PHD CHAMBER
OF COMMERCE AND INDUSTRY
VOICE OF INDUSTRY AND TRADE

ICS - SOUVENIR

4TH INTERNATIONAL CLIMATE SUMMIT

19th July, 2024 at Hotel Taj Palace, New Delhi

DENTED CORN-ETHANOL

Energy Security, Food Security and Decarbonization

4TH INTERNATIONAL CLIMATE SUMMIT

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Decarbonizing Pathways:
CORN-ETHANOL THROUGH CORN REVOLUTION

CONTENTS

ABOUT THE SUMMIT

Bioethanol has emerged as a promising alternative to gasoline and LPG. It is renewable, clean, and cost-effective, presenting an important pathway for energy security and decarbonization. Doping ethanol with petrol supplies extra oxygen for complete combustion, reducing carbon monoxide levels in auto emissions and interfaces. Ethanol has an octane rating of 115, burning cleanly in automobile engines with fewer particulate emissions. 2G-ethanol will play an important role in replacing gasoline and will provide energy security to our country. Additionally, replacing LPG with ethanol for cooking will be a revolution in itself. Using LPG for cooking poses risks due to single fuel dependency. Ethanol offers additional advantage over the logistics of using heavy LPG cylinders, with a reduction in the substantive costs associated with maintaining complex infrastructure for LPG. In view of this, bioethanol emerges as a competing renewable fuel.

In nearly a decade, India's ethanol blending initiative has yielded impressive results. This has resulted in significant savings in foreign exchange amounting to Rs. 78,118 crores, alongside a substantial reduction in CO_2 emissions totaling 426 lakh MT. Moreover, these efforts have successfully substituted 142 lakh MT of crude oil during the same period, contributing to energy security and sustainability. Equally noteworthy is the substantial support provided to farmers. Biofuel demand is set to expand to 38 billion liters over 2023-2028, a nearly 30% increase from the last five-year period. In fact, total biofuel demand rises by 23% to 200 billion liters by 2028, with renewable diesel and ethanol accounting for two-thirds of this growth and biodiesel and biojet fuel making up the remainder.

Needed Corn Ethanol to Make India Self-Reliant in Ethanol

Among emerging economies, Brazil, Indonesia, India, and Malaysia are forecasted to drive over 60% of global biofuel demand and production growth during the specified period. Robust biofuel policies will lead to escalating demand for transport fuel, ethanol for cooking, and the introduction of Sustainable Aviation Fuel. The government needs to accord the topmost priority supporting the 'Corn Revolution' in the country on war footing for the production of 2G ethanol. PSUs and other oil sector companies should set up mega 2G refineries (1250 KLPD to 1500 KLPD) on a priority basis.

The government needs to support Indian farmers with lucrative incentives to bring about a Corn Revolution in the country. Importing dented corn should be duty-free to create an ecosystem for 2G ethanol production for a period of five years till India becomes self-sufficient in local production of dented corn.

Dr. J. P. Gupta,
Summit Chair,
Chair, Environment & Green Hydrogen Committee,
PHD Chamber of Commerce & Industry

19TH JULY, 2024
HOTEL TAJ PALACE
NEW DELHI

STEP 01 Objectives of the Summit

STEP 02 Boost Corn Ethanol Ecosystem

STEP 03 Empower Farmers for Corn Revolution

STEP 04 Ethanol, SAF, Export

STEP 05 Replacement of the LPG with Ethanol

MESSAGE

HON'BLE MINISTER OF ROAD TRANSPORT & HIGHWAYS GOVERNMENT OF INDIA

सत्यमेव जयते

Shri Nitin Gadkari

Hon'ble Minister of
Road Transport & Highways
Government of India

I am glad to know that the PHD Chambers of Commerce and Industry is organising the 4th International Climate Summit at Hotel Taj Palace in New Delhi on 19th July 2024, focusing on energy security, food security and decarbonising pathways by blending of dented corn ethanol in petrol, in consonance with the government policies on green energy and climate change solutions.

Needless to say production of corn ethanol will offer significant economic benefits for India, particularly in rural areas. Corn ethanol production will create additional employment opportunities across the value
chain, from crop cultivation to processing and distribution, and position India as a global leader in corn to ethanol production.

I congratulate the organisers of the Summit and wish them great success in driving a positive change for a greener future towards development of a 'Viksit Bharat'.

MESSAGE

PRINCIPAL SCIENTIFIC ADVISER TO THE GOVERNMENT OF INDIA

सत्यमेव जयते

Prof. Ajay Kumar Sood

Principal Scientific Adviser to the Government of India

I am happy to know that PHD Chamber of Commerce and Industry is organising the 4th International Climate Summit 2024: Decarbonizing Pathways: Corn-Ethanol Through Corn Revolution' Energy Security, Food Security and Decarbonization through Corn Ethanol - Preferred Pathway for 'Viksit Bharat' in The Taj Palace, New Delhi on 19th July 2024

Amidst the escalating impacts of climate change, the imperative for heightened awareness and decisive action to safeguard our ecosystems and communities has never been more urgent. The International Climate Summit 2024 (ICS '24) emerges as a crucial platform for advancing sustainability through bioenergy, enhancing energy security, farmer incomes, and decarbonization efforts.

With a focus on fostering exploration of bioenergy's potential for sustainable agricultural development, ICS 24 serves as a dynamic platform for exchanging innovative ideas and forging impactful collaborations. The summit offers a unique opportunity to showcase strengths in the biofuels sector, paving the way for substantial Investment opportunities, particularly benefiting MSMEs. Optimistically, the summit aligns with our Prime Minister's vision, driving India to lead in sustainable energy transition journey

Best wishes to the PHD Chamber of Commerce and Industry for their commendable efforts in organizing this transformative event.

MESSAGE

Shri Sanjeev Agrawal

President, PHDCCI
& Group Chairman
MMG Group

PRESIDENT
PHD CHAMBER OF
COMMERCE AND INDUSTRY

There has never been a more pressing need for increased awareness and decisive action to protect our ecosystems and communities in the face of the escalating effects of climate change. I am pleased to share with you all that PHD Chamber of Commerce and Industry is organizing the 4th International Climate Summit 2024 Bioenergy for Energy Security and Agricultural Growth Accelerating Green Transition of MSMEs on Friday, 19th July, 2024 at The Taj Palace, New Delhi.

The summit provides a distinctive opportunity to highlight India's capabilities in the biofuels sector, thereby facilitating significant investment opportunities, particularly for the micro, small, and medium-sized enterprises (MSMEs). The Summit will serve as an essential platform for the promotion of sustainability through bioenergy, as well as the improvement of energy security, farmer incomes, and decarbonization initiatives.

Following the official launch of the Global Biofuel Alliance (GBA) by our Hon'ble Prime Minister Mr. Narendra Modi Ji at the G-20 Summit in September 2023, ICS 2024 will serve as a catalytic platform, promoting global collaboration for the widespread adoption and advancement of biofuels.

I am delighted to share that the PHD Chamber of Commerce and Industry has consistently been at the forefront of policy advocacy, supporting the industries, particularly the MSME sector, and facilitating international partnerships to promote economic growth in India.I am confident that this knowledge book will be highly beneficial to all stakeholders.

I wish this Summit a grand success followed by fruitful actionable outcomes.

MESSAGE

Dr. Jeewan Prakash Gupta

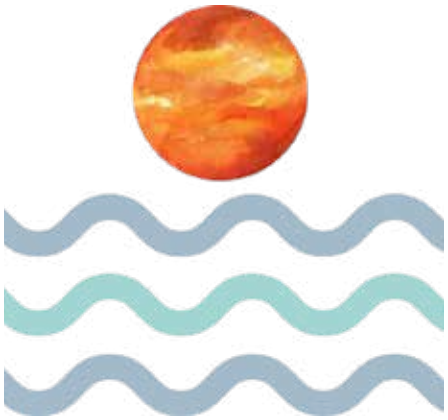
Chair,
Environment & Climate Change
Committee, PHDCCI

SUMMIT CHAIR

In the face of escalating environmental challenges and the pressing need for sustainable energy solutions, the role of bioethanol has emerged as a beacon of hope and progress. This book delves into the multifaceted world of ethanol, especially created via dented corn, tracing its historical roots, examining its current applications, and envisioning its future potential. As Chair of the Environment and Green Energy Committee at PHD Chamber of Commerce & Industry, I am honored to present this comprehensive exploration of ethanol's transformative impact on our journey towards a greener and self reliant India in energy needs.

The book is an attempt to provide a deep yet accessible story about dented-corn ethanol in light of the Global Biofuels Alliance formulated during the G20. From its early uses in beverages and lamp fuels to its pivotal role in the modern energy landscape, ethanol's evolution mirrors humanity's ingenuity and adaptability. Today, ethanol is a cornerstone of sustainable energy strategies, produced predominantly through the fermentation of diverse feedstocks, from sugar cane and cellulosic biomass to industrial waste gases. This versatility not only enhances our energy security but also significantly reduces our environmental footprint. The global perspective provided in this book underscores the vital role of corn in ethanol production, with an emphasis on the unique advantages of dented corn such as its 3x yield.

The heart of this book lies in its detailed examination of bioethanol, particularly within the Indian context and created using dented corn. India stands at a critical juncture, balancing growing energy demands with the imperative for sustainable development. The nation's ambitious Ethanol Blending Gasoline Program aims to achieve a 20% ethanol blend by 2025-26, a target that necessitates overcoming significant feedstock challenges. Here, the potential of corn ethanol becomes evident. Drawing lessons from the successes of the U.S. and Brazil, this



book outlines how India can harness its agricultural resources to become a major player in the global biofuel market, thus advancing its commitments under the Paris Agreement and propelling rural economic growth.

This book also explores the transformative potential of Sustainable Aviation Fuel (SAF), highlighting its role in reducing the aviation industry's carbon footprint and promoting environmental conservation. Despite the challenges of scalability and cost competitiveness, the promise of SAF is undeniable, offering a renewable and lower-carbon alternative to conventional jet fuels.

A significant portion of this work is dedicated to exploring technological changes needed such as 1.5 Generation (1.5G) bioethanol technologies that can optimize ethanol production. This approach not only increases yield but also makes use of agricultural residues, thereby enhancing sustainability. India's agricultural landscape is ripe for a "Corn Revolution," an initiative aimed at transforming rural economies through the cultivation of non-edible corn for bioethanol production. This revolution promises to empower farmers, promote agricultural diversification, and enhance energy access, thereby driving socio-economic development and environmental sustainability.

Our roadmap for India's ethanol future is ambitious yet attainable. By setting up mega corn-based bio-refineries, promoting ethanol as a cooking fuel, and exploring its applications in the chemical and petrochemical industries, India can make significant strides towards carbon neutrality and decarbonization.

This book is a call to action for policymakers, industry leaders, and stakeholders. It provides a comprehensive overview of the challenges and opportunities in the dented-corn ethanol sector, offering strategic recommendations to harness the full potential of this renewable resource. By embracing the vision outlined in these pages, India can lead the global effort towards sustainable energy, economic prosperity, and environmental stewardship.

With deep gratitude to my colleagues, researchers, and all those who contributed to this endeavor, I present this book as a testament to our collective commitment to a sustainable future.

MESSAGE

Erik Solheim

Former Executive Director
UN Environment Program and
Under-Secretary-General of the
United Nations, Former Chair of the
Development Assistance Committee
of the Organization for Economic
Co-operation and Development
Norway's Minister of the Environment
and International Development 2007
to 2012
Minister of International
Development 2005 to 2007
UN Environment's ex-Special Envoy
for Environment, Conflict and
Disaster
Patron of Nature for the International
Union for the Conservation of Nature

FORMER EXECUTIVE DIRECTOR UN ENVIRONMENT PROGRAM AND UNDER-SECRETARY-GENERAL OF THE UNITED NATIONS

सत्यमेव जयते

As we stand on the brink of a new era in sustainable energy, it is with great pride and a sense of urgent responsibility that we present this comprehensive 'Industry Insight' on "Corn to Ethanol: Bridging the Gap to a Sustainable Future." On the eve of the International Climate Summit, this publication aims to illuminate the pivotal role of biofuels in our global strategy to combat climate change and reduce our reliance on fossil fuels.

