary Secretary, Telangana State Centre proposed the vote of thanks.

Uttar Pradesh

Uttar Pradesh State Centre, IEI observed World Habitat Day on 5 October 2020 and organized a Webinar. The Chief Guest during the function, Prof Subodh Shankar, eminent Architect & Urban Planner, Former Chief Architect Planner of Uttar Pradesh Housing & Development Board & Former Dean, Faculty of Architecture, Integral University, Lucknow opined that global housing problem is extremely alarming and worrisome; Further fore, as a result of the Covid-19 pandemic, the crisis has also become much more challenging, which require thoughtful and innovative solutions. Mr V B Singh, Council Member, IEI and Convener of the programme delivered address on the occasion. Earlier, Mr Rajesh Kumar Trivedi, Chairman, Uttar Pradesh State Centre and Council Member, IEI welcomed the participants. Mr Prabhat Kiran Chaurasia, Honorary Secretary, Uttar Pradesh State Centre proposed the vote of thanks.

LOCAL CENTRES

Agra

Agra Local Centre observed World Habitat Day on 5 October 2020 through online platform. Mr Dinkar Saxena, Environmental Engineering Division, Agra Local Centre was the speaker during the function. Mr Devendra Singh Chaudhary, Honorary Secretary, Agra Local Centre was present during the occasion and addressed the audience.

Ahmednagar

Ahmednagar Local Centre of the Institution observed World Habitat Day on 13 October 2020 on virtual platform. Mr Mohan Ranade, Former City Engineer,

Nashik Municipal Corporation delivered Keynote address on the theme of the day. Mr Manohar Mukund Anekar, Honorary Secretary, Ahmednagar Local Centre welcomed the audience.

Angul

Angul Local Centre, IEI observed World Habitat Day on 5 October 2020 through organising a webinar. Mr Manasa Prasad Mishra, Executive Director, S&P, NALCO was the Chief Guest. Mr Ashok Kumar Basa, Past President, IEI graced the function as Chief Speaker and addressed the audience on the theme of the day. Earlier, Mr Sangram Keshari Samantaray, Chairman, Angul Local Centre welcomed all present in the webinar. Mr Siba Ram Panda, Honorary Secretary introduced the Chief Guest and Chief Speaker to the participants and also proposed the vote of thanks.

Bareilly

Bareilly Local Centre, IEI observed World Habitat Day on 5 October 2020 at Bareilly, Mr K B Agrawal, Founder Chairman, Bareilly Local Centre, Mr S C Mehra, Immediate Past Chairman, Bareilly Local Centre and Mr Balwinder Singh Bajwa also deliberated on the theme. Earlier, Mr Sudhir Kumar Gupta, Chairman, Bareilly Local Centre delivered welcome address. Mr Saheb Singh, Honorary Secretary, Bareilly Local Centre proposed the vote of thanks.

Coimbatore

Coimbatore Local Centre of the Institution, in association with Department of Civil Engineering, KPR Institute of Engineering and Technology, Arasur observed World Habitat Day on 5 October 2020 through virtual mode. Chief Guest, Dr J Daniel Chellappa, Eminent Nuclear Scientist, Chennai delivered Lecture on the topic 'Housing for All : A Better Urban Future towards Resilient, Inclusive & Safe Smart Cities with Affordable & Scalable Innovations'. Dr G Anusha, Professor & Head, and Dr A K Priya, Associate Professor, Department of Civil Engineering, KPR Institute of Engineering and Technology also present during the function and addressed the audience. Earlier Mr P R Natarajan, Chairman, Coimbatore Local Centre welcomed the audience. Dr H Ram Mohan, Honorary Secretary, Coimbatore Local Centre proposed the vote of thanks.

Faridabad

Faridabad Local Centre, IEI observed World Habitat Day on 5 October, 2020, through digital medium. During the occasion, Papers were presented by Mr I S Chauhan, Architectural & Structural Consultant, Mr I S Oberoi, Building Rehabilitation Consultant and Mr Vinay Joshi, Chairman, Rajasthan Affordable Housing Developers Association. Earlier, Mr Sandeep Handa, Chairman, Faridabad Local Centre delivered the welcome address. Mr Kuldip Raj Gupta, Honorary Secretary, Faridabad Local Centre proposed the vote of thanks.

Ghaziabad

Ghaziabad Local Centre, IEI observed World Habitat Day virtually in collaboration with Delhi State Centre, IEI on 5 October 2020. Dr K M Soni, Additional Director General (Retd), CPWD, graced the occasion as Chief Guest and Mr Ved Mittal, Chief Architect (Retd), Ghaziabad Development Authority as the Keynote Speaker and addressed the audience. Mr H R P Yadav, Secretary & Director General-I/C, IEI convened the programme as moderator and introduced the theme of the day and also introduced the speakers with the participants. Mr Dinesh Kumar,

Chairman, Delhi State Centre and Council Member, IEI also delivered address during the occasion. Mr Jai Pal Singh, Chairman, Ghaziabad Local Centre and Council Member, IEI welcomed all participants. Mr Jitendra Kumar Sharma, Honorary Secretary, Delhi State Centre proposed the vote of thanks.

Gorakhpur

Gorakhpur Local Centre, IEI observed World Habitat Day on 5 October, 2020 at Gorakhpur. Ar Manish Mishra, Founder HoD, Purvanchal Institute of Architecture & Design, Gida, Gorakhpur, Mr Prakhar Ranjan, Founder Director, Workroom W3, Architectural Consultancy, Gorakhpur and Mr S B R Mishra, Group Secretary, Theosophical Society, Eastern UP, Gorakhpur graced the function as theme speakers and deliberated lecture on the occasion. Earlier, Mr Dharendra Chaturvedi, Chairman, Gorakhpur Local Centre welcomed the audience. Mr Ved Prakash Gupta, Honorary Secretary, Gorakhpur Local Centre proposed the vote of thanks.

Gwalior

Gwalior Local Centre, IEI observed World Habitat Day on 5 October 2020 and organised a seminar through online platform on the theme of the day. Mr R K Khetan, Mr K K Sarsawat, Prof P K Jain, Mr U S Pandey, Mr Rajender Singh, Mr Rahul Sharma from Faridabad and Mr Rahul Khanvilkar from Noida were present during the function and shared their views on the theme. Earlier, Mr Prabhat Kumar Bhargava, Chairman, Gwalior Local Centre welcomed all. Mr P Y Khanwilkar, Honorary Secretary, Gwalior Local Centre proposed the vote of thanks.

Kanpur

Kanpur Local Centre, IEI, in association with Department of Civil Engineering, Harcourt Butler Technical University, Kanpur, Prism Johnson Limited, Kanpur, IEEE – Uttar Pradesh Section and The Institution of Electronics & Telecommunication Engineers, Kanpur celebrated World Habitat Day on 5 October 2020 through online platform. Keynote Speaker during the function, Mr Anurag Sharma, Regional Technical Head, Prism Johnson Limited, Kanpur delivered Keynote Lecture on the theme of the day. Earlier, Prof (Dr) J Ramkumar, Chairman, Kanpur Local Centre welcomed the speaker and the participants present during the occasion. Dr Rajat Kumar Khare, Honorary Secretary, Kanpur Local Centre proposed the vote of thanks.

