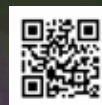


# **AGRICULTURE WORLD**

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**REIMAGINING AGRICULTURE**  
*For A Technology Led Transformation*



# Reimagining Indian Agriculture:

## A National Imperative for Developed India@2047



**Dr. R.S. Paroda**

Chairman, Trust for Advancement of  
Agricultural Sciences (TAAS)

### Reimagining for a Developed India

The Government of India's vision of Developed India@2047 is both bold and inspiring. With an impressive GDP growth rate of 6.8%, India is on course to become the world's third-largest economy by 2030. According to Morgan Stanley, India could surpass Germany as early as 2028 with a GDP of US \$4.7 trillion.

However, this economic trajectory cannot be sustained without strengthening every pillar of our economy — particularly agriculture, which remains the backbone of India's growth. Reimagining agriculture is, therefore, not an option but an imperative.

### Why Reimagination is Essential

History offers a stark reminder of what happens when agriculture is neglected. The Royal Commission on Agriculture (1928) observed:

*"An Indian farmer is born in debt, lives in debt, and dies in debt."*

During British rule, agriculture suffered from chronic neglect. The establishment of the Imperial Council

of Agricultural Research (1929) — later renamed the Indian Council of Agricultural Research (ICAR) — marked a turning point. Since independence, ICAR has been the driving force behind India's Green Revolution and subsequent food security.

Today, as the challenges evolve, so must our approach. Agriculture needs to be reimagined to meet the demands of a changing economy, climate, and global market.

### Agriculture: The Engine of a Developed India

Agriculture contributes 16–18% to India's GDP and provides livelihoods to 45% of the workforce. In 2023–24, India's agricultural exports reached US \$52 billion, with a target of US \$100 billion by 2035.

For India to achieve a US \$5 trillion economy by 2030, agriculture must contribute at least US \$1 trillion. To realize this, policies must place farmers — especially small and marginal farmers (86%) — at the center, empowering them to become market-oriented, technology-driven, and entrepreneurial.

Science, Innovation, and Policy: The Three Pillars of Transformation

India's agricultural transformation must rest on science, innovation, and strategic reform.

Key national committees — including those chaired by Dr. R.A. Mashelkar (2005), Dr. M.S. Swaminathan (2006), and Dr. R.S. Paroda (2019) — have consistently emphasized:

"Building farmers' technical literacy and fostering collective intelligence are the foundation for transformative change."

The ongoing dialogue on the Reimagining of Agricultural Research System marks a visionary step toward revitalizing agricultural education, research, and extension — aligning them with emerging challenges of climate change, sustainability, and global competitiveness.

### Modernizing Agricultural Education

Agricultural education must evolve from traditional teaching to technology-driven learning that prepares youth for 21st-century challenges.

### Universities and institutions should integrate:

- Artificial Intelligence, Machine Learning, and Robotics
- Blockchain and Digital Market Intelligence
- Sustainable and Climate-Resilient Farming Systems
- Entrepreneurship, Agri-Business Management, and Start-up Development

The focus must shift from "degree to delivery" — producing graduates who are innovators, entrepreneurs, and change makers, not merely job seekers.

### Transforming KVKs into Knowledge-Innovation Hubs

The 2019 Paroda Committee Report recommended transforming Krishi Vigyan Kendras (KVKs) and Agricultural Technology Management Agencies (ATMAs) into "Knowledge-Skill-Innovation Centres."

These hubs should become epicenters for continuous learning, capacity building, and technology transfer, enabling farmers to address emerging challenges — from climate variability and soil health management to mechanization, value addition, and market integration.

When rural youth are trained and empowered with

modern tools and knowledge, they can truly embody the principle:

**"Think globally, but act locally."**

Research Must Be Innovation-Driven: ICAR's 2006 policy on Intellectual Property Management and Commercialization was a step forward, yet innovation adoption remains slow. To accelerate progress, we must:

- Strengthen public-private partnerships in R&D,
- Promote innovation-based entrepreneurship, and
- Ensure farmer-oriented research outcomes.

India's Total Factor Productivity remains low. Water-use efficiency is just 36–40%, while soil nutrient efficiency and carbon levels are declining. New technologies such as genomics, gene editing, and precision farming must be harnessed to enhance sustainability and resilience.

### Policy Reforms for Empowered Agriculture

Since independence, several reforms — from land and irrigation reforms to APMC Acts and Contract Farming — have sought to modernize agriculture. Yet progress has often been uneven.

### To re-energize rural transformation, we need policy boldness that ensures:

- Greater trust and partnership with the private sector,
- Enhanced investment in R&D and innovation,
- Rationalized subsidies with direct benefit to small farmers, and
- Continuous skill and knowledge development at the grassroots.

### Conclusion

Reimagining Indian agriculture for the future demands a multi-dimensional approach combining policy innovation, science, technology, and human capacity development. Only when agriculture becomes knowledge-based, technology-led, and globally competitive, will it sustain food and nutritional security and contribute meaningfully to the vision of Developed India@2047.

Agriculture must, once again, be recognized not just as a means of livelihood — but as the driving engine of India's economic transformation.



# A Visionary Extraordinaire:

## Dr Rajendra Singh Paroda

### Voice Over (V.O.)

A sustainable revolution never starts with a bang. Sometimes, but begins with a seed... a vision... and determination of a single person.

This is the story of one such individual.

A revolutionary who empowered India to produce millions of additional tons of food grains—precisely when the nation needed it the most.

