Address of Welcome

By

Engr. Najam Waheed, President
Pakistan Engineering Congress

at

77th Annual Session (Proceedings)
December 26, 2024

WELCOME ADDRESS BY PRESIDENT PAKISTAN ENGINEERING CONGRESS 77th ANNUAL SESSION

Honorable Chief Guest

Distinguished Delegates

Members of Pakistan Engineering Congress

Ladies & Gentlemen!

Aslamoalaikum

It gives me immense pleasure to welcome you all to this auspicious occasion of 77th annual session of Pakistan Engineering Congress. It is a great honour that His Excellency Dr. Asad Majeed Khan, Secretary General of the ECO, acceded to our request to inaugurate this annual session. Excellency, we highly value and appreciate your presence keeping in view your extremely busy schedule.

Ladies and Gentlemen

I avail this opportunity to mention the rich legacy of this esteemed organization; its contributions to the field of engineering, and its unwavering commitment to societal development.

Pakistan Engineering Congress, was founded over a century ago in 1912, it stands today as a testament to the vision and dedication of engineers, who sought to build a better future for our nation. From a very humble beginning, it has attained a recognized status of being the oldest professional engineering organization in the country.

Over the decades, the Congress has been a beacon of knowledge and its activities are devoted solely to the advancement of engineering knowledge and practice.

It has the unique honour of having on its rolls all the eminent engineers who have lived and worked in this part of the sub-continent that now constitutes Pakistan. The scientific contributions and the engineering made from the platform of this organization have won world recognition. Some of the most important advances made in the field of irrigation engineering were first presented before the congress in the form of scientific papers. It also provides platform for engineers to enhance their knowledge and skill sets through exchange of ideas, sharing best practices; for contributing in the growth and development of Pakistan.

Ladies and Gentlemen

Pakistan Engineering Congress continually strives to provide opportunities to its members for sharing of practical knowledge & experiences

by arranging technical sessions, seminars, workshops and lectures on vital issues in addition to technical study tours of significant engineering projects.

It also collaborates and fosters the exchange of technical knowledge through participation and invitation to international technical forums such as the International Commission on Large Dams (ICOLD), international commission on irrigation and drainage ICID where congress members also served on important committees such as the Permanent Committee on Technical Activities. Also, the congress has the unique honour of having 2 vice presidents who also served as presidents of the congress. In addition to active participation of its members in ASCE USA.

It is a matter of great honor and pride that highly qualified engineers and top experts of the country in their respective fields of engineering are part of the fraternity of Pakistan Engineering Congress. The objective is to promote engineering knowledge and practices, to help the engineers in raising their standards for providing their services to the people of Pakistan. It also aims at promoting self-reliance and ethical standards for the engineering community, and to provide a forum for discussing and investigating different technical and management problems.

Furthermore, Computer Center of Pakistan Engineering Congress established in 1994 offers IT courses for engineers, executives, and the general public, including advanced programming and designing. Thousands of young engineers and students have already been trained at nominal fees.

Ladies and Gentlemen

Pakistan Engineering Congress holds seminars and symposia on current issues such as water scarcity, climate change, and environmental degradation. The Congress actively participates in events like World Water Day and World Environment Day to highlight these important issues and also raising awareness about pollution control, renewable energy, and sustainable practices.

Additionally, Engineering News, a quarterly journal published by the Congress since 1958, features professional papers on various engineering topics. These papers are available for reference and consultation at the Congress Head Office library and are also distributed free of cost to various institutions, engineering universities and to the libraries.

Ladies and Gentlemen!

The Congress also spends a major part of its resources to encourage talented youth through offering of scholarships to under-graduate as well as post graduate engineering students of accredited public as well as private engineering universities. In this context, I would also like to mention that in this age of information technology, where the world has squeezed to a global village, Congress is also looking for avenues to have arrangements with various foreign universities & institutions for updation of the knowledge & improvement in skill

sets of our engineering students / researchers. Accordingly, availing this opportune moment, may I also request our worthy Chief Guest of the day, for his support through his high office in joining this effort with Congress.

