

M.S.Swaminathan Centenary Lecture Series by **Dr. Himanshu Pathak**, Secretary, Department of Agricultural Research and Education, Govt. of India & Director General, Indian Council of Agricultural Research, New Delhi on **Indian Agriculture: Shortage to Surplus** at M.S.Swaminathan Research Foundation, Chennai on **Monday December 16, 2024**. The Lecture begins at **11.00 am IST**.

Abstract: Indian agriculture, one of the world's oldest systems, is a mosaic of diversity, heterogeneity, and complexity. This age-old practice, often operating in an unorganized manner, faces numerous risks throughout its supply chain, from 'field to fork'. Despite these challenges, agriculture remains the backbone of India's economy, employing nearly half of its workforce and contributing 18.2% share to the country's Gross Domestic Product.

Since independence, Indian agriculture has played a pivotal role in shaping the nation's growth, transitioning from food scarcity to a position of global food production and export leadership. Since 1950-51 food grain production has increased seven-fold, horticultural crops 14-fold, fish 25-fold, milk 14-fold and eggs 154-folds. Science-driven innovations have led to these remarkable increases, significantly enhancing food and nutritional security. However, persistent challenges such as low productivity, high production costs, massive post-harvest losses, limited diversification, market volatility, climate risks, and environmental degradation continue to hinder the sector's potential. Simultaneously, a burgeoning population and evolving economy have raised the demand for diversified, high-quality food while the primary production resource base is not only depleting but also deteriorating. The costs of inputs, machines and labour has increased, adversely impacting the profitability.

To address these issues, Indian agriculture should embrace a transformative approach. This includes reducing reliance on chemical inputs, promoting sustainable practices, minimizing greenhouse gas emissions and integrating advanced technologies. By aligning agricultural practices with Sustainable Development Goals and climate change mitigation strategies (such as carbon and land degradation neutrality), India can build a resilient and sustainable food system. Agri-research and development should pivot towards creating systems that are science and technology-drive, nature-friendly, market-responsive, inclusive of gender and youth and culturally sensitive.

The overarching goals of agricultural development should focus on ensuring food and nutritional security, improving rural livelihood along with safeguarding environmental sustainability. Achieving these objectives demands the development and dissemination of advanced agricultural technologies, along with effective extension services and backed by good education and human resource development.

While the agriculture sector has achieved monumental progress, it must confront emerging challenges with a renewed focus on profitability, sustainability and climate resilience. By reorienting and integrating agri-technologies with nature-friendly practices, India can transit its 'Green Revolution' into an enduring 'Ever-Green Revolution', securing a sustainable and prosperous future for generations to come.

About the Speaker: Dr.Himanshu Pathak is the Secretary, Department of Agricultural Research and Education, Govt. of India & Director General, Indian Council of Agricultural Research, New Delhi. He provides leadership to one of the largest agricultural research and development organizations of the world. Earlier he served as Director of ICAR-National Rice Research Institute, Odisha and Director of ICAR-National Institute of Abiotic Stress

Management, Maharashtra. He has over three decades of experience in the areas of agricultural research, education and extension. His area of research has been soil science, climate change and abiotic stress management. He has published more than 250 research papers with h-index 81, i10-index 270 with more than 26,700 citations. He is a fellow of Indian National Science Academy; National Academy of Science, India; National Academy of Agricultural Sciences and Humboldt Foundation and also Rafi Ahmed Kidwai Awardee of Indian Council of Agricultural Research. He is the President of National Academy of Agricultural Research