**Quote – Dr. M. S. Swaminathan:** “Wherever he has gone—India, FAO, CGIAR—he has left footprints on the sands of time.”

A pioneer who built one of the world’s largest Plant Gene Banks, ensuring conservation of our rich genetic heritage.

**Quote – Dr. A.P.J. Abdul Kalam:** “If there were a second life, I would like to be an agricultural scientist—just like him.”

A go-getter who ensured release of Bt cotton and promoted crop hybrids - elevating India’s status to global level.

**Dr. Raju Barwale:** “His support for Bt cotton was a turning point. It revolutionized Indian cotton production.”

A leader who forged **global alliances**, aiding nations across Asia and Central Asia to become food secure.

**Quote – Dr. Ismail Serageldin:** “We fought side by side to provide food security for the poor. His dedication is truly remarkable.”

A transformer who revolutionized **Indian agricultural research** - leading ICAR (Indian Council of Agricultural Research) to an unprecedented height.

**Quote – Dr. Gurdev Khush:** “When you think of ICAR, you think of him.”

A visionary who **reshaped the destiny** of millions of farmers—and championed the cause of food security worldwide?

This is the remarkable story of Dr. Paroda— the architect of modern National Agricultural Research System whose influence extends far beyond India’s borders.

### SEEDS OF PROMISE: A HUMBLE BEGINNING

(Text on screen) **August 1942, Saradhna - Rajasthan**

In the arid fields surrounding the village sat a young boy, unaware that he was destined to become the driving force behind modernisation of India’s agricultural landscape.

After excelling in village school, he moved to Dayanand College, Ajmer, and then to the Rajasthan College of Agriculture, Udaipur - earning a gold medal for his Master’s in Plant Breeding and Genetics.”

Serving as General Secretary and President of student unions, he displayed a remarkable leadership and the ability to connect with people.

Encouraged by his mother to pursue higher education, he secured a Commonwealth Scholarship for post-doctoral research in the United Kingdom.

‘Will you stay in these green pastures or return back to help your own people to grow food?’

A simple question from a British gardener, changed everything...

**Dr. R.S. Paroda:** “That question hit me like a thunderbolt. My decision became clear—I had to go back.”

### UPSCALING INNOVATION & ESTABLISHING A LEGACY

Returning home, Dr. Paroda joined the Haryana Agricultural University, Hisar, where in a short span (1971 and 1977) he revitalized the forage research program, earning the prestigious ‘Rafi Ahmed Kidwai Prize’ and the ICAR ‘Best Team Research Award’.

In 1985, he became Director of the National Bureau of Plant Genetic Resources (New Delhi).

With meagre funds and no land, a situation in which generally one would have stepped back, Dr. Paroda took up the challenge.

Determined to build India’s National Gene Bank (NGB), he managed to get a 24-million-dollar grant from USAID, and successfully commissioned the second largest and most modern Genebank in 1996 that safeguards more than 480,000 plant germplasm collections.

Impressed by the centre of Iowa State University where the 1st Crop Science congress was held in 1992, Dr. Paroda established the State-of-the-art National Agriculture Science Centre at New Delhi in 2001. He became the second agricultural scientist after Dr. Swaminathan to preside over the prestigious Indian Science Congress in 2001.

As Director General, ICAR, (1994-2001) he created 30 new ICAR institutes and the first Central Agricultural University. He successfully secured the US 240 Million dollar World Bank project (1988) for Organization & Management Reforms, including innovative eco-regional research programs (CG: Rural Agricultural Work Experience (RAWEE)), and initiation of several key institutions. (CG: Agriculture Technology Management Agency (ATMA), Institute Village Linkage Program (IVLP), Agriculture Technology Information Centre (ATIC) along with computerization and renovations of labs and buildings.

In response to a call by Late Prime Minister Shri Atal Bihari Vajpayee, Dr. Paroda established the Trust for Advancement of Agricultural sciences (TAAS) to link science to society. Today the Trust has become an influential and vibrant Think Tank for agricultural policy advocacy and public awareness.

His vision and work transcended borders. He strengthened APAARI (CG: Asia-Pacific Association of Agricultural Research Institutions) serving as its Executive Secretary for 22 years, uniting Asian countries NARS (National Agricultural Research system) for shared research goals and collaborations.

Later, heading a World Bank-funded CGIAR program for Central Asia and the Caucasus, he created a regional forum ‘CACAARI’ (pronounced as Kakaari) and established gene banks across eight countries—earning him the title ‘Gene Guru’. The ICRISAT (Pronounced as one word and not to be read as acronym) Genebank, largest among CGIAR Centers and the Gene bank in Kazakhstan, are named in his honor. He also established the Global Forum on Agricultural Research (GFAR) at FAO, Rome in 1997 and served as its founder Chairman till 2001.

### A VISION IN FULL BLOOM: AWARDS, LEGACY & LASTING IMPACT

From receiving one of India’s highest civilian awards, the Padma Bhushan in 1998 to numerous accolades, awards, fellowships of many academies globally and honorary doctorate of 21 universities (graphically show all the awards here), Dr. Paroda stands tall among the global agricultural leaders.

**Quote – Dr. Rattan Lal:** “He is the modern Swaminathan of India and the Global South.”

From a modest village in Rajasthan, towards shaping agricultural futures around the globe, Dr. Paroda’s life exemplifies vision, resilience, and an unyielding spirit of service. He not only transformed India’s agricultural destiny but even today continues to plant seeds of hope for millions, for a flourishing tomorrow.

*A Visionary Par Excellence: Dr. R. S. Paroda*

*Inspiring young generations to ensure a brighter future for all.*