Ladies and Gentlemen

The Congress also aims to bring together talented individuals from academia, industry, and government to exchange their expertise and experiences, address implementation challenges, and collaborate on creative and effective solutions for future research that connects to real-life applications. For this, at every annual session, technical papers are presented and discussed.

Excellency,

During this session, which you have very kindly consented to inaugurate, technical papers are being-presented covering various important subjects. A symposium on the subject of "Air Quality Management in Pakistan" is also being held as part of this Annual Session.

Ladies and Gentlemen

As we look ahead, the Pakistan Engineering Congress remains steadfast in its mission to inspire innovation, foster collaboration, and drive progress. Our engineers are the backbone of Pakistan's development, and it is through their expertise and dedication that we can overcome challenges and seize opportunities.

In the end His Excellency, I extend sincere gratitude on behalf of the Executive Council of the Congress, Engineering Community in general and on my own behalf in particular for your presiding over this in-augural session despite your pressing engagements.

Together, let us continue to uphold the legacy of this organization and work towards a brighter, more sustainable future for Pakistan.

Thank you, and may Allah (SWT) bless us with success in our efforts.

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Inaugural Address

By

The Chief Gust
His Excellency, Amb. Dr. Asad Majeed Khan,
Secretary General Economic Cooperation Organization

at

77th Annual Session
December 26, 2024

Pakistan Engineering Congress
77th Annual Session

Inaugural Address

By

His Excellency, Amb. Dr. Asad Majeed Khan,

Secretary General Economic Cooperation Organization

President Pakistan Engineering Congress

Eminent Scholars of Engineering Fraternity,

Members of Pakistan Engineering Congress

Distinguished Delegates

Ladies & Gentlemen!

Assalam o Alaikum!

I feel great honor to address such a gathering of luminaries of engineering profession on this auspicious occasion of 77th Annual Session of Pakistan Engineering Congress. The Congress is a formidable institution engaged in the noble cause of facilitating in a robust way, the spread of engineering studies at undergraduate and post graduate level instituting 200 scholarships for undergraduate / post graduate engineering studies and disbursing Rupees 200 Million every year. The effort of the Congress ought to be vociferously lauded.

Ladies & Gentlemen!

Researchers, students of engineering disciplines, project planners have an awesome technical output of **790** papers on myriad concepts, engineering policies, mega completed development projects in addition to **346** papers read at symposiums on theme of National and International context readily available at its website for consultation at ease. No mean achievement. The Computer College of the Congress is also imparting professional I.T courses at extremely subsidized economical rates both foreign & domestic students and professional engineers and is further expanding its cooperation. This augurs well for the socio-economic advancement of the country.

Ladies & Gentlemen!

Leave aside America, Euro-Country & peep at the gigantic achievements of “Hong Kong (China) Singapore, South Korea, Taiwan etc., in the economic field. It would emerge that it is due to the strenuous efforts of their private sector, public-private collaboration. And the advanced economies. The cataclysmic achievements in the field of science, technology, cloud computing, satellite engineering, robotics and artificial intelligence all are in the private sector of these Countries who are making huge sponsorship investment in research, innovation and inventions.

Grant of already embarked upon the programme of facilitating the private sector, providing start-up capital to the young professional for setting-up small and medium Industries. Industrial Zones are being established at appropriate places turning Gawader Port and Gawader as an industrial and commercial hub under CPEC.

Government is also cognizant of the looming of water-scarcity (being water short Country). Action at warfooting is underway for the construction of Mega Diamer Hydro Power Project, Mohmand Dam as well as small Dams at various sites.

The Government has also started a number of Schemes for providing better standard of living for the marginalized people through financial assistance, importing technical education, health insurance coverages, food package distribution etc. We are stire sure to emerge as a fast-growing welfare state.

