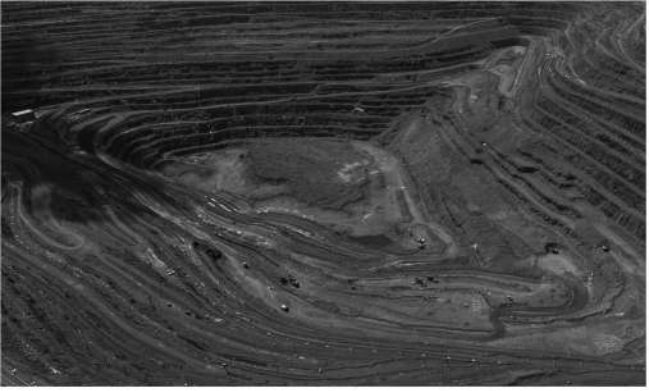

An Initiative By

ICCSA | IIT MUMBAI | CSIR

25th MAY '23

CLIMATE GOALS

TECHNOLOGICAL ROADMAP TO NET ZERO

UNDERSTANDING METHANE EMISSION & DEVELOPING AN ACTION PLAN

COAL MINING AND COAL BED SECTOR

@ IIT MUMBAI, Mumbai

In Association with

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

GOVT OF MAHARASHTRA

Maharashtra Pollution Control Board

CII Confederation of India Industry

INTRODUCTION

Mining remains an essential and growing part of the modern industry. It has been estimated that it makes up of about 45% of the total global economy. The mineral production continues to increase as demand for raw materials grows around the world. India has been facing many challenges with regard to need of mining and meeting the developmental needs. Environment management and sustainability paradigms have become acutely important in current times. It is a well-known fact that many current mining practices have serious impacts on both the mining site itself, surrounding environment and society besides creating huge economic burden for future. The present brainstorming workshop focuses on sustainable mining practices required for India so that environmental and climatological burden can be reduced. Further, the workshop also targets to brainstorm on solutions pertaining to the emission portfolio and environmental impacts from coal mining and coal bed, with a focus on methane emissions from the sector which is one of the major drivers of climate change and a hurdle to sustainability of mining practice of the country.

Given above, the brainstorming sessions are divided into two broad thematic areas :

OVERVIEW ON DISCUSSION ON ISSUES PERTAINING TO MINING PRACTICES OF THE COUNTRY AND HOW TO BRING IN SUSTAINABILITY INTO THE SECTOR FROM ENVIRONMENTAL AND CLIMATE POINT OF VIEW.

SPECIFIC DISCUSSION ON COAL MINING AND COAL BED RELATED METHANE EMISSIONS AND DISCUSSIONS ON SUSTAINABLE SOLUTIONS FOR REDUCING THE EMISSION FOOTPRINT .

The above thematic areas are discussed in detail in subsequent sections.

Understanding
METHANE EMISSION & DEVELOPING AN ACTION PLAN
COAL MINING AND COAL BED SECTOR

at IIT Mumbai

25th MAY '23

MESSAGE FROM SUMMIT CHAIR

DR. J. S. SHARMA

Director ICCSA
President, Indian Association for Air Pollution Control (IAAPC), New Delhi
Former Group General Manager-Head Environment,
Oil and Natural Gas Corporation Limited

India is emerging as a Global Leader in Climate Change Initiatives. It has given commitment to achieve net-zero emissions by 2070, during the UNFCCC's 26th Conference of Parties (COP). Hence, it is important for India to continue its efforts to establish a sector-specific baselines datasets, which can help India, delineate an action plan in its focused efforts on reducing GHGs and methane, which have position India in a leadership position in upcoming COPs. With these datasets generated overtime, India will be better poised to take its initiative into a global platform through showcasing India's methane reducing technologies/processes, which have been development and are being implemented across country.

