

NutriBharat@2047: India's nutritional transition through nutraceuticals and functional foods

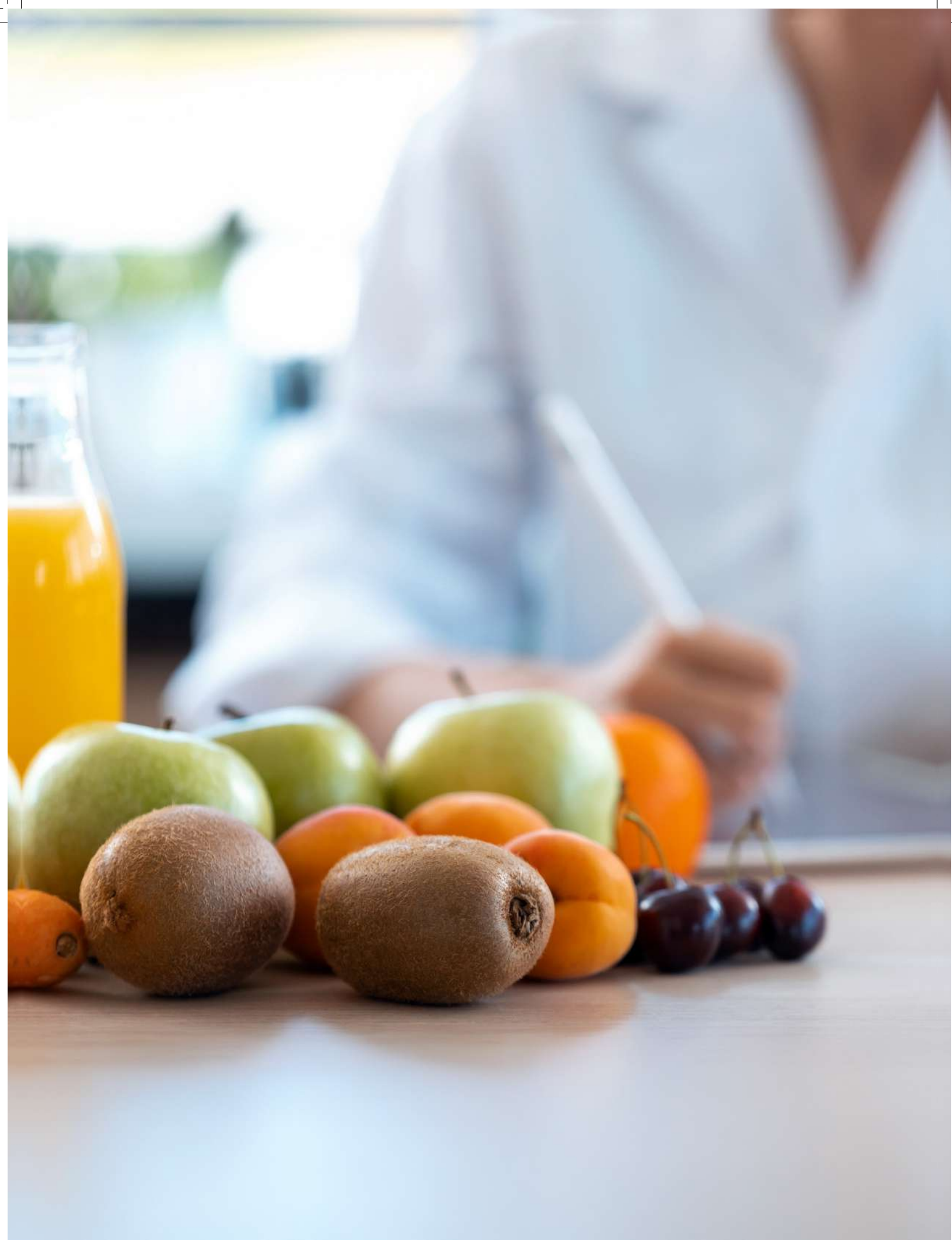
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Foreword

The vision of Viksit Bharat@2047, articulated by our Hon'ble Prime Minister Shri Narendra Modi, places a healthy and resilient population at the core of India's development journey. While India has made significant progress in improving food availability, persistent challenges such as micronutrient deficiencies, protein inadequacy, lifestyle disorders and uneven dietary diversity highlight the need to move beyond calorie sufficiency toward nutrition-sensitive, value-added food systems that ensure quality, safety and affordability.

The Ministry of Food Processing Industries (MoFPI) and the Food Safety and Standards Authority of India (FSSAI) play a pivotal role in advancing nutrition security.

Nutraceuticals and functional foods offer a strategic pathway to bridge nutritional gaps through innovation, standardization and scalable market solutions. Globally, the nutraceutical sector is expanding rapidly, driven by preventive healthcare trends, biotechnology advancements and growing consumer awareness – creating significant opportunities for India.

Anchored in national initiatives such as 'Poshan Abhiyaan' and aligned with the vision of 'Atmanirbhar Bharat', India is reinforcing its commitment to holistic nutrition security. By integrating science-backed nutraceutical innovation with indigenous ingredients like millets, botanicals, probiotics and plant-based bioactives, the country can effectively address both undernutrition and the rising burden of non-communicable diseases. Rising global demand for plant-based, clean-label and functional products presents an opportunity for Indian enterprises to leverage biodiversity, Ayurveda-inspired formulations and scientific validation to emerge as a trusted global hub – advancing health, sustainability and inclusive growth in line with the aspirations of NutriBharat@2047.

To support this transformative journey, ASSOCHAM, in partnership with EY, presents the report on "**India's nutritional transition through nutraceuticals and functional foods.**" The report outlines strategic pathways to strengthen policy frameworks, foster research-driven innovation, enhance regulatory clarity and promote public-private partnerships that can make nutraceuticals and functional foods an integral component of India's nutrition strategy. We express our sincere gratitude to the domain experts whose insights have shaped this knowledge paper. We hope the report will provide useful information and insights to stakeholders and policymakers.



Saurabh Sanyal
Secretary General,
ASSOCHAM

India's nutrition and health landscape is undergoing a significant transformation, shaped by rising awareness, evolving consumer needs, scientific progress and a renewed national focus on population wellbeing. As micronutrient deficiencies and lifestyle related diseases continue to influence productivity and economic resilience, nutraceuticals and functional foods are emerging as strategic contributors to India's long-term development trajectory. The sector is becoming central to how the country strengthens human capital and prepares for a healthier, more productive future.

A new phase of growth is taking shape, driven by advancements in biotechnology, food processing, digital quality systems and a stronger orientation toward evidence-based nutrition. These developments are elevating the standards of safety, efficacy and transparency across the value chain. India's regulatory institution, the Food Safety and Standards Authority of India (FSSAI) and the Ministry of Food Processing Industries (MoFPI) are reinforcing the foundations for responsible expansion, supporting a more competitive manufacturing ecosystem and enabling greater consumer confidence, which in turn supports India's increasing participation in the global market.

The global nutraceutical market has observed accelerated growth from US\$500.62 billion in 2025, US\$547.68 billion in 2026 to US\$1.12 trillion by 2034 (CAGR of 10.58%) owing to increasing awareness, health-conscious lifestyle, nutritional needs and increasing affordability. The market momentum is strong yet translating it into leverage for India's economic growth requires navigating fragmented supply chains, variable research quality, evolving regulatory expectations and diverse consumer needs. Maintaining consistency in testing, strengthening compliance capacity and promoting credibility with science-backed claims remain essential. At the same time, access and affordability can be expanded so that the benefits of improved nutrition reach all communities. India's inherent advantages in biodiversity, agriculture, processing capabilities, rich ayurvedic knowledge and digital infrastructure create a powerful platform for the sector to scale responsibly and sustainably.

Foreword





Leveraging India's strong agricultural base together with Ayurveda and AYUSH systems – by integrating codified traditional knowledge and botanically rich ingredients into AYUSH-aligned nutraceutical and functional-food frameworks – can harmonize evidence, streamline approvals and enhance global credibility while strengthening consumer trust and safety. This way, India would be able to build global trust and position itself as a reliable source of science-backed, tradition-rooted nutrition solutions. This would strengthen export readiness, attract quality-focused investment and elevate 'Brand India' across the global nutraceutical value chain.

This thought leadership examines the strategic contours of India's evolving nutraceutical and functional food ecosystem, including the drivers shaping its growth, the challenges that require targeted action and the enablers that can unlock greater impact. It highlights the opportunities for coordinated innovation, policy alignment and collaboration across stakeholders. The intention is to support informed decision-making and inspire collective action toward a more resilient, inclusive and future-ready nutrition landscape for India, along with sector-driven economic growth positioning India in the global market.

India stands at a turning point where the nutraceutical sector can contribute meaningfully to national health outcomes, economic growth and global competitiveness. This thought leadership aims to inspire meaningful action that strengthens India's nutrition ecosystem and supports the creation of a resilient, inclusive and future-ready foundation for national wellbeing.



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Executive summary



NutriBharat@2047 frames India's next development leap as a decisive shift from food security to true nutrition security, recognizing that persistent micronutrient deficiencies and undernutrition now coexist with a fast-rising burden of lifestyle-related non-communicable diseases. These dual challenges erode productivity, weaken human capital and depress long-term economic outcomes. Within this context, the paper argues for the complementary role of nutraceuticals and functional foods used responsibly and grounded in evidence – to strengthen preventive health and close critical nutrient gaps, while remaining aligned with public health priorities and staple food-based programs.

The sector's expansion presents a significant economic opportunity, particularly as India still commands a small share of the global nutraceutical economy. However, the credibility and scale necessary to compete internationally will only emerge from a foundation of scientific validation, transparent and tiered claims governance and clear regulatory pathways. The paper positions this agenda within the Viksit Bharat@2047 vision and extends the horizon to NutriBharat@2047, emphasizing that a healthy, resilient population is the bedrock of inclusive growth and global competitiveness.

A comparative review of global regulatory systems highlights gaps that create ambiguity for both industry and regulators in India. These include the absence of a structured claims-review panel, standardized assessment criteria and a unified health





and nutrition claims-evaluation framework. To move toward global best practice, the paper recommends leading with nutrient-function claims, maintaining robust evidence files and requiring prior approval supported by India-relevant human data for novel actives and risk-reduction claims. Regulatory modernization could enable this shift through positive and negative ingredient lists, a unified digital portal for compliance and claim submissions, AI-enabled claim validation, an adverse-events reporting grid and a national quality seal like FOSHU to build trust domestically and internationally. The paper also proposes an independent “India Food Health Claims Authority” with clear timelines, tiered evidence standards and harmonized food-drug boundaries in coordination with AYUSH to reduce ambiguity and accelerate transparent decision-making.

India’s distinctive advantage lies in pairing AYUSH and Ayurveda’s culturally rooted, botanically rich heritage with modern nutrition science to create trusted, globally relevant products. Realizing this potential, however, requires overcoming bottlenecks in clinical validation capacity, botanical and multi-ingredient standardization, GMP-aligned scale-up, and affordability and access across diverse geographies. The paper advances a structural thesis that India’s most durable competitive edge lies upstream in agriculture – through biodiversity, biofortification pipelines and organized farmer ecosystems – to supply standardized, traceable, nutrition-dense inputs from millets and pulses to turmeric, ashwagandha, moringa, marine bioactives

and plant proteins. By formalizing farm-to-fork value chains with GAP-certified FPO clusters, district-level bioactive processing hubs, codified botanical standards and digital traceability, India can build a high-trust pipeline that supports both public health outcomes and export readiness.

The growth pathway is anchored in four reinforcing levers: science-led innovation, digital public infrastructure, diversified consumer demand and forward-leaning policy reform translated into clear implementation routes. These include scaling India-relevant clinical and translational research; deploying interoperable registries for ingredients, claims, safety and supply-chain traceability; strengthening affordability, access and consumer awareness; and aligning domestic standards with Codex for global market entry. A National Nutraceutical & Functional Foods Mission is proposed to align public procurement with evidence-based formulations, catalyze functional crop corridors and women-led enterprises and expand GMP/HACCP-aligned manufacturing and advanced delivery systems. The stakeholder ecosystem spans key ministries, regulators, research institutions, industry, clinicians and standards bodies. The conference agenda covering nutrition security, claims governance and AYUSH-aligned innovation provides a platform to operationalize this roadmap. Together, these reforms build a credible pathway for India to improve nutrition outcomes and advance global leadership in science-backed and AYUSH-led wellness solutions.



Introduction

Poor nutrition costs the world approximately **US\$3 trillion annually**, about US\$1 trillion from undernutrition/micronutrient deficits and US\$2 trillion from overweight/obesity, making nutrition central to human capital and economic growth.¹ Thus, nutrition can be seen as a defining driver of human capital and economic prosperity. With persistent micronutrient gaps across all populations, a **future-ready nutrition strategy** is essential for building resilient, healthy and competitive societies.

As global nutrition challenges intensify, the situation is dire in many lower-middle-income countries (LMICs) across Africa and Asia. India, the most populous LMIC, is no exception. With the highest proportion of stunted children (24.6%) under five and more than 57% of women affected by anemia, the country faces high burden due to persistent undernutrition alongside rising obesity and non-communicable diseases, compounded further by widespread hidden hunger arising from critical micronutrient gaps. Taken together, these data sets present a nuanced and urgent picture – one where dietary patterns may be evolving, yet essential nutrient deficits continue to persist. This underscores the imperative for India to adopt nutrition strategies that elevate both the quality and the nutrient density of foods consumed, so that progress in food access is matched by progress in genuine nutritional security. Strengthening nutrition is

therefore central to India's human capital formation and its ambitions for 2047.

However, India's performance on SDG-2 has moved decisively up the ladder, underpinned by robust food-security safety nets (NFSA/PMGKAY), steady gains in cereal productivity and stronger value added in agriculture – together signaling a more resilient and affordable food system.² This shift has, in turn, contributed to the broader downward trend in global hunger levels.³ This progress, combined with rising health awareness and changing consumption patterns such as moving away from expenditure on staples to high-value foods nationally and internationally⁴, places the **nutraceutical and functional foods sector at a pivotal moment**. India's unique advantage lies in blending modern nutrition science with its rich **Ayurveda and AYUSH** heritage, offering trusted, culturally aligned solutions through botanicals, probiotics, fortified foods and herbal formulations.

NutriBharat@2047 envisions leveraging this potential to build a future-ready nutrition ecosystem – one that strengthens public health, boosts economic growth, supports agriculture and enables access to foods that nourish, prevent disease and protect long-term wellbeing. As India charts its course toward *Viksit Bharat 2047*, nutrition emerges as the backbone of national development.

