भारतीय कृषि एवं खाद्य परिषद
INDIAN CHAMBER OF FOOD AND AGRICULTURE

ISB Bharti Institute of Public Policy

SAVE THE EARTH CONCLAVE

Bamboo for a Resilient Future

22 APRIL 2025 | **Time :** 11:00 AM – 06:00 PM

Bharat Ratna C. Subramaniam Auditorium, NASC Complex, New Delhi

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SAVE THE EARTH CONCLAVE 2025

Tuesday, 22 April 2025 | Bharat Ratna C. Subramaniam Auditorium | NASC Complex, New Delhi

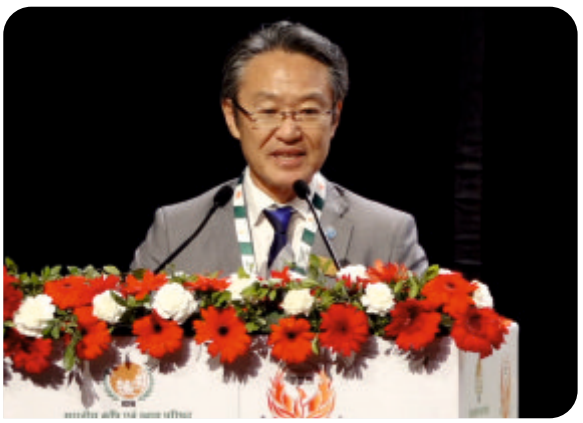
Inaugural Session & Recognizing Visionary Leadership in Sustainability

The event, themed ***"Bamboo for a Resilient Future"***, was organized by the Indian Chamber of Food and Agriculture (ICFA) in collaboration with the Phoenix Foundation Sanstha, the Bharti Institute of Public Policy (ISB Hyderabad), and the African-Asian Rural Development Organization (AARDO). The conclave brought together policymakers, industry leaders, researchers, and grassroots innovators to explore bamboo's potential in sustainable development. This event brought together key figures from the agro-industry to discuss the future of the conclave convened policymakers, industry leaders, scientists, and sustainability advocates to explore bamboo's pivotal role in fostering climate resilience, rural livelihoods, and sustainable development.

The August gathering was addressed by ***Shri Pasha Patel, Chairman, Executive Committee, Chief Minister's Task Force for Environment and Sustainability Development, GoM*** where he emphasized bamboo's role in climate resilience, ecological restoration, and rural development. Recognized for its rapid growth, carbon sequestration capabilities, and diverse industrial applications, bamboo was positioned as a transformative force in addressing environmental challenges and promoting green economic development.

Dr. Anjal Prakash, Research Director, Bharti Institute of Public Policy, ISB Hyderabad, in his address, stressed the urgent need to address climate change impacts on agriculture in India. He highlighted the decline in productivity due to rising temperatures, altered rainfall, and extreme weather events, which have worsened food insecurity. Dr. Prakash referenced IPCC projections of a 1.5°C to 2°C rise in global temperatures, threatening crop yields and biodiversity. He called for adaptive measures like sustainable water management, crop diversification, and climate-resilient practices. Despite growing awareness, he noted significant gaps in policy and action, urging a collaborative approach to develop region-specific solutions and strengthen agricultural resilience.

Dr. Bhaskar Jyoti Phukan, MD, Numaligarh Refinery addressed the critical issue of climate change and the need for sustainable energy solutions. He emphasized that as energy demand continues to rise globally, the carbon emissions from conventional fuels such as petrol and diesel contribute significantly to climate change. Dr. Phukan highlighted a groundbreaking project aimed at producing ethanol from bamboo, which is expected to significantly reduce carbon intensity compared to traditional fuels. This unique initiative, currently in its trial phase, leverages enzymatic hydrolysis to convert bamboo glucose into ethanol, creating a more eco-friendly fuel alternative. He also pointed out the socio-economic benefits of the project, as it empowers local farmers by providing a market for bamboo, while contributing to India's ethanol blending mandate, which helps reduce crude oil imports. Dr. Phukan's efforts underscore the importance of innovation in addressing climate challenges and fostering sustainable development, with the potential for bio-refineries to be established across the country in the future.