The transition to a low-carbon economy is not merely an option; it is an imperative. The escalating impacts of climate change demand immediate and concerted action from all sectors of society. Among the myriad solutions, biofuels, particularly ethanol derived from corn, have emerged as a viable and scalable option. This book provides an in-depth exploration of the science, economics, and environmental benefits associated with corn-based ethanol production.

Corn ethanol has the potential to significantly reduce greenhouse gas emissions compared to traditional gasoline. This book meticulously details the processes involved in converting corn into ethanol, the technological advancements that have made production more efficient, and the economic impacts on both local and global scales. Furthermore, it addresses the challenges and controversies surrounding biofuels, including food security concerns and land use changes, offering balanced perspectives and forward-looking solutions.

This work represents the collective effort of leading experts in the fields of agriculture, renewable energy, environmental science, and economics. It synthesizes the latest research and presents it in a manner that is accessible to policymakers, industry stakeholders, academics, and the general public. By providing a clear and comprehensive understanding of the corn-to-ethanol pathway, we hope to foster informed decision-making and inspire innovative approaches to biofuel production and utilization.

As an avid environmentalist, as a former leader of the UN Environment Program and as a former Minister of Environment for Norway, I am honoured to endorse this book. It stands as a testament to our commitment to sustainable development and our relentless pursuit of solutions that balance environmental stewardship with economic growth.

The International Climate Summit is a time for reflection, collaboration, and action. It is my sincere hope that this 'Industry Insight' will serve as both a resource and a catalyst for change, encouraging stakeholders around the world to embrace biofuels as a key component of our sustainable future. Let us move forward with determination and optimism, knowing that every step we take towards cleaner energy is a step towards a healthier planet.

With gratitude and hope.

MESSAGE

Nobuo Tanaka

Chair
Study Group on Next Generation Nuclear Energy Utilization at Canon Institute of Global Studies (CIGS)
Chair
The Steering Committee of Innovation for Cool Earth Forum (ICEF)
Executive Director Emeritus
International Energy Agency (IEA)
CEO
Tanaka Global, Inc

PHD CHAMBER OF COMMERCE AND INDUSTRY

It gives me immense pleasure to announce, on the eve of the 4th International Climate Summit 2024 on July 19th, the publication of a knowledge paper titled "Corn Ethanol for Energy Security, Food Security, and Decarbonization: The Preferred Pathway for India." This significant work, by Dr. J. P. Gupta, a distinguished scientist, presents a comprehensive roadmap for India's decarbonization journey.

At the outset, I extend my heartfelt congratulations to Dr. Gupta for his outstanding contribution. His work underscores the critical role of ethanol in transforming India's energy and transport sectors. The potential for India to become a leading exporter of Sustainable Aviation Fuel (SAF), leveraging the local availability of ethanol, is particularly noteworthy. Furthermore, ethanol's application as a replacement for LPG in cooking and its importance as a raw material in the production of chemicals, including ethylene and ethylene oxide (EO) derivatives, highlights its multifaceted utility.

The PHD Chamber of Commerce and Industry is honoured to benefit from Dr. Gupta's vision and dedication. This knowledge paper is poised to be an invaluable resource for industries, researchers, investors, and policymakers. Given India's agricultural foundation, a "Corn Revolution" could significantly accelerate the socio-economic development of our farmers, fostering rapid growth and sustainability.

In this context, it is essential to recognize the technical aspects of ethanol production and utilization, including advanced fermentation and distillation processes that maximize yield and efficiency. Additionally, the integration of ethanol into the energy grid requires robust infrastructure for blending, distribution, and usage in various sectors. Embracing these technical advancements will be crucial for achieving the outlined goals.

I wish my friend, Dr. J. P. Gupta, a long, healthy, and fulfilling life, abundant with happiness.

GLOBAL BIOFUEL ALLIANCE

Global Biofuel Alliance (GBA) is a dynamic initiative by the PM Narendra Modi that brings together governments, international organizations, and industry to speed up the adoption of biofuels, is to lead the biofuels development and deployment by uniting major consumers and producers, establishing them as crucial for energy transition and economic growth.

"The launch of the Global Biofuels Alliance marks a watershed moment in our quest towards sustainability and clean energy."

-PM Narendra Modi

It will help accelerate India's existing biofuels programs such as PM-JIVANYojna, SATAT, and Gobardhan scheme, thereby contributing to increased farmers' income, creating jobs and overall development of the Indian ecosystem.

The Global Biofuels Alliance (GBA) aims to boost sustainable biofuels globally. They focus on capacity-building throughout the value chain to enhance efficiency and innovation. GBA's initiative aligns with the goal of increasing renewable energy in transport from 3% to 27% by 2050. Their strategy includes a virtual marketplace to connect supply and demand in the growing biofuel industry. This marketplace plays a key role in harmonizing global biofuel efforts as demand is expected to rise significantly by 2028.

4TH INTERNATIONAL CLIMATE SUMMIT

19th July, 2024 at Hotel Taj Palace, New Delhi

INAUGURAL SESSION

Chief Guest

Mr. Nitin Gadkari

Hon'ble Minister of Road
Transport and Highways of India

Mr. Nitin Jairam Gadkari is the current Minister for Road Transport & Highways in the Government of India. He is also the longest-serving Minister for Road Transport and Highways currently running his tenure for over 9 years. He is often referred to as the "Expressway Man of India". The World Economic Forum has recognized him as the "pioneer of public–private partnership (PPP) in the road sector in India. Mr. Gadkari is also an agriculturist. He has promoted Water Management, Solar Energy Projects and the use of modern technology and management tools in agriculture. He has a passion for biofuel and non-conventional sources of energy.

Speakers

Dr. Sadesh Sookraj

Global Decarbonization Advisor,
IFC Washington
(Part of World Bank)

Prior to joining IFC, Sadesh held international executive positions in Energy, Chemical, and Venture Capital sectors for more than 30 years; including working as COO for Novomer, CBO for Midori, Global Business Manager for SABIC, BU Manager for Sasol and CEO for Formative. He has deep knowledge in new technology commercialization, P&L management, corporate snd financial structuring, project development in oil refining, chemicals, power generation, renewable and bio-chemicals. Sadesh has led decarbonization projects integrating CCUS and green hydrogen within existing operations. He is listed as inventor on more than 200 published/pending patents that span across renewable chemicals, process integration and low carbon power generation. Sadesh leads industrial decarbonization, bio-processing and CCUS efforts for the IFC Global MAS team and is based in Washington D.C.

Mr. Sanjeev Agrawal

President, PHDCCI

Mr. Sanjeev Agrawal, Group Chairman of MMG Group is the brain behind establishing the Group's diversification and growth over the years. Under his leadership, the MMG Group has achieved top position in its core business operations of Soft Drinks, Hospitality, Oil and Gas Exploration, Education, and Real Estate. MMG Group is the largest bottling partner for Coca-Cola in India under the franchisee agreement with Coca-Cola INC, Atlanta. The Group also operates McDonalds restaurants in North and Eastern regions of India through the Connaught Plaza Restaurants. Mr. Agrawal was conferred the 'Capital Foundation National Award' by Mr. Ravi Shankar Prasad, Union Minister of Law & Justice, Electronics & Information Technology in 2017 for his entrepreneurial skills. Being a philanthropist and a Member of the Rotary Club, his CSR activities like "Samarpan" for providing support to the differently-abled, downtrodden and economically weaker sections of the society are well known. The MMG Group under the Charitable Society, Radha Bihari Shiksha Samiti has set up educational institutions notably, "Ishwarchand Vidyasagar Institute of Technology" and "MM Agarwal Institute of Technology" providing postgraduate education and also scholarships to bright students from poor families.

Mr. Hemant Jain

Sr Vice President
PHDCCI

Mr. Hemant Jain is the Managing Director of the KLJ Group of Companies, the largest manufacturer in Plasticizers and Polymer Compounds in South Asia. He is also the Vice Chairman of KLJ Organic Qatar W.L.L, Qatar and has set up an ultra-modern Cho-Alkali plant in Qatar. His vision has led to the KLI Group's diversification into Petrochemical trading and setting up manufacturing plants at Thailand and Qatar. The KLJ Group runs a well- established school in Delhi and also a 200 bedded hospital for the residents of Delhi. Mr. Jain holds a Diploma in International Business Management from Harvard University.

Dr. J.P. Gupta
Chair, Environment & Climate Change Committee, PHDCCI
Managing Director, Greenstat Hydrogen India Pvt. Ltd.

Dr. J. P. Gupta, is currently the Managing Director of Green Hydrogen India. He is also chair of the Environment and Green Hydrogen Committee of PHD Chamber of Commerce and Industry. He has been the chairman and managing director of many companies including Degussa AG, the largest specialty chemical company in the world. Dr. Gupta has several patents to produce Lychee, Mango, and Ayurvedic wines for the first time in the country. He has been holding the position of Chairman (Industry-II) for Environmental Clearance with the Ministry of Environment, Forests, and Climate Change and member of different government organizations. He is a prolific writer in contributing to national dailies.

Dr Ranjeet Mehta
Executive Director
PHDCCI

Dr. Ranjeet Mehta holds a Ph.D. in Management and a university gold medal. He holds an Organizational Leadership Certificate from Harvard Business School and a Management Degree from Cornell University in the United States. He is a Fellow of the US Government's International Visitors Leadership Program and a law graduate with over 34 years of experience in various corporate leadership roles.

Dr. Mehta is currently the Executive Director and Head of the PHD Chamber of Commerce and Industry (PHDCCI). He is also leading the Environment committee and the Centre of Excellence on Green Hydrogen at PHDCCI.

Dr Mehta is a member of the Industry Advisory Group for the Chief Minister of Uttarakhand. Additionally, he is a member of the NCCD Committee on Supply Chain & Logistics, which is part of the Government of India's National Centre for Cold Chain Development.

He has played a significant role in Trade Policy, Bilateral & Multilateral Engagements, Two-Way Investment, and Trade, enabling the Indian industry to expand its global footprint through a variety of specialized services. He is an expert in Policy Advocacy and Government Affairs at the Federal, State, and Local Government levels, while coordinating Industry Chamber relations with industry leaders and policymakers. He has organized and led international business delegations to numerous countries in search of strategic partnerships and investment opportunities.

Dr. Mehta has represented Indian Industry in many Government and Parliamentary Committees and has been instrumental in addressing various policy-related issues in Infrastructure, MSMEs, Startups, Affordable Housing, Water, Urban Development, Power, Renewable energy, Oil and Gas, and Logistic Sectors.

He has written extensively on significant issues pertaining to industry, trade, and commerce. His publications consist of six books, several research papers, and articles in numerous reputable journals, Leading National and International Magazines and Newspapers such as Hindustan Times, Times of India, and Financial Express. He is a frequent speaker in the Electronic and Print Media, as well as in International Forums.

4TH INTERNATIONAL CLIMATE SUMMIT 2024
19TH JULY. 2024

PLENARY SESSION

Speakers

Mr. Vishesh C Chandiok
Chief Executive Officer, Grant Thornton Bharat LLP

Mr Chandiok is the Chief Executive Officer of Grant Thornton Bharat LLP, a firm he co-founded in the year 2001, which has since then grown to over 10,000 employees in more than 20 locations in India. He became the youngest member to be elected to the Global Board of Governors of Grant Thornton- the ultimate decision-making authority in the organisation, from 1 January 2016. He is a Special Invitee to National Council, Co-Chair of CII National Committee on Insolvency & Bankruptcy and of YPO Delhi Chapter (including being a past Chapter Chair). He also sits on the board of IIM Amritsar and the US India Business Council Indian Advisory Board.

