News Bulletin

The Institution of Engineers (India)

Meerut Local Centre

"104 Years of Relentless Journey Towards Engineering Advancement for nation Building"

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Er. R.P. Agrawal, FIE, Chairman

(for sessions 2023-24 & 2024-25)

From the Chairman's Desk

Greetings to all.

Traditionally, we have been celebrating nine Statutory Days every year. This year, I am pleased to share that two more important occasions were added to our calendar. For the first time, we celebrated Regional Language Promotion Day (21st February) and National Maritime Day (5th April). You will find detailed reports of these celebrations in this Bulletin.

Unfortunately, our financial challenges continue to deepen. We have not yet succeeded in generating additional sources of income. However, efforts are ongoing to manage our activities with utmost economy and efficiency.

Recently, our nation was shaken by a tragic terrorist attack at Pahalgam in Jammu & Kashmir. The brutal killing of innocent tourists has left the entire country grieving and outraged. Our countrymen are rightfully filled with sorrow and anger towards our notorious neighbor, Pakistan. The Government of India has also reiterated its firm resolve to give a befitting reply.

With tearful tributes to the victims of Pahalgam,

R. P. Agrawal
Chairman

Er. Subhash Chandra Mittal, FIE, Hony. Secretary

(for sessions 2023-24 & 2024-25)

From Hon. Secretary's Desk

On behalf of the Institution of Engineers (India), Local Centre Meerut, I extend my heartfelt congratulations and warm greetings to all our respected members and their families on the joyous celebration of Vasant Panchami, Maha Shivaratri, Holi, Good Friday, and Eid-ul-Fitr. Your spirited participation has enriched the harmony and unity within our fraternity.

As we move forward, I convey my best wishes for the celebration of up coming festivals of Buddha Purnima, Ganga Dussehra, Maharana Pratap Jayanti, Eid-ul-Adha (Bakrid), and Jagannath Rath Yatra. May these celebrations bring joy, peace, and prosperity to all.

I would also like to place on record my sincere appreciation for the active cooperation and support extended by all members during the celebrations of Regional Language Promotion Day on 21st February 2025 and National Maritime Day on 5th April 2025.

I look forward to your continued enthusiastic participation and support for the forthcoming celebrations of World Telecommunication and Information Society Day on 17th May 2025 and World Environment Day on 5th June 2025.

Together, let us continue to uphold the values of unity, inclusiveness, and professional excellence.

Subhash Chandra Mittal
Honorary Secretary

A. Statutory Activities:

Regional Language Promotion Day Date: 21-02-2025

On February 21, 2025, Regional Language Promotion Day was celebrated by the Local Centre of the Institution of Engineers (India), Meerut. The event was chaired by Er. R. P. Agrawal, Chairman.

At the outset, Er. R. P. Agrawal welcomed all members attending the webinar and delivered a detailed presentation on the theme of the event:

Silver Jubilee Celebration of Mother Language.

- **प्रत्येक वर्ष** 21 **फ़रवरी को क्षेत्रीय भाषा सम्वर्धन दिवस या अंतर्राष्ट्रीय मातृभाषा दिवस मनाया जाता है। इसका उद्देश्य लुप्तप्राय भाषाओं के संरक्षण के माध्यम से भाषाई विविधता को बढावा देना है।**
- इसके लिए 21 फरवरी **को ही क्यों चुना गया। इसका विवरण इस प्रकार है। भारत विभाजन के बाद पाकिस्तान के हुक्मरानों ने उर्दू को पश्चिमी पाकिस्तान के साथ साथ पूर्वी पाकिस्तान की भी राजभाषा घोषित कर दिया था। फिर** 1952 **में उन्होंने उर्दू के अतिरिक्त अन्य भाषाओं को अमान्य घोषित कर दिया। पूर्वी पाकिस्तान जो**