Glimpses of

77th Annual Session
December 26-28, 2024

77th Annual Session – Pakistan Engineering Congress





Group Photo of 77th Executive Council of Pakistan Engineering Congress with **Dr. Asad Majeed Khan, Chief Guest** 77th Annual Session



(From Left) Engr. Najam Waheed President PEC, Dr. Asad Majeed Khan Chief Guest, Engr. Nayyar Saeed Secretary Pakistan Engineering Congress



Engr. Najam Waheed President-PEC Presenting Welcome Address at the event



Chief Guest Dr. Asad Majeed Khan delivering Concluding Remarks at the event



Engr. Najam Waheed President-PEC presenting Congress Shield to Dr. Asad Majeed Khan, Chief Guest 77th Annual Session



(From Left) Engr. Dr. Muhammad Riaz, Engr. Zubair Imran Khawaja Chairman Technical Session, Engr. Muhammad Ammar Joint Secretary-PEC



Engr. Zubair Imran Khawaja, Chairman Technical Session, delivering his remarks



Engr. Riaz Nazir Tarar presenting his paper on “What Next After Diamer Basha Dam”



(From Left) Engr. Dr. Muhammad Riaz Co-Chairman Technical Session, Engr. Zubair Imran Khawaja Chairman Technical Session presenting Congress Shield to Engr. Sohail Kibria for his paper on “Evaluation of Scour Depth in Soils and Rocks-State of the Art Guidelines”



(From Left) Engr. Dr. Muhammad Riaz Co-Chairman & Engr. Zubair Imran Khawaja Chairman Technical Session, presenting Congress Shield to Prof. Dr. Ingr. Syed Ali Rizwan for his paper on “Response of Optimized Self-Compacting Concrete using Particle Packing Concepts and Supplementary Cementitious Materials (SCMS)”



(From Left) Engr. Dr. Muhammad Riaz Co-Chairman & Engr. Zubair Imran Khawaja Chairman Technical Session, presenting Congress Shield to Mr. Abdul Rehman Ch. for his paper on “Construction of Railway Bridge on River Indus at Taunsa Barrage”



Engr. Najam Waheed President-PEC presenting Congress Shield to
Engr. Dr. Muhammad Riaz, Co-Chairman of the Session



Engr. Najam Waheed President-PEC presenting Congress Shield to
Engr. Zubair Imran Khawaja, Chairman of the Session



(From Left) Engr. Safdar Ali Khan Co-Chairman, Mr. Shahid Hameed Chairman of the Session & Engr. Muhammad Ammar Joint Secretary-PEC



(From Left) Engr. Safdar Ali Khan Co-Chairman & Mr. Shahid Hameed Chairman Technical Session presenting Congress Shield to Mr. Jehanzeb for his paper on “An Overview of Diamer Basha Dam Project”



(From Left) Engr. Safdar Ali Khan Co-Chairman & Mr. Shahid Hameed Chairman Technical Session presenting Congress Shield to Mr. Mazhar Hussain Mahu for his paper on "Experiments of Archimedes Screw Turbine on Main Line Lower at Fall Rd 19+850



(From Right) Engr. Capt. (R) M. Qadir Khan Vice President-PEC, Mr. Shahid Hameed Chairman Technical Session, Engr. Najam Waheed President-PEC, presenting Congress Shield to Engr. Safdar Ali Khan Co-Chairman Technical Session



(From Left) Engr. Safdar Ali Khan, Engr. Najam Waheed President-PEC, presenting Congress Shield to Mr. Shahid Hameed Chairman Technical Session



(From Left) Engr. Shariq Ahmad Co-Chairman, Engr. Dr. Javed Iqbal Chairman Technical Session, Engr. Muhammad Ammar Joint Secretary-PEC



(From Left) Engr. Shariq Ahmad Co-Chairman & Engr. Dr. Javed Iqbal Chairman Technical Session, presenting Congress Shield to Engr. Dr. Ahsan Bela for his paper on “Waste Generation and Characterization”