Mr. Takayuki Hagiwara, FAO Representative in India, FAO, highlighted the challenges posed by climate change and its impact on India's food security, particularly in the Ganga Basin. He praised the Indian government's efforts in providing free food to over 800 million people, surpassing the entire population of Europe. Mr. Hagiwara emphasized the critical role of livestock, noting India's large herd of 300 million cows, buffaloes, and other animals in sustaining food and nutritional security. He also spoke on the potential of bamboo, particularly in Northeast India, as both a food resource and an export commodity, urging greater utilization for construction and livelihood opportunities. Concluding, he reaffirmed the FAO's commitment to supporting India in addressing climate change challenges and ensuring sustainable food security.

Mr. Ashish Khandelwal, Managing Director, BL Agro, highlighted the significant role of bamboo in addressing environmental challenges and supporting sustainable growth. He emphasized that bamboo is emerging as a highly resilient and eco-friendly resource with immense potential for the future. Mr. Khandelwal discussed the growing trend of utilizing bamboo for industries such as ethanol and Compressed Bio Gas (CBG), which are seen as innovative solutions to reduce carbon footprints. He shared that his company is actively working to establish a CBG plant using bamboo, with a dedicated 4-kilometer bamboo plantation in Bareilly for this purpose. He also acknowledged the importance of addressing the rising temperatures and stressed the need for scientific research to help control these climatic changes. Concluding his remarks, Mr. Khandelwal urged for continued efforts in promoting bamboo as a sustainable resource, supporting both environmental and industrial needs.

Sh. Ravindra Kumar, Director, NTPC, Government of India, addressed t, addressed the gathering by highlighting the urgent need to tackle climate change and its far-reaching impacts. He emphasized the innovative concept of bamboo co-firing as a step toward cleaner and more sustainable energy generation. Advocating for the use of carbon-neutral alternatives in power production, he reaffirmed NTPC's commitment to supporting initiatives that advance a greener, more sustainable economy, assuring full cooperation in driving such impactful solutions forward.

Mr. Rajesh Mehra, Chairman of Jaguar group, addressed the gathering by emphasizing the need for industries to take responsibility in mitigating climate change. He shared his company's ongoing efforts to reduce their environmental impact, including water conservation through recycling and rainwater harvesting, as well as generating 13,500 megawatts of electricity from solar power. He also highlighted their work on innovative projects to generate electricity from water. Mr. Mehra further praised the bamboo initiative led by Mr. Pasha Patel, recognizing its potential as a sustainable resource in combating environmental challenges. He emphasized the critical importance of collaborative efforts to drive positive environmental change and mitigate the risks of global warming. He concluded by expressing his commitment to supporting efforts that promote sustainability, reduce the carbon footprint, and ensure a greener future for all.

Shri Pasha Patel, Chairman, Executive Committee, Chief Minister's Task Force for Environment and Sustainability Development, GoM

He addressed the gathering on the critical issue of sustainable agriculture amidst the rising challenges of climate change. He emphasized the growing concern over increasing temperatures and its potential impact on future generations. Drawing attention to the urgency of the situation, he noted that farmers, industry leaders, and politicians are all united in seeking solutions to safeguard the planet. Shri Patel highlighted the significant role of bamboo in addressing climate change, citing its rapid growth and high oxygen output as crucial to reducing carbon levels. He urged the adoption of sustainable practices, including the production of ethanol from bamboo, as a step towards a greener, more sustainable future. Acknowledging the efforts of leaders like Shri Gadkari and Shri Suresh Prabhu, he stressed the importance of collaboration between government, industry, and farmers in ensuring the survival of future generations.

H. E. Dr. Manoj Nardeosingh, Secretary General, Africa-Asian Rural Development Organization (AARDO) addressed the gathering with a strong call to action for tackling the growing challenges of climate change, pollution, and biodiversity loss. He emphasized the urgent need for global cooperation to address these critical issues, particularly in the context of their profound impact on agriculture and rural livelihoods. Drawing attention to the accelerating climate crisis, Dr. Singh highlighted the role of bamboo as a viable solution, noting its rapid growth and ability to reduce carbon levels. He acknowledged the significant contributions of Shri Pasha Patel in promoting sustainable practices and introduced bamboo as an essential candidate for energy production and climate change mitigation. Reflecting on the global commitment to the 2030 Agenda for Sustainable Development, Dr. Singh stressed the need for innovative solutions, underscoring the importance of adopting sustainable and responsible practices to ensure a secure future for generations to come. He further pointed out that the SDG report revealed an alarming gap in progress, with only 17% of targets on track, stressing the urgency for coordinated, collective action.