अब बांग्लादेश है। में बांग्लाभाषी बहुतायत में थे। अतः ढाका विश्व विद्यालय के छात्रों ने इसका कड़ा विरोध किया तथा 21 **फ़रवरी** 1952 **को पुलिस** गोली से 5 **छात्र मारे गए। उनकी याद में** वहाँ **स्मृति दिवस मनाया जाता है तथा बांग्लादेश में इस दिन राष्ट्रीय अवकाश रहता है।** इसी कारण **इस दिन का प्रस्ताव** 1998 **में,** एक बांग्लादेशी कनैडियन द्वारा यूनाइटिड नेशन्स **में रखा गया, जिसे मान लिया गया** तथा 21 फरवरी सन् 2000 को पहला क्षेत्रीय भाषा सम्वर्धन दिवस मनाया गया।

- **हिन्दी हमारी मातृभाषा है और देश की राजभाषा भी इसे** 14 **सितंबर** 1949 **को राजभाषा का स्थान दिया गया।** इसी कारण 14 **सितंबर को हम हिन्दी दिवस के रूप में मनाते हैं।**
- **अब समस्या थी सरकारी कार्य को हिन्दी में करने की इसमें सबसे बड़ी बाधा रही प्रौद्योगिकी की।**
- अगर इतिहास में जाकर देखे तो ज्ञात होगा कि विदेशी शक्तियों के सामने भारत की पराजय का एक बहुत बड़ा कारण प्रौद्योगिकी में पिछड़ापन रहा। पानीपत के पहले युद्ध में भी बाबर की सेना की तोपों के सामने खड़े हमारे हाथी अपनी ही सेना को कुचल रहे थे। जब कभी हमलावर आया तो वह बेहतर प्रौद्योगिकी लेकर आया और हम अपने परंपरागत तरीकों पर निर्भर रहे। भाषा के मामले में भी लगभग ऐसी ही स्थिति रही। बाँस की कलम से लेकर, होल्डर फाउंटेन पैन और आगे के सफर में भी हमें काफी
- समय लगा। जब भारत में हिन्दी में काम करने के लिए हम कलम थामे हुए थें, अंग्रेजी के लिए टाइपराइटर आ चुका था। हिन्दी के लिए टाइपराइटरों की व्यवस्था में काफी समय निकल गया और अंग्रेजी प्रौद्योगिकी व्यवस्था के बूते अपनी बढ़त बनाती रही। ऐसा ही टेलीप्रिंटर, टेलेक्स मशीन आदि के संबंध में भी हुआ। हालांकि आगे चलकर हिन्दी और अन्य भारतीय भाषाओं के लिए टाइपराइटर/टेलीप्रिंटर आदि की व्यवस्था हुई और हिन्दी की गाड़ी चलने लगी।
- प्रौद्योगिकी के पिछडेपन की समस्या का सामना लगातार करना पड़ा–इलैक्ट्रॉनिक टाइपराइटर से लेकर कम्प्यूटर तक– जहाँ देवनागरी के फाण्ट बाद मे विकसित हुए। इसका नुकसान यह हुआ कि अंग्रेजी एक **Preferential** या अधिमान्य माध्यम बनी रही।
- हिन्दी भाषी प्रदेशों में भारतीयों का दृष्टिकाण हिन्दी के प्रति उदासीन बना रहा। यद्यपि नागरी प्रचारिणी सभा, काशी ने वर्ष 1901 में हिन्दी साइंटिफिक ग्रॉसरी नामक पारिभाषिक कोश प्रकाशित कर दिया था तथा स्वतंत्रता के पश्चात कुछ वर्षों में ही विभिन्न इंजीनियरिंग विधाओं के तकनीकी शब्द हिन्दी में

