

International Conference on Coal Based Power Confronting Environmental Challenges

**17-19 March, 2016
India Habitat Centre,
Lodhi Road, New Delhi**



Centre for Science and Environment

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CSE: Who are we? What do we do?

The Centre for Science and Environment (CSE) is a public interest research and advocacy organisation based in New Delhi. CSE researches into, lobbies for and communicates the urgency of development that is both sustainable and equitable.

The Centre was founded in 1980 by noted environmental thinker and activist, the late Anil Agarwal. Since then it has 'worked' India's democracy to push for change in policy and practice for sustainable and inclusive growth. We strongly believe that countries like India require a paradigm shift in environmental technology and management to be able to cope with growing degradation. But most importantly, we require strategies to involve people in management; regenerate natural resources for livelihood, water and food security so that poverty is addressed. Without this, sustainable growth is not possible. Our work and campaigns are spread across different sectors – from water to waste management, air pollution to mobility transformation and green industrialization to resource efficiency.

Our strategy is to do rigorous and forensic research on environmental issues; provide solutions and then work with multipliers – media NGO's, students and teachers and regulators – to take the thought and practice forward.

Over the years, CSE's work has grown, but so has the challenge of successful environmental management. Today, even as many countries of the developing world are struggling to find solutions to immediate problems of poverty, hunger, water scarcity and pollution, the entire world is faced with the catastrophe of climate change. In this era of global environmental change, our area of work has expanded, as has the focus on how we can make change. We believe our work must and can make a difference.

For more information on CSE, please visit our website: www.cseindia.org and downtoearth.org.in

CSE PROGRAMMES

RESEARCH AND ADVOCACY	KNOWLEDGE DISSEMINATION	BUILDING CAPACITY/ EDUCATION/ MONITORING
<ul style="list-style-type: none">◆ Sustainable Industrialisation◆ Clean Air and Sustainable Mobility◆ Sustainable Urbanisation and Green Buildings◆ Water and Wastewater Management◆ Climate Change◆ Renewable Energy◆ Food Safety	<ul style="list-style-type: none">◆ Down To Earth◆ Portal/ Specialised websites◆ Publications	<ul style="list-style-type: none">◆ Anil Agarwal Environment Training Institute◆ Environment Education◆ Media Resource Centre◆ Pollution Monitoring Lab

International Conference on Coal Based Power Confronting Environment Challenges

The coal-based power sector is globally in the midst of a major transition. Though it will remain central to energy requirements particularly for emerging economies, its significant environmental impact needs to be urgently addressed.

Representatives from India and other emerging economies including China, Indonesia, and South Africa, have been called to share their views on the role of coal in the national energy mix, approaches and challenges in technology transition, policy and regulatory initiatives, and best operating practices, and ways to improve enforcement and compliance mechanisms. These different perspectives will help bring together shared learnings to improve the environmental performance of the thermal power sector in emerging economies.

The government of India has recently passed new environmental regulations substantially tightening emissions standards and reducing water consumption. India's INDC goals will also require a state-of-the-art high efficiency thermal power fleet. Implementing these new policies will be challenging given the huge investment needs.

This conference aims to identify potential solutions to comply with the new regulatory framework for the thermal power sector in India, and ways to improve the performance of the sector by drawing from experiences and learnings from other countries.

THE PROGRAMME

Day I: 17 March 2016, Thursday

Venue: Gulmohar Hall, India Habitat Centre, New Delhi

Registration 08:30AM-09:15AM

Session 1: Welcome and Introduction: Role of Coal in India (09.30 AM to 10.45 AM)

09:30-09:45	Welcome Address Sunita Narain, Director General, CSE
09:45-10:00	Overview Chandra Bhushan, Deputy Director General, CSE
10:00-10:15	Guest of Honour Ashok Lavasa, Secretary, Ministry of Environment, Forest and Climate Change
10:15-10:30	Chief Guest Piyush Goyal, Minister of Power, Coal, New and Renewable Energy (tbc)
10:30-11:00	Tea Break

Session 2: Coal Based Power in Emerging Economies (11:00AM to 01:00 PM)

Coal Based Power in Emerging Economies

Despite its significant environmental and public health impacts, coal continues to play a vital role in electricity generation worldwide. Emerging economies are now faced with the challenge of having to balance their developmental interests with the environmental and social impacts of coal based power as well as their international climate obligations.

Currently, emerging economies are highly dependent on coal to support their growth largely since it is both an abundant and economical source of fuel. Nevertheless, emerging economies are now being compelled to address both the national and international impacts of coal consumption.

This session will explore how various emerging economies are addressing the role of coal in the medium to long-term, taking into account both the developmental needs of these countries as well as the external (and often unaccounted) costs of coal based power.