Mr. Nobuo Tanaka
Executive Director Emeritus, International Energy Agency (IEA); CEO, Tanaka Global,Inc.

Nobuo Tanaka is Chairman of the steering committee of the Innovation for Cool Earth Forum (ICEF), which was established by former Prime Minister Shinzo Abe in 2014. He was Chairman and President of the Sasakawa Peace Foundation for 2015-2020. As Executive Director of the International Energy Agency (IEA) from 2007 to 2011, he initiated a collective release of oil stocks in June 2011. He also played a crucial and personal role in the strengthening of ties with major non-Member energy players, including China and India.

Mr. Yogendra Sarin
President & CEO, Petron Scientech USA

Mr. Sarin brings over 35 years industry experience in leadership positions in sustainable and carbon emission reducing / environmental friendly Process Technology, engineering/design, Catalyst development, Technology commercialization, plant operations, large projects and joint ventures management for multi-billion-dollar Petrochemical, Low carbon intensity Bio-Ethylene/ downstream chemical and Biorefinery projects from concept to commissioning and plant operation supervision in various global locations. Having been educated in India, Italy and USA in Chemical engineering and business management, he is founder/ president and CEO of Petron Scientech, Princeton, NJ, a pioneer in climate friendly technology areas as an industry leader.

Mr. Chandrashekhar
Executive Director, Plant Manager, Hazira, ONGC

Mr. Shekhar is an alumnus of IIT Roorkee (erstwhile University of Roorkee) from where he graduated as a chemical engineer in 1986. He has more than 33 years of experience in E&P Business including Offshore and onshore area. At present is holding responsibility of Plant Manager, ONGC Hazira Plant which is largest Sour gas Processing complex in south Asia Before taking over as Plant Manager of Hazira, Mr. Shekhar held the key position of Chief-P&D Directorate at Dehradun where he played an instrumental role in inducting new technology into the ONGC ecosystem. Being a member of the Production Technology Board, he ensured access to the latest technology for various Assets and Plants. Under his leadership, the first round of marginal fields bid out for production enhancement was completed as per the Cabinet decision. As Plant Manager of Hazira Plant, Mr. Chandra Shekhar has initiated revamping projects, development of floating Solar Power Plant, hiring of electric vehicles for plant operations in line with ONGC's target of becoming Net Zero by 2038.

Sh Shekhar stresses on leveraging digital technologies like Artificial Intelligence and advanced analytics to achieve operational excellence and Plant safety. New initiatives for CBG plant is being conceptualised along with a few sustainably projects at Hazira Plant of ONGC.

Mr. Alok Sharma
Director (R&D), IOCL

Mr. Alok Sharma possesses decades of uninterrupted experience in the downstream energy sector. A Chemical Engineering alumnus of IIT-Delhi, he has made significant contributions to the Indian refining sector in Process, Projects, and Production. Mr. Sharma has garnered numerous accolades, including the ICMA Award 2002 and the World Petroleum Congress Excellence Award 2008 for development of Indigenous Hydroprocessing Technologies.

Recipient of the Endeavour's Fellowship Award by the Government of Australia in 2009, Mr. Alok Sharma is a recognized expert in the energy sector. He actively participates in various national and international committees, advocating for alternative and renewable energy solutions. He is also a member of International Association of Hydrogen Energy (IAHE) and founder member of Hydrogen Association of India (HAI).

His tenure as Executive Director at CHT, also brings with him a wealth of experience across the entire energy spectrum in the country. He plays a pivotal role in coordinating refining, petrochemical, and alternative energy activities on behalf of the Ministry of Petroleum & Natural Gas. Mr Sharma is also a member of Governing Council of Centre of Excellence in Oil, Gas and Energy (CoEOGE) at IIT Bombay. He has 35 granted patents and over 50 publications to his name.

Mr. Faiz Ahmad Kidwai, IAS
Additional Secretary,
Ministry of Agriculture and Farmers Welfare

I am 1996 Batch IAS officer of Madhya Pradesh Cadre. Presently, I have been working as Additional Secretary in the Ministry of Agriculture & Farmers Welfare, Department of Agriculture & Farmers Welfare. I am looking after the different divisions in this Department like Plant Protection, Policy & Plan Coordination, Natural Resource Management, Rainfed System, Extension, Agri Infrastructure Fund, Price Support Scheme, Agricultural Marketing etc. I have been working towards promoting Per Drop More Crop (PDMC) scheme, agri marketing reforms, development & roll out of flagship scheme of e-National Agriculture Market (e-NAM) & Farmers Producer Organization (FPO), development of market infrastructure / and value supply chain, market information. I am also holding the additional charge of DG, CCS NIAM, Jaipur and CEO, National Rainfed Area Authority (NRAA). I am handling the administration and establishment of National Institute of Agricultural Marketing (NIAM), Jaipur & Directorate of Marketing & Inspection (DMI), Faridabad.

Mr Ajay Dixit
ED - Chief HSE, FS, ONGC

Accomplished Senior Officer of Executive Director level, with over 35 years of technical, operational, administrative, and management experience. Following expertise gained from Multidisciplinary assignments, starting from field operations at Drilling Rigs; Crisis Management and Well Control expertise at Local, Regional and Corporate Level; Senior Corporate Position s as Chief of the Health, Safety and Environment and Chief of Fire Services. He has immensely contributed in handling critical crisis situations and has been awarded ONGC's CMD's Professional of the Year Award in year 2004. In 2014-15 for leading and controlling several major Blowout control operations with utmost safety and committed team spirit, Mr. Dixit has been conferred with Oil Industry Safety award for exemplary contribution towards safety under Individual Category by Ministry of Petroleum and Natural Gas.

Mr. Alok B Shriram

Sr. Managing Director & CEO,
DCM Shriram Industries Ltd.
Vice Chairman, Shriram Institute for Industrial Research

Born in one of India's premier Business Families-The Shriram Family, in New Delhi, he did his schooling in Mayo College, Ajmer and graduated from the prestigious Shriram College of Commerce, Delhi University in 1980.

Since then, he worked for the last over 45 years in a number of industries run by the group-Tex tiles, light engineering, industrial fibre and sugar, alcohol and power.

Presently, Mr. Alok Bansidhar Shriram is the Senior Managing Director & CEO of DCM Shriram Industries Limited (DSIL), a $300 million company having manufacturing interests in Sugar, Power, Alcohol, pharmaceutical chemicals,industrial fibre and Engineering fabrications. He is the Vice Chairman of Shriram Institute for Industrial Research,Delhi , a leading independent research institute set up in 1950. It has three locations and over 250 scientist working in multiple fields.

Keenly interested in the field of education ,he is Chairman of Dr. Bansi Dhar School in Kota, Rajasthan and Shad Centre for Special Children in Delhi . He is Chairperson of the Board of Governors of Indraprasta College for Women, Delhi University and New Delhi Institute of Management.

He is actively involved in Management and Trade Bodies. He is a Former President of PHD Chamber of Commerce & Industry and continues to participate actively . He is an Executive Member of FICCI and is also closely associated with Indian Sugar Mills Association, CII, AIMA.

He is a life member of the Textile Association of India. He is presently President of All India Employers Organization and a member of the Board of International organisation of employers, Geneva.

He is a member of the prestigious Rotary Club of Delhi Premier and a Paul Harris Fellow.

Mr. Shriram is a golf aficionado, traveller and a passionate photographer.

Ms. Beate Langset

Miljøråd/ Counsellor of Climate and Environment, Royal Norwegian Embassy in New Delhi

Ms. Beate Langset has a master's degree in history from University of Oslo. Her thesis was a comparative study of Norwegian and Swedish regulations on hydropower in the 1960s and 70s. Her work experience is broad, from the University of Oslo, Norwegian Armed Forces and the waste management branch. The last 12 years, she has been working in the waste management sector. First for an intermunicipal waste company, later at the Norwegian Environment Agency, with coordinating export and import of waste and working with circular economy. The last two and a half year, she has been working as Counsellor of Climate and Environment at the Royal Norwegian Embassy in New Delhi.

Mr. Sachin Lokhande

Business Director – India,
LanzaJet, Inc.

Sachin is the Business Director for India at LanzaJet, a US based sustainable fuels technology company dedicated to carbon recycling and expanding sustainable aviation fuels (SAF) to reduce greenhouse gas emissions and decarbonizing the aviation industry.

Sachin has over 27 years of extensive international experience in the energy industry. He is passionate about helping LanzaJet's customers and partners in India to develop sustainable and innovative renewable energy projects to meet India's decarbonization goals. Before heading back to his Motherland of India, Sachin managed the company's expanding global project portfolio of SAF projects. Prior to joining LanzaJet, Sachin held various leadership positions in Engineering, Project Management, Project Development, and Sales in the Petrochemicals and Oil and Gas industry. He has led several large global capital projects in these industries to success and managed large engineering departments. A 1996 Engineering Graduate from the University of Pune in India, Sachin earned a Master's degree in Chemical Engineering from the Illinois Institute of Technology in Chicago, USA. He also has an MBA specializing in International Business from Northern Illinois University.

Dr. R. K. Malhotra
President,
Hydrogen Association of India

Dr. Malhotra received B.Tech Mechanical Engineering degree from IIT BHU and Ph.D. (Energy Studies) from IIT Delhi. He is a distinguished Energy professional with expertise in Energy & Environment areas including Renewables, Bio-fuels & Hydrogen. He has over 47 years of experience which included a long tenure of 37 years at Indian oil Corporation, where he was Board Member for four years as Director R&D & held charge for some time as Chairman before his superannuation.

He is currently member of several important national committees i.e. Expert Member in the Cabinet Empowered Group of Green Hydrogen Mission of the Govt of India. On the professional front he has been very actively associated with several bodies. He is presently the President of the Hydrogen Association of India. He has Published/presented over 200 research papers & has 138 patents GRANTED in India & abroad. He received the prestigious Rudolf A. Erren Award from the International Association of Hydrogen Energy for contribution to Hydrogen research, "Global Excellence Award" for work in the Renewable energy sector, IIT- BHU Alumni Award for excellence in R&D.

Mr. Rakesh Jain
National Co Convenor
Paryavaran Initiatives , RSS

Rakesh Jain, born in Meerut, did MSC (Stat) from there, is a Sangh propagator, has held various responsibilities, was Deputy BJP Organization Minister in 2006, National Organization Minister of Seva Bharti, National Co-convener of Environmental Activities since 2019

TECHNICAL SESSION I:
ETHANOL PRODUCTION- 1G AND 1.5G TECHNOLOGIES

Convener

Dr. J S Sharma
Co- Chair, Environment and
Climate Change Committee,
PHDCCI

Dr. Sharma has more than 38 years of experience and specializes in Environment pollution prevention and control. He served ONGC as Group General Manager - Head Environment, and Oil Industry Safety Directorate, MOPNG as Additional Director. He is presently the President of the Indian Association of Air Pollution Control (IAAPC) and the co-chair of the Environment and Green Hydrogen Committee at PHD Chamber.

Chair

Mr. Yogendra Sarin
President & CEO,
Petron Scientech USA

Mr. Sarin brings over 35 years industry experience in leadership positions in sustainable and carbon emission reducing /environmental friendly Process Technology, engineering/design, Catalyst development, Technology commercialization, plant operations, large projects and joint ventures management for multi-billion-dollar Petrochemical, Low carbon intensity Bio-Ethylene/ downstream chemical and Biorefinery projects from concept to commissioning and plant operation supervision in various global locations. Having been educated in India, Italy and USA in Chemical engineering and business management, he is founder/ president and CEO of Petron Scientech, Princeton, NJ, a pioneer in climate friendly technology areas as an industry leader.