¹ [Nutrition Overview](#), The World Bank and Nutrition, The World Bank Group, July 2025, - Accessed on 14 Feb 2026

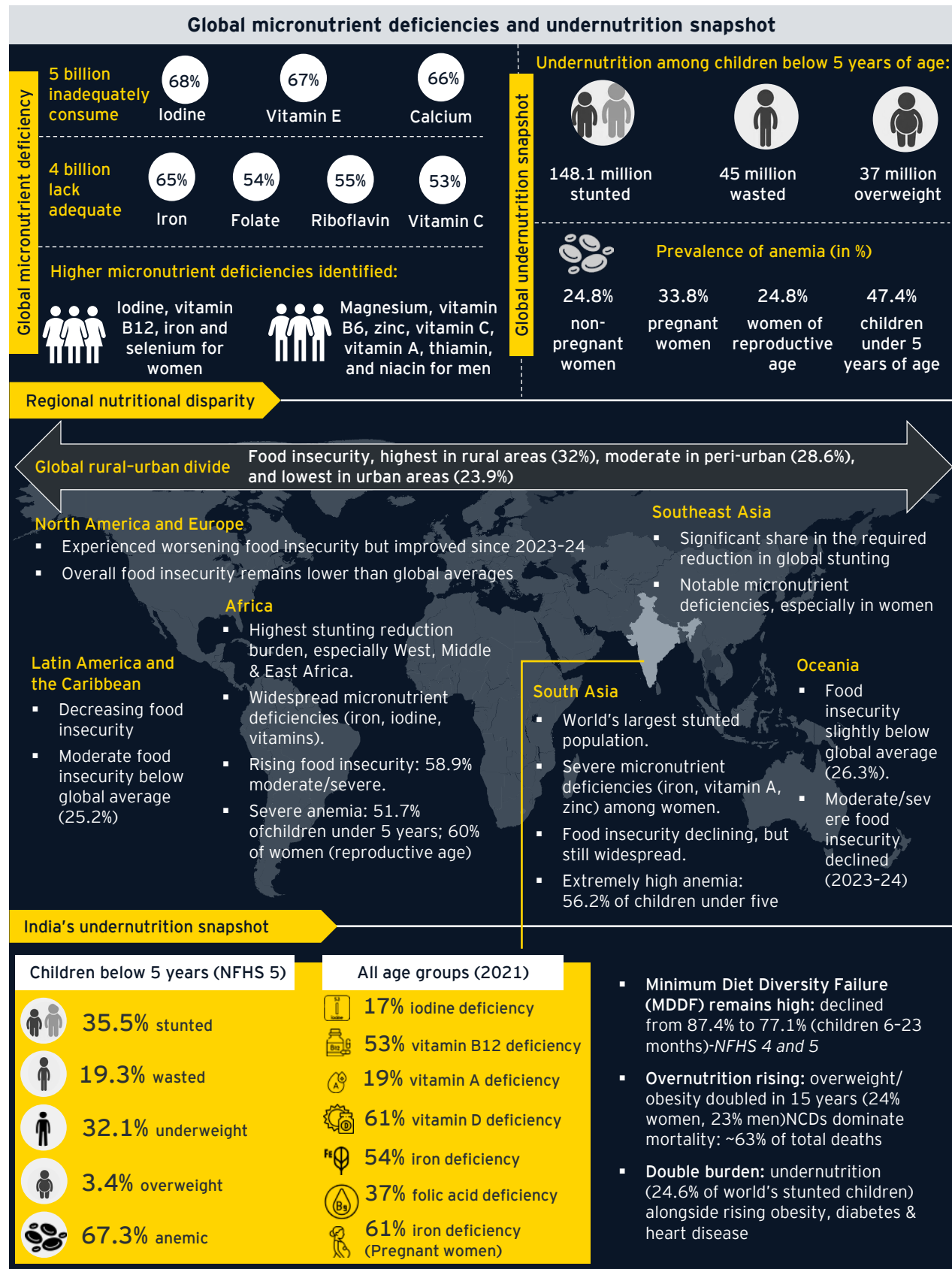
² "Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture", NITI Ayog, [NITI AAYOG, India | Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture](#) - Accessed on 14 Feb 2026

³ The State of Food Security and Nutrition in the World, Panel Discussion-Regional Perspectives, October 2025, [INDIA_SOFI_panel_discussion_201025.pdf](#) - Accessed on 15 Feb 2026

⁴ [International Consumer and Food Industry Trends | Economic Research Service](#), Constanza Valdes, USDA, January 2025 -Accessed on 14 Feb 2026



Figure 1: Global and regional snapshot of undernutrition and micronutrient efficiency^{5 6 7}



⁵ Global estimation of dietary micronutrient inadequacies: a modelling analysis, Simone Passarelli, Article, Lancet Global Health, August 2025, - Accessed on 15 Feb 2026

⁶ The State of Food Security and Nutrition in the World 2025, FAO US, 2025, Regional Disparities, - Accessed on 15 Feb 2026

⁷ "80% of Children in 8 Indian States Face Dietary Diversity Failure: Report Highlights Alarming Trends", Gaurav Suresh Gunnal, Down to Earth, October 2024 - Accessed on 07 Mar 2026



The nutraceuticals and functional foods landscape in India

For millennia, civilizations have recognized that food is foundational to health, laying the philosophical groundwork for today's nutraceutical and functional food systems. Ancient traditions across Greece, India, China, Egypt and indigenous cultures used botanicals, herbs and nutrient-dense foods as preventive and therapeutic tools. Hippocrates' maxim, "Let food be thy medicine," captured early Greek dietary wisdom, while Ayurveda, over 5,000 years old – developed structured frameworks around *achara* and *rasayana*, using turmeric, ginger, ashwagandha and amla to enhance immunity and longevity. Traditional Chinese medicine similarly integrated ingredients such as ginseng and goji berries to support systemic balance. Scientific milestones, including James Lind's 18th-century discovery of citrus in preventing scurvy, later advanced the identification of vitamins and bioactive compounds as determinants of health⁸.

By the late 20th century, the convergence of traditional knowledge and modern science formalized this sector. The term "**nutraceutical**," coined by **Stephen DeFelice in 1989**, described concentrated bioactives – such as omega-3, fatty acids, probiotics and polyphenols – delivered in non-food formats for health enhancement⁹. Around the same time, Japan's 1980s **Foods for Specified Health Use (FOSHU) framework** institutionalized the concept of functional foods, which are conventional foods fortified with physiologically active ingredients that deliver benefits beyond basic nutrition, marking the beginning of structured regulatory pathways for this rapidly expanding sector¹⁰. Classification for both nutraceutical and functional foods is as follows¹¹:

⁸ [A brief history of vitamin C and its deficiency, scurvy](#), Department of Public Health, University of Helsinki, October 2022 - Accessed on 14 Feb 2026



⁹Chapter 1- Introduction to functional foods and nutraceuticals, Industrial Application of Functional Foods, Ingredients and Nutraceuticals, Parthasarathi Subramanian 2023 Elsevier Inc., Page 10 - Accessed on 14 Feb 2026

¹⁰ "Health claims on functional foods: the Japanese regulations and an international comparison", Toshio Shimizu, Nutrition Research Reviews (2003), [Health claims on functional foods: the Japanese regulations and an international comparison](#) - Accessed on 14 Feb 2026

¹¹"Chapter 1- Introduction to functional foods and nutraceuticals, Industrial Application of Functional Foods, Ingredients and Nutraceuticals", Parthasarathi Subramanian, 2023 Elsevier Inc., - Accessed on 14 Feb 2026



Figure 2: Classification of nutraceutical and functional foods

Classification of nutraceutical and functional foods				
Supplements/food to promote health beyond basic nutrition by preventing disease, enhancing physiological functions, and improving overall well-being				
 Nutraceutical		 Functional foods		
Concentrated food-derived bio-actives in non-food forms and at doses higher than normal diets		Food containing naturally occurring or added bioactive components, and which deliver benefits through regular dietary intake		
Classification of Nutraceuticals				
Classification basis	Category	Sub-category	Examples	Key functional role
Definition	i) Isolated/purified from food	Medicinal form (non-food matrix)	Curcumin capsules, CoQ10 supplements	Disease prevention and therapeutic support
	ii) Concentrated Bioactive Pools	Multi-component formulations	Prenatal vitamins	Preventive healthcare
Source	i) Plant-based	Phenolics, flavonoids, terpenoids	Quercetin, Resveratrol, p-cymene	Antioxidant, antiviral, anti-inflammatory
	ii) Animal-based	Peptides, amino acids	Taurine, L-carnitine, CLA	Cardiovascular and metabolic health
	iii) Marine-based	Omega-3 fatty acids, algae bioactives	EPA, DHA	Anti-inflammatory, neuroprotective
	iv) Microbial	Probiotics	Lactobacillus spp.	Gut and immune health
Chemical Nature	i) Phenolic compounds	Flavonoids, tannins, stilbenes	Quercetin, Resveratrol	Antioxidant
	ii) Terpenoids	Mono-, di-, tri-terpenoids	p-cymene, Paclitaxel	Anti-inflammatory, anticancer
	iii) Nitrogen-containing compounds	Amino acids	Taurine	Cellular regulation
	iv) Fat-soluble quinones	Ubiquinones	CoQ10	Mitochondrial energy production
	v) Fatty acids	Polyunsaturated fatty acids	CLA	Lipid metabolism
Mechanism	i) Antioxidants	Radical scavengers	Vitamin E, Polyphenols	Reduce oxidative stress
	ii) Anti-inflammatory agents	Cytokine modulators	Curcumin	Chronic disease prevention
	iii) Immunomodulators	Immune-enhancing	Zinc, flavonoids	Immune system strengthening
	iv) Metabolic regulators	Lipid/glucose modulators	CLA, L-carnitine	Obesity and diabetes control
Formulation	i) Solid dosage	Capsules, tablets	CoQ10 capsules	Controlled dosing
	ii) Liquid	Syrups, suspensions	Omega-3 oils	Improved bioavailability
	iii) Advanced delivery systems	Liposomes, SEDDS	Liposomal curcumin	Enhanced absorption

Classification of nutraceutical and functional foods				
Classification of functional foods				
Classification basis	Category	Description	Examples	Primary function
By Nature	i) Conventional functional foods	Naturally bioactive-rich foods	Garlic, Turmeric	Immune and anti-inflammatory support
	ii) Modified/fortified foods	Enriched with added bioactives	Fortified cereals, probiotic yogurt	Enhanced nutrition
Physiological role	i) Immune-supporting	Strengthen immune function	Vitamin-fortified foods	Disease resistance
	ii) Cardiovascular-supporting	Lipid-lowering foods	Omega-3 enriched foods	Heart health
	iii) Gut-health promoting	Prebiotic/probiotic foods	Yogurt	Microbiome modulation
	iv) Metabolic health	Low glycemic foods	Fiber-rich foods	Diabetes management
Regulatory classification	i) Dietary supplements (food form)	Supplement the diet	Energy bars with nutrients	Nutrient support
	ii) Medical foods	Supervised therapeutic diet	Disease-specific formulations	Clinical nutrition
	iii) Fortified/designer foods	Normal food + added bioactives	Iron-fortified flour	Nutritional deficiency prevention
Function (Japanese concept)	i) Nutritional function	Basic nutrient supply	Whole grains	Energy and growth
	ii) Sensory function	Taste and satisfaction	Functional beverages	Consumer acceptability
	iii) Physiological function	Beyond nutrition benefits	Probiotic drinks	Disease risk reduction

In addition to the above functions, nutraceuticals and functional foods offer protective and therapeutic benefits beyond basic nourishment, particularly in preventing and managing chronic diseases such as cardiovascular disease, diabetes, obesity and certain cancers, especially cancers of the digestive and respiratory systems¹². Rich in plant bioactive compounds (phytochemicals, herbs, spices, whole grains), they help reduce inflammation, slow aging processes and enhance immune function, supporting disease prevention, improved metabolic health and long-term health resilience. Nutrition-rich diets thus become a strategic tool for public health improvement.

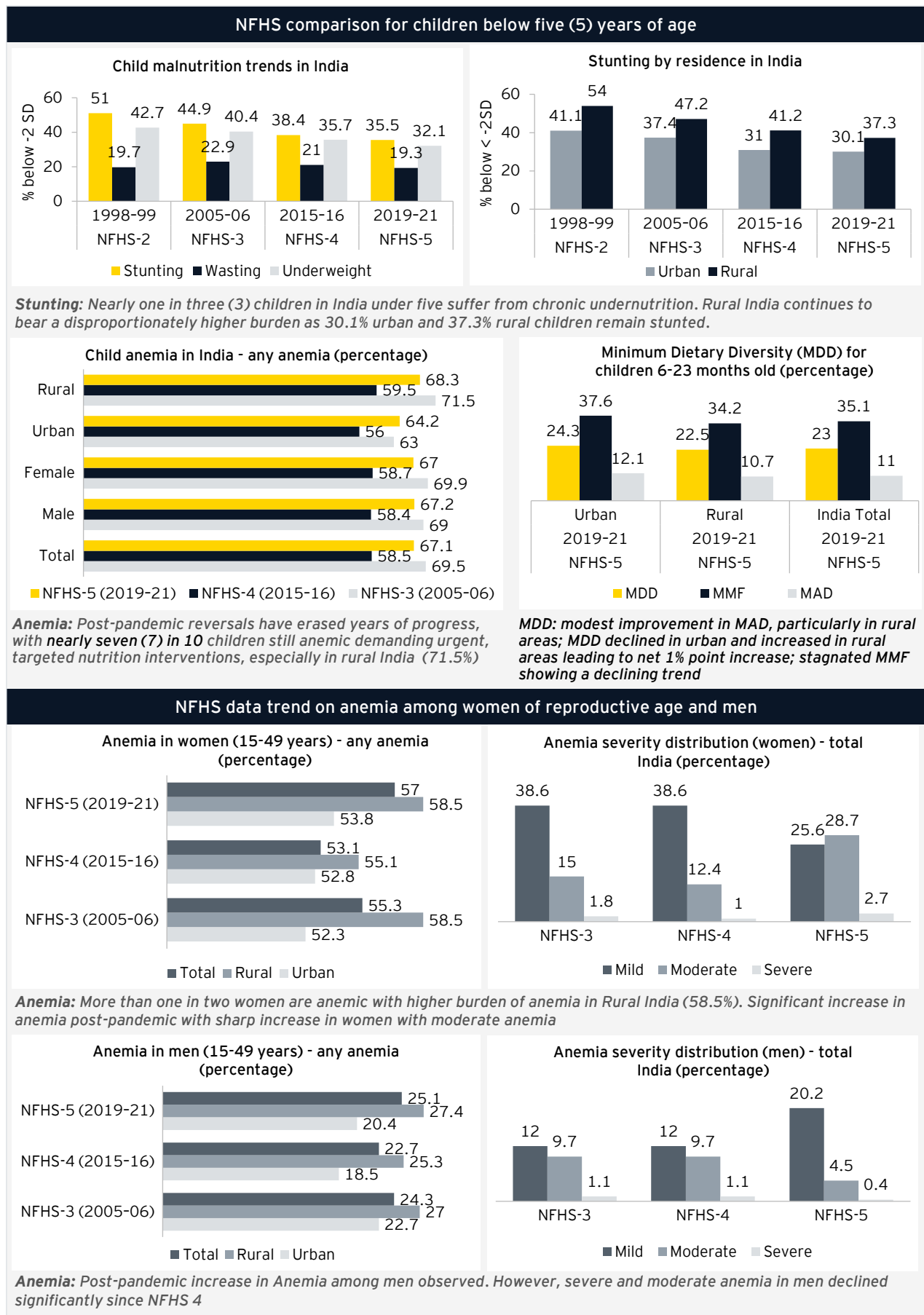
2.1 India's nutrition transition: From calorie sufficiency to micronutrient adequacy

India's nutrition landscape has undergone a structural transition over the past decade. While improvements in food availability and macronutrient intake have been observed, national survey data reveal persistent micronutrient challenges.