CHAIR: Sunita Narain, Director General, CSE

11:00-11:30	The Role of Coal in India's Energy Mix and Power Shantanu Dixit, Group Co-ordinator, Prayas Energy Group
11:30-12:00	Overall Energy Plan and the Relevance of Coal: China Alvin Lin, Climate and Energy Policy Director, NRDC China
12:00-12:30	Overall Energy Plan and the Relevance of Coal: Indonesia Agung Wicaksono, Vice-Chair, Office of the 35GW Electricity, Ministry of Energy and Mineral Resources, Indonesia
12:30-01:00	Overall Energy Plan and the Relevance of Coal: South Africa Saliem Fakir, Head, Living Planet Unit, WWF South Africa
01:00 to 02:00	Lunch

Session 3: New Technologies and Challenges (02:00 PM to 04:00 PM)

New Technologies and Challenges

Three emerging countries (China, India and South Africa) and three OECD countries (USA, Australia and the UK) together account for approximately 70% of the world's coal-fired capacity. The continued reliance on coal-based power poses a significant technological challenge with respect to reducing both air pollutants (SO₂, NO_x, PM and Hg), CO₂ emissions and ash management.

Ultra-Supercritical (USC), Advanced Ultra-Supercritical (A-USC), Carbon Capture and Storage (CCS) and Integrated Gasification Combined Cycle (IGCC) are examples of new technologies enabling high efficiency and cleaner power generation. India's existing coal fleet is mostly subcritical but efforts are underway to transition to supercritical technology; and after 2017, no more new subcritical thermal power plants will be allowed. Planning is also currently underway for pilot A-USC and IGCC plants in India, while India's first USC power plant is expected to become operational by 2017.

This session will explore challenges and the way forward in transitioning to new technologies. Representatives from China, Indonesia and South Africa will also share their experiences in the effectiveness and challenges of implementing new technologies in their countries.

CHAIR: Agung Wicaksono, Vice-Chair, Programme Management Office, 35 GW Electricity, Ministry of Energy and Mineral Resources, Indonesia

02:00-02:20	Advanced Technologies (IGCC, CCS, A-USC)- New Developments and Economic Feasibility Lesley Sloss, International Energy Agency, Clean Coal Centre
02:20-02:40	Case Study: IGCC in India Sandeep Tandon, National Expert, UNIDO
02:40-03:00	Case Study: Circulating Fluidised Bed Combustion (CFBC) — Relevance for India Jayendra Acharya, Dy. GM, JSW; Giri Mallesha, Asst. GM, JSW
03:00-03:30	Case Study: Super Critical (SC), Ultra Super Critical (USC) Technology in Indonesia Heru Dewanto, Director, PT Cirebon Electric Power & PT Indika Energy Tbk Indonesia
03:30-04:00	Case Study: Super Critical (SC), Ultra Super Critical (USC) Technology in South Africa Naushaad Haripersad, Manager, Clean Coal Technologies, ESKOM, South Africa
04:00 to 04:30	Tea Break

Session 4: Water Energy Nexus (04:15 PM to 06:00 PM)

Water Energy Nexus

The coal-based power sector places extraordinary demands on water. The International Energy Agency (IEA) estimates that it accounts for approximately 330 billion cubic meters of the total water withdrawn globally. Yet, this understates the potential need: in OECD countries almost 40% of water withdrawal is for energy. As energy demand will continue to rise in emerging economies, it will place considerable pressure on our most precious and already constrained natural resource.

The major use of water in coal based power generation is for the plant cooling system and ash disposal. In India, the sector consumes approximately 4 m³ per MWh. In contrast, the sector consumes approximately 2m³ per MWh in China. This session will address issues relating to energy planning specifically with respect to water use, available cooling technologies and their feasibility in India. The session will also discuss issues relating to the environmental impact and management of coastal power plants. Case studies from South Africa and Indonesia will also be presented.

CHAIR: Barbara Schreiner, Executive Director, Pegasys Institute, South Africa

04:30-04:50	Water Allocation & Policies to Promote Efficiency: Experience from South Africa Barbara Schreiner, Executive Director, Pegasys Institute, South Africa
04:50-05:10	Water Efficiency in the Thermal Power Sector: An outline of Cooling Technology in India Kalyan Bhattcharya, Vice President (E&BD), Paharpur Cooling Towers Ltd., India
05:10-05:30	Water Efficiency in the Thermal Power Sector: A Case Study from India Ashis Saha, GM, CESC Budge Budge
05:30-05:50	Air Cooled Technology: Experience from South Africa Naushaad Haripersad, Manager, Clean Coal Technologies, ESKOM, South Africa
05:50-06:10	Environmental Impacts and Management of Coastal Power Plants Farid Mohammad, Head, Sub-Division of Environmental Audit, Ministry of Environment and Forestry, Indonesia
06:10-06:15	Announcements for Day 2

Day 2: 18th March 2016, Friday

Venue: Gulmohar Hall, India Habitat Centre, New Delhi

Registration 08:45-09:15

Session 5: Air Pollution: Impacts and Standards (9.30 AM to 12.00 PM)

Air Pollution: Impacts and Standards

Coal-based power is one of the most highly polluting sectors within industry in India, coal-fired plants contribute approximately 60% of particulate emissions; 45-50% of SO₂ emissions; 30% of NO_x emissions; and more than 80% of mercury emissions. China and India are both emerging economies that are heavily dependent on coal and consequently experience critical air pollution issues.

