

Indian Agriculture & Innovations – Opportunities for startups

By

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Indian Agriculture

- Agriculture, with its allied sectors is the **largest livelihood provider** in India, more so in the vast rural areas.
- Indian agriculture and allied activities have witnessed a **green** revolution, a **white** revolution, a **yellow** revolution and a **blue** revolution.
- India has **the largest livestock population**
- Steps have been taken to improve the **soil fertility** through soil health card scheme.
- Govt support for organic farming through **Parampargat Krishi Vikas Yojana** (PKVY).
- Govt. plans **for Zero Budget Natural Farming** (ZBNF) introduction.

Central sector scheme launched to strengthen Infrastructure, Logistics, Capacity Building etc.

- Pradhan Mantri Fasal Bima Yojana** (PMFBY) was launched in 2016.

- Farm Mechanization Programs** by GOI under various schemes.

- Growth in agricultural economy accelerates growth in services and industry sectors

- Encourage the new Agri tech Innovations and startups Like Mechinzations, Drones, Precision Agriculture etc



Agriculture: India's Inherent Strengths

Agriculture's fundamental requirements : **Light, Land, Water, Labour**
India has all these in abundance.

Light	Land	Labour	Irrigated Area	Agro-biodiversity	Unique Assets
Sunlight is available round the year	India has the largest area in the world under agricultural crops: 201 mill. ha (gross)	Millions of farmers work 7 days a week. Family labour plays an important role.	India has the largest irrigated area in the world: 112 mill. ha (gross).	No other country cultivates as many crops as we do. Food grains, Fruits & Vegetables, Fibres, Oilseeds, Flowers, Spices, Tea, Coffee, Sugar, Tobacco etc.	Family managed small land holdings (Avg Size. 1.08 ha). Crop- livestock mixed farming, Multiple seasons, Multiple cropping, Diet diversity



Indian industry produces all major farm inputs: Farm machinery, irrigation equipment, seeds, fertilizers, pesticides including those required for post harvest and storage.