This could be possible when we put together India's technology strength combined with policy in various sectors which are workable and also frugal, leading to large scale multiplier effect. Therefore, it is timely to tackle all sources from different sector emissions arising from human activity and discuss methane emissions and reduction strategies for a positive climate change effect to bring India's ambition of being the leader.

The proposed dialogues across all stakeholders from all sectors will help develop Indian centric strategy from various sectors through cost effective voluntary efforts and deploying known processes. These efforts will assist to capture and profitably use methane emissions. Efforts are needed to compare capabilities, discuss challenges and review emerging technologies for monitoring methane and delineate an action plan for sector-specific efforts which India can implement with a specific timeline.

This series of event "Climate Goals: Technological Roadmap to Net Zero" will not only help develop targeted sector-based methane mitigation strategies but will also strengthen India's position in future climate negotiations.

In Association with

Ministry of Environment, Forest and Climate Change
Government of India

GOVT OF MAHARASHTRA

Maharashtra Pollution Control Board

CII
Confederation of India Industry

COAL MINING AND COAL BED ENVIRONMENTAL FOOTPRINT AND METHANE EMISSIONS

There are significant environmental impacts associated with coal mining and use. It could require the removal of massive amounts of top soil, leading to erosion, loss of habitat and pollution. Coal mining causes acid mine drainage, which causes heavy metals to dissolve and seep into ground and surface water. Coal mine workers also sometimes face serious health problems, including lung disease from prolonged exposure to coal dust in mines. Methane gas that occurs in coal deposits can explode if it concentrates in underground mines. This coalbed methane must be vented out of mines to make mines safer places to work. In 2020, methane emissions from coal mining and abandoned coal mines accounted for about 7% of total U.S. methane emissions and about 1% of total U.S. greenhouse gas emissions (based on global warming potential). Some mines capture and use or sell the coalbed methane extracted from mines. According to recent reports of EPA, coal mining will be responsible for 10% of global methane emissions in 2030. In India, coal production has increased from 118 Mt in 1980 to 773 Mt in 2019 (Ministry of Coal, 2021).

Understanding

METHANE EMISSION & DEVELOPING AN ACTION PLAN

COAL MINING AND COAL BED SECTOR

at IIT Mumbai

25th MAY '23

According to the Global Methane Initiative (GMI) recent report it is estimated that the worldwide methane emissions from coal mining were around 957.3 Mt CO2eq in 2020 which will further increase in future (GMI 2022). Modeling results from Top-down approach suggested that even under a strong 2°C transition pathway, these emissions would remain significant at around 300 Mt-CO2e until the end of the century (Kholod et al., 2020). Therefore, appropriate bottom-up quantification and understanding of mitigation measures is an important activity as part of GHG inventory preparation for India, which is now the second largest coal producer after China.

Given above, it is important that Coal Mining and Coal Bed related methane emissions are discussed in detail to formulate strategic solutions for the sector with an aim to reduce environmental and climatological footprint while also focussing on various aspects such as technology, policy, finance etc which are required for the Coal mining and Coalbed sector to achieve the above goals in a sustainable manner. Some of broad agenda points to be discussed during brainstorming are given as follows :

- Indian centric strategy for reducing methane emissions from the above focus sector through cost- effective voluntary efforts and deploying known processes.
- How methane emission reductions can help to achieve climate change goals, as well as efforts to capture and profitably to use methane emissions.
- To compare capabilities, discuss challenges and review emerging technologies for monitoring methane.
- Discuss and put together sector specific efforts which India can implement with a specific timeline.
- Suggest roadmap for Methane monitoring guidelines development and its incorporation in India.

In Association with

Ministry of Environment, Forest and Climate Change
Government of India

GOVT OF MAHARASHTRA

Confederation of India Industry

The panel may also focus on discussing points such as Global trends of methane emissions, worldwide Status, and Indian Scenario; Strategy for reducing short-lived climate pollutants from the targeted sector in India; Emission verification and reduction initiatives; Capabilities, challenges and emerging technologies for monitoring and control of methane; Latest studies, policies developments and novel technologies for monitoring fugitive methane emissions, including leak detection, identification, quantification, and long-term monitoring; Prioritization of activities for targeting sector specific plan around mitigating methane emissions; Identifying solution strategies for India on methane emissions, based on their expertise and experience.