¹² "A review on the influence of nutraceuticals and functional foods on health", Arumugam Vignesh, Food Chemistry Advances 5 (2024), Elsevier, 2024, www.elsevier.com/locate/focha - Accessed on 16 Feb 2026













Figure 3: NFHS data comparison highlighting India's undernutrition status¹³



¹³ NFHS Data comparisons developed using data sheets covering NFHS round 2,3,4,5, NFHS - Accessed on 15 Feb 2026



Figure 4: Scope of nutraceutical and functional food intervention to address nutritional gaps identified across vulnerable populations in India (NFHS-5)^{14 15}

Identified gaps and need areas in India's nutrition security		
Identified age and gender group	Data highlighting undernutrition / Micronutrient deficiency	Identified micronutrient gap for nutraceutical / Functional food intervention
 Children (6-59 months)	<ul style="list-style-type: none"> 67.1% anemic (NFHS-5); Post-pandemic rise from 58.5% (NFHS-4) Rural: 68.3% Stunting: 35.5% (Rural 37.3%, Urban 30.1%) Wasting: 19.3% Underweight: 32.1% 	<ul style="list-style-type: none"> Iron + Folic Acid fortified complementary foods; vitamin A fortified oil; Zinc supplementation; Iron-fortified cereals and millet blends; Probiotic fortified weaning foods
 Infants and Young children (6-23 months)	<ul style="list-style-type: none"> Minimum Dietary Diversity only 23% (<i>declining in urban and increasing in rural</i>) Minimum Acceptable Diet: 11% Meal frequency stagnated (~35%) 	<ul style="list-style-type: none"> Multi-micronutrient fortified blended foods; DHA-enriched infant foods; Iron and Zinc sachets; Fortified ready-to-use complementary foods
 Adolescent girls (15-19 years)	<ul style="list-style-type: none"> High anemia prevalence (~59% NFHS-5) 	<ul style="list-style-type: none"> Iron-folic acid supplements; B12 fortified foods; Protein-enriched functional snacks; Calcium + vitamin D fortified beverages
 Pregnant and lactating women	<ul style="list-style-type: none"> ~52% anemic (NFHS-5). High iron deficiency contributes to maternal mortality, low birth weight and stunting in children Suboptimal dietary diversity and micronutrient intake 	<ul style="list-style-type: none"> Iron-Folic Acid (IFA) supplementation; Calcium + vitamin D tablets; DHA (Omega-3) capsules; Multiple Micronutrient Supplements (MMS); Protein-energy fortified maternal nutrition powders; Iron-fortified rice and double fortified salt Botanical galactagogues (for lactation)
 Women (15-49 years)	<ul style="list-style-type: none"> 57% anemic (NFHS-5), up from 53.1% (NFHS-4). Rural burden higher (58.5%) Moderate anemia doubled (from 12.4% to 28.7%) 	<ul style="list-style-type: none"> Iron + Folic Acid; vitamin B12 supplementation; Fortified wheat flour and rice; Moringa and iron-rich botanical extracts; Bioavailable iron nutraceutical capsules
 Men (15-49 years)	<ul style="list-style-type: none"> 25.1% anemic (NFHS-5), rising from 22.7% (NFHS-4) Mild anemia increased sharply 	<ul style="list-style-type: none"> Iron and B-complex supplements; Protein + micronutrient fortified foods; Functional beverages with minerals
 Elderly (60+ years)	<ul style="list-style-type: none"> High vitamin D deficiency (50-90% population-wide estimates; ICMR) ~51% vitamin B₁₂ insufficiency. Increased osteoporosis & sarcopenia risk 	<ul style="list-style-type: none"> Vitamin D3 fortified milk; Calcium + collagen supplements; B12 fortified foods; Omega-3 capsules; Protein-enriched geriatric nutrition powders
 Overweight/ Obese Adults	<ul style="list-style-type: none"> Overweight/Obesity doubled in 15 years 24% women and 23% men (BMI ≥25) (NFHS-5) 	<ul style="list-style-type: none"> Low-GI millet-based functional foods; Omega-3 fatty acids; Soluble fiber supplements; Probiotic gut-health formulations; P lant sterol fortified foods
 Rural households	<ul style="list-style-type: none"> 94% households use iodized salt (major success). Yet, higher burden of iron and B12 deficiencies 	<ul style="list-style-type: none"> Double fortified salt (Iron + Iodine); Fortified rice (under PM-POSHAN); Community-based nutraceutical sachets
 Urban middle-class consumers	<ul style="list-style-type: none"> ~51% vitamin B12 insufficiency. 50-90% vitamin D deficiency (urban indoor lifestyle) 	<ul style="list-style-type: none"> B12 fortified cereals; Vitamin D fortified milk; Multivitamin capsules; Functional beverages with micronutrients

In this evolving context, nutraceuticals and functional foods are increasingly positioned as complementary

tools. However, scaling them responsibly requires systemic alignment with national nutrition priorities.

¹⁴ "Beyond Calories: Addressing Micronutrient Deficiencies in the World's Most Vulnerable Communities—A Review", James Ayokunle Elegbeleye, MDPI, December 2025, *Beyond Calories: Addressing Micronutrient Deficiencies in the World's Most Vulnerable Communities—A Review* | MDPI -Accessed on 17 Feb 2026

¹⁵ "Science-based policy: targeted nutrition for all ages and the role of bioactives | *European Journal of Nutrition* | Springer Nature Link", Alexandre Kalache, *European Journal of Nutrition* (2021), August 2021- -Accessed on 17 Feb 2026



2.2 India's nutraceutical sector

The global nutraceuticals sector is expanding rapidly as consumers shift toward preventive health solutions, clean-label ingredients and functional nutrition. The global market is expected to rise from **US\$547.68 billion in 2026 to US\$1.12 trillion by 2034¹⁶**, achieving a CAGR of 10.58%. This projection is backed by rising health awareness, higher disposable incomes and the mainstreaming of functional foods, beverages and supplements. **Asia-Pacific leads the global landscape with a 39.99% market share**, driven by strong uptake in China, India, Japan and Southeast Asia, while North America and Europe continue to grow through product innovation, digital commerce and regulatory strengthening.

Alongside this, India's nutraceutical sector is expanding rapidly, valued at approximately US\$32.14 billion in 2024,¹⁷ with sustained double-digit growth projections. Despite this momentum, India's share remains modest globally due to a lack of defined industry classification within Indian ministries and limited targeted sector support. This indicates a long runway for scale and export competitiveness¹⁸.

Independent market intelligence places India's domestic consumption market in the range of US\$6- US\$11 billion (2023-2024), suggesting a robust internal demand base spanning wellness, preventive care and lifestyle nutrition¹⁹. By contrast, the United States operates the world's most valuable supplement economy, with an estimated industry impact of US\$158.6 billion in 2023 (including direct and indirect economic contributions) and a retail supplement market worth tens of billions²⁰. This is enabled by a flexible but structured regulatory model like the Dietary Supplement Health and Education Act (DSHEA), extensive post-market surveillance and strong consumer trust systems. ASEAN economies (e.g., Thailand, Indonesia, Malaysia), meanwhile, are rapidly harmonizing food supplement norms through the ASEAN Traditional Medicines and Health Supplements Scientific Committee (TMHS SC), offering regulatory predictability, manufacturing ecosystems and proximity to Asia-Pacific demand centers²¹.



¹⁶ "Nutraceuticals Market Size, Share & Industry Analysis, By Product Type (Dietary Supplements, Functional Foods, and Functional Beverages), Distribution Channel (Hypermarkets/Supermarkets, Convenience Stores, Online Retail, and Others) and Regional Forecast, 2026-2034", Fortune Business Insights, 06 February 2026, [Nutraceuticals Market Size, Trends & Growth Report \[2034\]](#) -Accessed on 27 Feb 2026

¹⁷ "India Nutraceuticals Market Size & Trends," Grand View Research, 2024, <https://www.grandviewresearch.com/industry-analysis/india-nutraceuticals-market-report> -Accessed on 17 Feb 2026

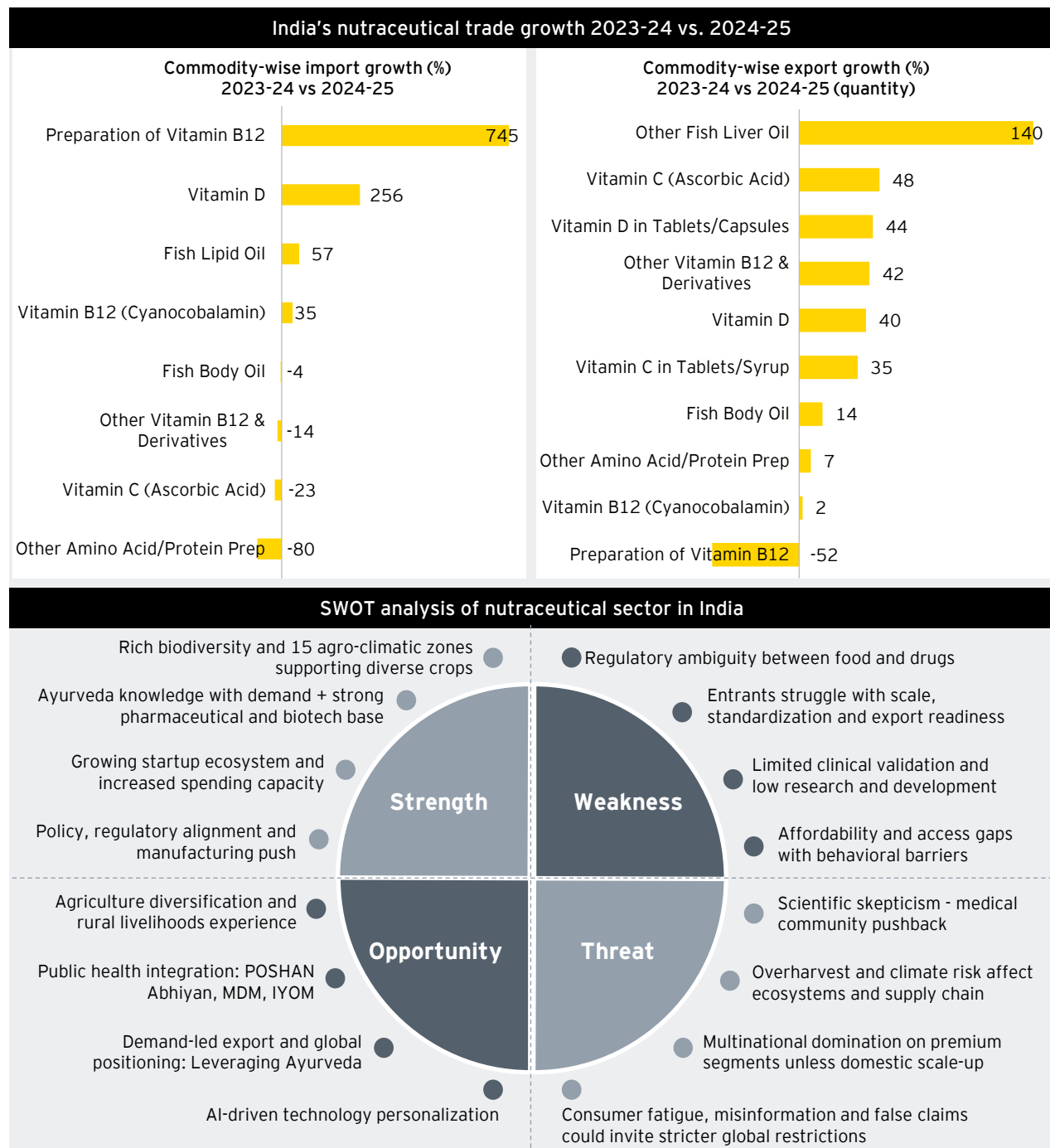
¹⁸ "Global nutraceutical market estimated at USD 400 billion," Press Information Bureau, 2024, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2071412> - Accessed on 17 Feb 2026

¹⁹ "Spotlight on the Indian nutraceuticals market", VitaFoods India. (2024), https://euassets.contentstack.com/v3/assets/bltd5b5e8fe28aae49e/bltcdcee47d9a2f6d86/669fa940344ef0e418d415bd/Vitafoods_20India_20report_Final.pdf - Accessed on 17 Feb 2026

²⁰ "CRN Report: Dietary Supplement Companies Pump More Than \$158 Billion into U.S. Economy, Up 23% from 2016", Council for Responsible Nutrition. (2024), <https://www.crnusa.org/newsroom/crn-report-dietary-supplement-companies-pump-more-158-billion-us-economy-23-2016> - Accessed on 17 Feb 2026

²¹ "ASEAN harmonisation of traditional medicines and health supplements.", Singapore Health Sciences Authority, December 2018,, <https://www.hsa.gov.sg/international-collaboration/complementary-health-products/asean/> - Accessed on 17 Feb 2026

Figure 5: Figure showing India's nutraceutical import-export growth (2023-24 vs. 2024-25) and SWOT analysis highlighting sector readiness for global positioning under the NutriBharat@2047 vision



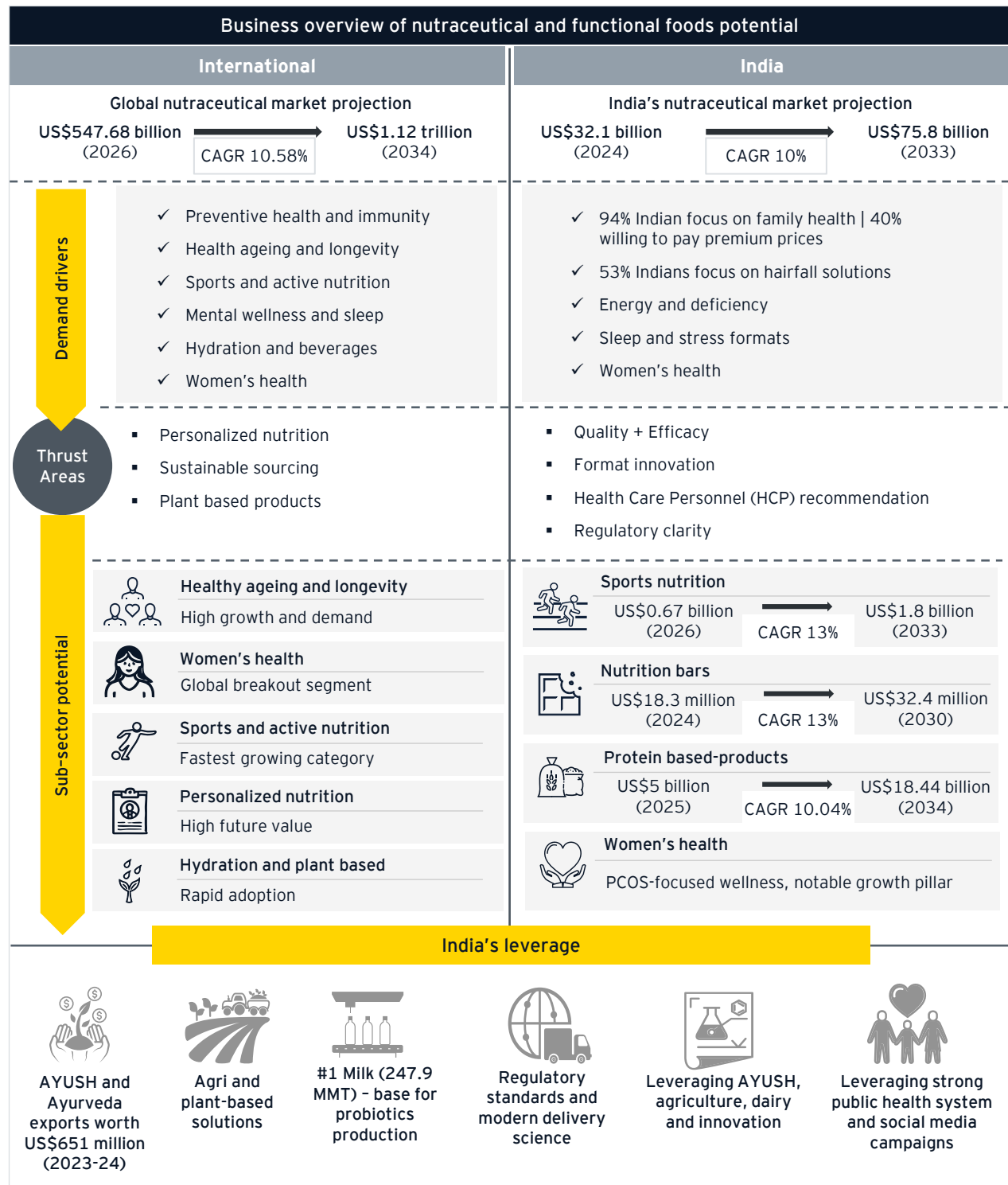
Source: Ministry of Commerce & Industry, Government of India (Import-Export Trade Statistics)

India is rapidly emerging as a global nutraceutical powerhouse, fueled by surging preventive health adoption, fast-growing segments like women's health, protein and sports nutrition, and a decisive shift toward clean-label, plant-based and functional formats. Anchored by its AYUSH heritage, expansive dairy and botanical ecosystems and strengthened by

clear FSSAI regulations, the country is uniquely positioned to build world-class nutrition innovations while simultaneously addressing domestic micronutrient and wellness needs – placing India on a definitive path toward global leadership in the nutraceutical economy.