This session will present the gravity of sector's air pollution problems and its health and environmental impacts in China. The experts will discuss the measures taken to alleviate the problem, including the implementation of tighter standards for thermal power plants as well challenges and successes in the regulatory and policy framework (both in China and Indonesia) to understand what learnings can potentially be applied in India. It will also address how both China and Indonesia have implemented pollution monitoring systems for their thermal power plants.

CHAIR: Sanjay Sagar (TBC), Joint Managing Director and CEO, JSW Energy

09:30-09:40	Overview of Air Pollution Standards in Emerging Economies Sweta Prabhakar, Programme Manager, CSE
09:40-10:00	Air Pollution and Coal Based Power in China Alvin Lin, Climate and Energy Policy Director, NRDC China; Dr Fuqiang Yang, Senior Adviser on Energy, Environment and Climate Change, NRDC China
10:00-10:20	Regulatory and Policy Framework in China Lin Jiaqiao, Deputy Director, Rock Environment and Energy Institute, China
10:20-10:40	Air Pollution Regulations in Indonesia Raynaldo Sembiring, Deputy Director, Indonesian Centre for Environmental Law, Indonesia
10:40-11:10	Tea Break
11:10-11:40	Continuous Emission Monitoring System (CEMS) in China Tang Rong, Chief (I & C) Designer, SPIC Yuanda

11:40-12:00 **Continuous Emission Monitoring System: Indonesia's Experience**
Heru Dewanto, Director, PT Cirebon Electric Power & PT Indika Energy Tbk Indonesia

Session 6: Perspectives of Industry on New Environmental Standards (12:00 PM to 01:15 PM)

Perspectives from Industry on New Environmental Standards

The Indian government passed new environmental standards for the thermal power sector, in December 2015. This includes tightening existing standards for Particulate Matter and introducing new standards for SO₂, NO_x, Mercury emissions and water consumption.

Complying with these new standards entails a substantial investment from industry. Indeed, approximately one crore rupees per megawatt would be required to retrofit power plants with de-SO_x and de-NO_x devices and improve ESP performance, while approximately three to four months plant shut-down time may be required to undertake retrofitting works. This session will bring together leading Indian industry experts to discuss the challenges; time frame; required government support, and suggest ways forward to enable the successful implementation of these new norms.

MODERATOR : Priyavrat Bhati, Programme Director, CSE

12:00-01:15 **Panel Discussion on Challenges in implementing Recently Enacted Pollution Standards**
Panelists: Sanjay Sagar, Jt. MD & CEO, JSW; J. K. Soni, Executive Vice President (Env.), Jindal Power Ltd.; Sandeep Tandon, National Expert, UNIDO; Taruna Saxena, Group Head, Corporate Environment and Climate Change, Tata Power; Alok Jha, Vice President, GE South Asia.

01:15-02:00 **Lunch**

Session 7: Managing Fly Ash: Utilization and Disposal (02.00 PM to 03.30 PM)

Managing Fly Ash: Utilization and Disposal

Fly ash is the second largest major waste stream in India which is generated by the coal-based power sector. The management and handling of fly ash is a huge challenge for emerging economies, particularly India, mainly because of the sheer magnitude of waste generated. The sector generates more than 160 million tonnes of ash every year.

India utilizes around 60% of the fly ash it generates which is fairly good compared to other countries. However, the existing framework may not be sufficient taking into account India's high ash content coal and expanding coal capacity which will lead to even more ash generation. The session will present and share the different approaches taken in India, China and Indonesia to manage and promote the effective use of fly ash.

CHAIR: Bishwanath Sinha, Joint Secretary, MoEF&CC

02:00-02:20 **Managing Waste: Existing Policies and Challenges in India**
Dr. Vimal Kumar, Centre For Fly Ash Research and Management

20:20-02:40 **Experiences from China**
Yang Liu, Deputy Director, Department of Environmental Engineering, Nanjing Normal University;
Zhongyi Sheng, Professor, Department of Environmental Engineering, Nanjing Normal University

02:40-03:00 **Experiences from Indonesia**
Ilham, Environmental Specialist, Ministry of Energy and Mineral Resources, Indonesia

03:00-03:30 **Tea Break**

Session 8: Coal Based Power: Views from Civil society (03.30 PM to 04.45 PM)

Coal Based Power: Views from Civil Society

Coal based power is controversial because of its adverse impacts on air and water, and its contribution to climate change. Air polluting emissions from the sector have had a huge impact on public health. The sector not only consumes large amounts of water but contributes to water pollution. It also generates huge amount of fly-ash waste which requires large amounts of water and land for disposal.

Local communities must bear the brunt of the environmental and health impacts of coal-based power. This panel discussion will consider civil society perspectives on how to overcome the challenges of coal based power, giving us a better direction towards the sustainable growth and management of the sector.