Kanyakumari

Kanyakumari Local Centre, IEI observed World Habitat Day through online platform on 5 October, 2020. Chief Guest during the function, Dr D Judson, Associate Professor, Department of Electronics and Communication Engineering, St. Xavier's Catholic College of Engineering, Nagercoil delivered the Keynote address on the theme of the day. Dr M Marsaline Beno, Professor and Vice Principal, St. Xavier's Catholic College of Engineering, Nagercoil was also present during the function and address the audience. Mr V Sivathanu Pillai, Chairman, Kanyakumari Local Centre delivered the welcome address. Mr V Muthum Perumal, Honorary Secretary, Kanyakumari Local Centre proposed the vote of thanks.

Kalaburagi

Kalaburagi Local Centre of the Institution observed World Habitat day on October 5, 2020 at Kalaburagi. Mr Prakash Harkode, Joint Director, Town Planning, Kalaburagi was the theme Speaker during the function. Earlier 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.

Kollam

Kollam Local Centre, IEI observed World Habitat Day on 5 October 2020 and organized a webinar on this occasion. Speaker during the occasion, Ar Eugene Nazareth Pandala deliberated speech on the theme of the day explained about the habitat and biodiversity and also emphasized on the sustainability and the importance of nature consciousness in future building activities. The speaker further explained green building affordability along with the light and sustainable roofing systems for buildings. Earlier, Mr K Sivasadan, Chairman, Kollam Local Centre delivered the welcome address. Mr K Rajan, Honorary Secretary, Kollam Local Centre proposed the vote of thanks.

Kalpakkam

Kalpakkam Local Centre of the Institution observed World Habitat Day on 10 October 2020 on virtual mode. Speaker during the function, Mr R Murugan, Project Engineer, Civil Construction and Maintenance Division, General Service Organisation, Kalpakkam delivered presentation on the topic 'Solid Waste Management'. Earlier, Mr Raju Ramakrishnan, Chairman, Kalpakkam Local Centre welcomed the audience. Mr M Shanmuga Sundaram, Honorary Secretary, Kalpakkam Local Centre proposed the vote of thanks.

Meerut

Meerut Local Centre of the Institution observed World Habitat Day on 5 October 2020 by organizing a Webinar. Keynote Speaker during the session, Mr Ishtiyak Ahmed, Chief Town Planner, Meerut Development Authority deliberated speech on the theme of the day and mentioned that affordable housing can accelerate economic growth through its linkage with the other sectors of the economy. Earlier, Mr Rajneesh Kumar, Chairman, Meerut Local Centre welcomed all. Mr Mohan Lal Jain, Honorary Secretary, Meerut Local Centre proposed the vote of thanks.

Building with Arches, Vaults and Domes for a Sustainable Future

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of cracks in dome, arch and vaults even though they are not designed for ductility to withstand EQ loads like RCC structures. He provided an in-depth coverage on materials for extreme durable structure explaining lime cycle, calcination of lime, slaking, mulling, property of stickiness etc. Thereafter, he discussed at length, the pros and cons of the 'Thrust Line Approach' and 'Finite Element Approach' and the genesis of 'Finite Element Thrust Line Analysis' (FETLA) method which is a hybrid methodology based on the desirable attributes of the two methods. He also spoke on the effect of 'tension ring' on stability of masonry dome emphasizing on the effect of the material properties of the ring and the effective location of the tension ring. He shared his detailed experience in construction of Global Vipassana Pagoda, Library Building at Vani, Residential AVD Structures with special reference of Rampant arch (centenary, parabolic and circular topology), Retrofitting of Stone Masonry Arch Bridge situated at Kasara, Maharashtra etc.

The webinar introduced the participants to the diversity of arches, vaults and domes around the world and provided them with technical information on the stability principles of AVD and on how to study their stability with graphical analysis.

From the President's Desk.....

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as traditionally popular and structurally sound walling and roofing systems.

There is an array of technology options available for various elements of building construction, leading to cost-effectiveness and at the same time not affecting the performance characteristics expected from a decent house. It is desirable to have increased understanding of the various materials and technology options, its structural and functional characteristics and efficiencies and more importantly the methodologies for implementation. With the continuous follow-up with the concerned agencies, the application of green building materials would be considered to achieve green ratings as per environmental norms. The Fora of this Institution are striving hard to frame recommendations to the Ministry of Housing and Urban Affairs and its autonomous bodies to implement better options of affordable housing. With the optimum design and utilisation of cost-effective materials, the development of affordable housing needs to be accelerated in the country.

The Institution of Engineers (India), the largest professional body of engineers in the country will work together with various agencies to popularise the cost-effective and eco-friendly construction technologies in the country as a part of its commitment to the society.

IEI Celebrates World Standards Day

Theme

Protecting the Planet with Standards

The World Standards Day was celebrated by the Institution on October 14, 2020. Brief accounts of celebration as received from various Centres are reported hereunder.

STATE CENTRES

Bihar

Bihar State Centre of the Institution observed World Standards Day on 18 October 2020. On this occasion, a webinar was organised on the theme of the day. Mr S K Gupta, Scientist F & Head, Project Management Works, Bureau of Indian Standards, Patna, graced the occasion as Chief Guest and Keynote speaker, and opined that engineers and scientists can perform better role in protecting the planet through design, development and execution of works by using standardization in every step of human life. Earlier, Mr Nishi Kant Prasad Sinha, Chairman, Bihar State Centre and Council Member, IEI welcomed the Speaker and participants. Kumar Abhay Pratap Singh, Honorary Secretary, Bihar State Centre proposed the vote of thanks.

Jharkhand

A webinar was organized by the Jharkhand State Centre of the Institution on the occasion of observation of World Standards Day on 14 October 2020. Mr Abhinendra Kumar, Executive Engineer, Road Construction Department (RCD), Government of Jharkhand was the speaker of the day. Mr Abinash Kumar Deepak, Executive Engineer, RCD, Govt. of Jharkhand presented a paper on the topic 'Standards in Highway Construction'. Dr Piyal Das, Deputy Manager, MECON Limited, Ranchi presented a paper on the topic 'Chemical Testing Standards in Laboratories'. Earlier, Mr Siyaranjan Kumar Singh, Chairman, Jharkhand State Centre and Council Member, IEI extended warm welcome to the speakers, dignitaries and all the participants. Mr M R Kumar, Immediate Past Honorary Secretary, Jharkhand State Centre proposed the vote of thanks.

Telangana

Telangana State Centre, IEI in association with Bureau of Indian Standards, Hyderabad observed World Standards Day on 14 September 2020 through organising a webinar. Mr NVS Reddy, IRAS, Managing Director, Hyderabad Metro Rail Limited graced the occasion as Chief Guest. In this occasion, Dr B Pandu Ranga Rao, General Manager, National Council for Cement and Building Materials (NCB), Hyderabad & Unit In-charge, NCB, Bhubaneswar delivered a talk on the topic 'Achieving Sustainability for Protecting the Planet Earth'. Mr K Siva Sankar, Senior Geoscientist, Chemical Division, Ministry of Mines, Geological Survey of India, Hyderabad delivered lecture on the topic 'Review on Existing Standards and Protocols in Protection of Planet Earth'. Earlier, Dr G Rameshwar Rao, Chairman, Telangana State Centre and Council Member, IEI welcomed the participants. Mr K V Rao, Scientist 'E' & Head, BIS, Hyderabad Branch Office and Mr P V Shrikanth, Scientist 'D', BIS, Hyderabad were present during the occasion and addressed the audience. Mr T Anjaiah, Honorary Secretary, Telangana State Centre proposed the vote of thanks.