Figure 6: Business overview of nutraceutical and functional food sector globally and in India^{22 23 24 25 26 27 28}



²² "India Sports Nutrition Market Size & Outlook, 2033", Data Statistics Dashboard, Grand View Horizon - Accessed on 07 Mar 2026

²³ "India Protein-Based Product Market Size, Share, Trends and Forecast by Type, and Region, 2026-2034", Global Information, February 01, 2026, - Accessed on 07 Mar 2026

²⁴ "India Nutritional Bars Market, By Type (Snack Bar, Protein Bar, Meal Replacement Bar & Others), By Sales Channel (Supermarket/Hypermarket, Departmental Stores, Online, Others), By Region & Competition, 2020-2030E", Global Information, November 25, 2024- Accessed on 07 Mar 2026

²⁵ "Covid-19 pandemic drives demand for hair care products: Report | Today News", Livemint, 22 Sept 2021-Accessed on 07 Mar 2026

²⁶ "Pandemic effect: Indian consumers now more conscious of health, fitness and holistic nutrition, says survey - Lifestyle News | The Financial Express", 18 Feb 2022, Financial Express -Accessed on 07 Mar 2026

²⁷ "Top 10 Milk Producing Countries in the World 2025: A Comprehensive Analysis - World ranking sites", Stat Ranker, 17 June 2025 - Accessed on 07 Mar 2026

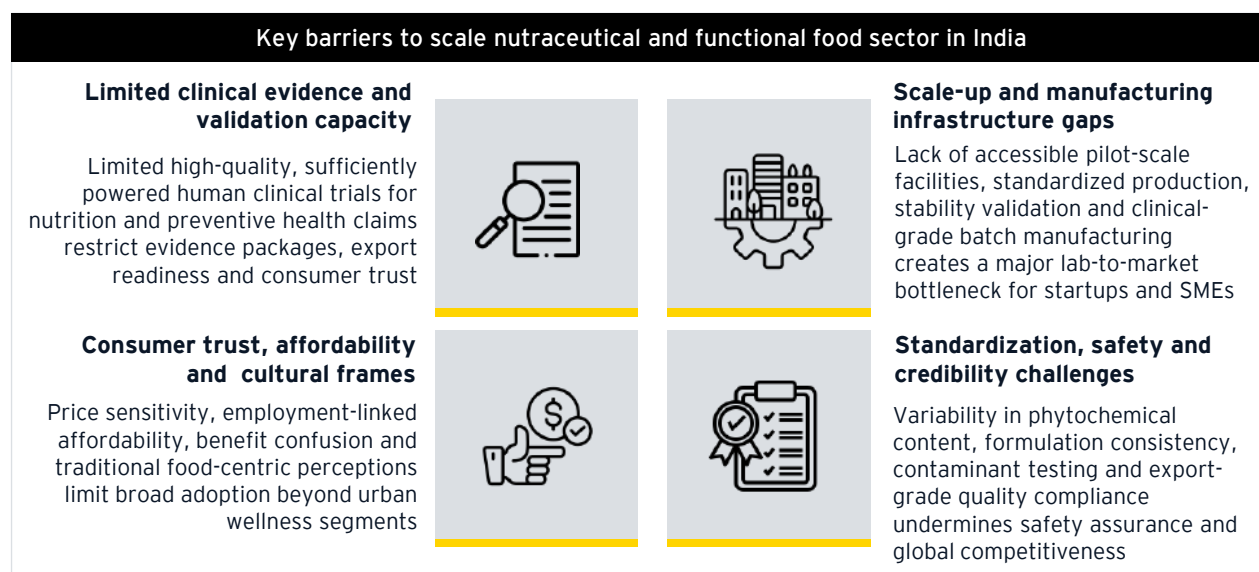
²⁸ "Ayush and herbal products exports register 3.6% growth in 2023-24", Gireesh Babu, 04 May 2024, PharmaBiz.com, (Directorate General of Commercial Intelligence and Statistics (DGCI&S) data quoted) - Accessed on 07 Mar 2026

Barriers to scale nutraceutical and functional food sector in India

India's nutraceuticals promise now hinges on converting scientific advances and manufacturing momentum into trusted, affordable, widely consumed products. That translation is slowed by real-world commercialization barriers across regulation, infrastructure, science and behavior. Urban and rural

markets experience these frictions differently: regulatory ambiguity and claims compliance, pilot-to-GMP scale-up gaps, limited clinical-validation capacity and standardized endpoints, quality standardization for botanicals and multi-ingredient blends and access and affordability hurdles.

Figure 7: Factors responsible for skewed growth in the nutraceutical and functional food sector in India^{29 30 31 32 33}



²⁹ "Nutraceutical formulations and natural compounds for the management of chronic diseases", Fatima G, Khan S, Shukla V, Awaida W, Li D and Gushchina YS (2025), *Front. Nutr.* 12:1682590. doi: 10.3389/fnut.2025.1682590 - Accessed on 18 Feb 2026

³⁰ Michiels, F., Feiter, U., Paquin-Jaloux, S., Jungmann, D., Braun, A., Sayoc, M. A. P., Armengol, R., Wyss, M., & David, B. (2022). Facing the Harsh Reality of "Access and Benefit Sharing (ABS) Legislation: An Industry Perspective." *Sustainability*, 14(1), 277. <https://doi.org/10.3390/su14010277> - Accessed on 18 Feb 2026

³¹ "Facing the Harsh Reality of Access and Benefit Sharing (ABS) Legislation: An Industry Perspective.", Michiels, F., Feiter, U., Paquin-Jaloux, S., Jungmann, D., Braun, A., Sayoc, M. A. P., Armengol, R., Wyss, M., & David, B. (2022), *Sustainability*, 14(1), 277. <https://doi.org/10.3390/su14010277> - Accessed on 18 Feb 2026

³² "Awareness, perception and usage of nutraceuticals in Indian society", Menon, A., Sawant, M., Mishra, S., Bhatia, P., & Rathod, S. (2021), *International Journal of Scientific Research in Science and Technology*, 399-414. <https://doi.org/10.32628/ijrst218559> - Accessed on 18 Feb 2026

³³ "Nutraceutical formulations and natural compounds for the management of chronic diseases", Fatima G, Khan S, Shukla V, Awaida W, Li D and Gushchina YS (2025), *Front. Nutr.* 12:1682590. doi: 10.3389/fnut.2025.1682590 - Accessed on 18 Feb 2026



Despite the global complexity of regulatory competition and market scale, India's most durable advantage does not lie in demand trends or manufacturing capacity alone. The journey begins upstream, in the agricultural systems that supply the bioactive and nutrition-dense substrates underpinning the nutraceutical economy. As global competitors differentiate through clinical validation, standardization and traceable ingredient quality, India's diversified agri-ecology, traditional crop heritage and expanding biofortification and botanicals pipelines provide a strategic foundation.

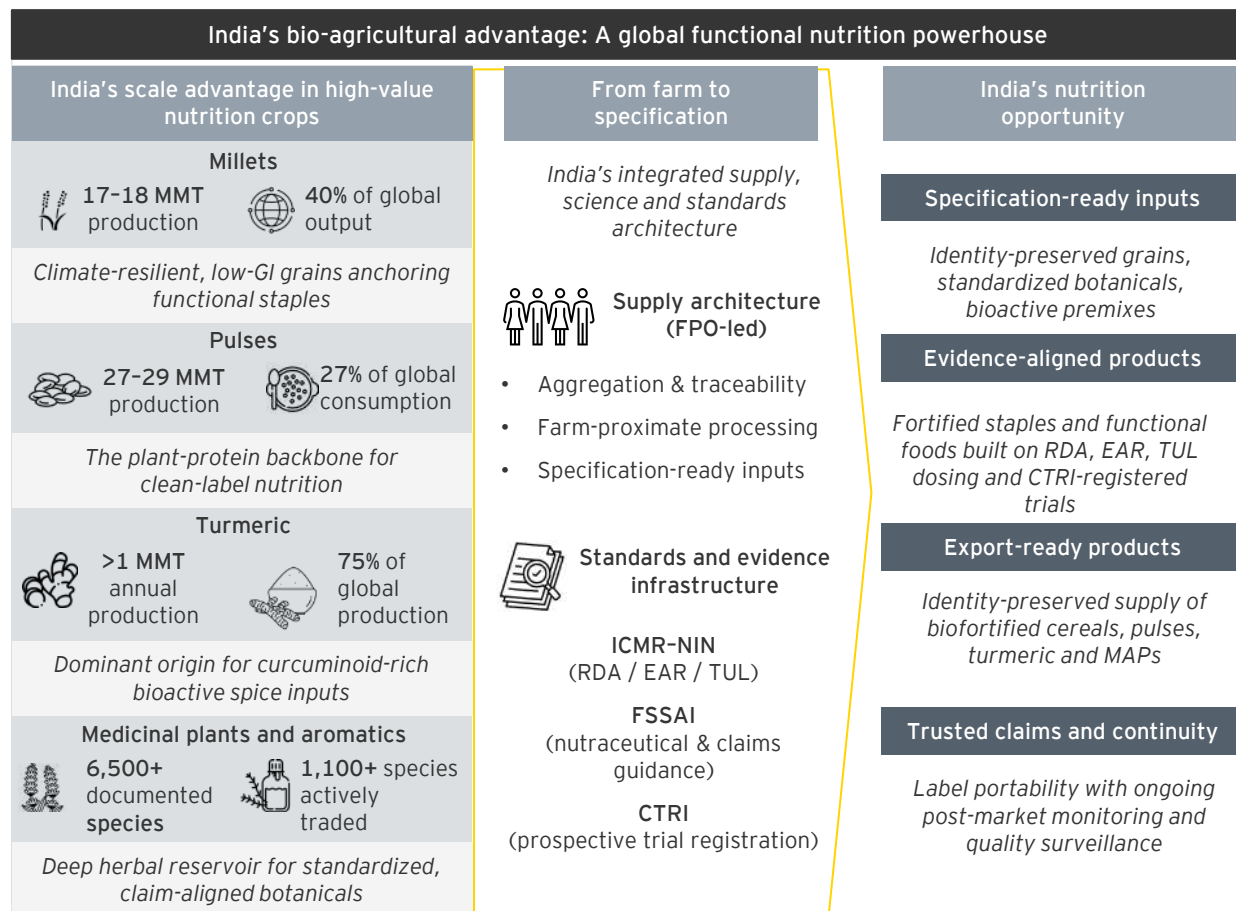
This positions agriculture not as an adjacent sector, but as the structural engine of India's future nutraceutical dominance. Thus, farm-level biodiversity, trait selection and processing standards directly shape the credibility, safety and export readiness of functional nutrition products. The following section illustrates how India can convert this agricultural depth into globally recognized, evidence-driven nutrition pathways.



Linking agriculture with nutrition:

Agriculture as the structural foundation of India's nutraceutical dominance

Figure 8: India is positioned to translate agricultural scale and emerging standards into globally credible functional nutrition³⁴
³⁵ ³⁶ ³⁷ ³⁸



³⁴ "International Year of Millets - Production Data," Press Information Bureau, Govt. of India, 2023, <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2213646&req=3&lang=2> - Accessed on 16 Feb 2026.

³⁵ "Crop Production Statistics," Ministry of Agriculture & Farmers Welfare, Govt. of India, <https://agricoop.nic.in> - Accessed on 16 Feb 2026.

³⁶ "National Pulses Data Report, 2024, [ij\) National Pulses Scenario Normal & EH APY \(28.02.2024\).pdf](https://www.nmmpb.in/NationalPulsesDataReport2024.pdf) - Accessed on 16 Feb 2026

³⁷ "Spices Board India, Turmeric Export Statistics. [major itemwise export 2025 web S.xls](https://www.spicesboard.gov.in/Portals/0/ExportStatistics/2025/major_itemwise_export_2025_web_S.xls) - Accessed on 16 Feb 2026

³⁸ "Medicinal Plants in India: Demand and Supply Assessment," National Medicinal Plants Board, [https://nmpb.nic.in/sites/default/files/Projects/Medicinal Plants in India An Assessment of their Demand and Supply.pdf](https://nmpb.nic.in/sites/default/files/Projects/Medicinal%20Plants%20in%20India%20An%20Assessment%20of%20their%20Demand%20and%20Supply.pdf) - Accessed on 16 Feb 2026



India's nutraceutical opportunity comes from its farms, not just from market demand. The country grows a wide mix of crops like millets, pulses, oilseeds, spices, medicinal plants and plant-based protein sources. This diversity is the base on which strong nutrition products can be built. India's biofortification pipeline adds to this base by moving nutrition-dense traits from breeding to cultivation and into the food system. As this spreads across cereals, pulses, spices and botanicals, the farm network starts to work as a simple nutrition innovation system that supplies trait-enriched grains and bioactive ingredients for fortified and functional foods.

This system is easier to scale and trust because it pairs familiar traditions with clear rules. Ayurveda keeps ingredient-to-health links easy to understand, while modern studies and national dosing guidance help brands make safe formulations with clear labels. Together, these pieces form a clean loop: select the right traits, grow and process to a set specification, test and label with evidence, and deliver everyday foods that lift nutrition in India and build readiness for export.