MODERATOR : Chandra Bhushan, Deputy Director General, CSE

03:30-04:45 **Panel Discussion on Challenges of Coal Based Power and Way Ahead**

PANELLISTS: Sunita Narain, Director General, CSE; Shantanu Dixit, Group Co-ordinator, Prayas Energy Group; Alvin Lin, Climate and Energy Policy Director, NRDC China; Dr. Fuqiang Yang, Senior Adviser on Energy, Environment and Climate Change, NRDC China; Lin Jiaqiao, Deputy Director, Rock Environment and Energy Institute; Raynaldo Sembiring, Deputy Director, Indonesian Centre for Environmental Law; Saliem Fakir, Head, Living Planet Unit, WWF South Africa

Session 9: Closing Session - Way Forward (04.45 PM to 05.30 PM)

Closing Session - Way Forward

04:45-05:05 **Concluding Remarks**

Priyavrat Bhati, Programme Director, CSE

05:05-05:20 **Chief Guest**

Prakash Javadekar, Minister for Environment, Forest and Climate Change

05:20-05:30 **Vote of Thanks**

Sweta Prabhakar, Programme Manager, CSE

Continuous Emission Monitoring System: International Experiences

Day 3: 19th March 2016, Saturday

Venue: Casuarina Hall, India Habitat Centre, New Delhi

Continuous Emissions Monitoring System

An efficient real-time pollution monitoring and reporting system is essential to strengthen regulatory enforcement and compliance of environmental standards. Continuous Emissions Monitoring Systems (CEMS) is a proven tool for this.

Developed countries including the US, European Union (EU) and Japan have already adopted and excelled in CEMS. Some emerging economies, including Brazil, China, Chile and Indonesia have also adopted CEMS. Over the last two years, India has begun taking steps towards CEMS. India's Central Pollution Control Board has issued directions and mandated the installation of CEMS in highly polluting industries. The Ministry of Environment and Forest and Climate change (MoEF&CC) has also proposed a draft notification on how CEMS should be adopted.

The successful implementation of CEMS requires some basic infrastructure such as: an indigenous device certification system; skilled laboratories and a lab empanelment system; comprehensive guidelines for: suitable device selection; installation; data monitoring; reporting and compliance check mechanisms. The availability of skilled manpower and capacity building are also essential. At present, these basic requirements are not in place in India, creating multiple implementation challenges which must be urgently resolved. This session will provide a platform for Indian stakeholders to learn from the experiences of CEMS implementation around the world.

Representatives from the UK, Germany, China, South Africa, and Indonesia will share their experiences and ideas on CEMS. Indian participants including Central and State Pollution Control Boards, device makers, service providers, and other relevant agencies like the National Physical Laboratory (NPL), National Accreditation Board for Testing and Calibration Laboratories (NABL) will also share their views on the critical issues and way forward.

Registration 09:00-09:45

Session 1: Welcome and Introduction (10.00 AM to 11:15 AM)

10:00-10:15	Welcome and Introduction Chandra Bhushan, Deputy Director General,, CSE
10:15-10:45	Status of CEMS in India J. S. Kamyotra, Scientist F (Director), CPCB
10:45-11:00	Overview of Stakeholders Experiences Sanjeev K. Kanchan, Dy. Programme Manager, CSE
11:00-11:15	Overview of Continuous Emission Monitoring System (CEMS) K. Karthikeyan, MS, TNPCB
11:15-11:45	Tea Break

Session 2: Experiences from Other Countries (11:45AM to 12:05 PM)

CHAIR: Hardik Shah, Member Secretary, GPCB

11:45-12:05	CEMS: Governance Framework in EU and the US Lesley Sloss, International Energy Agency, Clean Coal Centre
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12:05-12:25	CEMS: Experiences from South Africa Naushaad Haripersad, Manager, Clean Coal Technologies, ESKOM, South Africa
12:25-12:45	Device Suitability and Selection Ken Roberts, Business Development Manager-Combustion, PCME
12:45-01:05	Predictive Emission Monitoring System (PEMS) Günter Haberzettl, Product & Industry Manager, ABB Analytical Germany
01:05-01:30	Discussion
01:30-02:15	Lunch

Session 3: Calibration and Lab Empanelment (02:15PM to 03:30 PM)

CHAIR: Chandra Bhushan, Deputy Director General, CSE

02:15-02:35	Device Certification System Dr. Chhemendra Sharma, Senior Principal Scientist, CSIR-National Physical Laboratory
02:35-02:55	CEMS Device Calibration and Maintenance Deborah Padwater, Strategic Industry Manager - Power, SICK-AG
02:55-03:15	Lab Accreditation System Avijit Das, TOM, NABL
03:15-03:30	Discussion
03:30-04:00	Tea Break

Session 4: Data Acquisition and Compliance (03:45PM to 05:00 PM)

CHAIR: K. Karthikeyan, Member Secretary, TNPCB

04:00-04:15	Data Acquisition System Mayank Chauhan, Co-founder& CEO, LogicLadder
04:15-04:30	Compliance Challenges Chirag Bhimani, Deputy Environment Engineer, GPCB (tbc)
04:30-04:50	Compliance Enforcement on CEMS Data- Case Study Thiru R. Dhanasekaran, Assistant Director, Care Air Centre, Tamilnadu Pollution Control Board
04:50-05:10	Discussion