Indian Agriculture Outshines the Other Sectors 2022

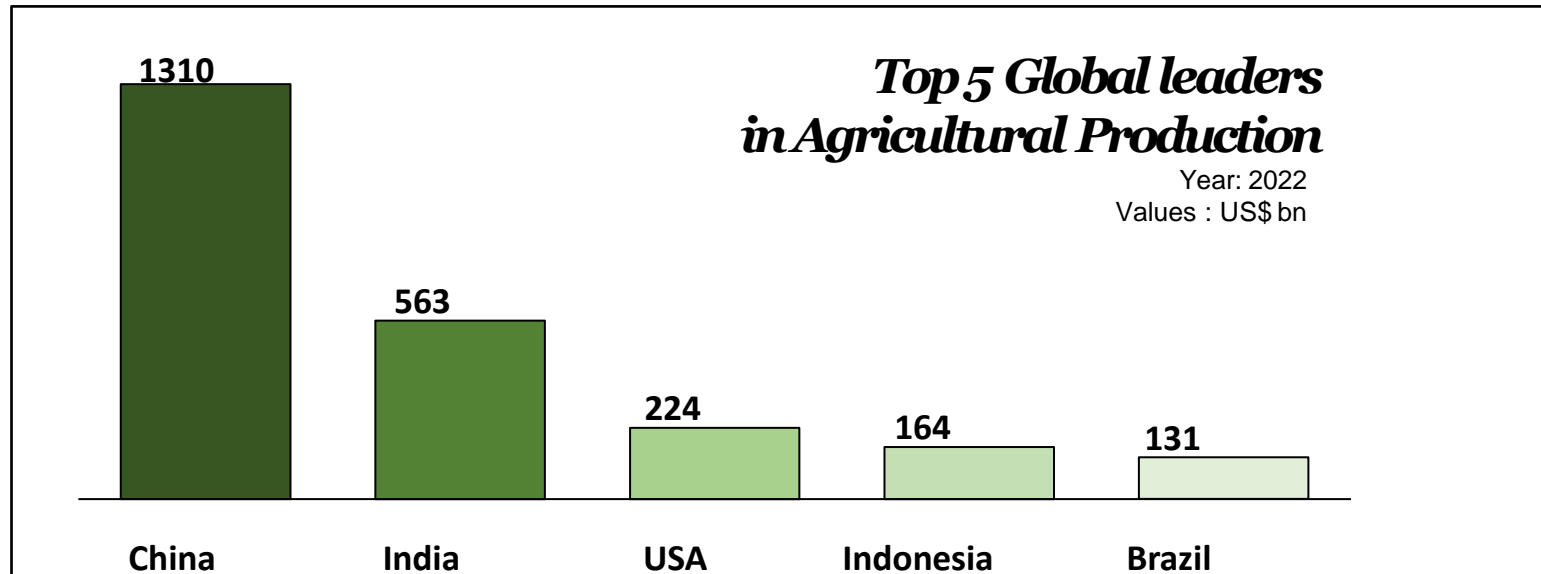


Sector	World GDP	India's GDP	India's Share	India's Rank
Agriculture	4,350	563	13%	2
Industry	28,150	867	3%	5
Services	61,900	1,510	2%	6

Source : World Bank Database (Accessed on 28th August 2023)