Table 1: India's agri-nutrition substrates and functional pathways^{39 40 41 42 43 44 45 46 47 48 49 50}

Input	Nutrient or bioactive focus	Field-level evidence	End products	Enablers to scale
Biofortified rice	Zinc and other micronutrients by variety	ICAR-IIRR adoption and nutrition outcomes; HarvestPlus pipeline	Fortified kernels, premixes, fortified staples	Seed systems and mill co-processing
Millets	Fiber, minerals, low GI	FPO aggregation and branded SKUs	Diabetes-friendly staples, high-fiber mixes, ready-to-eat	FPO hubs, dehulling and flaking, origin branding
Turmeric to curcumin	Curcuminoids	Cultivation practices and export continuity	Standardized extracts, beverages, gummies, capsules	Contract farming and extraction with QC specs
Ashwagandha and MAPs	Withanolides and phytochemicals	Demand-supply base and traceability pilots	Adaptogen blends for stress and sleep	Spec to soil contracting and lab standardization
Pulses to plant proteins	Protein isolates and concentrates	Rising nutraceutical awareness and usage	RTD protein drinks, bars, blends	Dal value chains and protein extraction

³⁹ "CRP Biofortification, Zinc Rice Success Story," ICAR-IIRR, 2023, <https://icar-iirr.org/SuccessStories/CRP%20Biofortification.pdf> - Accessed on 16 Feb 2026

⁴⁰ "India Country Overview: Biofortified Crops," HarvestPlus, 2024, <https://www.harvestplus.org/countries/india/> - Accessed on 16 Feb 2026

⁴¹ "Large Scale Staple Food Fortification as a Public Health Strategy," P. R. Gupta, Indian J. Public Health, 2022, https://journals.lww.com/JPH/fulltext/2022/66030/Large_scale_Staple_Food_Fortification_as_a.15.aspx - Accessed on 16 Feb 2026

⁴² "FPO Profiles: Millet Success Stories," ICAR-IIMR, 2023, https://www.millets.res.in/pdf/success_stories/IIMR_FPO_Profiles.pdf - Accessed on 16 Feb 2026

⁴³ "Millet Value Chain and Cases," SELCO Foundation, 2023, <https://selcofoundation.org/wp-content/uploads/2023/06/Millet-Value-Chain-and-Cases.pdf> - Accessed on 16 Feb 2026

⁴⁴ "Role of Millet Model in Generating Income to FPOs," Just Agriculture, 2023, <https://justagriculture.in/files/magazine/2023/january/003%20Role%20of%20Millet%20Model%20in%20generating%20income%20to%20FPOs.pdf> - Accessed on 16 Feb 2026

⁴⁵ "Cultivation Practices: Turmeric," Indian Spices Board, 2024, https://www.indianspices.com/sites/default/files/cultivation_practices-TURMERIC-1.pdf - Accessed on 16 Feb 2026

⁴⁶ "Major Item-wise Export, 2025," Indian Spices Board, 2025, <https://www.indianspices.com/sites/default/files/major%20itemwise%20export%202025%20web.pdf> - Accessed on 16 Feb 2026

⁴⁷ "Medicinal Plants in India: Demand and Supply Assessment," NMPB, https://nmpb.nic.in/sites/default/files/Projects/Medicinal_Plants_in_India_An_Assessment_of_their_Demand_and_Supply.pdf - Accessed on 16 Feb 2026

⁴⁸ "Medicinal Plants Contract Farming and Advantages," AgriFarming, 2024, <https://www.agrifarming.in/medicinal-plants-contract-farming-and-advantages> - Accessed on 16 Feb 2026

⁴⁹ "Awareness, Perception and Usage of Nutraceuticals in Indian Society," A. Menon et al., 2021, https://www.researchgate.net/profile/Anushka-Menon-2/publication/355595112_Awareness_Perception_and_Usage_of_Nutraceuticals_in_Indian_Society/links/6177fa02eef53e51e1ece988/Awareness-Perception-and-Usage-of-Nutraceuticals-in-Indian-Society.pdf - Accessed on 16 Feb 2026

⁵⁰ "Past, Present, and Likely Future of Nutraceuticals," A. P. Singh, J. Pharm. Bioallied Sci., 2023, https://journals.lww.com/jpbs/fulltext/2023/15020/past_present_and_likely_future_of_nutraceuticals.2.aspx - Accessed on 16 Feb 2026

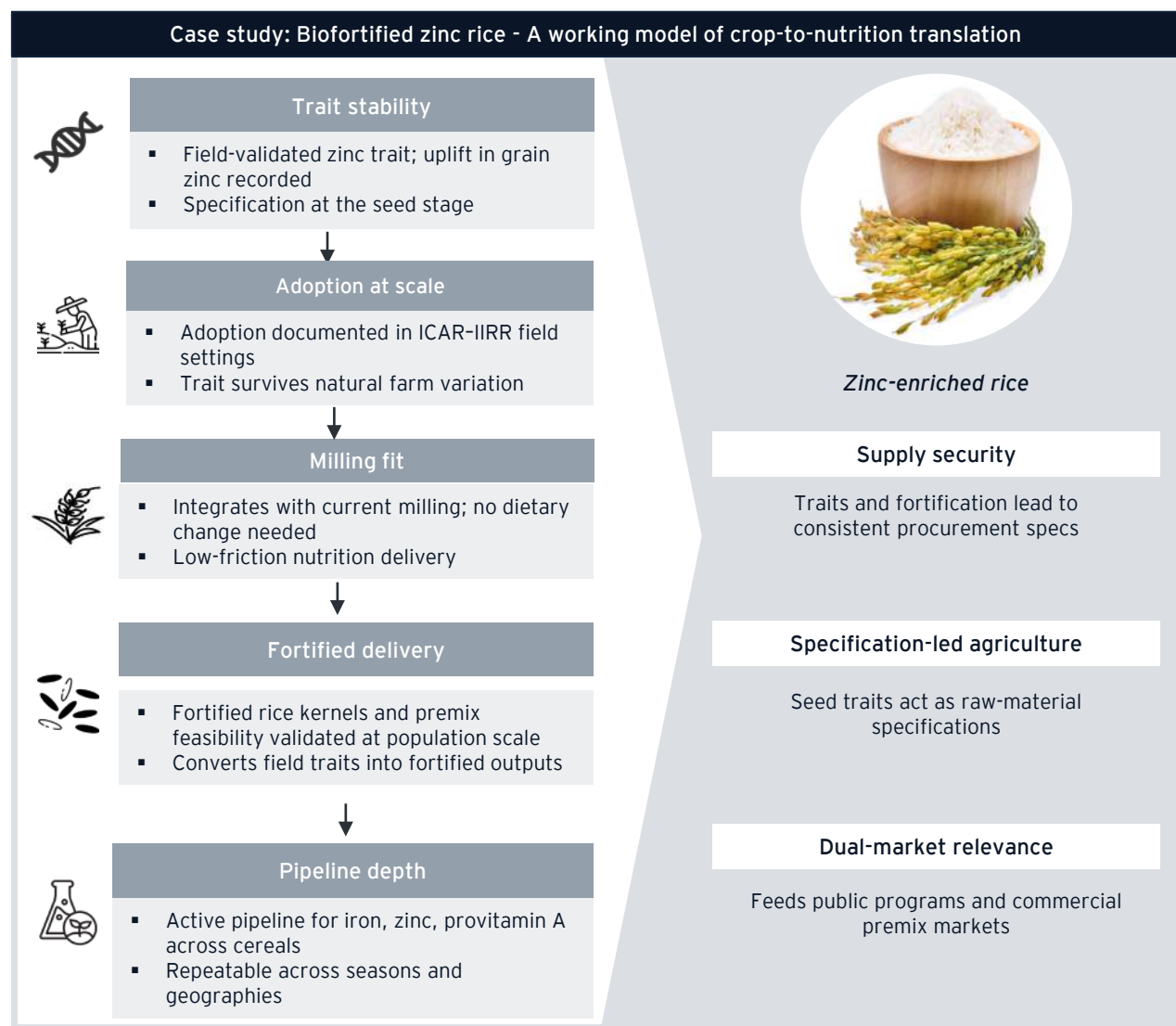
India's agri-nutrition approach links farm to fork. Trait selection and procurement targets are guided by nutrition goals and labels are informed by field data through surveillance and trials. On the input side, biofortified cereals supply micronutrient-dense grain streams that fit into large-scale fortification programs whose feasibility has been demonstrated in Indian institutional channels.

India's data shows that higher ultra-processed intake and lower dietary diversity are linked with nutrition gaps⁵¹. Portfolios could lean toward farm-proximate, minimally processed and fortified foods that close

those gaps. When this shift is guided by dose findings from India-based randomized trials, teams can set next-season targets for seed traits, agronomy and premix levels with more precision^{52 53}.

This creates a clear farm-to-fork and table-to-farm loop. Evidence from labels, surveillance and trials informs what to grow and how to process. In turn, processing returns ingredients that match the label and the claim. That is how a high-trust nutrition value chain works: input decisions are driven by proof and end-products deliver measurable nutrition without forcing big changes in consumption⁵⁴.

Case study 1: Farm-to-fork translation: Zinc-enriched rice links trait stability, processing and fortification to real-world nutrition⁵⁵



⁵¹ "Ultra-Processed Food, Dietary Diversity and the Risk of Nutritional Inadequacy Among Adults in India," S. Srivastava et al., Public Health Nutrition, 2023, <https://www.cambridge.org/core/journals/public-health-nutrition/article/intake-of-ultraprocessed-food-dietary-diversity-and-the-risk-of-nutritional-inadequacy-among-adults-in-india/BEE25AA0DA3572B6085469EA83FFCA8F> - Accessed on 16 Feb 2026

⁵² "Diet Transitions and Health in India," A. R. Sinha et al., Frontiers in Nutrition, 2022, <https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2022.1077443/full> - Accessed on 16 Feb 2026

⁵³ "Randomized Trials in Indian Cohorts," PLOS ONE, 2023, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0282688> - Accessed on 16 Feb 2026

⁵⁴ "Large Scale Staple Food Fortification as a Public Health Strategy," P. R. Gupta, Indian J. Public Health, 2022, https://journals.lww.com/IJPH/fulltext/2022/66030/Large_scale_Staple_Food_Fortification_as_a.15.aspx - Accessed on 16 Feb 2026

⁵⁵ "CRP Biofortification, Zinc Rice Success Story," ICAR-IIRR, 2023, <https://icar-iirr.org/SuccessStories/CRP%20Biofortification.pdf> - Accessed on 16 Feb 2026

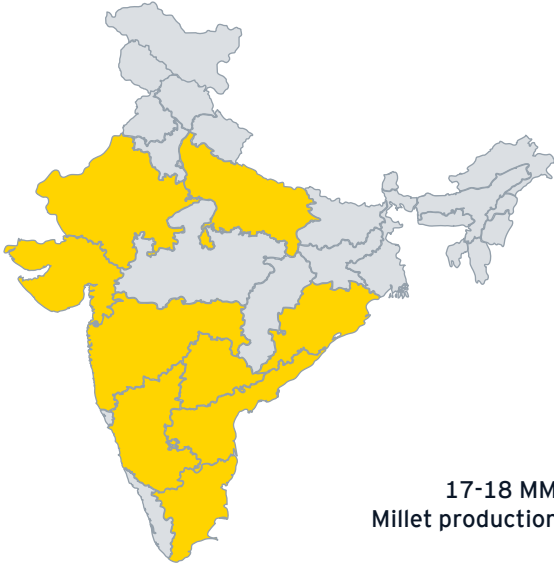


Documented FPO operations and standardized spice extraction practices show the ability to measure, segregate and process to target specifications. Examples include low-GI millet flours with consistent

quality and turmeric extracts meeting curcuminoid ranges. That operational reliability turns agronomy into specification and prepares ingredients for claim-sensitive formulations^{24 25 26}.

Case study 2: Millet FPOs help convert diverse smallholder production into consistent, process-ready grain streams suited for functional nutrition markets⁵⁶

Case study: Millet FPOs as functional ingredient systems







17-18 MMT
Millet production in India

- India's millet belts supply **low-GI, fiber-dense, micronutrient-rich** grains aligned with metabolic health positioning
- Producer-level creates **consistent procurement, aggregation and batch-wise quality control**
- The global shift toward **climate-smart, minimally processed, farm-proximate** ingredients aligns directly with India's natural millet strengths

Millet FPOs: Traceable, functional grain systems at scale

Studies on India's millet value chains show how FPOs improve production, processing and market access for nutrient-rich millets. Stronger aggregation, better primary processing and higher incomes are documented where organized models are in place

<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> Organized farmer aggregation </div> </div> <ul style="list-style-type: none"> FPOs in Karnataka, Odisha, Andhra Pradesh and Maharashtra pool production through structured enrolment Aggregation hubs enforce basic quality checks (moisture, grain size, purity) 	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> Processing discipline </div> </div> <ul style="list-style-type: none"> FPO hubs run cleaning, grading and dehulling Primary processing ensures stable, functional-grade output Functional integrity maintained with minimal intervention
<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> Functional market alignment </div> </div> <ul style="list-style-type: none"> Globally recognized as climate-smart grains Ideal for clean-label, minimally processed functional foods 	<div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> Traceability and identity preservation </div> </div> <ul style="list-style-type: none"> FPOs in Odisha, Karnataka and Andhra Pradesh provide plot-to-lot traceability Enables identity-preserved millets for premium/origin-certified markets

⁵⁶ "Millet Value Chain and Cases," SELCO Foundation, 2023, <https://selcofoundation.org/wp-content/uploads/2023/06/Millet-Value-Chain-and-Cases.pdf> - Accessed on 16 Feb 2026

Lakadong Turmeric, Meghalaya: From organized cultivation to specification-ready curcumin inputs



Lakadong Turmeric farmers from West Jaintia Hills, Meghalaya

About Lakadong Turmeric

Grown exclusively in the West Jaintia Hills of Meghalaya

Has the highest curcumin content of 7%-12%

Farming is undertaken in 124 villages by 13,000 women farmers and collectives

Curcumin-rich origin provides a bioactive substrate that is relevant to food, wellness and nutraceutical use when processed and standardized well

Seed to field	Processing to extraction	Markets and distribution
		
<ul style="list-style-type: none"> ~2,500 MT quality seeds supplied to farmers; area and output expanded through organized government support Training provided via SHGs, ATMA, NRLM and technical partnerships Women-led cultivation strengthened through collective mobilization 	<ul style="list-style-type: none"> 15 farm-gate Collective Marketing Centres established with washers, slicers and solar tunnel dryers Primary processing shifted closer to farms, improving quality and reducing drudgery Curcumin extraction units introduced to enable higher-value outputs 	<ul style="list-style-type: none"> Interest-free loans (INR4 crore+) and grants (INR3.3 crore+) enabled procurement, processing and working capital flow Export to the US, Netherlands, the UK, and Russia, supported by branding, traceability efforts and GI processes

Mission-mode convergence across seed systems, processing, finance and markets converts a region-specific crop into a stable nutrition input chain



Seed distribution by cultivators



Curcumin extraction unit at Laskein block



Branding and promotion initiatives

India's global competitiveness in nutraceuticals is rooted in agriculture. A uniquely diversified crop base, bioactive ingredients, organized supply chains and growing evidence link agriculture directly to nutrition outcomes, positioning India as a reliable supplier to global nutraceutical markets. As more traits, grains and botanicals move through farm-to-fork pathways, the connection between what is grown and what supports health becomes clearer and more

dependable. Clear regulatory guidance and India-specific trials make claims and labels portable across jurisdictions.