Shri Suresh Prabhu, Chairman, Indian Chamber of Food and Agriculture, Chancellor, Former Union Cabinet Minister, Government of India, addressed the pressing concerns of climate change and its profound impact on agriculture. He emphasized the urgent need for collective action, highlighting that while the world has long been aware of these challenges, decisive steps have often been delayed. Drawing attention to the significant rise in global temperatures, Mr. Prabhu underscored that the current trajectory is a direct result of human activity, particularly industrial growth and energy consumption. He urged the government, society, and industries to unite in combating

the crisis, stressing that solutions like the Bamboo Mission—launched to mitigate environmental damage—offer promising avenues for both ecological preservation and economic growth for farmers. Moreover, Mr. Prabhu noted the crucial role of green energy and sustainable practices in addressing the current environmental and agricultural challenges. His speech called for a coordinated effort at both the national and global levels to secure a sustainable future, particularly for the agricultural sector, which faces increasing vulnerability due to climate change.

"***Let Earth Day be a call to action***," he said, "not just for awareness, but for transformation—because the future we want begins with the decisions we make.

Shri Nitin Gadkari, Minister of Road Transport & Highways, Government of India, in his address, delved into the deep-rooted challenges facing India's agricultural sector, noting the sector's dwindling contribution to the national GDP, which now stands at approximately 14%, compared to manufacturing at 22% and services at over 50%. He emphasized the socio-economic ramifications of this imbalance, particularly the mass migration from rural to urban areas, with many farmers' children seeking low-paying city jobs instead of pursuing agriculture. To address these issues, he proposed a strategic vision focused on enhancing the economic viability of farming through improved productivity, profitability, and access to technology and markets.

He highlighted the potential of innovations like bamboo-based industries, ethanol production from corn, and waste-to-wealth models, which can both mitigate environmental challenges and create new income streams for farmers. These initiatives, exemplified by the doubling of corn prices and the tripling of land under its cultivation for ethanol production, demonstrate the transformative power of integrating sustainability with economic opportunity. Furthermore, the speaker called for the promotion of bamboo as a versatile resource to drive rural economic growth, urging policy reforms that would facilitate its commercial use. He also envisioned a green revolution through the development of a green hydrogen ecosystem, leveraging agricultural waste to position India as an energy-exporting nation. Through these forward-thinking strategies, the speaker advocated for a shift from a consumption-driven economy to a self-reliant, production-led model, one that could empower farmers, reduce pollution, and revitalize rural economies while ensuring that no one is forced to leave their village in search of livelihood.

"Ecology and economy must go hand in hand," he emphasized. With the right use of technology, policy, and investment, bamboo can drive rural prosperity, reduce dependency on fossil fuels, and create a robust green economy for India.

Panel Discussion 1 : Building Sustainability through Bamboo

This session explored how bamboo was one of the most versatile resources of nature and can lead the way in creating sustainable livelihood, greener supply chains and eco-friendly innovation across the sector.

Panelists:

- **Moderator: Ms. Manisha Gupta**, Group Commodities Editor, CNBC - TV 18
- **Sh. Mukesh Gulati,** Executive Director, Foundation for MSME Clusters (FMC), New Delhi
- **Dr. Ajay Thakur,** National Project Coordinator, All India Coordinated Research Project on Bamboo & Lead Scientist, Forest Research Institute, Dehradun
- **Dr. Shailesh Kr. Agrawal**, Executive Director, BMTPC, GoI
- **Sh. Hansraj Verma,** Director General, COSIDICI
- **Dr. Abhay Bambole**, Dean Infrastructure Devp. & Head, Structural Engineering, VJTI, Mumbai
- **Sh. Amit Patil**, Bamboo Farmer, Kolhapur, Maharashtra
- **Sh. Satish Upadhyay**, Mission Director- SAMARTH National Mission on Biomass
- **Sh. Pasha Patel**, Chairman, Executive Committee, Chief Minister's Task Force for Environment and Sustainability Development, GoM

The panel shed light on the vast untapped potential of India's bamboo sector, especially when compared to China. While China produces bamboo worth 2.5 lakh crore and exports over 50,000 crore, India's production stands at just 15,000 crore. China has around 500 factories and 1 crore people employed full-time in the sector, whereas India has only 10 lakh workers, with 95% of bamboo sourced from forests—raising logistics costs.

A major takeaway was the need to develop a robust bamboo ecosystem, where various parts of the plant are used efficiently by different industries. The panel emphasized promoting bamboo as a plantation crop, and highlighted the industrial potential of varieties like Tulsa, Balkhua, Beema, and Green Vulgaris.