PROPOSAL

There is a need to hold a discussion with all the concerned across board to debate and discuss the next steps. This step will need all the operators, advisors, district mining authorities, policy makers, academia and consultants. One event shall be held with all experts and active people in Mumbai and then take the message across all the districts in Maharashtra and India where these activities are rampant for closer discussion and improvement.

Understanding

METHANE EMISSION & DEVELOPING AN ACTION PLAN

COAL MINING AND COAL BED SECTOR

at IIT Mumbai

25th MAY '23

TARGETED OUTCOME OF THE MEET

- Awareness on sustainable mining attributes, climate goals, methane emission, by highlighting short term and long-term impacts to policymakers.
- Sector-specific directions for India on sustainable mining and methane emissions with an action plan.
- The importance of emission detection and measurement in responsible sectors, as well as developing long-term strategies that shall focus on decarbonization
- Challenges and opportunities in research and development, demonstration, and deployment of technologies in methane detection and mitigations in responsible sectors.
- The findings that will describe the overall strategy for developing sustainable mining for India which shall help in reducing environmental and methane emissions footprint. The strategy may be shared amongst policy and decision makers for application of technology based solutions for India's resilience towards Climate Goals.

In Association with

Ministry of Environment, Forest and Climate Change
Government of India

GOVT OF MAHARASHTRA

Confederation of India Industry

ICCSA

International Center for Climate and Sustainability Action Foundation

ICCSA is a not for profit organization incorporated in 2021, under the companies act 2013. It is committed to provide a better world for the people and the planet. This organization is established with a focus to plug the gaps in environmental management to provide an institutional platform for coordination, facilitation, advocacy, and regional and international collaboration; with an aim of development of targeted solutions. Its focus is to restore ecosystem health, regenerate nature on Earth to drive sustainable development for a future which is bright, positive and resilient.

ICCSA key priorities are to promote local, regional and global partnerships to take effective action for climate and sustainability and to assess impacts of environmental and climatic variability on livelihoods, well-being and economic development.

ICCSA provides strengthening knowledgebase on environment matters for effective responses by delivering basic science and technology solutions at grass root for inclusive development of the communities. Provide design, research and evidence based support to government and industries on policy formulation. This also facilitates new coalition and partnership to accelerate climate action and transform our societies towards a sustainable future without sacrificing human development goals.

ICCSA works in an integrated and coherent way to achieve objectives of our national missions/flagship programs while pursuing climate action and sustainable development. This organization understands the world's pressing problems and develops effective solutions to them through focus on the nexus between climate change and sustainable development in developing-country settings. It develops innovative solutions and research best practices for climate change adaptation and mitigation efforts by involving businesses and governments to help them transform commitments into action.

To achieve these objectives it is aimed to work with people from varied domains to tackle challenges from many perspectives, not just the environmental one. This will provide far-sighted solutions to the problems and insight to take proper action to solve them.

CURTAIN RAISER

HOTEL LE MERIDIAN
New Delhi

Brainstroming Session on

OIL & NATURAL GAS

4 NOVEMBER 2022

at Pandit Dindayal Energy University
Gandhinagar

Brainstroming Session on

AGRICULTURE & LIVESTOCK

1 FEBRUARY 2023

IIT GUWAHATI

CLIMATE GOALS

TECHNOLOGICAL ROADMAP TO NET ZERO

ICCSA

International Center for Climate and Sustainability Action Foundation

C-83, Gamma-1, Gautam Buddha Nagar,
Greater Noida, Uttar Pradesh - 201 307, INDIA
E-mail : connect@iccsaf.com
www.iccsaf.com