(From Left) Engr. Shariq Ahmad Co-Chairman & Engr. Dr. Javed Iqbal Chairman Technical Session, presenting Congress Shield for paper on “Real Time & Predictive Analysis of Sea Surface Temperature Variability in El Nini and La Nina Weather Cycle along Pakistan Coast”



(From Left) Engr. Shariq Ahmad Co-Chairman of the Session, Engr. Dr. Javed Iqbal Chairman of the Session, presenting Congress Shield to Dr. Habib ur Rehman for his paper on “Physico-Chemical and Microbiological Water Quality Assessment of Mehmood Booti Drain in Lahore City“



(From Left) Engr. Shariq Ahmad Co-Chairman & Engr. Dr. Javed Iqbal Chairman Technical Session, presenting Congress Shield to Ms Maryam Khan for her paper on “Efficiency Analysis of Jet Pulsing Dust Collector to Control Air Pollution”



(From Right) Engr. Dr. Javed Iqbal Chairman Technical Session, Engr. Ch. Muhammad Arif Vice President-PEC & Engr. Muhammad Ibrahim Malik, presenting Congress Shield to Mr. Shariq Ahmad Co-Chairman Technical Session



Engr. Shariq Ahmad Co-Chairman Technical Session, Engr. Muhammad Ibrahim Malik & Engr. Ch. Muhammad Arif Vice President-PEC presenting Congress Shield to Dr. Javed Iqbal Chairman Technical Session

Glimpses of Audiences





Glimpses of Audiences





Keynote Address
By
Engr. Husnain Ahmad,
Convener Symposium Committee
Pakistan Engineering Congress
on the eve of
Annual Symposium on the theme of
"Air Quality Management in Pakistan"

77th Annual Session
December 27, 2024

PAKISTAN ENGINEERING CONGRESS
ANNUAL SYMPOSIUM (DECEMBER 12, 2024)
ON THE THEME OF
AIR QUALITY MANAGEMENT IN PAKISTAN
KEYNOTE ADDRESS

By

ENGR. HUSNAIN AHMAD[1]

Honorable Chief Guest – Dr. Jahanzeb Khan Sahib,

Distinguished delegates,

Fellow Engineers,

Ladies and Gentlemen:

Assalam-o-Alaikum and a very Good morning!

Air quality management is a crucial element in safeguarding public health, preserving the environment, and promoting sustainable development. As urbanization and industrialization continue to accelerate, the degradation of air quality has emerged as one of the most pressing challenges faced by many nations.

Current State of Air Quality in Pakistan

In Pakistan, this issue has reached alarming levels, with major cities consistently experiencing hazardous air pollution. In the recent years especially during the last decade, Pakistan has witnessed a significant decline in air quality, with pollutants frequently exceeding acceptable limits. According to the Pakistan Environmental Protection Agency (Pak-EPA) and various research institutions, the average annual concentration of PM2.5— a dangerous particulate matter that poses serious health risks—has consistently remained alarmingly high. In 2021, studies highlighted that major urban areas like Lahore recorded average PM2.5 levels of around 95 µg/m³, markedly higher than the World Health Organization's (WHO) safe limit of 10 µg/m³annually and25 µg/m³ daily. Unfortunately, Pakistan's air pollution levels have fallen significantly short of these standards. During, 2023 the average PM2.5 concentration in Pakistan rose to 160: 14.7 times the WHO annual air quality guideline value.

Lahore and Karachi often rank among the most polluted in the world, with particulate matter (PM2.5) and other harmful pollutants exceeding the World Health Organization's recommended safe limits. For instance, during the winter months, Lahore frequently records some of the worst air quality indices (AQI) in the world. The AQI during smog episodes in winter often surpasses 300, a level classified as hazardous. Poor air quality not only contributes to respiratory illnesses and

[1] Convener Symposium Committee / Vice President Pakistan Engineering Congress

cardiovascular diseases but also imposes significant economic burdens due to increased healthcare costs and reduced labor productivity.