Uttar Pradesh

Uttar Pradesh State Centre, IEI observed World Standards Day on October 14, 2020 through organising a webinar. Chief Guest during the function, Mr Ajay Maurya, Deputy Director, Bureau of Indian Standards, Lucknow deliberated on the theme and explained the application of suitable standards to protect the earth. Mr V B Singh, Council Member, IEI also spoke during the occasion. Earlier, Mr Rajesh Kumar Trivedi, Chairman, Uttar Pradesh State Centre and Council Member, IEI welcomed all. Mr Prabhat Kiran Chaurasia, Honorary Secretary, Uttar Pradesh State Centre proposed the vote of thanks.

LOCAL CENTRES

Ahmednagar

Ahmednagar Local Centre, IEI in association with Kolhapur Institute of Technology's (KIT) College of Engineering (Autonomous), Kolhapur observed World Standards Day on 24 October 2020 on virtual platform. Mr Saurabh Sanjay Joshi, Assistant Professor, Environmental Engineering, KIT's College of Engineering delivered presentation on the theme of the day. Earlier, on behalf of Ahmednagar Local Centre, Mr Abhay Raje welcomed the audience. Prof Subhash Mane, Convener, proposed the vote of thanks.

Faridabad

Faridabad Local Centre, IEI organized a Webinar on the occasion of World Standards Day in association with Bureau of Indian Standards, Faridabad on 14 October 2020 in online mode. Chief Guest during the function, Dr SVAV Prasad, Dean (Academic Affairs), Lingayas Vidyapeeth, Faridabad shared his views during the occasion. Technical papers were presented during the session by Mr Ankur Mittal, Manager, Energy Management, NCB, Faridabad, Mr Sushant Kumar, Scientist 'C', BIS, Faridabad, Dr Brijesh Kumar, Associate Dean Academics, Manav Rachna International Institute of Research and Studies (MRIIRS) and Dr Praveen Khanna, Scientist 'F' & Head, BIS, Faridabad. Earlier, Mr Sandeep Handa, Chairman, Faridabad Local Centre delivered the welcome address. Mr Kuldip Raj Gupta, Honorary Secretary, Faridabad Local Centre proposed the vote of thanks.

Ghaziabad

Ghaziabad Local Centre jointly with Delhi State Centre, IEI observed World Standards Day on 14 October, 2020 through online mode. Dr Srikanta K Panigrahi, Director General, Indian Institute of Sustainable Development, New Delhi was the Chief Guest and Mr Arun Kumar, Scientist 'D', Bureau of Indian Standards was the Keynote speaker during the function. Moderator during the session, Dr R K Yadav, Additional General Manager, Pragati Power Corporation, introduced about the theme and speakers of the day. Earlier, welcome address was delivered by Mr Dinesh Kumar, Chairman, Delhi State Centre IEI. Mr Jai Pal Singh, Chairman, Ghaziabad Local Centre, IEI and Mr Ram Niwas Rajpoot, Chairman – BOG, Safety & Quality Forum, IEI were present during the session and addressed the audience. Mr Jitendra Saxena, Honorary Secretary, Delhi State Centre presented the vote of thanks.

Gorakhpur

Gorakhpur Local Centre, IEI observed World Standards Day on 14 October, 2020 and a webinar was organized in this occasion. Speakers during the session, Prof J P Pandey, Vice Chancellor, Madan Mohan Malaviya University of Technology, (MMMUT) Gorakhpur, Prof Govind Pandey, Dean of Infrastructure and Planning, MMMUT, Gorakhpur and Mr M A J Vinod, Scientist-E & Head, Lucknow Branch Office, Bureau of Indian Standards enlightened the audience with their thought provoking lecture. Prof J P Pandey explained about the role of Standards in protecting the planet, which has been recognized worldwide.

Prof Govind Pandey mentioned that Standards dictate the sizes, shapes, composition, frequency and all other fiddly bits that make our world fit together. Mr M A J Vinod explained standardization of electric vehicles in line with the Government of India's National Electric Mobility Mission Plan 2020. Earlier, Mr Ved Prakash Gupta, Honorary Secretary, Gorakhpur Local Centre welcomed the speakers and the participants and at the end of the function, proposed the vote of thanks.

Gwalior

Gwalior Local Centre, IEI organised a seminar on the occasion of World Standards Day on 14 October, 2020 at Gwalior. Dr Chhavi Singhal, Mr R K Khetan, Mr K K Sarsawat, Prof P K Jain, Mr U S Pandey, Mr Rajender Singh, and Mr Rahul Khanvilkar from Noida joined the seminar and shared their views on the theme. Earlier, Mr Prabhat Kumar Bhargava, Chairman, Gwalior Local Centre delivered welcome address. Mr P Y Khanwilkar, Honorary Secretary, Gwalior Local Centre proposed the vote of thanks.

Kanpur

Kanpur Local Centre, IEI in association with The Institution of Electronics & Telecommunication Engineers, Kanpur and IEEE, Uttar Pradesh Section observed World Standards Day on 16 October 2020 through cloud mode. Keynote Speaker during the occasion, Dr K Gopalakrishnan, Council Member, IEI & Dean (R & D), New Horizon College of Engineering, Bangalore delivered a lecture on the theme of the day and explained the significance of interchangeability, standardization, mass customization, mass production etc. Earlier, Prof (Dr) J Ramkumar, Chairman, Kanpur Local Centre welcomed the speaker and participants. Dr Rajat Kumar Khare, Honorary Secretary, Kanpur Local Centre proposed the vote of thanks.

Advancement in Tunnel Technology

Contd. from page 3

as reinforcement to rocks for stabilizing individual rock blocks in order to prevent them from detaching due to gravity, techniques like Fore polling/ Umbrella Roof, use of ring closer to arrest excess deformation as well as usage of primary and secondary tunnel lining mostly used in Himalayan tunnels. Dr Shrivastava also touched upon the advanced structural modelling using FEM based softwares like MIDAS, PLAXIS and SOFiSTiK among others. According to Dr Shrivastava, understanding of tunnel design and construction practices remains incomplete without a comprehensive knowledge of project risk analysis and cost estimate and tunnel construction involves a lot of uncertainties involving geological, geotechnical, human and organizational factors. He added that to ensure timely completion of project, quick sanction of additional funds needs to be ensured through consensus among stakeholders and hence estimating budget based on deterministic factors may not be always sufficient and also the process of decision making needs to be expedited. He concluded with a detailed case study of roof collapse encountered in a tunnel of Kirtarpur Ner Chowuk (KNCEL) project in Himachal Pradesh outlining the fault, collapse mechanism, losses incurred, rescue operation and identification and rectification of fault.

The Webinar also provided an effective virtual platform for interaction between the Panelists and the attendees where Mr Mukhopadhyay and Dr Shrivastava attended to the queries from the participants.