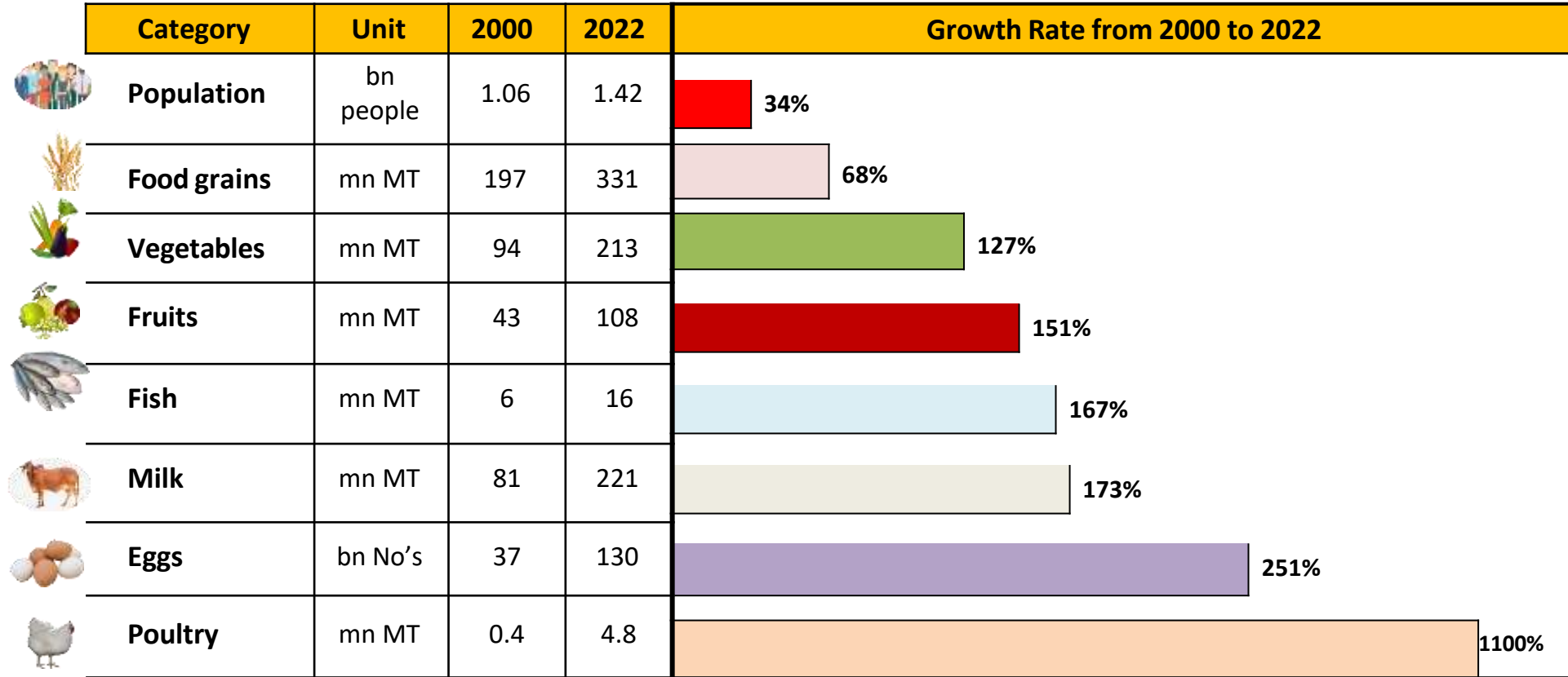
Note: Service sector data is for 2021

GDP Value : US\$ bn



Note: Data for USA is for 2021

India- Population growth vs Agri. production growth



Source: 1. World Bank 2. Department of Agriculture & Farmers Welfare 3. Handbook on Fisheries Statistics 2022 4. Basic Animal Husbandry Statistics – 2022 (Accessed on 29^h August 2023)

Note: Data for population, foodgrain, vegetables and fruits is for 2022-23 & Data for fish, milk, eggs and poultry is for 2021-22.

❖ India's agricultural production has comprehensively outpaced India's population growth.

❖ Next phase of economic growth in Indian agri. sector depends on Agritech Innovations

India's Agriculture is different- Structurally and Functionally

← Western Agriculture	Indian Agriculture →
<p>Large farms. Highly mechanized. Capital intensive and input intensive</p>	<p>Small farms. Neither capital intensive nor input intensive, family labour plays an important role.</p>
<p>Monoculture. Low diversity. Cultivation is confined generally to one season.</p>	<p>Farmers are good at multi tasking. Multiple cropping and mixed farming common. Crop diversity is the highest in the world. Linked to our diet diversity.</p>
<p>Economic returns come from high yield/ha in a single season..</p>	<p>Economic returns depend on diverse uses of farmland (agriculture + horticulture + livestock) and the aggregate output in a year.</p>
<p>Focus is on producing feed grains (for meat production) Nearly 70% of the grains produced is fed to animals.</p>	<p>Focus is on producing food grains, vegetables, fruits, milk etc. using same land and resources</p>

There is a Huge opportunities for new Innovations in Indian agriculture

Challenges in Indian Agriculture

- Population growth
- Unemployment
- Lack of marketability
- Middle man involvement
- Storage facility transportation
- Lack of technology
- Farm labour problems
- Lack of mechanization
- Price fluctuations

Opportunities
& scope for
innovations by
startups

Different Startups Scope in India

Precision Agriculture	Sustainable Farming Practices
IoT and Sensor Technology (Drones, mobile app etc)	Aquaculture and Sustainable Fishing
Robotics and Automation	Food Waste Reduction
Vertical Farming and Hydroponics	Agri-Fintech
Alternative proteins	Agri-Energy Solutions
Blockchain and Traceability	Indoor Farming Systems
Agricultural Data Analytics	Biodegradable Packaging/Mulch
Agtech Marketplaces	Smart Irrigation systems

NACL Industries Limited



- **Strong presence in manufacturing Technical and Formulations - Manufacturing tech for global MNCs and Domestic market**
- **Our current portfolio are Crop protection chemicals**
- **Pan-India presence with comprehensive product portfolio focusing on a diverse range of crops**
- **Consistence growth over last 5 years & Strong Brand Image in the Indian domestic market**
- **We have signed MOU with Aghub, PJTSAU**
- **Exploring the New segments through startups**
 - **Biologicals, Specialty Nutrients like Nano products**
 - **Digital marketing**
 - **Ag Fintech**
 - **Application technology like Drones**
 - **New innovative Agri solutions**
 - **Others**

Thank You