In 2020, a report from the State of Global Air indicated that approximately 125,000 deaths in Pakistan were attributable to air pollution, emphasizing a severe public health crisis.

Comparatively, countries in South Asia and across the globe are also facing with air quality issues, but Pakistan's urban centers have consistently reported some of the highest levels of pollution. While some nations are making strides towards cleaner air, efforts in Pakistan are hindered by regulatory challenges and insufficient awareness regarding the health impacts of poor air quality.

Sources of air pollution

The multifaceted nature of air quality issues in Pakistan is influenced by various factors, including vehicular emissions, industrial discharge, burning of solid waste, and agricultural practices.

Understanding the sources of air pollution is critical to devising effective management strategies. In Pakistan, several key contributors have been identified:

1. Industrial Emissions: Rapid industrial growth, especially in urban areas, has led to increased emissions from factories. The lack of adherence to environmental standards has resulted in the release of harmful substances, including heavy metals, particulate matter, and volatile organic compounds.

2. Vehicular Emissions: With a rapidly growing urban population, the number of vehicles on the roads has surged. The transportation sector contributes significantly to air pollution, particularly in major cities where traffic congestion is common. According to estimates, vehicular emissions contribute over 60% of urban air pollution, especially from old and poorly maintained vehicles.

3. Household Activities: The use of cheap fuels, such as wood and coal, for cooking and heating in many households contributes to indoor and outdoor air pollution. Reports suggest that around 70% of rural households rely on solid fuels, impacting air quality and exacerbating health issues.

4. Agricultural Practices: Stubble burning is a significant environmental concern in agriculture. Farmers often set fire to crop residues postharvest to clear fields for the next planting season. This practice releases vast amounts of smoke and particulate matter

Health Impacts of Poor Air Quality

Air pollution leads to an estimated 128,000 premature deaths annually in Pakistan (Lancet Countdown, 2021). Common health issues include asthma, chronic obstructive pulmonary disease (COPD), and ischemic heart disease. Children and the elderly are particularly vulnerable.

Poor air quality in Pakistan poses a significant threat to public health, contributing to respiratory and cardiovascular diseases, reducing life expectancy, and imposing a substantial economic burden. Addressing this issue requires a multi-faceted approach, including stricter enforcement of environmental regulations, public awareness campaigns, and investment in cleaner technologies. Improving air quality

is essential for protecting the health and well-being of the population and ensuring sustainable development in Pakistan.

Environmental Consequences of Poor Air Quality in Pakistan

Air pollution is also a critical issue in Pakistan, with respect to its significant environmental consequences. The country's rapid industrialization, urbanization, and reliance on fossil fuels have led to deteriorating air quality, impacting the environment with consequences on ecosystems including forests, rivers and agricultural lands. It also contributes significantly to climate change, emissions of greenhouse gases (GHGs) such as carbon dioxide (CO2), methane (CH4), and black carbon that also affect health of flora and fauna.

Economic Consequences

Air pollution imposes a heavy economic burden, with estimated annual losses of $20 - 22 billion USD, equivalent to 5.9% to 6.5% of Pakistan's GDP (World Bank, 2023). These costs arise from healthcare expenditures, lost labor productivity, and decreased agricultural yields.

Regulatory Framework and Policies in Pakistan

Pakistan's regulatory framework and policies have evolved significantly over the years to address various economic, social, and environmental challenges. The regulatory environment in Pakistan encompasses a wide range of sectors, including finance, industry, environment, and public health. Environmental protection is a critical aspect of Pakistan's regulatory framework. The Pakistan Environmental Protection Agency (Pak-EPA) is responsible for enforcing environmental laws and regulations to ensure sustainable development and protect natural resources.