This foundation is strengthened by the policy and regulatory systems enabling the ecosystem. India has the guidance, institutional frameworks and public programs needed to support a nutrition-aligned food system.







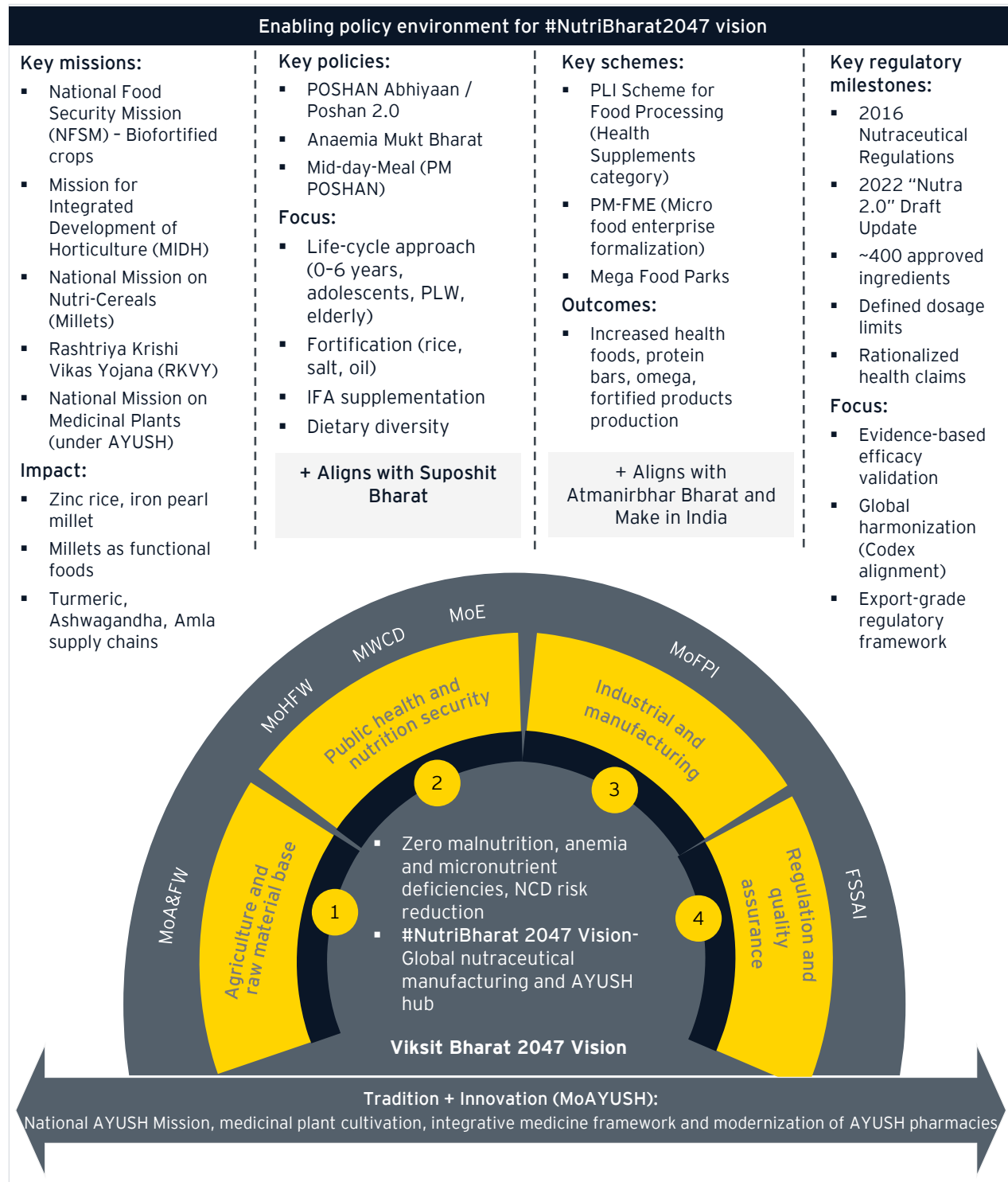
Policy landscape of India

India's nutrition and nutraceutical policy landscape is evolving into a coordinated, multi-ministerial ecosystem aligned with the Viksit Bharat @2047 vision of building a healthy, productive and globally competitive nation. The current policy landscape for the nutraceutical and functional food ecosystem can be aligned across ministries from production, nutrition promotion, manufacturing, regulatory frameworks, traditional practices and innovation promoted under AYUSH. Building on this integrated approach, the enabling policy environment for the nutraceutical and functional food sector is anchored in a set of convergent national missions, policies, schemes and regulatory reforms that collectively advance the NutriBharat@2047 vision. Flagship missions such as the National Food Security Mission, POSHAN Abhiyaan 2.0, Anaemia Mukta Bharat, MID-DAY Meal/PM POSHAN, Nutri-Cereals (millets) and AYUSH-led medicinal plant initiatives strengthen demand for nutrient-dense foods across the life cycle while promoting indigenous bioresources like millets, turmeric, ashwagandha and amla.

On the supply side, schemes such as the Production Linked Incentive (PLI) for Food Processing (health supplements category), PM-FME, Mega Food Parks and Make in India catalyze industrial manufacturing, MSME participation and value addition. The regulatory ecosystem, led by FSSAI through the Nutraceutical Regulations, expanded ingredient approvals, defined dosage limits, rationalized claims and movement toward evidence-based, globally harmonized standards, provides predictability and export readiness. Together, these measures address zero malnutrition, reduction of anemia and micronutrient deficiencies and non-communicable disease risk, while positioning India as a global nutraceutical manufacturing and AYUSH innovation hub. This coordinated, multi-ministerial framework embodies NutriBharat@2047 as a fusion of tradition and innovation in pursuit of a healthier, self-reliant and globally competitive Viksit Bharat.



Figure 9: India's current policy environment enabling the NutriBharat@2047 aim⁵⁷



⁵⁷ "Sowing Seeds of Nutrition Key Schemes Driving Food Security Across Nation", PIB, Feb 2025, [Press Release: Press Information Bureau](#) - Accessed on 16 Feb 2026

Overview of nutraceutical regulation: India and global comparison

India's evolving regulatory landscape for nutraceuticals and functional foods is entering a pivotal phase, with growing emphasis on stronger licensing norms, tighter ingredient governance, and more robust, evidence-based claims. Understanding this trajectory requires analyzing India's direction in

the context of global regulatory philosophies, where consumer safety, scientific substantiation, innovation and market competitiveness varies globally. These contrasting approaches highlight the wide diversity in how health-food and supplement regulations are structured worldwide.

Table 2: Global nutraceutical regulations across regions and countries^{58 59 60 61}

Region	Competent authority and legal basis	Regulatory procedure	Claims scenario	Key market strategy
India	<ul style="list-style-type: none"> FSSAI under Food Safety and Standards Act, 2006. Category rules under FSS (Health Supplements, Nutraceuticals, FSDU, FSMP, Probiotic/ Prebiotic, Specialty Botanicals) Regulations, 2016. Pack and ad claims under FSS (Advertising & Claims) Regulations, 2018. 	<ul style="list-style-type: none"> Mandatory license: FSSAI registration/state license /central license (turnover and manufacturing capacity). Dedicated product categories: Health supplements, nutraceuticals, FSDU, FSMP, functional foods, novel foods. Ingredient and composition control: Only ingredients from FSSAI-approved schedules allowed; novel ingredients require prior safety approval. Label and claims compliance: Needs scientific substantiation; disease-cure or treatment claims are prohibited. 	<ul style="list-style-type: none"> No routine pre-market clinical trials for foods; all claims must be scientifically substantiated. Product-led health claims must be notified to FSSAI; prior approval is required for novel ingredients or non-standard claims, backed by evidence. Permitted claims nutrition and nutrient-function claims, plus general functional statements with supporting evidence (India does not maintain a central "authorized claim" list). 	<ul style="list-style-type: none"> Unique model: Food-first approach (even in tablets/capsules); reactive oversight (notify/submit on request) not EFSA-style pre-authorization. Market performance: Growing role within APAC; Indian share rising but not formally published by FSSAI.

⁵⁸ Role of ICMR guidelines in Indian clinical Research - Clinical research made simple. (2025, September 21). Retrieved February 27, 2026, https://www.clinicalstudies.in/role-of-icmr-guidelines-in-indian-clinical-research/#google_vignette -Accessed on 25 Feb 2026

⁵⁹ THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION. (2015). Regulation (EU) 2015/2283 of the European Parliament and of the Council. In *Regulation (EU) 2015/2283 of the European Parliament and of the Council*. <https://www.legislation.gov.uk/eur/2015/2283/data.pdf> -Accessed on 25 Feb 2026

⁶⁰ Mavenrs. (2025, October 27). *Claims substantiation for food and food supplements in Japan: a regulatory deep dive*. Maven Regulatory Solutions. Retrieved February 27, 2026, from <https://www.mavenrs.com/Claims-Substantiation-for-Food-and-Food-Supplements-in-Japan-A-Regulatory-Deep-Dive> -Accessed on 25 Feb 2026

⁶¹ "Chapter-22, Regulations on functional foods and nutraceuticals", Shyam Ramkrishna Garud, *Industrial Application of Functional Foods, Ingredients and Nutraceuticals, Extraction, Processing and Formulation of Bioactive Compounds*, 2023, <https://www.sciencedirect.com/science/article/pii/B9780128243121000224> -Accessed on 25 Feb 2026



Region	Competent authority and legal basis	Regulatory procedure	Claims scenario	Key market strategy
		<ul style="list-style-type: none"> FSS labeling and display and advertising and claims regulations must be followed. Market entry requirements: All products must meet prescribed safety, quality and compliance norms before being marketed. Post-market surveillance: Market sampling, testing, recall mechanisms and action against misleading ads/online promotion. 	<ul style="list-style-type: none"> Prohibited: Any therapeutic or disease-treatment claims on foods. Non-compliant formats or novel ingredients require explicit FSSAI approval before use. 	
Japan	<ul style="list-style-type: none"> MHLW and councils; Regulatory system through FOSHU (Foods for Specified Health Uses). 	<ul style="list-style-type: none"> 60-day notification; sponsor publishes systematic review or human trial data dossier (efficacy, safety, analytical methods). Multi body review (PAFSC, Food Safety Commission, NIHN). Tiered categories under FOSHU: Regular (clinical trial), Standardized, Disease Risk Reduction, Qualified (graded evidence A, B, C). 	<ul style="list-style-type: none"> Function claims (“helps maintain...”) with set label statements. Shows notification details and disclaimers. Medicinal/disease claims are not allowed; claims can be withdrawn if evidence fails. 	<ul style="list-style-type: none"> Unique model: Dual-track under FOSHU (high-evidence approval) and FFC (fast, transparent notification with public dossiers). Market performance: Large, high-trust functional-food market underpinned by public dossiers and FOSHU seal of approval.
China	<ul style="list-style-type: none"> State Administration for Market Regulation (SAMR)/National Medical Products Administration (NMPA) oversees ‘Health Foods’ (functional foods, supplements, and nutraceuticals). Products making functional claims must obtain the “Blue Hat” registration (functional claims/new raw materials) and record-filing (vitamins/minerals). 	<ul style="list-style-type: none"> Two-track regulatory model: A. Registration track (for products making functional claims or using non-catalog ingredients): requires safety, stability and functionality dossiers (often human data). B. Filing track (for vitamins/minerals using ingredients from the approved list): simplified process. No new trials if standard. Requires: Stability testing, hygiene/toxicology data, QC specifications, and label review. Manufactured/imported products must meet China GB standards (national standards). 	<ul style="list-style-type: none"> Functional claims allowed only for registered “Blue Hat” Health Foods; filings limited to standard nutrition claims. Unregistered products cannot make functional claims; disease-treatment claims strictly banned. SAMR enforces market surveillance via sampling, spot checks and ad monitoring. Mandatory safety-incident reporting; penalties for misleading claims or non-compliant advertising. Regular nationwide crackdowns on false claims and non-compliant imports. 	<ul style="list-style-type: none"> Unique model: Formal pre-market authorization for functional claims; dual track lets brands test demand while preparing dossiers. Market performance: One of the largest regulated health-food markets in APAC; strong growth in probiotics and registered health foods.
The United States	<ul style="list-style-type: none"> Food and Drug Administration (FDA) regulates dietary supplements under Dietary Supplement Health and Education Act (DSHEA), 1994. FDA operates through its division CFSAN (Center for Food Safety and Applied Nutrition). Key regulatory codification occurs under 21 Code of 	<ul style="list-style-type: none"> “Dietary supplements” include vitamins, minerals, botanicals, amino acids, enzymes, metabolites and concentrates. Market entry model (no pre-approval for most products); manufacturers responsible for ensuring product safety. New Dietary Ingredient (NDI) requires premarket notification 75 days before marketing, including safety data. Facilities must comply with Current Good Manufacturing Practices (cGMP) for supplements. 	<ul style="list-style-type: none"> Structure/function claims: Allowed with mandatory DSHEA disclaimer (supports immune health); manufacturer must notify FDA within 30 days of marketing the claim. Health claims: FDA-authorized or based on authoritative scientific statements, agreement or qualified evidence. Prohibited claims: Disease-treatment or cure claims are not allowed. 	<ul style="list-style-type: none"> Unique model: Market-driven with strong post-market oversight; CAERS publishes adverse-event data. Market performance: Largest single-country supplements market by most industry measures; FDA regulates the framework, not market size; high personalization and e-commerce adoption.