IEI Celebrates Royal Charter Day

The Institution of Engineers (India) was incorporated by Royal Charter on September 9, 1935 by King and Emperor George V at the Court at Buckingham Palace, London and remains the only professional body in India to be accorded this Honour. This endowed the Corporate Members of the Institution with the right to use the title 'Chartered Engineer' after their names, implying that they are qualified engineers deemed worthy to hold a Charter. The 'Royal Charter Day' was celebrated by IEI all over the country on September 9, 2020. A brief accounts of celebration as received from various Centres are reported hereunder.

STATE CENTRES

Punjab & Chandigarh

Punjab & Chandigarh State Centre of the Institution Celebrated Royal Charter Day on 9 September, 2020. Mr Swinder Singh, Executive Committee Member, Mechanical Engineering Division, Punjab & Chandigarh State Centre was the Keynote speaker during the session. Mr Sukhviri Singh Mundi, Chairman, Punjab & Chandigarh State Centre and Council Member, IEI welcomed the participants. Dr Baljit Singh, Honorary Secretary, Punjab & Chandigarh State Centre proposed the vote of thanks.

Uttar Pradesh

Uttar Pradesh State Centre, IEI observed Royal Charter Day on 9 September 2020 and organised a webinar on the occasion. Prof (Dr) Bharat Raj Singh, Director General, School of Management Science, Technical Campus, Lucknow was the Chief Guest during the occasion. Mr V B Singh, Council Member, IEI & Convener of the programme also spoke on the occasion. Mr

Rajesh Kumar Trivedi, Chairman, Uttar Pradesh State Centre and Council Member, IEI welcomed the participants. Mr Prabhat Kiran Chaurasia, Honorary Secretary, Uttar Pradesh State Centre proposed vote of thanks.

LOCAL CENTRES

Angul

Angul Local Centre of the Institution celebrated Royal Charter Day on 9 September 2020 through organising Webinar on the topic 'Circular Economy: Role of Technology for a Sustainable Future'. Mr Manasa Prasad Mishra, Director, (Projects and Technical), NALCO graced the function as Chief Guest. Mr Lalit Vashista, Managing Director, Diva Envitec Private Limited, Mumbai was the Chief Speaker of the day. Mr Sangram Keshari Samantaray, Chairman, Angul Local Centre welcomed all the participants with a deliberation on Royal Charter Day. Mr Siba Ram Panda, Honorary Secretary, Angul Local Centre proposed the vote of thanks.

Bhimavaram

Bhimavaram Local Centre, IEI observed Royal Charter Day on 9 September 2020. On the occasion, the guest talk was delivered by Dr Enti Ranga Reddy, Council Member, IEI. Prof (Dr) K Brahma Raju, Council Member, IEI was also present during the occasion. Mr Vegesna Kasi Viswanadha Raju, Chairman, Bhimavaram Local Centre delivered the opening remarks. Mr Karanam Suresh Babu, Honorary Secretary, Bhimavaram Local Centre explained the importance of the day.

Kalpakkam

Kalpakkam Local Centre, IEI celebrated Royal Charter Day on 18 September, 2020. Speaker during the session, Mr R Kannan delivered a presentation on the topic "High Temperature Cyclic Deformation of Structural Material" through virtual mode. Mr Raju Ramakrishnan, Chairman, Kalpakkam Local Centre welcomed all and presided over the meeting. Mr M Shanmuga Sundaram, Honorary Secretary, Kalpakkam Local Centre proposed the vote of thanks.

News-in-Brief

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

STATE CENTRE

Jammu & Kashmir

Jammu and Kashmir State Centre organised a webinar on 28 October 2020 on winter weather patterns in association with National Institute of Disaster Management, Divisional Administration of Kashmir and Divisional Administration of Ladakh. Er Narendra Singh, President, IEI graced the function with his august presence. Eminent dignitaries present during the function include; Mr Saugat Biswas, IAS, Divisional Commissioner and Secretary, Ladakh, Mr Baseer-ul Haq Choudhary, IAS, Deputy Commissioner Kargil, Mr Sonam Lotus, Director, India Meteorological Department, Dr Naveed Nazir Shah, HoD, Chest Medicine, Government Chest Diseases Hospital, Srinagar; Mr Bilal Ahmad Bhat, Additional Commissioner Kashmir, and Dr Amir Ali Khan, National Institute of Disaster Management, New Delhi.

LOCAL CENTRES

Ahmednagar

Ahmednagar Local Centre, IEI in association with JSPM's Imperial College of Engineering and Research, Pune organised an online Lecture on the topic 'Electrical Vehicle' on 24 June, 2020. Mr Bharatbhushan Bhagwat, Director, M/s Atul Enterprises and Past Honorary Secretary, Ahmednagar Local Centre was the speaker during the function.

Ahmednagar Local Centre organised online Lecture on 12 April, 2020 on the topic '3D Printing Technology'. Mr Bharatbhushan Bhagwat, Director, M/s Atul Enterprises and Past Honorary Secretary, Ahmednagar Local Centre was the speaker during the session. Earlier, Mr M M Anekar, Honorary Secretary, Ahmednagar Local Centre introduced the speaker and at the end, proposed the vote of thanks.

Bhimavaram

On the occasion of centenary celebration of IEI, Bhimavaram Local Centre organised a webinar on the theme 'Role of Computer Science in Society and other Engineering Fields'. Speaker during the occasion was Mr M Srinivasa Varma, CEO, Sri Maharshi Consultancy Private Limited. Prof (Dr) K Brahma Raju, Council Member, IEI was present and also addressed the audience.

Durgapur

Durgapur Local Centre of the Institution organised webinar on 21 September 2020 on the topic 'Road Construction: Opportunities & Challenges'. The Panellists during the session were Dr Jagat Jyoti Mandal, Professor, Department of Civil Engineering, NITTTR, Kolkata; Dr Pritam Saha, Assistant Professor, Department of Civil Engineering, IEST, Shibpur and Mr Soumyadip Das, Assistant Professor, Department of Civil Engineering, Dr B C Roy Engineering College, Durgapur.

Gorakhpur

Gorakhpur Local Centre, IEI organised a webinar to celebrate the Foundation Day of Gorakhpur Local Centre on 5 November 2020 on the topic 'Non-Conventional Energy – New Dimensions & Challenges'. Smt. Varalika Dubey, Chief Engineer, UPPCL was the Keynote speaker during the event and delivered lecture on the topic. Mr V B Singh, Council Member, IEI, Mr Rajesh Kumar Trivedi, Chairman, Uttar Pradesh State Centre and Council Member, IEI and Mr Prabhat Kiran Chaurasia, Honorary Secretary, Uttar Pradesh State Centre were present during the function and addressed the audience. Mr Dharendra Chaturvedi, Chairman, Gorakhpur Local Centre delivered the

welcome address. Mr Ved Prakash Gupta, Honorary Secretary, Gorakhpur Local Centre proposed the vote of thanks.

Kanyakumari

Kanyakumari Local Centre, IEI organised a webinar on the topic 'Interconnectedness of Water and Climate Change' on 9 October, 2020. Chief Guest during the session, Mr S R Vijayakumar, Former Superintending Engineer, TamilNadu Water Supply And Drainage (TWAD) Board delivered lecture on the topic of the day. Dr M Marsaline Beno, Professor and Vice Principal, St. Xavier's Catholic College of Engineering, Nagercoil also delivered address.