Pakistan's regulatory framework and policies play a crucial role in promoting economic growth, ensuring environmental sustainability, and protecting public health. While significant progress has been made, there is a need for continuous improvement and adaptation to address emerging challenges. Strengthening regulatory institutions, enhancing enforcement mechanisms, and promoting transparency are essential for achieving sustainable development in Pakistan.

Technological Innovations and Best Practices for Air Quality in Pakistan

Technological innovations and best practices are essential to mitigate air pollution and improve air quality. Some of the key technological advancements and best practices in air quality management those may help in air quality in Pakistan includes the following;

1. Smart Air Quality Monitoring Systems using advanced sensors and data analytics to provide real-time information on air quality parameters such as particulate matter (PM2.5 and PM10), nitrogen dioxide (NO2), sulfur dioxide (SO2), and ozone (O3) to identify pollution hotspots and take timely action to mitigate pollution.

2. Catalytic Converters: Catalytic converters to reduce harmful emissions in vehicles can significantly reduce vehicular emissions, which are a major source of air pollution in urban areas.

3. Renewable Energy Technologies help reduce the reliance on fossil fuels. Pakistan has made significant investments in renewable energy projects, such as the

Quaid-e-Azam Solar Park and the Jhimpir Wind Corridor, to promote sustainable energy production.

4. Electrostatic Precipitators: Electrostatic precipitators to remove particulate matter from exhaust gases. This technology is highly effective in reducing industrial emissions and improving air quality.

5. Bio-filtration and Bio-remediation: Biofiltration and bioremediation are innovative technologies to clean up contaminated environments. These technologies offer sustainable and cost-effective solutions for air pollution control.

Best Practices for Air Quality Management

Technological innovations and best practices are essential for addressing the air quality challenges in Pakistan. By adopting smart air quality monitoring systems, catalytic converters, renewable energy technologies, electrostatic precipitators, and biofiltration, Pakistan can significantly reduce air pollution. Implementing air quality standards, promoting public awareness, enhancing regulatory frameworks, encouraging research and innovation, and integrating green infrastructure are key best practices for effective air quality management. International collaboration and cooperation are also crucial for achieving sustainable air quality improvements. By embracing these innovations and best practices, Pakistan can create a cleaner and healthier environment for its citizens.

Strategic Recommendations for Improving Air Quality in Pakistan

Air pollution is a pressing issue in Pakistan, with significant health, environmental, and economic impacts. To address this challenge, it is crucial to implement strategic measures that enhance public awareness and education, as well as strengthen regulatory enforcement. Here are some detailed recommendations:

Enhancing Public Awareness and Education

Conduct awareness programs to educate citizens about air pollution's health impacts and their role in mitigation.

Strengthening Regulatory Enforcement

Improving air quality in Pakistan requires a multifaceted approach that combines public awareness and education with strong regulatory enforcement. By implementing comprehensive public awareness campaigns, integrating air quality education into school curricula, engaging communities, and collaborating with NGOs, Pakistan can raise awareness and foster a culture of environmental responsibility. Strengthening environmental regulations, enhancing monitoring and reporting, building the capacity of regulatory agencies, promoting compliance through incentives and penalties, and improving interagency coordination are essential steps to ensure effective enforcement and sustainable air quality improvements. With a rapidly growing population and urban infrastructure, the challenge of managing air quality becomes even more critical. Addressing these issues is essential for ensuring the health of citizens and the sustainability of the environment. These strategic recommendations can help Pakistan address its air pollution challenges and protect the health and well-being of its citizens.

The objective of this symposium is also to bring together experts, policymakers, researchers, and stakeholders to engage in meaningful dialogue surrounding air

quality management in Pakistan. This event aims to share knowledge, discuss innovative strategies, and develop actionable plans to combat air pollution. By fostering collaboration and creating a platform for the exchange of ideas, we aspire to pave the way for effective policies and practices that will lead to improved air quality and a healthier future for all citizens of Pakistan.