- उपलब्ध हो गए थे परन्तु हमने तकनीकी शिक्षा का माध्यम अंग्रेजी को ही बनाए रखा।
- दूसरी ओर हिन्दी फिल्म उद्योग ने हिन्दी के प्रचार प्रसार में बहुत योगदान दिया। हिन्दी के गाने अहिन्दी भाषी क्षेत्रों में भी पर्याप्त सुने जाते हैं। हिन्दी भाषी लोगों का बड़ा बाजार होने के कारण भी हिन्दी के प्रचार प्रसार में काफी वृद्धि हुई।
- ऐसे काफी लोग मिल जाएंगे जो हिन्दी न तो लिखना जानते है और न पढ़ना, परन्तु समझ लेते हैं तथा बोल भी लेते हैं।
- परन्तु अभी तक रोजगार का साधन अंग्रेजी ही बनी रही, तथा हिन्दी उपेक्षित होती रही।
- रोजगार की भाषा अंग्रेजी होने का एक निहितार्थ देखिए। मैने एक हिन्दी भाषी बहुत पढ़ी लिखी तथा उच्च पद पर आसीन महिला से बच्चों को शुद्ध हिन्दी लिखने के संबंध में बात की। उनका उत्तर था कि हिन्दी का प्रयोग केवल **introdution** देने के लिए ही तो होगा, काम तो अंग्रेजी मे ही करना होगा अतः हिन्दी के विषय में चिंतित होने की क्या आवश्यकता?
- हिन्दी के प्रचार प्रसार में हमारा सबसे बड़ा योगदान अपने दृष्टिकोण में परिवर्तन करना होगा। हम यदि अंग्रेजी में कोई वर्तनी अशुद्धि अर्थात **spelling mistake** करते हैं तो ग्लानि का अनुभव करते हैं, परन्तु यही अशुद्धि जब हिन्दी में करते हैं तो ग्लानि का अनुभव नही करते वरन् मुस्कराकर 'मेरी हिन्दी जरा कमजोर है' कहकर खाना–पूरी कर लेते हैं। इस दृष्टिकोण को बदलना चाहिए।
- एक और उदाहरण देखिए। हम जब किसी सार्वजनिक वाहन से यात्रा करत हैं तो पास में बैठे बालक से अंगेजी की वर्णमाला तो पूछ लेते हैं किन्तु हिन्दी की वर्णमाला पूछने का साहस नही करते क्योंकि हमें स्वयं भरोसा नहीं होता कि हमें क्रमवार वर्णमाला आती है।
- बैंक या अन्य विभागों में विभिन्न कार्यों के लिए फार्म हिन्दी तथा अंग्रेजी दोनो भाषाओं में उपलब्ध होते हैं, परन्तु हम उसे अंग्रेजी में ही भरना पसंद करते है। जरा याद कीजिए कि हमने बैंक की कोई जमा पर्ची या **deposit slip** देवनागरी मे कब भरी थी।
- हम प्रयास करें कि हिन्दी को रोजगार की भाषा बनाया जाए। यदि तकनीकी या चिकित्सीय शिक्षा का माध्यम हिन्दी कर दिया जाए तो बिना कुछ कहे लोगों के दृष्टिकोण में बड़ा परिवर्तन आएगा और हिन्दी अपना उचित स्थान स्वयमेव प्राप्त कर लेगी।
- The session concluded with valuable suggestions from members on ways to promote the mother language. Participants actively engaged by reciting poems and showed keen interest in the event. In conclusion, Er. S. C. Mittal, Hon. Secretary, presented a vote of thanks.

World Engineering Day for Sustainable Development Date: 04-03-2025

The Meerut Local Centre conducted a technical activity to celebrate World Engineering Day for Sustainable Development on 4th March 2025. The webinar was presided by Er. R.P. Agrawal, Chairman, IE (I) LC Meerut. The event was convened online by Er. Nikhil Kishore, Joint Secretary, and featured two keynote speakers: Er. Mohd. Murtaza, Assistant Professor of Electronics Engineering, and Mr. Priyank Sirohi, Assistant Professor in the Department of Information Technology, SCRIET, Meerut.