Region	Competent authority and legal basis	Regulatory procedure	Claims scenario	Key market strategy
	Federal Regulations (CFR).	<ul style="list-style-type: none"> Labels must include a supplement facts panel, ingredient listing, manufacturer/distributor details and directions for use. 	<ul style="list-style-type: none"> NDI-75-day notification when applicable. Missing NDI when required can render product adulterated. 	
European Union	<ul style="list-style-type: none"> European Commission (EC) and European Food Safety Authority (EFSA) jointly regulate food supplements, functional foods and health claims. Key legislations: General Food Law, Nutrition & Health Claims Regulation, Food Supplements Directive, Novel Food Regulation and Food Information to Consumers Regulation. 	<ul style="list-style-type: none"> Novel foods/novel ingredients: Pre-market authorization required via an EFSA safety assessment and EC approval applies to ingredients not widely consumed in the EU before 15 May 1997. Compliance with Food Supplements Directive 2002/46/EC including permitted vitamins/minerals, purity and safety standards. National notification: Many EU Member States require pre-market notification before sale. Must follow the Food Information to Consumers (FIC) Regulation 1169/2011 for labeling mandatory information, allergens, nutrient values and warnings. 	<ul style="list-style-type: none"> High bar: EFSA requires human-relevant cause-and-effect evidence; full dossiers; only authorized claims can be used. Article 13 (general function) and Article 14 (disease risk-reduction/children's) with standardized, authorized wording (EU Register). Non-authorized/misleading claims; medicinal claims on foods are prohibited. 	<ul style="list-style-type: none"> Unique model: Central authorized-claims register makes claims portable across Member States with high trust, consistent. Market performance: One of the largest regulated functional-food/supplement blocks; harmonized claims drive retail trust.
ASEAN (regional)	<ul style="list-style-type: none"> Governed by the ASEAN TMHS Harmonization Framework. Implemented nationally by each country's regulator (e.g., Health Sciences Authority (HSA) - Singapore; National Pharmaceutical Regulatory Agency (NPRA) - Malaysia). 	<ul style="list-style-type: none"> ASEAN TMHS provides common definitions, but countries maintain separate classifications for health supplements, traditional medicines and functional foods. Regional guidelines for composition, contaminants, GMP, labeling and claims; but national enforcement regulations are separate for each Member State. Product registration/notification: No central ASEAN approval authority; companies must register or notify in each individual country, depending on product type and risk. Ingredient and composition rules: Must comply with ASEAN positive lists, limits on botanicals, vitamins/minerals and safety standards under TMHS annexes. Manufacturers need to meet ASEAN GMP or respective national GMP for health supplements. 	<ul style="list-style-type: none"> No single regional trial authority: Evidence must be appropriate to claim level (human data where relevant); each state transposes the guidance nationally. Health and functional claims: Claims must align with the ASEAN Claims and Substantiation Guideline (Version 2.0). Evidence must match claim level (e.g., function, nutrient, structure claims). Harmonized GMP/labeling annexes. Medicinal/disease claims prohibited on foods; enforcement nuances vary by state. 	<ul style="list-style-type: none"> Regional playbook – build once to ASEAN annexes, then tailor per country; Singapore often used as a credibility anchor. A fast-growing Southeast-Asian bloc attractive for multi-market launches using harmonized annexes.



A comprehensive comparison with global nutraceutical regulatory systems highlights how India's nutraceutical ecosystem still lacks a structured claims-review panel, standardized assessment criteria and a health and nutrition claims-evaluation framework, creating ambiguity for both industry and regulators. To move

toward global best practices, India needs to lead with nutrient-function claims, maintain robust evidence files and pursue prior approval with India-relevant human data for novel actives and risk-reduction claims.

Figure 10: Infographic showing current claim gaps under FSSAI

India's nutraceutical health claim gaps under FSSAI	
Present in India	What India does not have
✓ Evidence is required	✗ No structured scientific claims-review panel
✓ FSSAI can ask for proof	✗ No standardized assessment criteria
✓ Some claims require prior approval	✗ No approval timeline
✓ Product-led claims require notification	✗ No public claims database
✓ FSSAI can form an expert committee	✗ No mandatory pre-market claims evaluation for all claims
✓ FSSAI can permit or ban claims in India	✗ No explicit therapeutic outcome validation guidelines

India does not have a complete, formalized and scientifically standardized claims-evaluation system as followed under EFSA(EU), FSANZ (Australia/NZ), FOSHU (Japan) or Health Canada

By 2047, India's nutraceutical ambition would require a stronger foundation built on robust scientific validation, tiered and transparent claim systems and clearer regulatory pathways. From a policy standpoint, this must be complemented by improved clinical research capacity, deeper healthcare integration, export-ready standards and equitable access. Yet

regulation and policy alone cannot achieve transformative nutrition outcomes. Realizing NutriBharat@2047 would demand a mission-driven, convergent ecosystem – uniting agriculture, industry, health systems, science and citizens into a coherent framework that drives both public health impact and economic growth.



Key levers to growth pathways

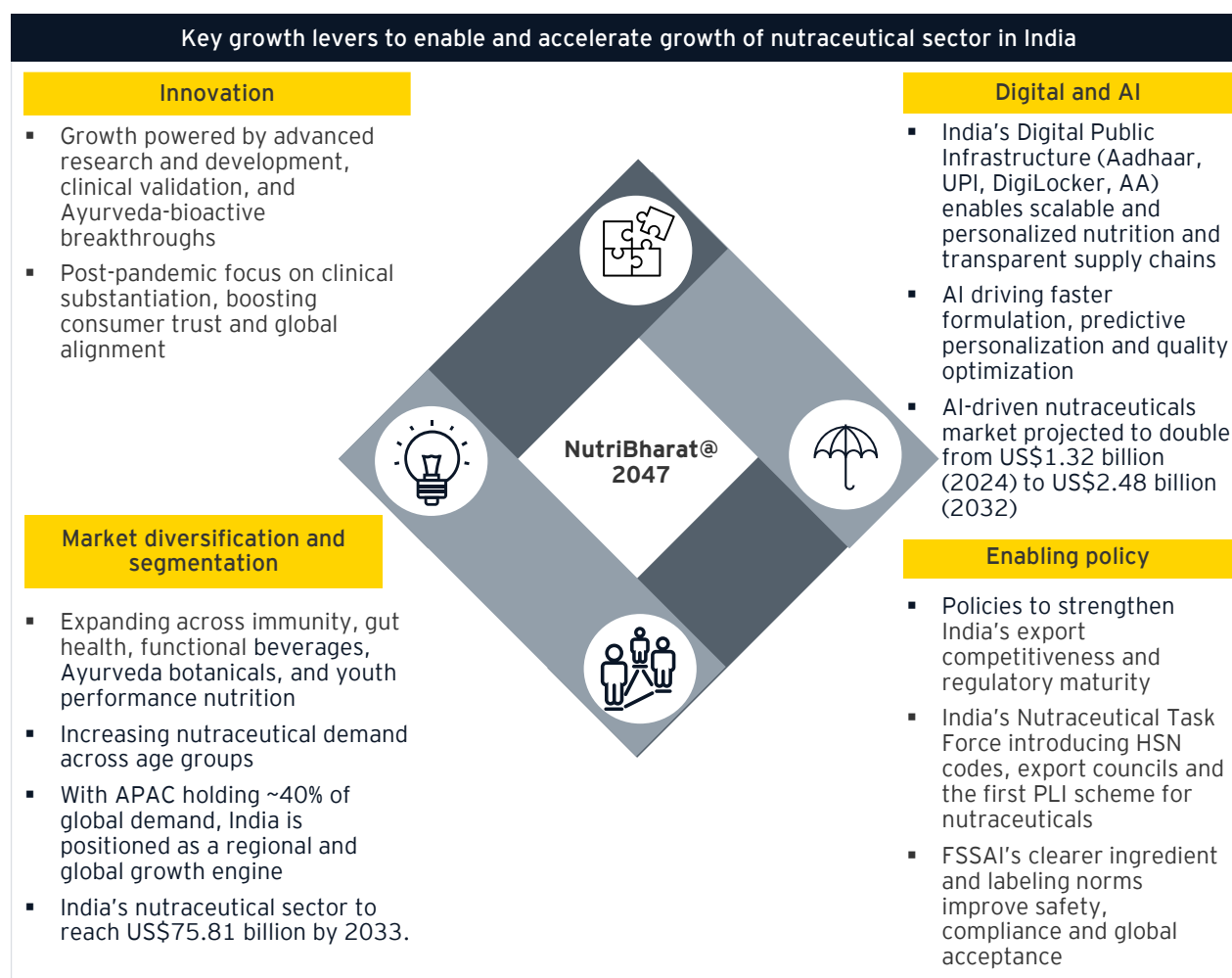
To translate this mission driven vision into an actionable pathway, India needs to anchor its progress by leveraging a unique convergence of scientific innovation, digital public infrastructure, diversified consumer demand and forward leaning policy reform. Together, these four levers form the backbone of India's Viksit Bharat vision, enabling the country to scale its nutraceutical industry to global competitiveness with speed, credibility and inclusive reach.

At the intersection of science, scale and strategy, India is crafting a decisive growth pathway for nutraceuticals and functional foods that can propel the country from domestic nutrition security to global leadership. Building on these four foundational levers, India's trajectory under the NutriBharat@2047 vision is anchored in an integrated innovation to market framework that combines credibility with speed. Innovation serves as the primary engine, powered by advanced R&D, clinical substantiation and the integration of Ayurveda derived bioactives, strengthening consumer trust and global acceptance.

This is amplified by digital and AI capabilities, where India's Digital Public Infrastructure such as Aadhaar, UPI, DigiLocker and emerging health data ecosystems enables personalized nutrition, transparent and traceable supply chains, faster formulation cycles and predictive quality optimization at scale. Simultaneously, market diversification and segmentation are expanding growth across immunity, gut health, functional beverages, botanical based Ayurveda products and performance nutrition, addressing evolving needs across age groups and lifestyles while leveraging India's strong domestic demand and Asia Pacific's dominance in global consumption. Enabling policy reforms further accelerate this pathway by enhancing export competitiveness, introducing harmonized HSN codes, export councils and PLI incentives and strengthening FSSAI norms on ingredients and labeling. Together, these levers create a virtuous cycle of innovation, trust and scale, making India a globally credible nutraceutical hub aligned with Viksit Bharat and the NutriBharat@2047 vision.



Figure 11: Key growth levers to enable and accelerate growth of the nutraceutical sector in India^{62 63 64 65 66 67 68}



⁶² India Brand Equity Foundation (IBEF), "India's nutraceutical industry poised for global growth with supportive initiatives," <https://www.ibef.org/news/india-s-nutraceutical-industry-poised-for-global-growth-with-supportive-initiatives>, accessed on 27 February 2026

⁶³ Markets & Data, "India Nutraceuticals Market," <https://www.marketsanddata.com/industry-reports/india-nutraceuticals-market>, accessed on 27 February 2026

⁶⁴ Express Pharma, "Nutraceuticals 2025: Mapping growth, innovation and consumer-centric trends," <https://www.expresspharma.in/nutraceuticals-2025-mapping-growth-innovation-and-consumer-centric-trends/>, accessed on 27 February 2026

⁶⁵ PR Newswire / Datam Intelligence, "AI in nutraceuticals market hits \$2.48 billion in 2032; set to transform personalized health with 8.19% CAGR, says Datam Intelligence," <https://www.prnewswire.com/news-releases/ai-in-nutraceuticals-market-hits-2-48-billion-in-2032--set-to-transform-personalized-health-with-8-19-cagr--says-datam-intelligence-302546655.html>, accessed on 27 February 2026

⁶⁶ Consumer Affairs Agency, Government of Japan, "Foods for Specified Health Uses (FOSHU)," https://www.caa.go.jp/policies/policy/food_labeling/foods_for_specified_health_uses/, accessed on 27 February 2026

⁶⁷ SMESStreet, "India's booming nutraceutical export market: A golden opportunity for MSMEs," <https://smestreet.in/exports/indias-booming-nutraceutical-export-market-a-golden-opportunity-for-msmes-9477902>, accessed on 27 February 2026

⁶⁸ Press Information Bureau (PIB), Government of India, "Press Release," <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2159018&req=3&lang=2>, accessed on 27 February 2026



Priority areas, recommendations and innovation pathways

The above-mentioned growth levers would enable intervention pathways to realize the NutriBharat@2047 vision through interventions strengthening India's research and regulatory regime, scaling up value chains, developing focused market strategies and integrating policy pathways that together accelerate India's nutraceutical leadership. This lever-driven approach forms the backbone of India's shift from fragmented interventions to an integrated, innovation-led, globally competitive nutrition ecosystem.

From vision to execution, India's nutraceutical and functional food journey now demands a clear set of priority actions that convert ambition into globally competitive outcomes. Building on the identified growth levers, the recommended pathways for NutriBharat@2047 emphasize an integrated approach across research, regulation, value chains, market development and policy convergence. Strengthening research and development is foundational, with focused integration of AYUSH and nutraceutical science, robust clinical validation frameworks, botanical standardization platforms and AI driven

formulation and claim substantiation to enhance scientific credibility and global acceptance. A modernized regulatory regime is equally critical, including a dedicated quality seal for nutraceuticals, institutional mechanisms for clinical trials and claims monitoring, comprehensive nutrivigilance systems and AI enabled checks to enable safety, compliance and consumer trust. Value chain scale up pathways prioritize functional crop clusters, bioactive corridors, processing and bioactive parks, women led micro enterprise networks and AI/ML and blockchain based traceability to strengthen quality, resilience and inclusivity. On the demand side, market strategy interventions focus on AI driven customized nutrition platforms, healthcare and wellness market integration, global functional export models and data driven market intelligence to transition India from an ingredient supplier to a value-added brand leader. Finally, policy integration across millets, nutraceuticals, PDS and national nutrition missions facilitates coherence, scale and sustained impact, positioning India as a trusted global nutraceutical hub under the NutriBharat@2047 vision.



Figure 12: Implementation pathways with recommendations to achieve the NutriBharat@2047 Vision



8.1 Stakeholder priority framework

Alongside the above-mentioned implementation pathways, achieving NutriBharat@2047 would require onboarding all stakeholders – from government and regulators to industry, healthcare, academia, investors, and farmer institutions – to shift from

fragmented roles to a coordinated, mission-mode system that delivers science-backed standards, scalable value chains and a preventive, precision-oriented nutrition economy.

Table 3: Key stakeholders, their current roles and future envisioned role to achieve NutriBharat@2047 aim

Category	Stakeholder	Current role/existing policies	Strategic role in scaling sector and enabling nutrition security (2047 Vision)
Government stakeholders/ ministries	Ministry of AYUSH	Promotes traditional systems; herbal pharmacopoeia; medicinal plant mission	<ul style="list-style-type: none"> Lead botanical standardization. Develop positive and negative list of approved and prohibited nutraceutical botanicals. Integrate evidence-based AYUSH nutraceuticals in public health. Global branding of Ayurvedic bioactives.
	Ministry of Women and Child Development (MoWCD)	ICDS, POSHAN Abhiyaan	<ul style="list-style-type: none"> Integrate fortified and functional foods in ICDS with enhanced maternal supplements. Monitor impact through district nutrition surveillance dashboards. Promote women-led nutraceutical micro-enterprises.
	Ministry of Health and Family Welfare (MoHFW)	NCD programs, Anemia Mukd Bharat	<ul style="list-style-type: none"> Embed nutraceutical protocols in preventive guidelines. Insurance-linked nutrition therapy. Prescribe condition-specific nutraceuticals; national post-market surveillance grid.
	Ministry of Food Processing Industries (MoFPI)	PLI scheme; mega food parks	<ul style="list-style-type: none"> Launch Nutraceutical PLI 2.0. Incentivize bioactive extraction clusters. Promote GMP and HACCP aligned manufacturing hubs. Develop marine bioactive processing parks.
	Ministry of Education (MoE)	Mid-Day Meal (PM POSHAN); curriculum frameworks	<ul style="list-style-type: none"> Functional fortified meals. Introduce nutrigenomics modules. School-based nutrition literacy programs.
	Ministry of Agriculture and Farmers' Welfare (MoA&FW)	Crop diversification; MSP; FPO promotion	<ul style="list-style-type: none"> Develop functional crop corridors (millets, turmeric, moringa, ashwagandha). Integrate FPOs into nutraceutical supply chains. Biofortified seed programs.
	Ministry of Youth Affairs and Sports (MoYAS)	Athlete nutrition	<ul style="list-style-type: none"> National sports nutrition initiative; standardized sports nutraceuticals; PPP with industry for athlete supplementation.
	Ministry of Micro, Small and Medium Enterprises (MSME)	MSME formalization schemes	<ul style="list-style-type: none"> Nutraceutical cluster financing; quality certification subsidy; digital compliance onboarding.
	Ministry of Commerce and Industry (MoCI)	Export promotion; free trade agreements (FTA)	<ul style="list-style-type: none"> Global "NutriBharat" export branding. Codex-aligned certification support. GI-tagged functional exports.
	Ministry of Consumer Affairs Food and Public Distribution (MoCAF&PD)	Consumer protection and grievance redressal, advocacy for informed consumption	<ul style="list-style-type: none"> Inclusion of millets under PDS Integration of nutraceuticals along with the PDS system. National nutrition literacy drives on nutraceuticals and functional foods. Claim transparency and responsible marketing.