Beema bamboo was recognized for its role in carbon sequestration, while Tulsa bamboo was seen as ideal for industrial-scale applications. A farmer's real-life testimonial shared that 1,000–1,200 bamboo sticks can be harvested from an acre annually. Additionally, bamboo biomass pellets were discussed as a sustainable, carbon-neutral energy solution.

Policy support is growing—Maharashtra has been allocated a budget of 4,300 crore for bamboo development and offers a 7.04 lakh subsidy per hectare to farmers growing bamboo. The state's 'Green Maharashtra' initiative targets 21 lakh hectares of bamboo plantations.

In view of the IPCC's projection of 450 ppm carbon concentration by 2050, bamboo's role as a carbon sink becomes increasingly important for climate action.

Memorandum of Understanding (MoU) Signing Ceremony

A Memorandum of Understanding (MoU) was signed between the Indian Chamber of Food and Agriculture (ICFA) and the Biotechnology Industry Research Assistance Council (BIRAC), marking a significant step towards fostering innovation through public-private collaboration in the fields of biotechnology and sustainable agriculture.

The MoU was signed by Ms. Shreyasi Agarwal on behalf of ICFA and Dr. Jitendra Kumar representing BIRAC. This partnership aims to advance scientific research, promote eco-friendly technologies, and drive scalable, sustainable solutions for a greener and more resilient agricultural future.

Panel Discussion 2 : Institutional Partnerships for Sustainable Future

The session focused on how collaboration across sectors—government, industry, and research—can advance sustainability goals. It emphasized the need for shared resources, joint innovation, and policy alignment to promote climate action and green development.

Panelists:

- **Moderator: Dr. Chandrashekhar Biradar,** Director, ICFA
- **Dr. Bharat Honmane,** Assistant Professor, TSEC, Mumbai
- **Sh. Nagendra Nath Sinha,** Former Rural Development & Steel Secretary, GoI
- **Mrs. Sharmila Oswal,** Board Member, APEDA and Director, Agro Water Food Security Diplomat MIT- Harvard USA
- **Ms. Nishtha Gupta,** Head of Sustainability, Suzlon Group
- **Professor KC Bansal,** Former Director, National Bureau of Plant Genetic Resources (ICAR), India
- **Dr. KS Narayanaswamy,** Managing Director, Geo Biotechnology
- ***Dr. Jitendra Kumar,*** Managing Director, BIRAC, Government of India

The session underscored that sustainability and climate change remain the greatest challenges of our time, demanding collective action across all sectors. In this context, a profound quote resonated deeply with all the participants of the conclave that:

"Difficulties coming in our lives do not destroy us but make us potent enough to fight the difficulty. They help us to find our hidden potential and power. Let the difficulty know—you are a difficult person."

As India aspires to become a $10 trillion economy, the importance of innovation and sustainable development is paramount. The bamboo sector was presented as a powerful vehicle for both economic growth and climate action. It was emphasized that tissue culture is the only reliable method for producing germ-free, consistent, and scalable bamboo seedlings.

The discussions brought forward the vast potential of biochar, with an estimated 90 million tonnes usable in the steel and cement industries, helping reduce emissions. Furthermore, utilizing the interspaces of bamboo plantations with shade-loving intercrops was highlighted as a strategy to enhance farmer incomes.

The conversation also explored value-added opportunities in the bamboo sector. Bamboo contains approximately 25% lignin, which can be used as a sustainable fuel or as a cement substitute, contributing to greener construction. Additionally, bamboo silage, which makes up around 30% of bamboo biomass, can be converted into organic fertilizer, promoting circular agriculture.

From extracting textile-grade yarn to developing medicinal products, the panel emphasized the untapped potential within India's bamboo economy. The need for genetically modified crops was also highlighted to meet future agricultural challenges.

A strong call was made to bring all ministries and government bodies onto the same page, ensuring synchronized efforts. The importance of being "vocal for local", along with the commitment to net-zero emissions, was reiterated as critical pillars of India's sustainable growth journey.

PANEL DISCUSSION - 3

Policies Driving Innovation & Investments for a Greener Economy

This session explored how aligning existing policies with bamboo's economic and ecological potential can drive green innovation, rural livelihoods, and climate resilience. The focus was on leveraging public schemes to scale bamboo cultivation, support circular economies, and promote low-carbon development.