Er. Nikhil Kishore opened the session by explaining the significance of World Engineering Day, highlighting its role in promoting engineers' contributions to sustainable development. He explained that this day, proclaimed by UNESCO in November 2019 during its 40th General Conference, is celebrated worldwide on 4th March each year since 2020. The theme for 2025 was 'Unleashing the Power of Engineers to Advance the Sustainable Development Goals'. The theme underscored the importance of engineering in addressing global challenges and promoting sustainable development.

Er. R.P. Agrawal welcomed the participants and emphasized the role of engineers in enhancing public welfare, health, and safety while minimizing resource consumption. Following this, Er. Nikhil Kishore invited Er. Mohd. Murtaza to deliver his presentation titled "Evaluation of Site for Renewable Energy Power Plants Using MCDM Technology in the Context of Sustainable Energy Development in India."

Er. Murtaza discussed the 17 Sustainable Development Goals (SDGs) established by the UN, focusing on SDG-7, which addresses affordable and clean energy. He highlighted India's progress in the renewable energy sector and described how Multi-Criteria Decision-Making (MCDM) techniques can effectively

evaluate potential sites for renewable energy plants. He explained the six main stages of this technique:

Formation of alternatives.

Criteria selection.

Data normalization.

Criteria weighting.

Alternative evaluation.

Result validation.

He mentioned that researchers identified 39 criteria and sub-criteria for site selection, including dust levels, which significantly affect solar panel efficiency. Mr. Murtaza presented case studies focusing on Uttar Pradesh and India, concluding that solar energy is the most suitable renewable energy source for both regions.

Next, Er. Nikhil Kishore invited Er. Priyank Sirohi to present his talk on "Machine Learning in Predictive Maintenance, Smart Infrastructure, and Reinforcement Learning for Complex Engineering Problems."

Er. Sirohi explained how machine learning supports predictive maintenance by analyzing sensor data such as temperature, vibration, and pressure to predict equipment failures, reducing downtime and maintenance costs. He discussed how ML can detect deviations from normal conditions to predict equipment lifespans and enable proactive maintenance. Techniques such as supervised learning, unsupervised learning, and time series analysis play a crucial role in this process.

Er. Sirohi also highlighted how ML optimizes infrastructure management in areas like traffic control, energy management, and structural health monitoring using methods such as time series forecasting, computer vision, and deep learning. Additionally, he explained the significance of Reinforcement Learning (RL) in complex engineering challenges, where RL helps develop intelligent agents that can learn optimal control strategies in dynamic

environments. RL applications include autonomous systems, process optimization, and robotic control, improving automation efficiency and adaptability.

The session concluded with remarks from Er. Neeraj Singhal, Director of SCRIET, Meerut, who emphasized the significance of World Engineering Day and the contributions of engineers to sustainable development. Finally, Er. S.C. Mittal, Hony. Secretary delivered the vote of thanks, expressing gratitude to the speakers and participants for their valuable contributions.

World Water Day Date: 22-03-2025

World Water Day was celebrated on 22-03-2025 at the Meerut Local Centre on the theme "Glacier Preservation" under the chairmanship of Er. R.P. Agrawal, Chairman of the Local Centre, Meerut. The event was convened by Er. Ramesh Chand, Joint Secretary, Meerut Local Centre. Er. R.P. Agrawal welcomed all the attendees in general and the speakers Er. P.S. Singhal and Er. B.D. Sharma in specific.

Er. P.S. Singhal, a civil engineering graduate from IIT Roorkee, served in P.W.D. and U.P. Irrigation. With vast experience in the construction of canals, buildings, roads, and hydro power houses, he delivered a presentation on Glacier Preservation, emphasizing the importance of glaciers with the statement in Hindi: ग्लेशियर हैं तो जल है, जल है तो जीवन है.

This means:

"Glaciers exist, so water exists; water exists, so life exists."

The presentation focused on discussing glacier preservation on the World Water Day. Key questions raised included how to preserve glaciers and what global actions are being taken by various countries.

The preservation of glaciers is only possible by reducing global warming and curbing greenhouse gas emissions. Global initiatives aim for a 45% reduction in greenhouse gas emissions and achieving zero emissions by 2050.