Speakers

Lt Col Monish Ahuja (Retd)
Chairman & Managing Director,
PRESPL

Lt Col Monish Ahuja (Retd) is the Chairman & Managing Director of M/s Punjab Renewable Energy Systems Private Limited (PRESPL) and Chairman, Confederation of Biomass Energy Industry of India (CBEII), President CLEAN Network Org He is an alumnus of the prestigious National Defence Academy, Khadakwasla, Pune and PG (M Tech) in Nuclear Technology from Bhabha Atomic Research Centre Lt Col Monish Ahuja (Retd) is known in the Biomass fraternity as a dedicated and knowledgeable leader. He has been advocating the barriers faced by Biomass-Bioenergy Project Developers at various seminars and forums and has been instrumental in impressing MNRE (Ministry of New and Renewable Energy, India), MoPNG (Ministry of Petroleum & Natural Gas), Ministry of Agriculture & Farmers Welfare, NITI Aayog towards the use of agri-residue biomass-bioenergy based industry in India.

He is been Ex Chairperson of the FICCI Bio-Energy Committee and Ex Member of CII Committee of Bioenergy. He is presently onboard as Mentor / Advisor / Member on various National and International Corporate, Academic and Research Institutes, and Innovation Platforms.

Dr. K. K. Pant
Director, IIT Roorkee

Prof. Kamal Kishore Pant received his PhD (Chemical Engineering) degree from the Indian Institute of Technology Kanpur in 1997. He took over as the Director of the Indian Institute of Technology Roorkee on October 12, 2022. Prof. Pant previously held the positions of Petrotech Chair and Federation of Indian Petroleum Industries (FIPI) Chair Professor, Chairman GATE & JAM, Chairman, Library, Head of the Department of Chemical Engineering, and Dean Faculty at the Indian Institute of Technology Delhi. He is Adjunct Faculty at the University of Saskatchewan in Canada.

Dr. Umish Srivastva
Executive Director (AE&NEC)
Indian Oil Corporation Limited

Executive Director, IndianOil R&D Centre, Faridabad, India; Director and CEO of IndianOil Adani Venture – Biogas (IAVBiogas)

Key traits: Breathing life into ideas; Translating research into innovations; Creating differentiation

Spearheading IOC's mega project of "New Energy Centre" – the largest renewable energy research centre

Team Lead of IOC's Centre for Alternative & Renewable Energy (iCARE) in areas of Solar, Bioenergy, Hydrogen, Gasification, Batteries etc; Over 42 patents grants and more than 20 publications in technical journals of repute; Indian Green Building Council's (IGBC's) accredited "Green Building Professional"; Mechanical Engineering – M.E. in Mechanical Engineering from IIT-Roorkee and Doctorate in Energy Studies from IIT-Delhi.

Mr. Ranjit Kulkarni
Vice President and General Manager, Honeywell's Energy and Sustainability Solutions

Ranjit Kulkarni is the Vice President and General Manager for Honeywell's Energy and Sustainability Solutions (ESS) portfolio and currently leads India operations for Honeywell's ESS segment.

In his 18+ years of journey with the brand, Ranjit has played a strategic role in launching several new technologies, commissioning refinery and petrochemicals complexes, managing sales, and fostering business development for future-forward technologies across domains like energy and sustainability for universal oil products (UOP), and advanced materials (AM).

Ranjit's diverse career spans various roles, including Technical Advisor, Principal Technology Manager, Director of Sales and Director of Global Business Development. He possesses extensive geographical expertise, having worked in regions such as the Middle East, Europe, APAC, FSU, Russia, India, Turkey, and Africa. Over his nearly 24-year career, he has also worked with other prominent companies, including Reliance and Deepak Fertilisers & Petrochemicals and is holding a PhD in chemical engineering from the University of Birmingham, United Kingdom.

Mr. Sachin Chugh

Hydrogen & Energy Lead,
ARUP India

Currently, operating as Hydrogen & Energy Lead, ARUP in India. Responsible for driving forward the hydrogen and energy agenda of ARUP by leveraging extensive expertise and experience of more than 18.5 years in the hydrogen and downstream energy sector space including production, storage, transportation, and utilization besides techno-economic assessment of various new energy technologies. to deliver cutting-edge solutions that meet the evolving needs of stakeholders in India.

Prior to this, Sachin was worked for IndianOil R&D Centre where he successfully led a series of strategic, policy-oriented, and R&D initiatives focused on green hydrogen, derivatives, electrolyzer and fuel cell technologies besides alternative fuels, automotive emissions, and carbon management at IndianOil R&D, the research and policy arm of Indian Oil Corporation Ltd., the largest public sector enterprise in the country operating under the ambit of Ministry of Petroleum & Natural Gas, Govt. of India.

Dr. R. P. Verma

Formerly Petrotech Chair; Prof. IIT Delhi and Executive Director & Head-R&D, Indian Oil Corporation Limited

Dr. R.P. Verma holds a Ph.D. (Tech.) degree in Chemical Engineering. He joined Indian Oil Corporation Ltd.- R&D Centre in the year 1984 at the middle management level and held the position of Executive Director & Head (R&D), before superannuation.

He also concurrently held the positions of Chairman of IndianOil Technologies Limited (a Subsidiary of Indian Oil Corporation Ltd.) and Chairman of IndoCat Pvt Limited (a JV of IOCL and Intercat, USA).

After superannuation from IOCL, he held the position of Petrotech Chair Professor at IIT,Delhi.

He has also been Consultant- Corporate R&D to Hindustan Petroleum Corporation Ltd.(HPCL) on continuous basis for several years.

Dr Verma has been Chief Technology Advisor & Director-India to Petron Scientech Inc.(USA) & presently Member of its Advisory Board in addition to freelance Consultant in the area of Pet. refining technologies, Bio refineries / Fuels. Dr. Verma in his individual capacity and along with his groups has received various prestigious National/ International Awards.

Dr. Verma has more than 190 research papers and 50 National/International patents to his credit. He has given several invited lectures in India and abroad. He has also contributed chapters in / edited four academic / technical books.

4TH INTERNATIONAL CLIMATE SUMMIT
19th July, 2024 at Hotel Taj Palace, New Delhi

VALEDICTORY SESSION

Chief Guest

Shri Jagdeep Dhankar

Vice President of India

Graduated in B.Sc. (Honors) Physics from Maharaja's College, Jaipur, affiliated to the University of Rajasthan. 1978-1979 LLB from the University of Rajasthan. Was enrolled with the Bar Council of Rajasthan as an Advocate with effect from 10.11.1979.

Designated as Senior Advocate by the High Court of Judicature for Rajasthan with effect from 27.3.1990, Since 1990 Shri Jagdeep Dhankhar had been practicing primarily in the Supreme Court and his focus area of litigation have been in the field of Steel, Coal, Mining and International Commercial Arbitration, amongst others. He has appeared in various High Courts in the country and was the senior-most designated Senior Advocate of the State till assuming the Office of the Governor on 30 July, 2019.

Office bearer of the Association : Elected Member of the Rajasthan Bar Council in the year 1988; Legislature: Elected to the 9th Lok Sabha from Jhunjhunu Parliamentary Constituency in the year 1989; Union Minister of State for Parliamentary Affairs in 1990; Elected to the Rajasthan Legislative Assembly from Kishangarh Constituency in Ajmer district in the year 1993-1998; Member of important Committees in the Lok Sabha and the Rajasthan Legislative Assembly, As Union Minister was member of a delegation as Deputy Leader of a Parliamentary Group to the European Parliament; Served as Governor of West Bengal from 30 July 2019 to 18 July 2022.

Associations and other interests: Life Member, Indian Law Institute, New Delhi; Member, Indian Council of Arbitration; Member, ICC Commission of Arbitration; Member, ICC Court of Arbitration; Cooperative movement, agriculture and fine arts; An avid reader of books; A sports aficionado, he has been the President of the Rajasthan Olympic Association, and Rajasthan Tennis Association

The Vice President as Chancellor / Visitor of Universities : Chancellor (Ex-Officio) - Delhi University; Chancellor (Ex-Officio) - Panjab University; Visitor (Ex-Officio) - Makhanlal Chaturvedi Rashtriya Patrakarita Vishwavidhyalaya, Bhopal (Established by an Act of the Government of Madhya Pradesh In 1990.

The Vice President as President / Chairman of the Institutes / Committees : President (Ex-Officio) of The Indian Institute of Public Administration (IIPA), Delhi; President (Ex-Officio) of The Indian Council of World Affairs (ICWA), Delhi; Chairman of the Selection Committee of Prasar Bharti Board (As Per Prasar Bharti Broadcasting Corporation Of India Act, 1990) for selection of the Members of the Board; Chairman of the Committee for selection of Chairman of The Press Council of India (As Per Section 5 (2) of The Press Council Act, 1978)

The Vice President as Chairman of Juries / Selection Committees for various Award : Pravasi Bharatiya Samman Awards (Jury Constituted by Ministry of Overseas Indian Affairs); International Gandhi Award for Leprosy (Jury Constituted by Gandhi Memorial Leprosy Foundation- Wardha Under Ministry of Health and Family Welfare); National Communal Harmony Award (Jury Constituted by Ministry of Home Affairs); Dr. Ambedkar International Award for Social Change (Jury Constituted by Ministry of Social Justice & Empowerment); Jawaharlal Nehru Award for International Understanding (Jury Constituted by Ministry of External Affairs)

Publications : Has contributed extensively articles on legal issues in newspapers and periodicals;

TECHNICAL SESSION II:
CORN REVOLUTION – TRANSFORM RURAL INDIA

Convener

Mr. Umesh Sahdev

Co-Chair – Environment and Climate Change Committee, PHDCCI
Exec. Chairman , Hydrogenium Resources Pvt Ltd

Umesh Sahdev is the Executive Chairman of Hydrogenium Resources, Pvt Ltd, India. He has more than five decades of professional experience in planning & development of Industrial projects in a vast spectrum of industries, managing businesses of global companies, identifying business opportunities and strategic planning for investment projects, Sustainability, Decarbonization, carbon offset projects and managing Private Equity and investments in Sustainability and Climate Change mitigation projects.

Chair

Prof. Venugopal Achanta

Director, CSIR- National Physical Laboratory

Prof. Venu Gopal Achanta obtained his Ph.D. (Physics) from TIFR, Mumbai and Ph.D. (Electronics) from Tokyo University. He is currently the Director of CSIR-National Physical Laboratory. He is on lien from Tata Institute of Fundamental Research, Mumbai where he is a Professor. His research interests are in the application of nanophotonics to single molecule and single photon spectroscopy through light-matter interaction in non-perturbative regimes. He has over 150 journal publications. He is a fellow of the Indian National Science Academy (INSA) and an honorary fellow of the Metrology Society of India (MSI). He is elected to the International Committee for Weights and Measures (CIPM) in 2022 and to the executive committee of Asia Pacific Metrology Program (APMP). He is currenty President of Optical Society of India (OSI), and Vice president of Indian Laser Association (ILA), and is on the EC of IEEE Photonics Mumbai Chapter. He is a senate member of IIT, Delhi and JNU, New Delhi.

Speakers

Mr Rajvir Singh Rathi

Director Public Affairs, Science and Sustainability (South Asia) &
Lead – Traits Licensing Business with Bayer division CropScience

Rajvir, a Post Graduate and a gold medallist in Agriculture, has more than two decades of experience in Corporate Affairs in Agri – Input Industry spanning : Regulatory Affairs, Scientific Affairs, Government Affairs, Industry Affairs, Public Affairs, Corporate Affairs/Communications and Agri- Product Stewardship.

Rajvir, over the last decade has created the key linkages among various key agricultural stakeholders and Agri input - Industry. These linkages have now become the platforms for various Public Private Partnerships and combined initiatives. As a part of organizational strategy, he has conceptualized, created and managed the first product stewardship team in India in the area of Crop Biotechnology, for preventing value drain of intellectual property in the larger Interest of Indian Agri – Input industry.

Rajvir is holding senior positions in several committees of Asian and Indian Industry Chambers. He is Vice- Chairman of Federation of Seed Industry of India and Board member of CropLife India, Bayer Foundation India and Agriculture Skill Council of India. Rajvir is a Leadership Team member of Crop Science Division for India Bangladesh and Sri Lanka Cluster of Bayer Crop Science.