Kanyakumari Local Centre, IEI organised a webinar on 7 November 2020 on the topic 'Introduction to Composite Materials'. Dr V R Arun Prakash, HoD, Mechanical Engineering Department, JNN Institute of Engineering, Chennai was the Keynote speaker during the session. Dr M Marsaline Beno, Professor and Vice Principal, St. Xavier's Catholic College of Engineering, Nagercoil also delivered address.

Neyveli

Neyveli Local Centre, IEI organised a Lecture Meeting on the topic 'Lean Manufacturing' on 26 September, 2020. Dr M Easwaramoorthi, Professor & Dean, Mechanical Engineering, Nandha Engineering College, Erode was the Chief Guest and deliberated on the topic.

Palghat

Palghat Local Centre, IEI organised a webinar on 19 October 2020 on the topic 'Sustainable Access to Safe Water in Palakkad'. Speaker during the function was Mr K D Joseph, Project Coordinator, Water Aid India – People's Service Society, Palakkad.

Palghat Local Centre, IEI organised a webinar on 26 October 2020 on the topic 'Penetration of Artificial Intelligence in Rail Transportation Industry'. The Speaker, Mr K Madhanamohan, IRSEE, Retired Deputy Chief Electrical Engineer, Indian Railways, in his address mentioned the application of Artificial Intelligence in railways applications.

Rourkela

Rourkela Local Centre, IEI organised webinar on the topic 'Directives towards a Sustainable Environment' in association with the Department of Chemical Engineering, National Institute of Technology, Rourkela on 7 November 2020. Professor Animesh Biswas, Director, NIT Rourkela was the Chief Guest. Professor Madhushree Kundu, HoD, Chemical Engineering Department, NIT Rourkela was the theme speaker. Professor Vikramaditya G Yadav, Associate Professor, Chemical and Biological Engineering of The University of British Columbia, Canada delivered Lecture on the topic, 'Solving Society's Grand Challenges with Synthetic Biology' and Prof. G D Yadav, Emeritus Professor of Eminence and Former Vice Chancellor, Institute of Chemical Technology Mumbai on the topic 'Energy and Environment: How to Achieve Goals of Paris Agreement 2015 through Radical Changes in Policy and Practices'.

Tiruchirappalli

Tiruchirappalli Local Centre, in association with Tamil Nadu State Centre, IEI and CSI, Tiruchirappalli organised an online Lecture on 30 June 2020. Speaker during the session, Dr Kirubakaran Velswamy, Post Doctoral Fellow (NSERC), Department of Chemical and Materials Engineering, Donadeo Innovation Centre for Engineering, University of Alberta, Edmonton, Canada, delivered the Lecture on the topic 'Application of AI in the Oil Sands'. Dr R Selvaraj and Mr S Samidas, Past Chairmen, Tiruchirappalli Local Centre also present during the session.

Tiruvallur

Tiruvallur Local Centre, IEI organised Technical Lecture through online mode on the topic 'Fire Safety for Electrical Panels and Equipments' on 29 July, 2020. Mr Arunkumar Balachandran, Director, M/s Agni Controls was the Chief Guest and Speaker of the event.

Tiruvallur Local Centre, IEI organised Technical Lecture through online mode on the topic 'Solar Power for Cost Saving in Residential and Commercial

Segments' on 22 July, 2020. Speaker during the occasion was Mr Jinendran Bahubali, Managing Partner, Suntapper Energy LLP.

Tiruvallur Local Centre, IEI organised Technical Lecture on 15 July 2020 on the topic 'Protection the Power Plants Assets' through online platform. Dr S Muthuperumal Subramanian, Technical Director, ALCHIMICA India Private Limited delivered lecture on the topic of the day.

Tiruvallur Local Centre, IEI organised Technical Lecture on the topic 'Introduction to the Power Plant' through online platform on 25 June 2020. Speaker during the function was Mr Bhaskar M, M, Senior General Manager, Tata Consulting Engineers Limited.

Tiruvallur Local Centre, IEI organised Practical Session on Web Technologies and Features through online mode on 1 September 2020. Mr L Uvan, CEO and MD, ZOP Technologies was the speaker during the occasion.

Tiruvallur Local Centre, IEI organised Technical Lecture on the topic 'Electrical Vehicle and its Prospects' through online mode on 11 September 2020.

Mr Mithun Kumar M J, Project and Planning Engineer, PMC and EPC Projects, was the speaker of the event.

FORA

Water Management Forum

Water Management Forum, IEI jointly with Gujarat State Centre, IEI and Gokul Global University, Siddhpur organized webinar on the topic 'Water Conservation – A Necessity of the Present to Secure the Future' on 20 October, 2020. Chief Guest, Mr M P Raval, Past Chairman, Water Management Forum & Special Secretary(S), Water Resources Department, Government of Gujarat and Guest of Honour, Dr Vedvyas J Dwivedi, Vice-Chancellor/Provost, Gokul Global University, Siddhpur delivered lecture on the topic. Keynote Speaker during the function was Prof (Dr) Ing. Anupam Kumar Singh, Director IITE, INDUS University, Ahmedabad. Prof Kartik Patel, Head, Civil Engineering Department, Gokul Global University was the Moderator during the session.

IEI Celebrates 53rd Engineers' Day

Theme: Engineers for a Self-Reliant India

The 53rd Engineers' Day was celebrated by the Institution all over the country on September 15, 2020 to commemorate the 160th birth anniversary of legendary Engineer-Statesman Bharat Ratna Sir M Visvesvaraya through online platform. Brief accounts of the celebration as received from various Centres are highlighted hereunder.

STATE CENTRES

Haryana

Haryana State Centre, IEI celebrated 53rd Engineers' Day on 15 September 2020 through online platform. Dr Victor Gambhir, Vice Chancellor, SGT University, Gurgaon graced the function as Chief Guest and Mr N K Arora, Regional Officer, AICTE, Bhopal, +the Guest of Honour. Keynote Speaker of the day, Dr Arun Goel, Professor, Civil Engineering, NIT Kurukshetra deliberated his address on the theme. Mr K C Sethi, former Vice President, IEI was present during the function and addressed the audience. Earlier, Dr (Ms) Vrinda Krishanlal Gupta, Chairman, Haryana State Centre welcomed the participants.

Punjab & Chandigarh

Punjab & Chandigarh State Centre, IEI observed 53rd Engineers' Day on 15 September, 2020. Mr P S Bhogal, Council Member, IEI was the Keynote Speaker during the session. Mr Sukhvir Singh Mundi, Chairman, Punjab & Chandigarh State Centre and Council Member, IEI welcomed the participants. Dr Baljit Singh, Honorary Secretary, Punjab & Chandigarh State Centre proposed the vote of thanks.

LOCAL CENTRES

Bhimavaram

Bhimavaram Local Centre, IEI observed 53rd Engineers' Day on 15 September 2020, through on cloud mode. Dr D Ranga Raju, Director,

Srinivasa Institute of Engineering and Technology, Amalapuram graced the function as Chief Guest and Dr Gutta Sambhasiva Rao, Principal, Sir C R Reddy College of Engineering, Eluru, the Guest of Honour. Earlier, Mr Vegesna Kasi Viswanadha Raju, Chairman, Bhimavaram Local Centre welcomed the audience. Mr Karanam Suresh Babu, Honorary Secretary, Bhimavaram Local Centre also addressed the audience.