Greenhouse gases contribute to global warming by trapping heat in the Earth's atmosphere, a process known as the greenhouse effect. Human activities are the primary cause of this phenomenon. To mitigate global warming, the following ten strategies were highlighted:

Transitioning away from fossil fuels such as coal, oil, and gas.

Shifting towards renewable energy sources like solar, wind, and hydro power.

Improving energy efficiency.

Reducing meat consumption.

Promoting sustainable transportation, including public transport (trains, buses), cycling, and walking instead of personal cars.

Implementing strict laws to reduce deforestation.

Encouraging water conservation.

Controlling human population growth.

Raising public awareness on environmental issues.

Increasing research programme on glaciers.

Er. B.D. Sharma, M. Tech, MIE (India), currently serves as the Convener of the Indian Water Resources Society, Meerut Local Centre. Having worked on rainwater harvesting systems since 2008, he shared insights on the World Water Day 2025 theme, 'Glacier Preservation.'

He highlighted that the event was celebrated under the aegis of UNESCO and the World Meteorological Organization (WMO), emphasizing the importance of glaciers as an integral part of the natural water cycle. Their formation, lifespan, rate of melting, and weather impacts are crucial to sustaining life.

Glaciers serve as natural water reservoirs, ensuring a continuous supply of water for agriculture, industries, religious rituals, and domestic use. Glacier-fed rivers such as the Ganga, Yamuna, Sutlej, Sindhu, and Brahmaputra leave significant impacts on their respective catchment areas, often resulting in either devastating floods or severe water shortages.

The Himalayas, which control meteorology and water resources, require a dedicated Ministry at the Government of India level to conduct in-depth studies, implement control measures, and ensure disciplined monitoring of this crucial natural resource.

According to a Central Water Commission (CWC) Report, the area of lakes and ponds in mountainous regions has increased by 10.81% (from 533,401 hectares to 591,108 hectares) due to the accelerated melting of glaciers. This alarming trend is primarily due to human interference, deforestation, greenhouse gas emissions, and unregulated construction activities using heavy earth-moving machinery.

To mitigate the impact of these changes, several advanced weather forecasting techniques must be adopted. The Central Water Commission recommends using:

Sentinel-1 – Synthetic Aperture Radar (SAR) for high-resolution monitoring.

Sentinel-2 – Multi-Spectral Imagery Technique, which provides accurate data even in cloudy weather, with a precision of up to 10 meters.

Additionally, it was emphasized that the human-induced disturbances affecting glacier formation and melting patterns require comprehensive research and in-depth analysis.

Several esteemed members of the institution also shared their views on water conservation.

Finally, Er. S.C. Mittal, Honorary Secretary, Meerut Local Centre, The Institution of Engineers (India), delivered the vote of thanks, expressing gratitude to all participants for their valuable contributions.

National Maritime Day Date: 05-04-2025

Celebration of National Maritime Day – 05 April 2025

National Maritime Day was celebrated on 05 April 2025 by organizing a webinar on Google Meet. The event was hosted by the Institution of Engineers (India), Meerut Local Centre. Er. R.P. Agrawal, Chairman of the Centre, warmly welcomed the members and guests.

The keynote speaker for the occasion was Er. Ranvir Singh, FIE, Retired Chief Engineer, Merchant Navy. The theme for this year's World Maritime Day, which will be observed globally in the last week of September 2025, is "Our Ocean, Our Obligation, Our Opportunity." The same theme was adopted for India's National Maritime Day celebration.

Er. Ranvir Singh highlighted the crucial role of oceans in both national and global economies, noting that over 80% of global trade is transported by sea. He emphasized the ocean's significance as a source of employment and food for millions, a habitat for diverse marine life, and a regulator of the Earth's climate, helping mitigate the effects of climate change.

He further elaborated on the significance of National Maritime Day, which commemorates the maiden voyage of S.S. Loyalty, the first Indian-owned ship that sailed from Mumbai to London in 1919. India, with a coastline of approximately 8,000 kilometers, hosts 12 major ports and over 200 minor ones. These ports handle about 95% of the country's trade by volume and 70% by value.