Dr Bhupender Kumar

Sr. Scientist – Sr. Scale (Plant Breeding), Indian Institute of Maize Research (IIMR) - Indian Council of Agricultural Research (ICAR)

Dr. Bhupender Kumar, a Sr. Scientist at ICAR-Indian Institute of Maize Research, Ludhiana born on 27th December, 1981 in Chamba Himachal Pradesh, India. He completed his B.Sc. (Agriculture) from CSKHPKV Palampur, H. P, M.Sc. and Ph.D. in Genetics from ICAR-Indian Agricultural Research Institute, New Delhi. As a lead developer, he has developed and released 12 maize hybrids which have been licensed to 18 private seed companies. For four years, they held top position in maize breeder seed demand in the country. His research area focuses on breeding maize for high yield, better ethanol recovery and biotic stresses tolerance. He has published over 55 research articles in journals of international repute. Received NAAS Associateship, DST early career research award, Dr. SK Vasal award, Dr. NN Singh Young Scientist award, Dr. Joginder Singh Memorial award & Prof Mahatim Singh Memorial Award. He has visited Mexico and twice to Thailand and received DST travel grants for presenting research findings abroad.

Dr. Sheetal Sharma

Senior Scientist – Soil Science & Research Lead – Digital Tools
Sustainable Impact Platform, International Rice Research Institute (IRRI)

Dr. Sheetal Sharma, Senior Scientist – Soil Science, International Rice Research Institute (IRRI). An expert in enhancing rice-based agri-food systems through improved soil nutrient management and agri-relevant ICT, Sheetal provides strategic leadership in developing, leading, and implementing programs that leverage ICT to amplify, disseminate, and package IRRI's scientific research into accessible knowledge tools for diverse audiences. She identifies innovative technology platforms to transfer knowledge and increase efficiencies in regenerative farming systems, thereby improving soil health and system productivity. With more than 16 years of global experience in developing and scaling sustainable technologies, Dr. Sharma has received several accolades throughout her career, including the 11th Japan International Award for Young Agricultural Researchers for her work on use of ICT for scaling site-specific nutrient management to a large number of farmers.

Mr. Satyender Singh

CEO- Seeds,
Crystal Crop Protection Limited

Mr. Satyender Singh has experience of more than 25 years in the Agri input industry in various leadership roles. Prior to joining Crystal he has worked with Monsanto / Bayer and was Director of Mahyco Monsanto Biotech India Limited. He is EMBA from Olin Business School , Washigton University in St louis USA and MSc Agri from Haryana Agri University .

TECHNICAL SESSION III:
DECARBONIZATION AND CARBON TRADING

Convener

Mr. Mahendra Rustagi
Co-Chair, Environment & Green Hydrogen Committee, PHDCCI

Mahendra Rustagi, a Chartered Accountant, Cost Accountant and Company Secretary by profession, after over 35 years of working in the corporate sector is presently CEO of Kreston SNR. He is presently the Co-chair of the Environment and Green Hydrogen Committee of PHD Chamber of Commerce and Industry.

Chair

Mr. Rajnish Kumar
Ex-Chairman,
State Bank of India

Mr Rajnish Kumar is former chairman of State Bank of India. He is credited with steering the bank successfully through very challenging times. During his tenure, Bank developed YONO, a digital platform, which has established bank as a global leader in adoption of technology and innovation. Mr Kumar is a career banker with nearly 4 decades of service with State bank of India. His expertise in corporate credit and project finance is well recognized. He successfully managed UK operations of the Bank immediately after the crisis caused by the collapse of Lehman Brothers. Mr Rajnish Kumar is currently serving as an independent director on the Boards of many prestigious companies like HSBC Asia Pacific, Hongknong, Amuja Cements Ltd, Larsen & Tubro Ltd, Hero Motorcorp Ltd, Brookprop Management Services Pvt Ltd and Mastercard India. Mr Kumar has done M.Sc. in Physics from Meerut University and is also a Certified Associate of Indian Institute of Bankers (CAIIB).

Speakers

Mr. Vijay Sardana
Techno-Legal Expert & Advocate,
Supreme Court of India

Vijay Sardana has a unique combination as is a Dairy and Food technologist, IIMA alumnus and well known and experienced Advocate, Supreme Court of India, Delhi High Court and National Green Tribunal. He is Techno-Legal Expert and Project Consultants for Food, Consumer Products, Agrochemicals, Biotechnology, Nutraceuticals, and Arbitrator, Negotiator, Mediator for Technology Agreement and IPR, International Trade and Environment Laws and Commercial Contract matters. His views are widely shared on social media. He is advising many companies in the area of dairy, food and agro-based industries for his Expertise in Techno-legal & Techno-Commercial Matters including Contracts Negotiation, Mediation & Arbitration including Intellectual Property (IPR) Matters, policy advocacy, business contract disputes and investments.

Mr. Amit Kumar
Partner, Grant Thornton LLP

Amit Kumar has over three decades of experience in policy & regulations, business plan & strategies, fund raise, due-diligence, transformation and implementation, across the energy portfolio - power, renewables, energy efficiency, e-mobility, new energies, smart meters & digital, and climate change in 40+ countries. He leads Infrastructure and Energy group in Grant Thornton Bharat. He has worked with almost all the important stakeholders in the RE and EE industry including government policy makers and agencies including government institutions, regulators, financing institutions, NGOs, project developers and agencies like GIZ, The World Bank, KfW, JICA, ADB etc. Amit has led several prestigious RE assignments including support to MNRE in developing 100 GW solar plans and support to NITI Ayog in developing 50 GW battery manufacturing plans for India.

Prof. G. D. Yadav

Padma Shri and Internationally Renowned Scientist

Professor Ganapati D. Yadav is one of the topmost, highly prolific, and accomplished engineering-scientists in India. He is the National Science Chair of Govt. of India, which is a very prestigious national honour and is Emeritus Professor of Eminence and is the former Vice Chancellor of the Institute of Chemical Technology, Mumbai. His patented work on the net zero goal, green hydrogen production technology, carbon dioxide refineries and valorization of (waste) biomass and waste plastics is internationally acclaimed. He serves as the Adjunct Professor at University of Saskatchewan, Canada; Conjoint Professor, University of New Castle, Australia; Distinguished Adjunct Professor, IIT Guwahati and SOA University Bhubaneswar. He was conferred Padma Shri by the President of India in 2016.

Mr. Tapan Sharma

DGM (SME), SBI

Having an experience of 22 years for handling High Value Corporate Credit. Apart from that, having an experience in Real Estate, Forex etc.

Mr. Manoj Mahata

Energy Advisor, Implementation of Energy Plan, GIZ India

Area of Expertise and Experience: Design and management of Bi/Multi-lateral development co-operation; Design and Implementation of development program/strategies/ approach; Multi-sectoral strategic energy planning (assisted 6 state Govt); Rural development for small and micro enterprise development.

Exposure to various energy sectors: Mini-grid, Bio-energy, DRE applications, Policy/regulatory analysis, Cooking energy and technologies, Value chain assessment and development.

Ms Kritika Tripathy

CEO & Co-Founder (Sales Domestic & International, Operations), Ecosure Pulpmolding Technologies Ltd

She is a hospitality management graduate from the international institute of hotel management Kolkata. She graduated in 2011 and also holds a bachelor in arts degree from the Edinburgh Napier University and started her working career with Metro Cash and Carry as a graduate trainee in the year 2011 and continued to be a part of the company for 3 years. Left the company as a senior key account executive managing 46 clients in regards to Horeca.

Continued to work in the FMCG world and worked with companies like Saksham Impex, Olive tree trading and Brindco India dealing with the best imported brands of Natural Drinking Water and have also been a part of Companies like Kaya skin clinic and VLCC trying my expertise of sale in the aesthetic world.

‘CORN ETHANOL’

Energy Security, Food Security and Decarbonization – A Preferred Pathway for Self-Reliant India

Today ethanol has found its way into a range of applications from its original application as beverage (wine and beer) to use as a fuel, a chemical solvent, a disinfectant (hand sanitizer), pharmaceuticals, cleaning, production of renewable hydrogen, cosmetics, perfumes, and as a feedstock for the production of chemicals.

The blending of ethanol into gasoline got its foothold in both the United Staes and Brazil, and both countries are no longer net importers of crude oil. In Brazil E100 sells for a lower price than gasoline and in the United States, both E15 and E85 sell for less than E10 and both have a higher-octane numbers than E10. (E10 is the conventional gasoline sold in the United States.) In the United States, the blending of ethanol into gasoline for use as an automotive fuel began in the 1970’s due to the high petroleum prices and growing health and environmental concerns over the use of lead in gasoline created a need for a new source of “octane”. The value of ethanol as a “fuel oxygenate”to control carbon monoxide emissions was recognized, which resulted in increased production in the 1980’s and the 1990’s. Ethanol burns cleaner than Gasoline and is currently blended into fuel in many countries around the globe, including India. India started blending ethanol in a pilot program in 2001.In the U.S. the majority of gasoline sold today has a minimum of 10% ethanol, E10. Today in Brazil all gasoline has a mandatory ethanol blend requirement of 27% (soon to be 30%). Cars in Brazil can switch between any gasoline-ethanol blend up to 100% ethanol.

Blending ethanol into fuel produces a range of benefits. By displacing hydrocarbons like aromatics in gasoline, ethanol reduces toxic air emissions, particulate matter PM2.5, carbon monoxide, nitrous oxides, and exhaust hydrocarbons. In many countries, including India, using domestically produced ethanol will reduce the imports of the price volatile crude oil. In addition producing ethanol from corn produces low-cost protein in the form of DDGS. In general, the cost per unit of protein in DDGS is only 30% of the cost per unit of protein in the grain itself. Lastly, production of ethanol creates jobs in the agricultural and other sectors of the economy. Ethanol provides the foundation for decarbonization of a large portion of the chemicals industry.

The benefits obtained by blending ethanol in fuel are even greater by using E100, 100% ethanol, as an automotive fuel. All of the previously stated benefits of blending ethanol would be multiplied several times over by using E100. The history of the use of E100 in Brazil has proven that E100 is an effective and cost-efficient fuel. As demonstrated in Brazil, E100 can be used with some design modifications to the engine to account for the higher oxygen content in the fuel and the slightly higher volume of fuel that must be supplied to the engine. An engine that is properly modified to capitalize on the higher octane of E100, can deliver high power and good milage. E100 is a clean burning fuel that does not add any net CO2 to the atmosphere as it is effectively recycling the CO2 present in the atmosphere. Use of clean burning E100 will reduce pollution, including OM 2.5 particulates that choke the lungs of children living in India’s cities. Switching to E100 will be faster and easier than switching to both hydrogen fueled vehicles and EVs. The main reason is that the current gasoline supply chain and infrastructure can be used for E100. Brazil serves as good example as the path to making E100 availble in India. However, it will not happen on its own. Making E100 available will only happen if driven by government regulations and enforcement of such. India needs to require that all cars sold beginning in 2030 be capable of running on E100.

In many area of the world, traditional biomass fuels like wood, charcoal, dung, crop residues are used for cooking. These fuels generate harmful smoke particles, especially when used indoors. The World Health Organization estimates that approximately 1.3 million personsannually die prematurely due to health conditions that arise from exposure to indoor air pollutants from traditional fuels. Ethanol is a proven alternative to these fuels. Ethanol is an effective clean burning cooking fuel that reduces emissions of carbon monoxide, particulate matter, and other pollutants.

Ethanol is safer and easier to use, store and transport than biomass fuels. It does not produce smoke, sparks, or ash, and does not require chopping or drying of wood or charcoal.Bioethanol is one of the cooking fuels considered to be clean based on the 2014 WHO guidelines.