Durgapur

Durgapur Local Centre, IEI observed 53rd Engineers Day on September 15, 2020 at Durgapur. Prof (Dr) Kartik Chandra Ghanta, Chairman, Durgapur Local Centre and Council Member, IEI delivered Lecture on the memory of Sir M Visvesvaraya and highlighted his contribution to the nation. Mr Manoj Kumar Biswal, Honorary Secretary, Durgapur Local Centre proposed the vote of thanks.

Kalpakkam

Kalpakkam Local Centre, IEI observed 53rd Engineers' Day on 19 September 2020 at Kalpakkam. Chief Guest during the session, Dr Ramesh Rajasekaran, Scientist, M/s Terra Power, Bellevu, WA, USA deliberated the address on the theme of the day on cloud mode. Earlier, Mr Raju Ramakrishnan, Chairman, Kalpakkam Local Centre delivered the welcome address. Vote of thanks proposed by Mr M Shanmuga Sundaram, Honorary Secretary, Kalpakkam Local Centre.

Tirunelveli

Tirunelveli Local Centre of the Institution observed 53rd Engineers' Day on 1 October 2020 and organized a Lecture Meeting on virtual mode. Dr S Arumugam, Former Professor, Anna University deliberated Lecture on the occasion. Dr S Baburengarajan, Chairman, Tirunelveli Local Centre, IEI welcomed the audience. Dr R Velayutham, Honorary Secretary, Honorary Secretary, Tirunelveli Local Centre proposed the vote of thanks.

The reports on the technical activities held under the auspices of various State/Local Centres of the Institution during the year 2019-2020 have been circulated through these pages from time to time. The abridged versions of the Institution's Balance Sheet as at 31st March, 2020 along with the Auditor's Report to the Corporate Members of IEI are given hereunder. The detailed text of the above and also the Annual Report of the Council are available on demand at all State/Local Centres/Fora of IEI including the Overseas Chapters and IEI Headquarters.

ABRIDGED BALANCE SHEET AS AT 31st MARCH 2020

[Figures in ₹]			
31.03.2019			31.03.2020
	SOURCES OF FUND		
1,045,735,348	Permanent Reserve	1,090,364,084	
360,619,146	Capital Reserve	371,895,998	
23,267,976	Revenue Reserve	23,267,976	
	Surplus from Income and		
1,334,249,653	Expenditure Account	1,399,036,008	
369,810,325	Earmarked Fund	308,764,131	
3,133,682,448			3,193,328,197
	APPLICATION OF FUND		
	Fixed Assets		
843,576,448	Gross Block	895,575,222	
250,281,819	Less : Depreciation	316,307,768	
593,294,629	Net Block		579,267,454
1,045,735,348	Investment of P R Fund	1,090,364,084	
985,936,109	Other Investments	908,374,838	
2,031,671,457			1,998,738,922
811,277,913	Current Assets, Loans	897,354,690	
	and Advances		
302,561,551	Less : Current Liabilities	282,032,869	
508,716,362	Net Current Assets/Liabilities		615,321,821
3,133,682,448			3,193,328,197

ABRIDGED INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 2020

[Figures in ₹]			
31.03.2019		31.03.2020	
R&D	Education	R&D	Education
71,815,460	17,953,865	65,080,034	16,270,009
48,125	12,031	6,720	1,680
	226,692,926		178,265,650
-	3,991,958	-	13,750,353
180,325,141	35,205,707	160,394,810	37,118,756
26,058,662	6,512,517	17,515,075	4,377,106
60,849,999		54,940,964	
52,707,428	13,683,085	46,813,339	
2,030,069	304,052,089	12,247,822	14,552,596
393,834,884		356,998,764	264,336,150
	697,886,973		
	697,886,973		
159,688,779	86,280,457	164,258,071	86,226,201
6,674,549	1,668,637	5,297,662	1,324,416
	35,746,490		36,638,882
2,749,273		1,337,481	
61,738,552		66,854,880	
3,720,050		3,809,313	
6,007,597	1,501,899	5,024,286	1,256,073
11,920,187	2,980,047	10,941,517	2,735,379
8,596,940	2,149,236	22,812,077	5,703,019
3,063,345	765,836	2,315,654	578,914
7,802,122		1,479,642	
1,826,373	456,594	2,008,983	502,246
396,174	99,044	370,780	92,695
25,367,787	6,341,946	25,798,500	6,449,625
21,209,988	83,238	36,929,456	137,771
9,389,789	3,091,192	7,263,093	2,690,690
5,629,509	1,407,377	4,672,029	1,168,007
2,759,427	689,857	4,353,136	1,088,284
2,945,195	736,299	907,344	226,836
3,502,378	875,595	2,617,975	654,494
14,645,265	3,661,317	13,842,602	15,019,147
1,187,605	3,273,951	685,282	1,968,270
2,581,452		2,300,000	
25,397,048		66,258,224	
1,072			
319,640	9,319	506,210	
389,120,096	151,818,331	452,644,197	164,460,949
1,755,000			
542,693,427			
697,886,973			
542,693,427			
155,193,546			
1,179,056,107			
1,334,249,653			

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE INSTITUTION OF ENGINEERS (INDIA)

Report on the Financial Statements

Opinion

We have audited the accompanying financial statements of **The Institution of Engineers (India)** ("the Institution"), which comprise the Balance Sheet as at 31st March, 2020 signed by us under reference to this report and the related Income and Expenditure Account and the Cash Flow Statement for the year then ended, including a summary of the significant accounting policies and other explanatory information (hereinafter referred to as 'financial statements'), in which have been incorporated the returns /accounts received from the various State Centres and Local Centres (also collectively referred to as Centres) of the Institution for the year ended 31st March, 2020 as audited by other auditors and which have been relied upon by us, as mentioned in paragraph 6 of the Note to Accounts (Schedule 13).

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements of the Institution give the information in accordance with the generally accepted accounting principles and the applicable Accounting Standards issued by the Institute of Chartered Accountants of India and read with the Other Matters paragraph below, give a true and fair view of the state of affairs of the Institution as at March 31, 2020 its surplus and its cash flows for the year ended on that date.

Basis for Opinion

We conducted our audit of the financial statements in accordance with the Standards on Auditing (SA) issued by the Institute of Chartered Accountants of India. Our responsibilities under those Standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Institution in accordance with the Code of Ethics issued by the Institute of Chartered Accountants of India (ICAI) together with the independence requirements that are relevant to our audit of the financial statements and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ICAI's Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on the financial statements.

Management's Responsibility for the Financial Statements

The Management is responsible for the preparation of these financial statements that give a true and fair view of the state of affairs and result of operation of the Institution in accordance with the accounting principles generally accepted in India, including the applicable Accounting Standards. This responsibility also includes maintenance of adequate accounting records for safeguarding the assets of the Institution and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statement that give a true and fair view and are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Institution's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Institution or to cease operations, or has no realistic alternative but to do so.

The management of the Institution is responsible for overseeing the Institution's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with SAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal financial controls relevant to the audit in order to design audit procedures that are appropriate in the circumstances.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Institution's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Institution to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the Institution to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the audit of the financial statements of the Institution of which we are the independent auditors. For the financial statements of the branches incorporated in these financial statements which has been audited by other auditors, such other auditors remain responsible for the direction, supervision and performance of the audit carried out by them. We remain solely responsible for our audit opinion.