Panelists:

- **Moderator: Dr. Srinivasan Iyengar,** Professor, Jamnalal Bajaj Institute of Management Studies, Mumbai
- **Mr. Arun Raste,** Managing Director, NCDEX
- **Mr. Deepak Pareek,** Founder, HnyB and Founding Convener, Global Grains Pulses Council
- **Mr. Navneet Ravikar,** Chief Executive Officer, BL Agro Industries Ltd. and CMD, LeadsConnect Services Pvt Ltd
- **Mr. Ajay Garg,** CTO of Dubai Grow Bay Biotech
- **Sh. Bhagirath Choudhary,** Hon'ble Minister of State for Agriculture and Farmers Welfare, Government of India
- **Sh. Pasha Patel,** Chairman, Executive Committee, Chief Minister's Task Force for Environment and Sustainability Development, GoM
- **Dr. Amol Sawale (Jain),** Advisor Sustainable Green Initiatives
- **Mr. Vinod Kumar Chaudhary,** Chairperson of Environmental Sociology, Punjab University, Chandigarh






The session emphasized bamboo's potential as both an economic driver and a climate solution, advocating for the use of existing schemes like NREGA and Startup India to support its cultivation. Recognizing bamboo as an agricultural crop could grant farmers access to subsidies, loans, insurance, and MSP. Its climate mitigation value was highlighted, with bamboo absorbing up to 35% more carbon than conventional trees, positioning it as a sustainable alternative to coal. The need for a circular economy approach was stressed, utilizing bamboo for biofertilizers, animal feed, and renewable energy.

Despite limited processing infrastructure, bamboo's benefits for improving soil health and purifying air in regions like Delhi were noted. Maharashtra's success in supporting farmers with 7 lakh per acre subsidies was cited as a model. The session concluded with calls for a nationwide awareness campaign and improved coordination to make bamboo a cornerstone of India's sustainable development.

Special Address by Shri Bhagirath Choudhary, Hon'ble Minister of State for Agriculture and Farmers' Welfare. In his address on Earth Day, he emphasized the urgent need to protect the planet through sustainable practices like bamboo cultivation. He praised the ongoing bamboo mission led by Shri Pasha Patel, noting its success in Maharashtra and its potential to transform rural livelihoods across India. Highlighting the ecological and economic benefits of bamboo such as carbon sequestration, climate resilience, and income generation for farmers, he called for a nationwide awareness campaign and strong policy support from both central and state governments. Shri Choudhary also underscored Prime Minister, Shri Narendra Modi's vision of a developed India by 2047, asserting that the nation's progress is tied to the prosperity of its farmers and the preservation of its natural resources.

Recommendations

1. **The bamboo plantation program on private lands -** Lands belonging to small and marginal farmers, funded under MGNREGA, should be implemented through Primary Agricultural Credit Societies (PACS) under the Ministry of Cooperation, Government of India.
2. **Recognizing Bamboo as an Agricultural Crop -** Officially classifying bamboo as an agricultural crop would unlock access to subsidies, crop insurance, loans, and Minimum Support Prices (MSP) - empowering farmers and ensuring bamboo becomes a mainstream livelihood option.
3. **Promoting Bamboo as a Circular Economy Model -** Encouraging a zero-waste approach by promoting the use of bamboo for biofertilizers, animal feed, silage, and renewable energy (e.g., biomass pellets), maximizing resource efficiency and rural income.
4. **Replicating Maharashtra's Bamboo Success Model -** Maharashtra's approach of supporting 7,000+ farmers and offering 7 lakh/hectare subsidies to farmers should be adopted by other states to scale bamboo plantations and farmer participation.
5. **Integrating Bamboo into Fossil Fuel Import Reduction Strategy -** Positioning bamboo biomass and lignin as sustainable substitutes for coal and cement inputs, reducing India's dependence on fossil fuel imports while contributing to green industrialization.
6. **Strengthening Tissue Culture Infrastructure for Quality Seedlings -** Investing and scaling up tissue culture labs to produce germ-free, uniform, and climate-resilient bamboo seedlings at a national level.
7. **Scaling processing infrastructure -** Investing in bamboo processing units across underutilized states like Punjab, Haryana, and Rajasthan to boost employment and local industry.
8. **Strengthening public-private-farmer collaborations -** Fostering partnerships between government bodies, research institutions, private players, and farming communities to accelerate bamboo innovation and market access.
9. **Developing supportive policies for bio-refineries and startups -** Utilizing existing schemes like NREGA and Startup India to fund bamboo-based ventures, especially those focused on sustainable fuel and green industrial solutions.

Glimpses of the Event

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