The aviation sector creates 13.9% of the emissions from transport, making it the second largest source of transport GHG emissions. Through both government regulations and voluntary commitment, the sector has set ambitious goals to reduce its GHG emissions. The use of growing proportions of sustainable aviation fuel (SAF) is absolutely required to meet the targets. SAF can be produced from several feedstocks, some of which including used cooking oil are in very limited supply and are insufficient to meet the growing demand for SAF in India and globally. According to some estimates the global annual demand for SAF is expected to exceed 18 billion liters by 2030. Ethanol-based SAF can meet the growing demand.
Using proven technologies ethanol can be converted to SAF and renewable diesel in a process referred to as ATJ or alcohol-to-jet. In general, it requires 1.7 liters of ethanol to produce 1 liter of SAF. The production of SAF via the ATJ process will be a driving force in creating new ethanol demand both in India and globally. Corn-based ethanol provides versatility and flexibility combined with the potential for nearly unlimited feedstocks at a cost-effective price.

When it comes to producing chemicals, ethanol is foundation chemical for producing a range of renewable chemicals having low carbon intensities. Just as petroleum can be used to produce ethylene from which a range of many important chemicals and polymers are produced, ethanol can be used to produce ethylenein world-scale plants. Ethylene is the heart of today's trillion-dollarglobal petrochemicalsmarket. Petron Scientech's technology for the conversion of ethanol to ethylene has been in commercial use for over thirty yearsand provides very efficientenergy utilization, low CAPEX, and low OPEX while offering a low carbon intensity.

As a general rule-of-thumb, each metric ton of ethanol produced from ethanol saves three metric tons of GHG emissions. The ethylene produced from ethanol is a drop-in replacement for petrochemical ethylene with no changes to the downstream process being required. Renewable ethylene can also be used as a refrigerant and as a ripening agent for fruits and vegetables.

Over the past 10,000 plus years, ethanol is a molecule whose true value and growing versatility has only been demonstrated over past few decades. The versatility of ethanol is similar to that of crude oil except for some significant and important differences. Ethanol is sustainable, renewable, and does not depend on imports from volatile areas of the world. Ethanol can be used to produce vehicle and jet fuels, along with a range of value-added chemicals and polymers. Unlike sugar cane ethanol, corn ethanol production also produces a valuable cost-effective high protein co-product for use as feed. Ethanol must be a foundational component of India's drive to reduce it GHG emissions with the need to develop need technologies.Use of E100 would help achieve that goal faster. 'Corn Ethanol' will lead to Energy Security, Food Security and Decarbonization.

AUTHOR

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Economic Benefits for Indian Farmers for Growing Dent Corn for Ethanol Refineries

Transformative Economic Gains for Indian Farmers: Growing Dent Corn for Ethanol Refineries

Dent Corn to Ethanol represents a transformative opportunity for India's agricultural and rural development. By converting dent corn into ethanol, farmers gain access to a lucrative market, boosting their income while contributing to the nation's energy security. This pathway not only supports sustainable farming practices but also fosters rural growth by creating jobs and stimulating local economies. The dual benefits of enhancing farmers' livelihoods and promoting environmental sustainability make dent corn to ethanol a key initiative in India's journey toward decarbonization and self-reliance in clean energy.

Growing dent corn for ethanol production offers substantial economic benefits for Indian farmers. From increased income and job creation to long-term soil health and rural development, the advantages are multifaceted. As India continues to push for higher ethanol blending targets and sustainable energy solutions, farmers who embrace dent corn cultivation stand to gain economically while contributing to the nation's energy security and environmental goals. With the government's push towards increasing ethanol blending in fuel and promoting biofuels, farmers can benefit economically by growing dent corn, a variety of field corn known for its high starch content, which is ideal for ethanol production. This article discusses various economic benefits that can be derived by the farmers growing dented corn.

Direct Economic Benefits

Increased Income from Crop Sales: Higher Demand:

With the rise in ethanol production, the demand for dent corn increases, providing a stable and lucrative market for farmers.

Premium Prices: Ethanol refineries often offer premium prices for dent corn due to its suitability for ethanol production, leading to higher revenues for farmers.

Contract Farming Opportunities:

Guaranteed Market: Apart from Ethanol refineries engaging in contract farming with corn growers, ensuring a guaranteed market for their produce at predetermined prices, Indian government has indicated that it would buy whole of dent corn produce by farmers in the country.

Risk Reduction: Contract farming reduces the market risk for farmers, offering them financial security and stability.

Government Incentives and Subsidies:

Financial Assistance: The Indian government is currently providing and planning to expand a range of subsidies and financial incentives for farmers growing crops for biofuel production. These may include direct subsidies, reduced interest rates on loans, and grants for adopting advanced farming techniques.

Tax Benefits: Farmers may also benefit from tax exemptions and reductions on income earned from the sale of biofuel crops.

Indirect Economic Benefits

Employment Generation:

Labour Demand: Increased cultivation of dent corn leads to higher labour demand for planting, maintenance, and harvesting, generating employment opportunities in rural areas.

Value Chain Jobs: The entire ethanol production value chain, from farming to transportation and processing, creates numerous job opportunities.

Infrastructure Development:

Rural Infrastructure: Investments in ethanol refineries often lead to improved rural infrastructure, including better roads, storage facilities, and transportation networks, benefiting the local farming community.

Irrigation and Technology: Government and private sector investments in irrigation systems and agricultural technologies can improve crop yields and efficiency.

Long-Term Economic Benefits

Soil Health and Productivity:

Sustainable Farming Practices: Growing dent corn for ethanol can promote sustainable farming practices, such as crop rotation and reduced chemical use, improving soil health and long-term productivity.

Enhanced Crop Yields: Healthier soils lead to enhanced crop yields over time, contributing to increased farm income.

Climate Resilience:

Diversification: By diversifying their crops to include dent corn, farmers can reduce their vulnerability to climate-related risks and market fluctuations, ensuring more stable incomes.

Sustainable Practices: Adopting sustainable practices can make farms more resilient to extreme weather events, securing future harvests.

Economic Multiplier Effect

Community Development:

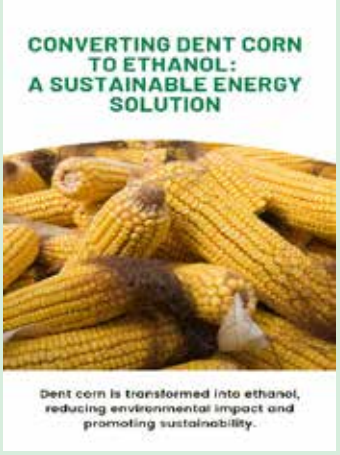
Economic Boost: Increased farm income leads to higher spending in local communities, boosting local economies and supporting small businesses.

Educational Investments: Higher incomes allow farmers to invest more in education for their children, leading to long-term socio-economic improvements.

Rural Prosperity:

Improved Living Standards: Enhanced incomes and employment opportunities improve living standards in rural areas, reducing poverty and promoting prosperity.

Migration Reduction: Economic stability and job creation in rural areas can reduce migration to urban centres, alleviating urban overcrowding and improving rural quality of life.



Maharashtra Case Study:

In Maharashtra, farmers have successfully transitioned to growing dent corn for ethanol production, witnessing significant economic benefits. Under the state's Dent Corn Initiative, over 50,000 hectares have been dedicated to dent corn cultivation, leading to an estimated annual production of 1.2 million metric tons of dent corn. This shift has resulted in a substantial increase in farmers' incomes, with some reporting earnings doubling compared to traditional crops.

The government of Maharashtra supports this initiative with comprehensive financial packages, including direct subsidies of up to ₹10,000 per hectare, reduced interest rates on agricultural loans at 3-4%, and grants covering 50% of the costs for adopting advanced farming techniques and equipment. Additionally, the establishment of local ethanol refineries has created employment opportunities, boosted the rural economy and encouraged further participation in the program.

This initiative of Maharashtra government not only strengthens the agricultural sector but also aligns with national goals of energy security and sustainable development, positioning Maharashtra as a leader in biofuel production in India.. Supported by government incentives and private sector contracts, these farmers have seen a significant increase in their incomes. Investments in irrigation infrastructure and modern farming techniques have further boosted yields, demonstrating the economic viability and benefits of this agricultural shift.

Carbon Credits to Farmers through Corn to Ethanol

Carbon credits have emerged as a pivotal mechanism in the global effort to combat climate change. These credits serve as a financial instrument to incentivize the reduction of greenhouse gas (GHG) emissions. In the context of agriculture, particularly corn to ethanol production, carbon credits offer a promising opportunity for farmers to contribute to sustainability while enhancing their economic viability.

Understanding Carbon Credits

Carbon credits are tradable certificates representing the right to emit one metric ton of carbon dioxide (CO_2) or the equivalent amount of other greenhouse gases. They are part of carbon trading systems aimed at reducing global emissions. These credits can be earned through activities that either reduce or sequester emissions, such as reforestation, renewable energy projects, and sustainable agricultural practices.

Dent Corn-based ethanol production involves fermenting corn starch into ethanol, which can be used as a biofuel. This process not only provides an alternative to fossil fuels but also offers several environmental benefits:

Reduction in GHG Emissions:

Ethanol burns cleaner than gasoline, resulting in lower CO_2 emissions.

Carbon Sequestration: Corn crops absorb CO_2 from the atmosphere during their growth, which can offset emissions from ethanol production and usage.

Renewable Resource: Unlike finite fossil fuels, corn is a renewable resource, ensuring a sustainable supply for ethanol production.

Pathways to Earn Carbon Credits

Farmers can earn carbon credits by adopting practices that reduce GHG emissions or increase carbon sequestration. In the context of corn to ethanol production, there are several ways farmers can achieve this. Growing bioenergy crops like corn for ethanol production can lead to significant GHG reductions compared to fossil fuels, translating into carbon credits.:

Sustainable Farming Practices:

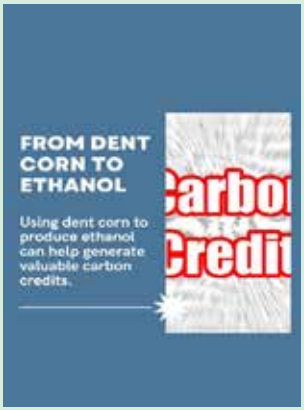
Implementing no-till farming, cover cropping, and crop rotation can enhance soil health and increase carbon sequestration in the soil. By adopting conservation tillage and cover cropping, farmers can sequester more carbon in the soil. This practice not only improves soil health but also earns carbon credits.

Soil Carbon Sequestration:

Methane Reduction: Implementing anaerobic digesters to manage livestock manure can reduce methane emissions, another potent greenhouse gas, and generate carbon credits.

Efficient Use of Inputs: Optimizing the use of fertilizers and pesticides can reduce nitrous oxide emissions, a potent greenhouse gas.

Renewable Energy Adoption: Using renewable energy sources for farming operations can reduce the carbon footprint of net ethanol production.



Carbon Credits

The integration of carbon credits into corn to ethanol production presents a significant opportunity for farmers to contribute to climate change mitigation while enhancing their economic stability. By adopting sustainable agricultural practices, farmers can earn carbon credits, reduce their environmental footprint, and play a crucial role in the transition to a low-carbon economy. As technologies advance and policy frameworks strengthen, the potential for carbon credits to transform agriculture and promote sustainability will continue to grow. Farmers who earn carbon credits can market their products as more sustainable, appealing to environmentally conscious consumers and businesses.

Brief Introduction to Carbon Market & Selling Carbon credits

Issuance and Selling of Carbon Credits involves a series of steps, from the initial verification of emission reductions to the actual transaction in the carbon market. Here's a brief guide on how carbon credits can be issued and traded:

1. Understanding Carbon Credits: Carbon credits represent the reduction, removal, or avoidance of one metric ton of carbon dioxide equivalent (CO_2e) emissions. These credits can be traded in both compliance and voluntary carbon markets.

2. Types of Carbon Markets: Compliance Markets: These are regulated by mandatory national, regional, or international carbon reduction regimes, such as the European Union Emissions Trading Scheme (EU ETS).

Voluntary Markets: These are driven by companies and individuals who voluntarily offset their emissions to meet corporate social responsibility (CSR) goals or personal environmental goals.