Er. Singh underlined the pivotal role of the shipping industry in safeguarding the marine environment and sustainably managing ocean resources. He discussed how, over the years, the International Maritime Organization (IMO) has developed and enforced various mandatory regulations, recommendations, and guidelines aimed at minimizing the

environmental impact of shipping. These include global treaties to prevent pollution from oil, hazardous chemicals, packaged goods, sewage, garbage, and harmful emissions from ships. IMO's efforts support the United Nations 2030 Agenda for Sustainable Development, particularly SDGs 14 (Life Below Water), 13 (Climate Action), 9 (Industry, Innovation, and Infrastructure), and 17 (Partnerships for the Goals).

As a maritime lawyer, Er. Singh also provided a comprehensive overview of maritime laws, followed by an engaging question-and-answer session.

The webinar concluded with a vote of thanks delivered by Er. S.C. Mittal, Honorary Secretary, Meerut Local Centre. The event was convened by Er. Rajneesh Kumar.

(A) Lecture Meeting:

By Dr. S.A. Rizvi on 12-01-2025

Safety During welding and welding defects

On January 12, 2025, a lecture meeting was organized by the Local Centre of the Institution of Engineers (India), Meerut on the webinar. The event was chaired by Er. R. P. Agrawal, Chairman, and convened by Dr. K. L. A. Khan, Dean IEC and Professor, Department of Mechanical Engineering KIET Group of Institutions. The lecture was delivered by Dr. S. A. Rizvi, Workshop Superintendent in the Faculty of Engineering & Technology, Jamia Millia Islamia, New Delhi.

At the outset, Er. R. P. Agrawal welcomed all members attending the webinar and granted permission to commence the lecture. Dr. Rizvi delivered a detailed presentation on welding, its safety hazards, defects, and remedies.

Welding Safety Hazards:

Dr. Rizvi elaborated on various welding safety hazards, which include:

Fire hazards, Metal splatter, Electric shock, Explosion hazards, Released gases

And Radiant energy.

He further categorized welding defects into two types:

External Defects, Weld crack, Undercut Spatter, Porosity, Overlap and Crater formation.

Internal Defects:

Slag inclusion, Incomplete fusion, Necklace cracking and Incomplete penetration

Dr. Rizvi explained common welding defects, their causes, and suggested remedies:

Cracks:

Cause: Use of hydrogen in ferrous metals. Remedy: Preheat metal

Cause: Residual stress. Remedy: Ensure proper cooling

Porosity:

Cause: Longer arc. Remedy: Use proper arc length

Cause: Presence of moisture. Remedy: Remove moisture

Lack of Penetration:

Cause: Faster arc travel speed. Remedy: Adjust speed appropriately

Cause: Small root gap. Remedy: Maintain correct root gap

Spatter:

Cause: Excessive current. Remedy: Use moderate current

Cause: Damped electrode. Remedy: Use fresh or baked electrode

Slag Inclusion:

Cause: Improper slag removal. Remedy: Ensure complete slag removal

Cause: Long arc length. Remedy: Use proper arc length

Undercut:

Cause: Poor weld technique. Remedy: Use a multi-pass technique

Cause: Incorrect gas usage. Remedy: Select the correct shielding gas

Crater Formation:

To prevent crater formation, Dr. Rizvi advised maintaining the arc at the weld end to allow the crater to fill adequately.

The session concluded with an interactive question-and-answer session, where students actively participated and displayed keen interest in the subject. The lecture was well-received, and attendees appreciated the valuable insights that enhanced their technical knowledge. In conclusion, Er. S. C. Mittal, Hon. Secretary, presented a vote of thanks.

(B) Other Activities:

1. Republic Day Celebration: Republic Day was celebrated on January 26, 2025, at the IEI Office, marking the spirit of national pride and unity.

Editorial Board