Session 5: Roadmap for CEMS Implementation : Way Ahead (05:10PM to 06:00 PM)

CHAIR: A. K. Mehta, Chairperson, CPCB

05:10-05:30	Summary and Recommendations Sanjeev K. Kanchan, Dy. Programme Manager, CSE
05:30-05:45	Way Ahead A. K. Mehta, Chairperson, CPCB
05:45-06:00	Concluding Remarks Priyvrati Bhati, Programme Director, CSE

International Conference on Coal Based Power: Confronting Environmental Challenges

SPEAKERS



Agung Wicaksono

*Vice-Chairman, Program Management Office for the 35 GW Electricity
Ministry of Energy and Mineral Resources, Republic of Indonesia*

Agung Wicaksono is currently assigned by the Minister of Energy and Mineral Resources to be the Vice Chair of the Program Management Office for 35 GW Electricity. He is also a member of the Performance Management Unit of the Ministry and is a part of the Oil and Gas Governance Reform Team. By profession and training, he is a professor at School of Business and Management, Institut Teknologi Bandung (ITB). He had also advised in overseeing the national priority development agenda - mainly in the sectors of energy, infrastructure, state-owned enterprises and bureaucracy reform between 2009-2014.

Alvin Lin

Natural Resource Defense Council, China



Alvin Lin is China's Climate and Energy Policy Director in the Natural Resource Defense Council's Beijing office, focusing on analysis and policy advocacy around China's climate and clean energy policies. His work covers a broad range of issues, including the environmental and health impacts of coal consumption and shale gas development in China, energy efficiency and renewable energy, the climate negotiations, HFCs, and air pollution policies and laws.



Ashis Saha

CESC Limited, India

Ashis Saha is currently working as the General Manager in CESC Limited and is Head of the Budge Budge Generating Station. He has a diverse experience of over 30 years in coal based power plant operation & maintenance. He currently oversees the system planning, standardization of operation and maintenance practices as well as the new initiatives/technologies on energy savings and environment front.

Ashok Lavasa

Secretary, Ministry of Environment, Forest and Climate Change, India



Ashok Lavasa is the Secretary of Ministry of Environment, Forest and Climate Change, Govt. of India. Before associating with MoEF, he has held senior positions in the Ministry of Civil Aviation, Ministry of Power, Ministry of Home Affairs and Ministry of Finance (Department of Economic Affairs), Department of Power and Renewable Energy and the Haryana State Industrial Development Corporation.



Avijit Das

Accreditation Board for Testing and Calibration Laboratories, India

Avijit Das is currently working with National Accreditation Board for Testing and Calibration Laboratories as Technical Operations Manager. He is experienced in the area of testing and calibration for 27 years. He is also responsible for coordinating the NABL accreditation committee for calibration and the NABL specific criteria technical review committee for Mechanical, Electro Technical, Thermal, Fluid Flow calibration etc.

Barbara Schreiner

Pegasys Institute, South Africa



Barbara Schreiner is the Executive Director of the Pegasys Institute, and the Director of Pegasys Consulting. She is an experienced Senior Manager with over 20 years work in the water sector in South Africa and internationally. She is currently Deputy Chairperson of the Isimangaliso National Wetland Park in South Africa, a member of Board of the International Water Management Institution, a member of the Programme Oversight Panel of the Aquatic Agricultural Systems Research Programme of the Consultative Group on International Agricultural Research (CGIAR), and an ex-Board member of the CGIAR Challenge Programme on Water and Food.



Bishwanath Sinha IAS

Ministry of Environment, Forest & Climate Change, India

Biswanath Sinha is the Joint Secretary at the Ministry of Environment, Forest & Climate Change and is currently working with the Hazardous Substances Management (HSM) Division. He has over 24 years of experience in policy formulation and programme development in various sectors. Previously, he has served the Ministry of Coal and Ministry of Textiles.

SPEAKERS

Chandra Bhushan

Centre for Science and Environment, India



Chandra Bhushan is the Deputy Director General of CSE. He has been associated with CSE since 1997. He heads the Industry-Environment, Pollution Monitoring Laboratory, Food Safety and Toxins, Renewable Energy, Climate Change Policy and Advocacy and Training divisions at CSE.

Chhemendra Sharma

CSIR-National Physical Laboratory, India



Dr. Chhemendra Sharma is working in the Radio & Atmospheric Sciences Division (RASD) of the Council of Scientific & Industrial Research - National Physical Laboratory (NPL) as Senior Principal Scientist. Dr. Sharma has contributed in the preparation of the "Intergovernmental Panel on Climate Change (IPCC) 2006 Guidelines for National Greenhouse Gas Inventories" as one of the lead authors for the waste sector.

Deborah Padwater

SICK, Germany



Deborah Padwater's is SICK's Strategic Industry Manager for the power industry. She has been working in the field of process and environmental gas analyzers for nearly 25 years. Most of her career has been spent working in Germany for Maihak AG and for SICK AG.