3. Steps to Sell Carbon Credits

Step 1: Certification and Verification: Project Development: Develop a project that reduces or sequesters greenhouse gases, such as afforestation, renewable energy, or sustainable agriculture.

Methodology Selection: Choose an approved methodology for measuring and reporting emission reductions. This methodology must be recognized by a certifying body.

Validation: Have the project validated by a third-party validator. This step ensures that the project design is sound and capable of delivering the claimed emissions reductions.

Monitoring and Verification: Monitor the project's emissions reductions over time. A third-party verifier must verify the data to ensure accuracy and legitimacy.

Step 2: Registration: Registry Enrolment: Register the project and its verified emissions reductions with a recognized carbon registry. Common registries include the Verified Carbon Standard (VCS), Gold Standard, and the Climate Action Reserve.

Issuance of Credits: Upon successful registration and verification, the registry issues carbon credits equivalent to the amount of CO_2e reduced or removed by the project.

Step 3: Finding Buyers: Identify Market: Determine whether to sell in compliance markets or voluntary markets. The choice depends on the type of project and the geographic location.

Marketplaces and Brokers: Utilize carbon trading platforms, exchanges, or brokers to find potential buyers. Popular platforms include the Chicago Climate Exchange (CCX), European Energy Exchange (EEX), and voluntary platforms like Verra.

Direct Sales: Engage directly with companies looking to offset their emissions. This can be done through networking, industry connections, or partnerships with sustainability organizations.

Step 4: Transaction: Negotiation: Negotiate terms with potential buyers, including the price per credit, volume of credits, and the timing of delivery.

Contract: Sign a contract outlining the terms of the sale, including payment terms, delivery schedule, and any contingencies.

Transfer of Credits: Transfer the credits to the buyer's account in the carbon registry upon payment. The registry tracks ownership and ensures that credits are not double counted.

4. Factors Influencing Carbon Credit Prices: Market Demand: Higher demand for carbon offsets can drive up prices, especially in compliance markets with stringent regulations.

Project Type and Location: Projects with high co-benefits (e.g., social, environmental) or those located in regions with high biodiversity can command premium prices.

Verification Standards: Credits verified under rigorous standards like Gold Standard often fetch higher prices than those under less stringent standards.

Selling carbon credits involves developing a credible emission reduction project, obtaining certification and verification, registering the project, and finding buyers through various marketplaces or direct sales. Understanding the market dynamics, regulatory landscape, and cost considerations is crucial for successfully navigating the carbon credit market. By effectively selling carbon credits, project developers can generate revenue while contributing to global efforts to combat climate change.

The transition to growing corn for ethanol production offers farmers numerous economic benefits. It raises crop values, stabilizes markets, and diversifies income through by-products. Rural economies benefit from job creation and increase local spending, while government incentives enhance profitability. Energy security is improved by reducing oil imports, fostering national economic stability. Sustainable farming practices and infrastructure investments provide long-term gains, boosting efficiency and market access. Communities benefit from better services and strengthen cooperatives, while new markets for ethanol and by-products create additional revenue opportunities. Overall, growing corn for ethanol empowers farmers, supports rural development, and advances national energy and environmental goals.

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PETRON SCIENTECH INC.

Petron Scientech, Inc.

Petron Scientech is a global Leader in Global warming mitigation, Renewable & sustainable low carbon intensity technologies, end-to-end biorefinery technology solutions, Project development for Clean Energy, Biofuels, CO2 utilization, SAF, Renewable chemicals/ polymers, Green Ethylene & derivatives, Green Hydrogen. Petron is laser focused on contributing to the global mandate for Net Zero by 2050, by bringing technology solutions to minimize climate change through its differentiated commercial and new technologies, R&D and providing opportunities for ESG focused investments.

Since its formation over 30 years ago, Petron Scientech, www.petronscientech.com has been an innovative technology focused company in key low carbon emitting and sustainable green technologies. Together with local partners, Petron is in the process of developing integrated biorefineries to produce renewable chemicals, polymers, and fuels worldwide, to supplement Petroleum fuels and substitute as locally required.

Petron's bio-Ethylene technology has been independently acknowledged as the most energy efficient and cost-effective solution available to manufacture bio-Ethylene from ethanol. Petron has added cellulosic ethanol produced from biomass feedstocks including agricultural residuals, and Green Hydrogen technologies to its portfolio with 100+ patents globally.

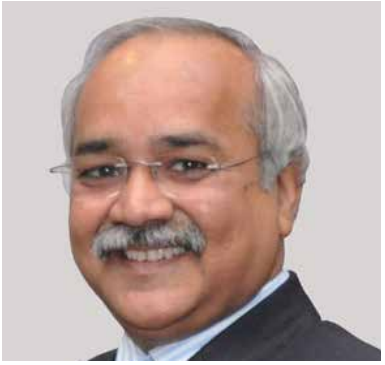
With over 30+ years of firsthand experience across 25+ licensed projects around the world, Petron is recognized by the industry as the leading innovator/ solution provider for biofuels, clean energy, renewable ethylene, and its derivatives such as ethylene oxide/ glycols and other consumer focused sustainable products.

Locations: Petron maintains its headquarters in Princeton, New Jersey, USA and Engineering team in India and Portugal, and is expanding its operations in Japan and Middle East (UAE), The Petron staff in these locations bring a combined industry experience exceeding 200+ years in design, engineering, and plant operations.

Yogendra Sarin

Founder & Chief Executive Officer

HPCL-Mittal Energy Ltd



Prabh Das

Managing Director & Chief Executive Officer

HPCL-Mittal Energy Limited (HMEL) is a unique Public Private partnership set up in 2007. It is an equal Joint Venture of Hindustan Petroleum Corporation Limited (HPCL) and Mittal Energy Investment Pte Ltd, Singapore, each holding a stake of about 49% with the balance being held by Indian Financial Institutions. HMEL is the largest company in the state of Punjab in terms of capital investment.

HMEL is a Board run company which at present operates an 11.3 MMTPA refinery and associated facilities at Bathinda. It also operates a 1017 km long crude pipeline from Gujarat to Punjab and a crude oil terminal at Mundra, Gujarat along with a Single Point Mooring System (SPM) for import of the crude oil feedstock.

HMEL's Refinery is an energy-efficient, environment-friendly, high distillate yielding complex designed to produce high-value-added petroleum products. It holds the unique distinction of being a 'Zero Bottoms Refinery' with various measures in place to minimize gaseous, liquid or solid waste. It has one of the highest Nelson Complexity Indices in the region and is designed to process a wide variety of crude oil including heavy, sour and other opportunity crudes. The Refinery produces Bharat Stage-VI compliant transportation fuels viz, Motor Spirit & High Speed Diesel apart from other liquid products such as Superior Kerosene Oil, Aviation Turbine Fuel, LPG, Naphtha, Mineral Turpentine Oil & Hexane. The solid product portfolio comprises of the polymer Polypropylene as well as the by-products Petcoke, Bitumen & Sulphur.

HMEL is responding to reduce the country's dependence on imports and meet the ever-growing local demand for Polypropylene (PP) and Polyethylene (PE) and has undertaken a massive over US$ 3 Billion expansion in petrochemicals at Bathinda. The new complex features a world-class Dual Feed Cracker Unit of 1.2 Million MT/annum of Polyethylene (PE) and 0.5 Million MT/annum of Polypropylene (PP) capacity to cater to all major application segments.

HMEL is committed towards high standards of safety, health and sustainability with a strong focus on preserving the environment. HMEL has received a Five Star Rating and the Sword of Honour from British Safety Council for excellence in the management of health and safety risks at work.

ONGC

ENERGY: Now AND Next

Oil and Natural Gas Corporation Ltd.

Arun Kumar Singh

Chairman & CEO

Oil and Natural Gas Corporation Ltd. (ONGC) stands as the preeminent National Oil Company in India, exerting its influence across a wide spectrum of energy sectors, including Exploration & Production, Refining, Liquefied Natural Gas (LNG), Power, Petrochemicals, and Emerging Energy Sources. As an Energy Maharatna, ONGC occupies a pivotal role by contributing over 70% of India's domestic crude oil and natural gas production, thereby ensuring the nation's energy security.

Boasting the distinction of exploring eight out of India's nine producing basins, ONGC dominates the oil and gas exploration and production arena, covering a remarkable 83% of established reserves. Its presence in the refining sector is equally substantial, with subsidiaries like Hindustan Petroleum Corporation Limited (HPCL) and Mangalore Refinery and Petrochemicals Limited (MRPL), collectively forming the third-largest refining conglomerate in India.

ONGC's global footprint extends through its wholly-owned overseas subsidiary, ONGC Videsh Limited (OVL), currently operating in 32 oil and gas projects across 15 countries. The company's excellence has earned it recognition on global lists, including Fortune Global 500, Platt's Top 250 Global Energy Company Rankings, and Forbes Global 2000.

Beyond its corporate achievements, ONGC takes pride in its distinction as a leading employer in India, acknowledged by the Great Place to Work. It remains dedicated to corporate social responsibility (CSR), actively enhancing economic, environmental, and social performance, while championing efficient resource utilization and green energy initiatives.

Committed to a sustainable future, ONGC leverages advanced technology and global best practices to harness unconventional energy sources like Coal Bed Methane (CBM), Underground Coal Gasification (UCG), Shale Gas, Gas Hydrates, and renewable energies such as wind and solar. These initiatives have resulted in a substantial reduction in emissions, with a goal to achieve Net-Zero emissions by 2038.

ONGC's unwavering commitment to exploration and development is evident in its impressive reserve replacement ratio and extensive drilling activities. The company's dedication to innovation is underscored by the numerous patents and copyrights granted during FY'23.

ONGC's relentless pursuit of energy excellence continues to shape India's energy landscape, firmly establishing it as a symbol of progress, sustainability, and corporate leadership.

MMG Group

MMG is a diversified Multi-conglomerate Group having strategic key business interests with pan-India presence in various key sectors including Beverages (Coca-Cola, carbonated soft drinks, juices, energy drinks and water through Moon Beverages), Quick Service Restaurants (McDonald's North and East) and Oil and Gas Exploration (ONGC and other PSUs through HAL Offshore/SEAMEC). Furthermore, the group's presence in the fields of education, hospitality and real estate is testimony to its long-term vision, ethical conduct, local stronghold, execution strengths and financial commitment.

MMG has carried forward a legacy of strong values and core beliefs over the last two decades and has evolved into an ethical and responsible organisation with the ethos of giving back to the community. Under the able guidance and foresight of Mr. Sanjeev Agrawal, Group Chairman, the group has diversified across multiple sectors, ultimately contributing to consumer welfare and national economy.

Sanjeev Agrawal

Group Chairman

Nayara Energy

Nayara Energy is a new-age downstream energy & petrochemicals company of international scale with a unique mix of young and experienced minds and a robust foundation of best-in-class infrastructure and processes with a desire to deliver excellence, every step of the way. It owns India's second-largest single-site, state-of-the-art refinery, and one of the most modern and complex refineries in the country having businesses across the hydrocarbon value chain, from refining to retail, and is geared up to drive the vision of delivering crude to chemicals.

As the fastest growing Pan-India fuel retail network, Nayara Energy is powering India's growing energy demands by expanding its retail network at an extensive scale. We aim to build one of the largest integrated petrochemicals complexes in the world. With our Phase 1 of the petrochemical expansion project underway Nayara Energy is setting up a 450 KTPA capacity Polypropylene plant. Driving inclusive growth and delivering value for the stakeholders is at the core of its beliefs. Through various sustainable development projects in areas of health & nutrition, education & skill development, and sustainable livelihoods, Nayara Energy continues to play a pivotal role in improving their quality of life.

Prasad K Panicker

Chairman &
Head of Refiney

Indian Oil Corporation Ltd

IndianOil is a diversified, integrated energy major with presence in almost all the streams of oil, gas, petrochemicals and alternative energy sources; a world of high-calibre people, state-of-the-art technologies and cutting-edge R&D; a world of best practices, quality-consciousness and transparency; and a world where energy in all its forms is tapped most responsibly and delivered to the consumers most affordably.