I am confident that with papers covering significant aspects of Air Quality Management, starting from analysis of the existing situation with a review on Air Pollution control Technologies, GIS based Health Risk Assessment, along with meaningful pollution Governance Strategies in Pakistan shall help us in understanding and better management of Air Quality in Pakistan. Papers in this Symposium also include case studies on Seasonal Variability of Air Quality in Lahore and Spatial and Temporal Analysis aimed at highlighting implications of PM2.5 in Lahore for Public Health and Policy Making. Likewise, another paper highlights the importance and need of Scientific Framework for Clean Air in Karachi. The effort of the authors deserve not only due audience but a great appreciation for their painstaking work and efforts for presenting there work in this Symposium.

Finally, it is important to understand that together we can drive change and create a cleaner, more sustainable environment for generations to come.

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Glimpses of Annual Symposium

(77th Annual Session)
December 27, 2024

Annual Symposium on the theme of "Air Quality Management in Pakistan"



(From Left) Engr. Husnain Ahmad, Vice President PEC,
Mr. Muhammad Jehanzeb Khan, Chief Guest, Engr. Najam Waheed, President PEC,
Engr. Iftikhar Ahmad & Engr. Muhammad Ibrahim Malik



(From Left) Engr. Nayyar Saeed Secretary-PEC, Engr. Najam Waheed President-PEC, Mr. Muhammad Jehanzeb Khan Chief Guest,
Engr. Husnain Ahmad Vice President-PEC



Engr. Husnain Ahmad Convener Symposium Committee delivering Key Note Address at 77th Annual Symposium



Chief Guest Mr. Muhammad Jehanzeb Khan delivering Concluding Remarks at the event



(From Right) Engr. Husnain Ahmad Vice President-PEC / Convener Symposium Committee, Engr. Najam Waheed President-PEC, presenting Congress Shield to Mr. Muhammad Jehanzeb Khan, Chief Guest



Engr. Nayyar Saeed Secretary-PEC Conducting the Proceedings



(From Right) Engr. Dr. Javed Iqbal Chairman of the Session, presenting Congress Shield to Ms Tayyaba Gulzar for her paper on “A Review on Air Pollution Control Technologies Commonly Employed in the Industrial Sector“



(From Right) Engr. Dr. Javed Iqbal Chairman of the Session, presenting Congress Shield to Dr. Irfan Jalees for his paper on “GIS-Based Health Risk Assessment of Ambient Air Quality Due To Rapid Urbanization in Lahore, Pakistan”



(From Right) Engr. Dr. Javed Iqbal Chairman of the Session, presenting Congress Shield to Mr.M. Ali Amjad for his paper on “A Study on the Seasonal Variability of Air Quality in Lahore City”



(From Right) Engr. Dr. Javed Iqbal Chairman of the Session, presenting Congress Shield to Mr. Syed Tehzeeb ul Hassain for his paper on “Towards More Effective Air Pollution Governance Strategies in Pakistan: A Systematic Review of the Literature”



(From Right) Engr. Dr. Javed Iqbal Chairman of the Session, presenting Congress Shield to Ms Masooma for her paper on “Understanding the Relationship Between Air Pollution and Meteorological Conditions and Finding Solutions to Air Pollution Problems at the Community and Individual Level”



(From Right) Engr. Najam Waheed President-PEC, presenting Congress Shield to Engr. Dr. Javed Iqbal Chairman of the Session.

Glimpses of Audiences





Glimpses of 78th Annual General Meeting

(77th Annual Session)
December 28, 2024

78th Annual General Meeting 2024
Pakistan Engineering Congress



Engr. Muhammad Ammar Member Executive Council Conducting the Proceedings



Engr. Nayyar Saeed presenting Secretary Report at the 77th Annual General Meeting



Engr. Sh. Mushtaq Ahmed



Engr. Khalid Zia Cheema

Glimpses of Audiences





Glimpses of Audiences