Farid Mohammad

Ministry of Environment and Forestry, Republic of Indonesia, Indonesia



Farid Mohammad is currently working with the Ministry of Environment and Forestry as Head of Section for Environmental Audit within the Directorate for Environmental Impact Prevention of Business and Activities. His major areas of expertise are Environmental Impact Assessment (EIA), Environmental Audit, Coastal Planning, and Environmental Protection Strategies (i.e. environmental compliance monitoring). He is also an author to six series of EIA Assessor Guidance for coal power plant installation, housing, harbour, airport, sand mining, and highways.

Fuqiang Yang

Natural Resources Defense Council, China



Dr. Fuqiang Yang is a Senior Adviser on climate change, energy and environment at NRDC. He has been involved in energy and environmental issues for more than three decades. Dr. Yang was the Director of Global Climate Solutions at WWF International from 2008 to 2010. He was the Vice-President of the Energy Foundation and Chief Representative of the Foundation's office in Beijing from 2000 to 2008. Earlier in his career, he worked with the Lawrence Berkeley National Laboratory on China's energy and environmental issues. In 1984, he worked on regional energy planning at Cornell University as a fellow of the World Bank. Before he moved to the United States in 1984, he worked with the Energy Research Institute of the National Development and Reform Commission in China on renewable and rural energy policy, energy modelling and forecasting, project evaluation, and long-term planning.

Giri Mallesha

JSW Energy Limited, India



Giri Mallesha is currently the Assistant General Manager of Raj WestPower Ltd, JSW Energy Ltd. He has about 22 years of experience of Commissioning and O&M of thermal power plants. He has worked with organisations like the Aditya Birla Group and APRIL, Indonesia.

Günter Haberzettl

ABB, Germany



Günter Haberzettl is currently the Product and Industry Manager for the Continuous Emission Monitoring system solutions at ABB Analytical Germany. He is an expert with many years of experience in sales and marketing for the markets power, waste and energy sectors.

Heru Dewanto

PT Cirebon Electric Power & PT Indika Energy Tbk, Indonesia



Heru Dewanto is the President Director of Cirebon Power, owner and operator of 660MW unit coal fired steam power plant and the Indonesian pioneer in the implementation of supercritical (SC) boiler technology. Cirebon is expected to be the first to apply more advanced ultra supercritical (USC) boiler technology in Indonesia. Heru Dewanto is also President-Elect of the Institute of Engineers Indonesia (PII) as well as the Secretary General of the Indonesian Electricity Society (MKI). He also sits at the Board of British Chamber of Commerce Indonesia.

SPEAKERS



Ilham

*Ministry Of Energy And Mineral Resources, Republic Of Indonesia
Indonesia*

Mr Ilham is an Environmental Specialist at the Directorate-General Of Electricity, Indonesia. He had represented Indonesia in COP-21 UNFCCC, Paris, France, 2015. He has been an expert on assessing new hazardous material and Persistent Organic Pollutants for the Ministry of Environment, Republic of Indonesia, from 2012-2014.

J. K. Soni

Jindal Steel & Power Limited (JSPL), India

Dr. J. K. Soni is Group Executive Vice President (Environment) at Jindal Steel & Power Limited (JSPL), Delhi. He has more than 30 years of experience in dealing with environmental issue of various industrial sectors like thermal power, metals (aluminium & steel), coal and non-coal mining, and hydropower. Prior to joining JSPL in 2010 he has worked in various capacities in the Environment Department of Vedanta Aluminium Limited, Delhi and NTPC, Delhi.



J. S. Kamyotra

Central Pollution Control Board, India



J. S. Kamyotra is presently serving as Scientist 'F' at CPCB. He has been the Member Secretary of Central Pollution Control Board, the country's premier environment decision making body, for 5 years. Mr. Kamyotra has over 30 years experience working in policy formulation, development of environmental standards, establishment of real time monitoring networks in the areas of air quality, water and noise pollution. He has also been responsible for the development of India's first indigenously developed mobile air quality monitoring van.

Jayendra Acharya

JSW Energy Limited, India

Jayendra Acharya is serving as Deputy General Manager of Raj West Power Ltd, JSW Energy Ltd. He has about 29 years of experience of in project management, commissioning and O&M of thermal power plants. Previously, he has worked with organisations like Torrent Power Ltd.



K. KARTHIKEYAN

Tamil Nadu Pollution Control Board, India



Dr. K. Karthikeyan is Member Secretary of Tamil Nadu Pollution Control Board. He has been associated with the Tamil Nadu Pollution Control Board since 1986. He is a highly-experienced environmental engineering professional with a proven background in environmental enforcement monitoring including water quality, air quality, noise quality, solid waste management, bio medical waste management, hazardous waste management, and e-waste management.

Kalyan Bhattacharya

Paharpur Cooling Towers Limited, India

Kalyan Bhattacharya is the Vice President of Paharpur Cooling Towers Limited, India. He is responsible for developing the export business of India's largest cooling tower company and spearheads marketing activities in the domestic market for large cooling tower business.