It is India's highest ranked Energy PSU in Fortune-500 list of 2023 (Rank 94), IndianOil recorded Revenue from Operations of ₹8,66,345 Crore and a net profit of ₹39,619 Crore for the financial year 2023-24.

As a Brand with one of the largest customer interfaces in India, IndianOil reaches precious petroleum fuels to every nook and corner of the country through its network of over 60,000 plus customer touch-points, surmounting the challenges of tough terrain, climate and accessibility. The marketing network is bolstered by 70.05 MMTPA of Refining Capacity and more than 17,000 KM of cross-country pipelines. Moreover, IndianOil's R&D Centre at Faridabad, one of Asia's finest in downstream petroleum R&D, offers a competitive advantage to the Corporation through world-class technology and process solutions and innovative products. IndianOil R&D has also been instrumental in pioneering path-breaking research to leverage the potential of Hydrogen and other cleaner fuels for the sustainable progress of the nation.

Shrikant Madhav Vaidya

Chairman

DCM Shriram Industries Ltd (DSIL)

DCM Shriram Industries Limited is a diversified group with operations in Sugar, Alcohol, Co-generation of Power, Organic and Inorganic Chemicals, Drug Intermediates, Industrial Fibres and Engineering Projects related to Defence production. As a business group that has inherited the rich legacy of sound governance, effective corporate management, technological sophistication & above all the goodwill & loyalty of numerous stakeholders & associates, the Company continue to build its business on the vision & values endowed by its founder chairman Late Dr. Bansi Dharji.

Shriram Institute for Industrial Research (SRI) is an independent, self sustaining, not-for-profit multidisciplinary contract research institute conducting research and development in the areas of special significance to industry, government agencies and other organizations. SRI is committed to develop, innovate, analyse and apply technology for products and processes.

Alok B. Shriram

Sr. Managing Director & CEO,
DCM Shriram Industries Ltd.
Vice Chairman,
Shriram Institute for
Industrial Research

Mangalore Refinery and Petrochemicals Ltd

Mundkur Shyamprasad Kamath

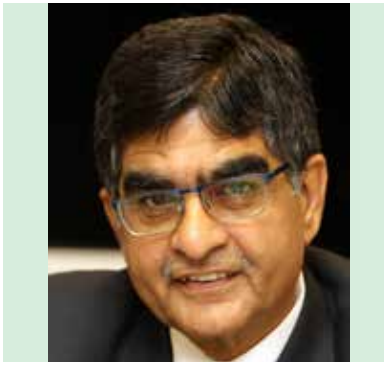
Managing Director

Mangalore Refinery and Petrochemicals Limited (MRPL) - A Govt. of India Enterprise and a subsidiary of ONGC Ltd., is a Mini Ratna category 1 and schedule 'A' company having its State of the Art 15 MMTPA refinery at Mangalore in Karnataka. MRPL represents around 7% of India's refining capacity. Its main products are LPG, Naphtha, Petrol, Diesel, Kerosene, ATF, Mixed xylene, Propylene, Polypropylene, Fuel oil, Bitumen, Pet coke and sulphur.

MRPL was conceived as a Joint venture company promoted by Hindustan Petroleum Corporation Ltd. (HPCL) and the Aditya Birla Group (ABG). However, in 2003, ONGC acquired Birla's stake in MRPL, further increasing its stake and MRPL became a subsidiary of ONGC. There was no looking back for MRPL after this acquisition. From 3.69 MMTPA capacity in 1996, today MRPL has expanded its capacity to 15 MMTPA. MRPL has also set up a 440 KTPA Polypropylene unit. MRPL has upgraded its facilities to produce BS-VI Petrol and diesel. To reduce its dependence on Netravati river water, MRPL has setup 30 MLD capacity Desalination Unit at Thannirbhavi, Mangalore.

MRPL's refinery complex is certified with ISO 9001, ISO 14001 and ISO 50001. MRPL has been notching benchmarks in the Indian Oil Industry, in production, safety performance, energy consumption and quality management processes.

Dharampal Satyapal (DS) Group



Mundkur Shyamprasad Kamath

Managing Director

The Dharampal Satyapal (DS) Group is a multi-business corporation and a leading FMCG conglomerate with a strong Indian and international presence. It operates across various industries, including Mouth Freshener, Food and Beverage, Confectionery, Hospitality, Agri, Luxury Retail, and holds investments in other sectors as well. DS Group, with its headquarters located in Noida, Uttar Pradesh, operates an extensive manufacturing network across several states.

Founded in 1929, DS Group carries an impressive legacy of 95 years, weaving together a captivating and prosperous business story that seamlessly combines a rich history and heritage with visionary growth and innovative endeavors. The remarkable journey began with a modest shop in Chandni Chowk, Delhi, and has evolved into a tale extraordinaire. With unwavering commitment, the DS Group has consistently demonstrated its dedication to crafting exceptional products and establishing esteemed brands across a wide range of categories. Over the years, the group's product range has undergone a magnificent evolution, driven by an unwavering focus on 'Quality & Innovation' to create what is worth creating.

Ecosure Pulpmolding Technologies Ltd

Kritika Tripathy

CEO & Co-Founder (Sales Domestic & International, Operations)

EPTL Group of Industries is a pioneer in manufacturing of Machine's for Agro Fiber Molding Industry in India. We are into the Industry Fighting Strongly against Single use Plastic since the Last two Decades

EPTL is one of the largest manufacturer & supplier of Agro Fiber Molding machinery.

EPTL is focused on research & development. Research done by Ecosure shows that the latest technology proposed by EPTL not only enables Agro Fiber Molding Industry to increase its Pulp quality but also reduces substantial power consumption by machines which is a crucial point in the Molding industry.

EPTL manufactures various products which can be used for a number of operations in stock preparation. EPTL has global consultancy services, which support organizations in setting up Agro Fiber Molding Industry and also help existing manufacturing facilities in achieving higher goals. EPTL has international based in Thailand and Australia.

Small Industries Development Bank of India

Small Industries Development Bank of India (SIDBI) set up on 2nd April 1990 under an Act of Indian Parliament, acts as the Principal Financial Institution for Promotion,Financing and Development of the Micro, Small and Medium Enterprise (MSME) sector as well as for co-ordination of functions of institutions engaged in similar activities.

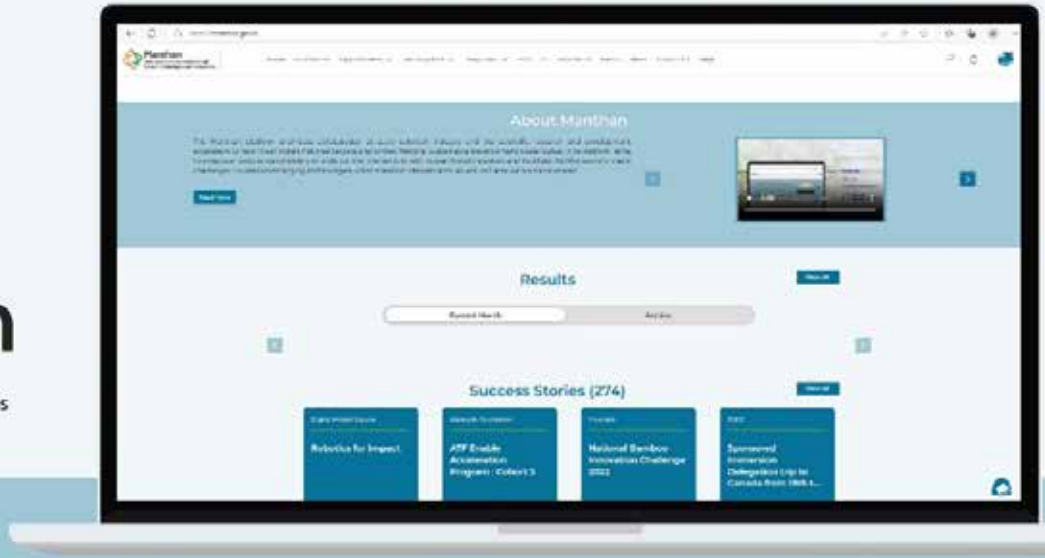
Mission: To facilitate and strengthen credit flow to MSMEs and address both financial and developmental gaps in the MSME eco-system

Vision: To emerge as a single window for meeting the financial and developmental needs of the MSME sector to make it strong, vibrant and globally competitive, to position SIDBI Brand as the preferred and customer - friendly institution and for enhancement of share - holder wealth and highest corporate values through modern technology platform.

Office of the Principal Scientific Adviser to the Government of India

Manthan

Ideas and implementation through Science, Technologies, and Innovations



Manthan platform won the **'Dun & Bradstreet Business Excellence Award'** for the **Best Tech initiative of the year 2022.**

Office of the Principal Scientific Adviser to the Government of India

Manthan

01

Opportunity creation that includes a call for early-stage innovation, market-ready innovation, implementation projects, Centres of Excellence, fellowships, etc.

02

Submitting proposals for collaboration, R&D, and proposal submission against opportunities.

The platform is built on four pillars

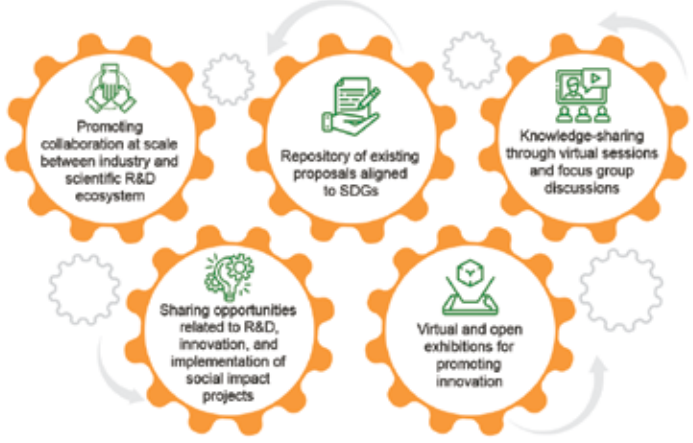
03

Exhibitions by partners to showcase innovations through virtual events and expositions

04

Conference/Meeting facility to collaborate using virtual meeting rooms for organising webinars, conferences, stakeholder consultations, etc.

How does Manthan work?



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Ministry of Environment, Forest and Climate Change

रसायन एवं पेट्रो-रसायन विभाग
DEPARTMENT OF
CHEMICALS & PETRO-CHEMICALS

Office of the Principal Scientific Adviser to the Government of India

कृषि एवं किसान कल्याण मंत्रालय
MINISTRY OF
AGRICULTURE AND FARMERS WELFARE

MOFPI
MINISTRY OF FOOD PROCESSING INDUSTRIES
GOVERNMENT OF INDIA

LiFE
Lifestyle for Environment

IRRI International Rice Research Institute

CGIAR

Manthan

ICAR

PLATINUM PARTNER

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DCM SHRIRAM
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KNOWLEDGE PARTNER

Grant Thornton

PHD CHAMBER
OF COMMERCE AND INDUSTRY
VOICE OF INDUSTRY AND TRADE

About Us

"PHD Chamber of Commerce and Industry (PHDCCI) has been working as a catalyst for the promotion of Indian industry, trade and entrepreneurship for the past 119 years. It is a forward looking, proactive and dynamic PAN-India apex organization. As a partner in progress with industry and government, PHDCCI works at the grass roots level with strong national and international linkages for propelling progress, harmony and integrated development of the Indian economy.

PHDCCI, acting as the "Voice of Industry & Trade" reaching out to more than 1,50,000 large, medium and small industries, has forged ahead leveraging its legacy with the industry knowledge across multiple sectors to take Indian Economy to the next level.

At the global level, we have been working with the Embassies and High Commissions in India and overseas to bring in the International Best Practices and Business Opportunities."

PHD CHAMBER OF COMMERCE AND INDUSTRY

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