Materiality is the magnitude of misstatements in the financial statements that, individually or in aggregate, makes it probable that the economic decisions of a reasonably knowledgeable user of the financial statements may be influenced. We consider quantitative materiality and qualitative factors in (i) planning the scope of our audit work and in evaluating the result of our work; and (ii) to evaluate the effect of any identified misstatements in the financial statements.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Other Matters

- a) We did not audit the financial statements of 125 centres that are included in the financial statements of the Institution, whose financial statements reflect total assets of Rs.1,43,35,16,202/- as at 31st March, 2020 and total revenues of Rs 15,71,21,128/- for the year ended on that date. The financial statements / information of these centres have been audited by the other auditors whose reports have been furnished to us and our opinion, in so far as it relates to the amounts and disclosures included in respect of these centres, is based solely on the report of such centre auditors. Attention is also drawn to the following matters;
- b) In case of the local centres of Dhanbad, Bhilai, Kanpur and state centres of Bihar and Tamil Nadu the lease deeds have expired. Building of Dhanbad Centre has been seized by the Zila Parishad.
- d) Note 11 of Schedule 13 of the notes to accounts regarding review by the All India Council for Technical Education (AICTE) of Section A & B examination of the 15 recognized engineering courses conducted by the Institution and a bar on fresh enrolment with effect from 1st June, 2013 which has been stayed by the Hon'ble Delhi High Court.
- e) Anantipuram, Bahrapur, Gorakhpur, Kollam, Kozhikode, Jodhpur, and Ludhiana are not showing as additional place of business under State registration. Bihar State centre has not included local centres in its GST registration.
- f) GST has not been properly deducted or deposited in the cases of Angul (Rs2500), Bokaro (Rs 85,354), Bhilai (Rs 1080) and Bathinda local centres .
- g) GST outward/inward register not properly maintained for Angul local centre.
- h) Note no 16 of Schedule 12 regarding fund misappropriation at Kanpur Local Centre.
- i) The Institution has received a notice from the Government of India, Ministry of Finance (Department of Revenue) relating to the service tax payable vide order dated 07.04.2020 for the period October 2014 to June 2017. A sum of Rs 3,40,20,810/- has been demanded out of which Rs. 1,53,43,331/- relates to the Centres and Rs1,86,77,479/- relates to the Headquarters. It was decided by the Finance Committee at its 712th meeting held on 24.02.2020 to pay the service tax on the income of the Centres and on the miscellaneous income of Headquarters to the service tax authorities to avoid further interest and penalty. In this respect, an amount of Rs. 1,56,29,766/- has been paid on 21.07.2020. As per the decision of the 712th Finance Committee, service tax payable on registration fees and subscription fees for Headquarters amounting to Rs 1,83,91,044/- along with the interest and penalty will be appealed for remission at the appropriate forum due to interpretation of law. The Institution has applied for waiver of the interest and penalty of Centres.
- j) Note 1.10 in Schedule 13 regarding accounting of certain income on cash basis, Note 1.11 in Schedule 13 regarding accounting of certain expense on cash basis, Note 1.13 in Schedule 13 regarding coverage of certain funds by investments.
- k) Tds on contractors bills not deducted and deposited regularly in the cases of Bathinda local centre. Tds awaiting compliance in case of Vadodara local centres .
- h) Report of other auditors of the various Centres who have reported, inter-alia, on certain matters as mentioned in Schedule 12.
- i) The impact of the Covid 19 pandemic and the subsequent lockdown situation imposed by the various State Governments has disrupted operations across the industrial and service sectors of the country with a consequent slowdown of the economy. The management is monitoring the impact of the pandemic on the operations of the Institution in respect to the various challenges faced.

Our opinion is not modified in respect of these matters.

Report on Other Legal and Regulatory Requirements

This report does not contain a statement on the matters specified by the Companies (Auditor's Report) Order 2016 ('the Order') issued by the Central Government of India in terms of sub section (11) of section 143 of the Companies Act 2013 as the said Order is not applicable to the Institution.

We further report that:

- a. We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of the audit;
- b. In our opinion proper books of accounts as required by law have been kept by the Institution so far as appears from our examination of those books;
- c. The Balance Sheet, the Statement of Income and Expenditure and the Cash Flow Statement dealt with in this Report are in agreement with the books of account and with the returns received from the Centres not visited by us.
- d. The reports on the accounts of the Centres audited by the various centre auditors have been sent to us and have been properly dealt with by us in preparing this report.
- e. We further report that according to the information and explanation given to us:
 - i. The Institution has disclosed the impact of pending litigations on its financial position in its financial statements – Refer Note 2 of Schedule 13 to the Financial Statements.
 - ii. The Institution did not have any long-term contracts including derivative contracts for which there may be any material foreseeable losses.

For and on behalf of

RAY & RAY

Chartered Accountants

Firm Registration No. 301072E

sd/

K. K. Ghosh

Partner

Membership No. 059781

Kolkata

14th October, 2020

UDIN: 20059781AAAADG6990

ANNEXURE TO AUDITORS REPORT REFERRED TO IN PARAGRAPH (h) OF OTHER MATTERS OF OUR REPORT TO THE MEMBERS OF THE INSTITUTION OF ENGINEERS (INDIA) ON THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31-03-2020 (BASED ON THE REPORT OF OTHER AUDITORS)

SCHEDULE-12

1. ANGUL LOCAL CENTRE:

GST amounting to Rs 2500 on Engineers Souvenir not deposited.

Outward/inward register not properly maintained.

Centre not submitting monthly/annual returns.

2. ANANTIPURAM LOCAL CENTRE:

State centre has taken registration but local centre not showing as additional place of business.

3. ASSAM STATE CENTRE:

Fixed asset register under updation.

4. BATHINDA LOCAL CENTRE:

GST payable under CGST as well as SGST amounting to Rs 52627 and interest for late payment of GST amounting to Rs 6100 as on 31.03.2020 will be paid when GST number will be taken.

Tds has not been deducted on payments made to Amar tent house for Engineering day celebration and on printing and stationery and payment made to Royal Caterers on Engineering day celebration.

5. BAHRAMPUR LOCAL CENTRE:

State Centre not included name of local centre in GST registration.

6. BHILAI LOCAL CENTRE:

Lease deed expired on 18/02/2003. The lease was taken from SAIL Bhilai. Renewal pending.

Output GST @ 18% not charged on hall space rent of Rs 6,000 received in cash.

Inward supply of security services from individual supplier (Target Security Services) is liable to RCM but the same not charged.

7. BOKARO STEEL CITY LOCAL CENTRE:

Capital nature grants has been considered as revenue income in income and expenditure account whereas it should be treated as deferred income.

GST collection and payments on all eligible receipts not made in accordance with rules and regulations. GST short paid Rs 85,354.

8. BIHAR STATE CENTRE:

State centre has not included the names of the local centres as additional place of business for GST registration.

Renewal of lease deed is in process.

9. COIMBATORE LOCAL CENTRE:

Confirmation letter not received for Rs 1,76,000 advance given

10. DHANBAD LOCAL CENTRE:

Building of the Centre was sealed by the Dhanbad Zila Parishad based on the order of the Jharkhand High Court. The Centre is contesting the order for reopening of the office building.