Ken Roberts

PCME, United Kingdom



Ken Roberts works as a Business Development Manager of Combustion in PCME. He has 25 years of experience in emissions monitoring. He has served as Subsidiaries Manager as well as CEMS Product Manager in Environnement SA. He has worked in the UK, Europe and more recently in the U.S.A. The US business was primarily focused on coal-fired Power Plants looking to comply with the US EPA Utility Mact and MATS rules requiring PS-11 compliant Particulate monitors on Wet Flue Gas streams.

Lesley Sloss

International Energy Agency (IEA), United Kingdom

Lesley Sloss is currently the Principal Environmental Consultant with the Clean Coal Centre of the IEA where she has worked since 1990. In this time, Lesley has produced over 40 reports relating to the environmental consequences of coal combustion. She is lead on the United Nations Environment Programme (UNEP) Coal Partnership acting as advisor to the UN Governing Council on the internationally legally binding instrument on mercury emissions.



SPEAKERS



Lin Jiaqiao

Rock Environment and Energy Institute, China

Lin Jiaqiao is currently the Deputy Director of REEI. With nearly 10 years of experience in the energy and climate change field. He has focused his work on energy policy, low carbon development and carbon markets. Before co-founding REEI, he worked with a carbon project developer and some international organisations on various projects - including terrestrial carbon offsets project, energy efficiency and environmental management.



Mayank Chauhan

LogicLadder Technologies Private Limited, India

Mayank is the co-founder and CEO of LogicLadder. Mayank is passionate about IT. He has a wide exposure to the energy and environment segments and business value creation through data driven decisions. Prior to LogicLadder, Mayank co-founded Masplantiz Technologies and worked at Sapient Corporation with wide experience in handling international customers.



Naushaad Haripersaad

Eskom Holdings, South Africa

Naushaad Haripersaad has been working with Eskom Holdings SOC since 1999. He is responsible for Management of Clean Coal Technologies – Centre of Expertise, within the Research, Testing and Development Business Unit. He has been part of the team that conceptualized two big power plants projects for Eskom: Medupi and Kusile New Build. He was also responsible for the introduction and parallel surveillance Continuous Emission Monitor (CEM) testing. He is also a member of the South African Centre for Carbon Capture & Storage (SACCCS), and the European Commission funded Optimisation of CO Capture Technology Allowing Verification and Implementation at Utility Scale (OCTAVIUS) – as Eskom's representative.



Piyush Goyal

Minister of Power, Coal, New and Renewable Energy, India

Piyush Goyal is the Minister of State with Independent Charge for Power, Coal, New and Renewable Energy in the Government of India. He is currently a Member of Parliament (Rajya Sabha) and was earlier the National Treasurer of the Bharatiya Janata Party (BJP). He is a well-known investment banker. He has advised top corporates on management strategy and growth and has also served on the Board of India's largest commercial bank, the State Bank of India and Bank of Baroda.



Prakash Javedkar

Minister of Environment, Forest and Climate Change, India

Prakash Javedkar is the Minister of State (Independent Charge) for Environment, Forest and Climate Change. He is also the Minister of State for Parliamentary Affairs Member of Parliament, Rajya Sabha (Madhya Pradesh). He has been awarded the Sir Purshottam Das Thakur Memorial National Award for his research papers on Rural Development & Banks Role in Coordinated approach.



Priyavrat Bhati

Centre for Science and Environment, India

Priyavrat Bhati is the Programme Director of the Sustainable Industrialization group at CSE whose flagship programme, the Green Rating Project, assesses India's core industrial sectors. The Project aims to improve performance of the industrial sector and environmental policies and regulations through public disclosure of ratings. Most recently, his team published a report on India's coal-based thermal power sector, which spurred a wide debate and prompted the government to announce a series of policies tightening pollution norms and driving technology upgradation. He is currently working to push implementation of new standards to clean coal-based power and on a programme that aims to strengthen India's regulatory system. Prior to joining CSE, he spent over two decades in international banking helping companies in Latin America, USA and India raise capital from international capital markets.



Raynaldo Sembiring

Indonesian Center for Environmental Law, Indonesia

Raynaldo Sembiring is currently the Deputy Executive Director, Program Development, at the Indonesian Center for Environmental Law. He has been active in a wide range of research on environmental law, biodiversity law, public participation, environmental permit system and advocacy on a number of environmental cases especially industrial pollution cases, as well as participating in the legal drafting process on issues relating to environmental law and policy.

SPEAKERS

Saliem Fakir

World Wide Fund, South Africa



Saliem Fakir is the Head of the Living Planet Unit at the World Wide Fund for Nature, South Africa. The Unit's work is focused on identifying ways to manage a transition to a low-carbon economy. He has held various responsible positions, including senior lecturer at the Department of Public Administration and Planning and Associate Director for the Center for Renewable and Sustainable Energy at the University of Stellenbosch, the Director of the World Conservation Union South Africa (IUCN-SA) Office, the Manager for the Natural Resources and Management Unit at the Land and Agriculture Policy Center etc.

Sandeep Tandon

UNIDO



Sandeep Tandon is currently associated with UNIDO's South Asia office and is supporting the strategy preparation to engage UN agencies' participation in Sustainable Energy for All Initiative, as well as designing a Joint UN Initiative in the North-East. Mr. Tandon has 26 years professional experience and has been associated with "Clean Energy and Energy Efficiency" for over 18 years. He has also worked with Global Environment Facility and regularly reviews its programme on energy efficiency which are being implemented in several Asian countries.

Sanjay Sagar

JSW Energy Limited, India



Sanjay Sagar is the Joint Managing Director and Chief Executive Officer of JSW Energy Limited. With a rich and varied experience spanning more than three decades in the energy and related sector, Mr Sagar has been instrumental in transforming JSW Energy into one of the most dynamic power companies in India.

Sanjeev Kumar Kanchan

Centre for Science and Environment, India



Sanjeev Kumar Kanchan is an environment and sustainability professional associated with CSE for more than 7 years. His area of expertise includes resource efficiency, pollution control, clean technology, life cycle assessment, monitoring & reporting, policies & regulations and CSR etc. At CSE, he has extensively studied and researched on the steel sector, power sector and other industrial sectors' pollution, critically polluted areas etc. He had also been involved Friedrich Ebert Stiftung- India, Spark Steel and Research, GRI & IIRC and UNEP's Global Mercury Partnership (coal-combustion).

Shantanu Dixit

Prayas, India



Shantanu Dixit is the Coordinator of Prayas, (Energy Group), which is a not-for-profit, policy research and advocacy group. As part of Prayas, over the last two decades he has worked on a range of energy policy issues from techno-economic, legal and broader public interest perspective. He leads the Electricity Governance Initiative, which works with several organizations around the world to promote good governance in the electricity sector. He has also contributed to the development of energy sector as a member of several committees formed by Planning Commission, Regulatory Commissions and Ministry of Power.

Sujata Tilak

*Ascent Intellimation Pvt. Ltd.
India*



Sujata Tilak is the Managing Director of Ascent Intellimation Pvt. Ltd. She has more than 25 years of experience and is a leader in convergence of Industrial Automation and Information Technology and more recently Industrial Internet of Things or IIoT. Under her leadership, AIPL has conceptualized and developed an innovative Internet of Things platform, PlantConnect and various applications based on the platform. One of these is EnviroConnect, a web-based solution for environment quality monitoring. Sujata was a member of Technical Committee constituted by CPCB that designed India's first ever Emission Trading Scheme.

Sunita Narain

*Director-General, Centre for Science and Environment
India*



Sunita Narain has been with CSE since 1982. She is currently the Director General of the Centre and the Director of the Society for Environmental Communications and Publisher of the fortnightly magazine, Down to Earth. She is a writer and environmentalist, who use knowledge for change.

SPEAKERS



Tang Rong
*State Power Investment Corporation Yuanda
China*

Tang Rong is the chief I&C designer of SPIC Yuanda with more than 10 years of environmental protection project designing experience. He is mainly engaged in I&C system designing of thermal power plant FGD and DeNOx projects, familiar with analog, digital electronic technology, electrical control, PLC control and CEMS application in power plant FGD and DeNOx system, etc. He has participated in I&C system designing for more than 50 FGD and DeNOx projects, such as the India Jhajjar Power Plant 660MW FGD system and Morocco Jerada Power Plant 350MW FGD system. He is currently doing the I&C design for the Qasim Power Plant 660MW FGD system in Pakistan.

Thiru R. Dhanasekaran
*Tamilnadu Pollution Control Board
India*



R. Dhanasekaran is presently working as Assistant Director, Care Air Centre in the Tamil Nadu Pollution Control Board. He has 29 years of experience with the Tamil Nadu Pollution Control Board. He initiated online monitoring in the country in 2010 and has outstanding experience in CEMS monitoring, data acquisition systems, validation of data and data interpretation and extrapolation. In the year 2015, Tamil Nadu under his guidance has introduced two new concepts of open source protocol for data acquisition and management of CEMs in air pollution monitoring and water pollution monitoring.



Dr Vimal Kumar
*Centre for Fly Ash Research and Management (C-FARM)
India*

Dr. Vimal Kumar is currently the Secretary General at C-FARM, New Delhi. He is the former, Mission Director & Head, Fly Ash Unit, Department of Science & Technology (DST), Government of India. He has twelve years industry experience in development of new products, expansion and diversification projects. The Fly Ash Mission had been conceived and implemented under his guidance in India. His expertise has been requisitioned by The Russian Government to establish a "Fly Ash Mission" like set up in the Siberian region.

Yang Liu
*Nanjing Normal University
China*



Professor Yang Liu is the Deputy Director of Department of Environmental Engineering in Nanjing Normal University. He has been associated with Nanjing Normal University since 2006, working in the School of Environmental Science and Engineering, mainly engaged in air pollution control technology, energy and the environment researching and teaching.



Zhongyi Sheng
*Nanjing Normal University
China*

Zhongyi Sheng is a professor in the Department of Environmental Science and Engineering, Nanjing Normal University, China. His research field is related to air pollution control technology, environmental catalysis, WFGD, and low temperature SCR.