A suit has been filed by the Dhanbad Zila Parishad against which liability has not been ascertained.

11. DELHI STATE CENTRE:

Annexure III not attached and hence we could not comment on the same.

12. GORAKHPUR LOCAL CENTRE:

No GST registration taken.

Cash payments made in excess of Rs 10000 for hall expenses amounting to Rs 67,100.

13. GHAZIABAD LOCAL CENTRE:

The GST registration certificate was not produced for verification hence cannot comment on the inclusion of names of the Ghaziabad Local centre..

Excess deduction of Rs 43,005/-- by HO in previous year which is still recoverable and shown under loans and advances.

During the year 2017-18 a civil suit filed by 3 members of the Institute against present Executive body alleging their election to be improper, thus be declared null and void. Case is dismissed and Rs 3000 is paid to legal council towards his fees shown under legal expenses.

In the case instituted by Mr. Kailash Sen before presiding officer Labour Court the Institute has raised preliminary objections but an ex parte order was issued on 11.01.2016. Against this Institute has filed an application on 26.02.2016 for setting aside the order. The order was set aside and case adjourned for further proceedings. Subsequently vide order dated

6.08.2019 the Hon Labour Court has awarded reinstating of Mr Kailash Sen with payment of 50% back wages. As informed, the Institute has filed a writ petition vide no MP 2064 of 2020 seeking interim direction. The Hon Court vide order dated 5.08.2020 has given an interim stay subject to payment of PF within 7 days and compliance of Section 17B of the Industrial Disputes Act 1947. The liability in respect of the back wages is since not yet ascertained hence not stated.

14. JHARKHAND STATE CENTRE:

Staff advances should be squared up or recovered during the year. But certain staff advances amounting to Rs 1,18,709/- continue to appear in the Balance Sheet as at 31.03.2020.

There were some instances in which provision of section 40A(3) of Income Tax Act, 1961 has not been adhered to.

15. JODHPUR LOCAL CENTRE:

In respect of Jodhpur Local Centre there was a contingent liability amounting to Rs. 8,43,284/- for land and building tax against which Rs. 72,650 /- had been deposited by the Institution.

Rs 29,449 in name of examination account is pending adjustment for a long time.

No fixed asset register is maintained.

Local centre not added in additional place of business under State centre.

The centre is not filing any GST return as no separate registration is taken.

16. KANPUR LOCAL CENTRE:

Rs.245,000/- in Other Assets Recoverable represents and relates to embezzlement of Rs.3,21,527/- by way of fraudulent encashment of Fixed Deposit Receipts from Mr V K Chaudhury and withdrawal of cash from a savings bank Account during the years 2000-01 and 2001-02 for which litigation is pending. Out of this Rs.11,000/- recovered. Rs.65,527 has been written off during the year 2010-11 vide management decision in their meeting dated 20/02/2011.

Lease deed expired on 26/10/2017 and under renewal process.

17. KARNATAKA STATE CENTRE:

Suits are filed against the centre for which the amount is not ascertainable.

Balances shown under investments, bank balance, sundry receivables, advances and current liabilities are subject to confirmation wherever applicable.

18. KERALA STATE CENTRE:

The new lease deed for 55 cents of land after the surrender of 45 cents to Government of Kerala was executed with effect from 14.10.2009. A demand notice was issued on revised rates on 14.10.2012. However, High Court of Kerala has stayed the revision and the case is still pending.

Kollam and Kozhikode Local Centre not registered under GST.

A case has been filed by IEI Kerala State Centre as an amount of Rs 3,22,38,652 has been raised as a demand for lease rent and a stay order has been issued by High Court of Kerala.

19. KOTA LOCAL CENTRE

Difference of Rs 1,119 in trial balance.

20. KOLAR LOCAL CENTRE:

Annexure III not attached and we could not comment on the same.

21. LUDHIANA LOCAL CENTRE:

No record produced for physical verification of fixed assets.

Fixed asset register maintained but not as per specified format.

No registration with GST done so far.

22. MANGALORE LOCAL CENTRE:

The property has been surrendered to the lessor. The new Mangalore Port Trust, the owner of the land has appropriated the value of the building towards the arrears of land rent claimed by NMPT retrospectively from 01/10/1991 to 31/08/2011. The centre has handed over the lease land back to NMPT on 13/08/2010 as per the Charge list dated 13/08/2010 confirmed by the Estate Officer. The centre has moved the Court of law against the demand raised by NMPT by an order under sub section (1) and (2A) of Section 7 of the Public Premises (Eviction of Unauthorised Occupants) Act 1971 dated 06/04/2016 for arrears of rent amounting to Rs.18,94,056/-, was contended as erroneous by the IEI Mangalore Local Centre and a miscellaneous appeal no. 6/2016 was preferred in the court of IV Additional District and Sessions Judge Dakshina Kannada, Mangalore. The Honorable Court has disposed off the appeal favouring the IEI, Mangalore Local Centre by an order dated 12.02.2018 and the order of the Estate Officer mentioned above has been set aside. The court has opined that the IEI Mangalore Local centre is at liberty to approach the competent court for the recovery of Rs.9,36,000/- from the New Mangalore Port Trust.

23. MYSORE LOCAL CENTRE:

A suit has been filed in High Court by an ex-employee, the quantum for which is not ascertainable.

24. NASIK LOCAL CENTRE:

The centre has Rs.4,13,195/- balance as unadjusted advance with Nasik Municipal Corporation.

25. NEYVELLI LOCAL CENTRE:

Several payments were paid in cash in excess of Rs.10,000/- in violation of Section 40A(3) of Income tax Act, 1961.

26. PUNE LOCAL CENTRE:

Fixed asset register not made available for verification.

27. SOLAPUR LOCAL CENTRE:

TDS lying unadjusted for a long time due to pendency of appeals with the CIT (Appeals) at Headquarter level.

28. TIRUPATI LOCAL CENTRE:

Outward/inward register of GST is not being properly maintained.

There is an advance of Rs 18,612/- which needs to be adjusted.

29. UTTAR PRADESH STATE CENTRE:

Following cases against the Institution pending since long are as follows:

- M/s D N Brothers for labour charges since 1976.
- M/s Ramjas Ramdayal for material supply since 1976.

No contingent liability has been ascertained in this respect as per the comments of the branch statutory auditor.

There is a notice served from Lucknow Municipal Corporation (Mahapalika) to State centre for House tax arrear of Rs 51,13,318 against which a case has been filed by the Centre at District Court. No provision made for the same. However, as per the management balance in auto sweep FDR and fixed deposit made during the year is accumulated for purpose of the demand of the house tax raised on centre in case of any adverse court order.

30. VADODARA LOCAL CENTRE:

TDS is awaiting compliance.

In case of GST, the invoice relating to Harvest Success Academy towards auditorium rent, IGST has been wrongly charged instead of CGST and IGST.

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



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



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IEI Join Hands with Various Certification Bodies to Nurture Engineers

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

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

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

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

Please visit www.ieindia.org under Certification for details. For further clarification you may call at: 033-40106304 or Email at certification@ieindia.org



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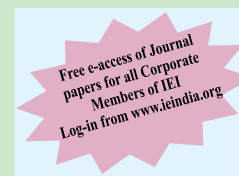
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Important Notice

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

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

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-I/C

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