Category	Stakeholder	Current role/existing policies	Strategic role in scaling sector and enabling nutrition security (2047 Vision)
Regulatory bodies	Food Safety and Standards Authority of India (FSSAI)	Standards and claims approval	<ul style="list-style-type: none"> Unified regulatory portal; positive/negative ingredient list. AI-enabled claim validation; digital traceability.
	AYUSH regulatory bodies	Herbal licensing	<ul style="list-style-type: none"> Harmonize food-drug boundaries. Export-ready certification frameworks.
Research and policy institutions	Research institutions (ICMR, CSIR, agri universities)	Clinical and bioactive research	<ul style="list-style-type: none"> Large-scale RCTs; nutrigenomics studies. Bioavailability research; translational PPP trials.
	Health institutions (AIIMS)	Clinical validation	<ul style="list-style-type: none"> Integrate nutraceutical therapy into care pathways. Condition-specific clinical protocols to understand impact on humans.
	Academic institutions	Food tech, biotech programs	<ul style="list-style-type: none"> Centres of Excellence in Nutraceutical Innovation. Interdisciplinary PhD programs.
	Think tanks	Policy research	<ul style="list-style-type: none"> Cost-of-illness modeling. Impact measurement frameworks.
	NITI Aayog	Policy advisory; SDG alignment	<ul style="list-style-type: none"> Anchor National Nutraceutical Mission. Economic modeling of preventive savings; scheme convergence; outcome-based subsidy design.
	Producers, manufacturers and market players	Startups	D2C nutraceuticals; biotech innovation
Pharmaceutical physicians	Prescription advisory	<ul style="list-style-type: none"> Evidence-based supplementation protocols. Pharmacovigilance collaboration. 	
Dietitians and clinical nutritionists	Dietary planning	<ul style="list-style-type: none"> Personalized nutrition integration; community outreach. Wearable-linked dietary advisory. 	
Processors and manufacturers	Extraction and formulation	<ul style="list-style-type: none"> Vertical integration; nanoencapsulation. Global GMP certification; product portfolio optimization. 	
Market players (retail/e-commerce)	Distribution	<ul style="list-style-type: none"> Dedicated functional food shelves. Consumer education campaigns; compliance monitoring. 	
FPOs and farmers	Raw material production	<ul style="list-style-type: none"> GAP-certified bioactive cultivation. Value-added primary processing. Contract farming linkages with nutraceutical firms. 	
Exporters	Botanical exports	<ul style="list-style-type: none"> Codex/ISO aligned export pipelines. Traceability-led branding. 	
Venture capital and impact investors	Early-stage funding	<ul style="list-style-type: none"> Nutrition-tech funds. Blended finance for biofortification. 	

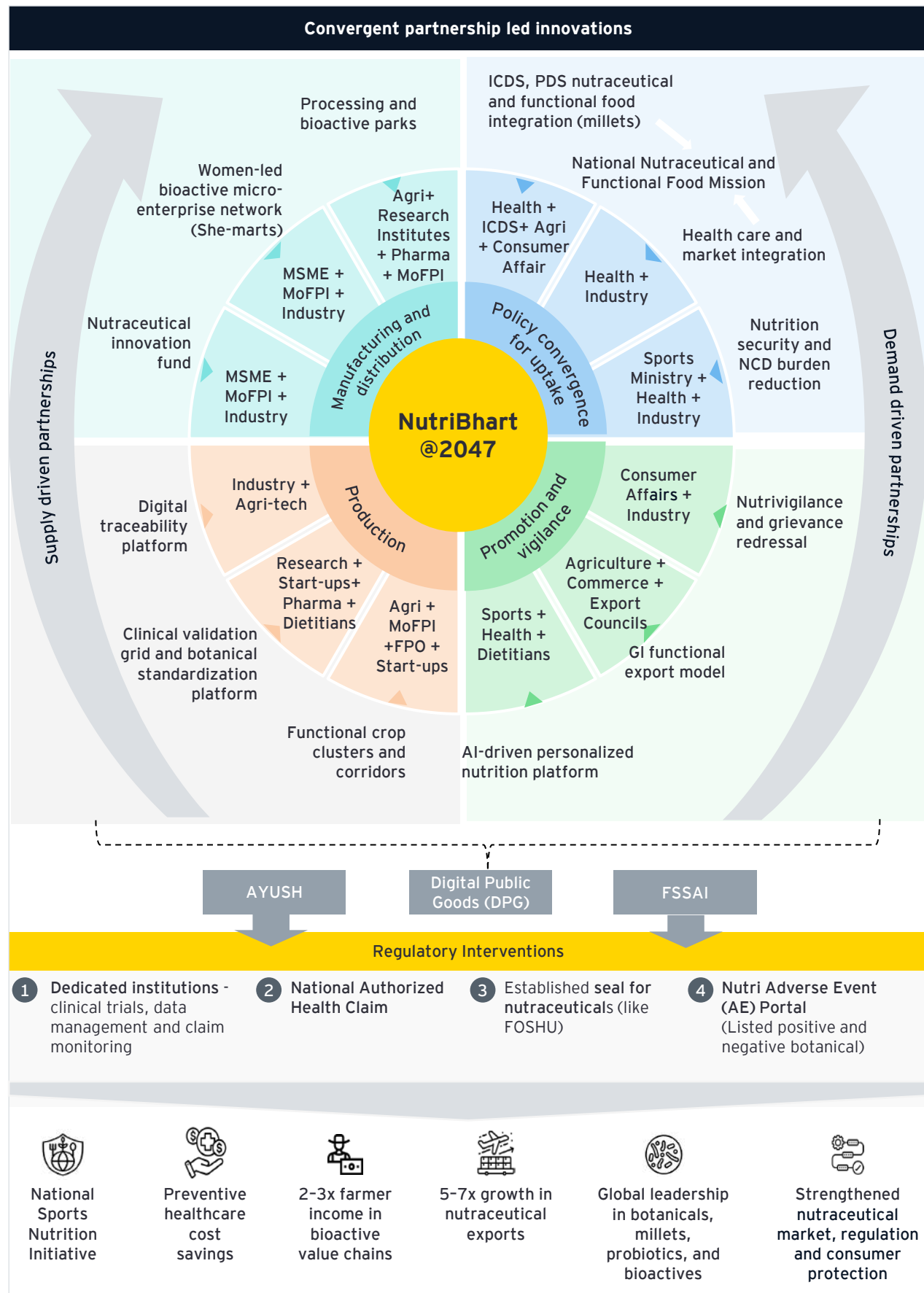
8.2 Innovation through convergent collaborations

To enable smooth, time-bound implementation of the recommendations and fully leverage India's growth levers, India needs to move decisively from a deficiency-mitigation paradigm to an integrated, innovation-led nutrition economy. This systemic shift links agriculture, biotechnology, healthcare, manufacturing, trade and digital public goods and would be steered through convergent collaborations and an enabling policy ecosystem.

- **National Mission as the anchor:** Launch a National Nutraceutical & Functional Foods Mission to align public procurement (ICDS, PM POSHAN, PDS), preventive healthcare protocols, biofortified agriculture and export incentives under a single strategy. A central PMU with state mission cells would coordinate targets, financing and inter-ministerial actions.
- **Regulatory modernization for global trust:** Adopt positive and negative ingredient lists, AI-enabled claim validation, unified digital compliance portals and a dedicated Adverse Events (AE) system. Establish an authorized health-claims regime and a national quality seal (akin to FoSHU) to reduce ambiguity, accelerate approvals and boost international competitiveness. An independent regulatory body for nutraceuticals '**India Food-Health Claims Authority**' would improve claim validation system and reduce regulatory ambiguity.
- **Innovation at scale via convergence:** Fuse biotechnology (biofortification, microbial biosynthesis, indigenous probiotics), advanced delivery systems (nanoencapsulation, liposomes, phytosomes), digital personalization (AI-driven diets, wearable-linked dashboards) and translational research (multi-sector clinical validation grids). Catalyze with mission-mode programs: functional crop corridors, women-led bioactive micro-enterprises, processing and bioactive parks and a National Nutraceutical Innovation Fund.
- **Formalized, traceable value chains:** Build GAP-certified FPO clusters, district-level bioactive processing hubs, digital traceability from farm to shelf and Codex-aligned certifications to unlock premium markets. Establish a GI-anchored functional export model and grievance redressal for consumer trust.
- **Convergent partnership architecture:**
 - **Supply-driven:** MoA&FW/ICAR, FPOs/SHGs, MSMEs, processors, startups, academia and standards bodies to scale bioactive production and botanical standardization.
 - **Demand-driven:** MoHFW/AYUSH, insurers, e-commerce/retail, sports ecosystems and consumer groups to mainstream preventive health and sports nutrition.
 - **Policy and market makers:** NITI Aayog, FSSAI, DPIIT, Commerce/APEDA, relevant industry associations such as FICCI, HADSA and AHNMI to streamline regulation, investment and exports.
 - **Digital public goods:** Interoperable registries for ingredients, claims, AE reporting and supply-chain traceability.



Figure 13: Convergent partnerships forging pathway to achieve NutriBharat@2047 target





Conclusion: Transformational pathway to a nutritionally secured India

India's transition from food security to nutrition security demands a mission-driven, evidence-anchored transformation that integrates agriculture, science, regulation, healthcare, manufacturing, trade and digital public goods into a coherent whole. Nutraceuticals and functional foods have a clear, complementary role in this journey – narrowing micronutrient and protein gaps, supporting preventive health and enabling precision approaches for at-risk populations – provided their use is governed by robust clinical evidence, standardized quality systems, transparent and tiered claims evaluation, and safeguards for affordability and access. The most resilient competitive advantage would be built on formalized, traceable farm-to-fork value chains that convert India's biodiversity and biofortification potential into standardized, high-trust nutrition inputs, supported by GAP-aligned FPOs, district-level processing hubs and Codex-aligned certification for export readiness.

Closing today's bottlenecks requires decisive regulatory modernization: a positive and negative list regime, a structured claims-review mechanism underpinned by AI-enabled validation and a national AE grid, clear timelines and evidence tiers for nutrient-function and risk-reduction claims and a


unifying authority to harmonize food-drug boundaries in collaboration with AYUSH. Parallel investments in India-relevant human studies, bioavailability and nutrigenomics research, and translational PPPs would build the evidence base necessary for clinical integration, responsible marketing and consumer trust. A National Nutraceutical & Functional Foods Mission can align public procurement, regulatory reform, research funding and market development facilitating interventions that remain complementary to staple-based nutrition and public health programs while accelerating innovation and scale.

With convergent action across ministries and regulators, research institutions and academia, clinicians and dietitians, industry and startups, FPOs and exporters, and investors and standards bodies, India can evolve from fragmented interventions to an integrated, innovation-led, globally competitive nutrition ecosystem. This is the transformational pathway that advances Viksit Bharat@2047 and sustains momentum toward NutriBharat@2074 – delivering measurable public health impact, strengthening human capital and productivity and positioning India as a trusted global hub for science-backed, AYUSH-led nutraceuticals and functional food.





List of abbreviations



AE	Adverse Events
AI	Artificial Intelligence
AIIMS	All India Institute of Medical Science
AHNMI	Association of Herbal and Nutraceutical Manufacturers of India
APAC	Asia-Pacific
APEDA	Agricultural and Processed Food Products Export Development Authority
ASEAN	Association of Southeast Asian Nations
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
CAERS	CFSAN Adverse Event Reporting System (US FDA)
CAGR	Compound Annual Growth Rate
CFR	Code of Federal Regulations
CFSAN	Center for Food Safety and Applied Nutrition (US FDA)
CSIR	Council of Scientific & Industrial Research
D2C	Direct-to-Consumer
DPIIT	Department for Promotion of Industry and Internal Trade
DSHEA	Dietary Supplement Health and Education Act (USA)
EC	European Commission
EFSA	European Food Safety Authority
EU	European Union
FFC	Food with Function Claims
FIC	Food Information to Consumers Regulation (EU)
FICCI	Federation of Indian Chambers of Commerce and Industry
FOSHU	Food for Specified Health Uses (Japan)
FPC	Food Processing Cluster (implied, but not explicitly written)
FPO	Farmer Producer Organisation
FSDU	Foods for Special Dietary Uses
FSMP	Foods for Special Medical Purpose
FSS	Food Safety and Standards (India regulatory prefix)
FSSAI	Food Safety and Standards Authority of India
FTA	Free Trade Agreement
GAP	Good Agricultural Practices
GB	Guobiao Standards (China's National Standards)
GI	Glycemic Index
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Point
HADSA	Health Foods and Dietary Supplements Association
HSA	Health Sciences Authority (Singapore)
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Services (Ministry of WCD)
ICMR	Indian Council of Medical Research





IIRR	Indian Institute of Rice Research
ISO	International Organization for Standardization
LMIC	Low- and Middle-Income Countries
MoA&FW	Ministry of Agriculture & Farmers Welfare
MAP	Medicinal and Aromatic Plants
MHLW	Ministry of Health, Labour and Welfare (Japan)
MSME	Micro, Small and Medium Enterprises
MoFPI	Ministry of Food Processing Industries
MoHFW	Ministry of Health & Family Welfare
MSP	Minimum Support Price
MoWCD	Ministry of Women and Child Development
NCD	Non-Communicable Diseases
NDI	New Dietary Ingredient (USA FDA)
NFHS	National Family Health Survey
NFSA	National Food Security Act
NIHN	National Institute of Health and Nutrition (Japan)
NITI	National Institution for Transforming India
NMPA	National Medical Products Administration (China)
NPRA	National Pharmaceutical Regulatory Agency
PAFSC	Pharmaceutical Affairs and Food Sanitation Council (Japan)
PDS	Public Distribution System
PLI	Production-Linked Incentive Scheme
PM POSHAN	Pradhan Mantri Poshan Shakti Nirman
PMGKAY	Pradhan Mantri Garib Kalyan Anna Yojana
PMU	Project Management Unit
PPP	Public-Private Partnership
QC	Quality Control
RCT	Randomized Controlled Trials
RTD	Ready to Drink
SAMR	State Administration for Market Regulation (China)
SDG	Sustainable Development Goal
SEDDS	Self-Emulsifying Drug Delivery Systems
SHGs	Self-Help Groups
SKU	Stock Keeping Unit
TMHS	Traditional Medicines and Health Supplements
US\$	US Dollar
US FDA	United States Food and Drug Administration
WCD	Ministry of Women and Child Development
WHO	World Health Organization

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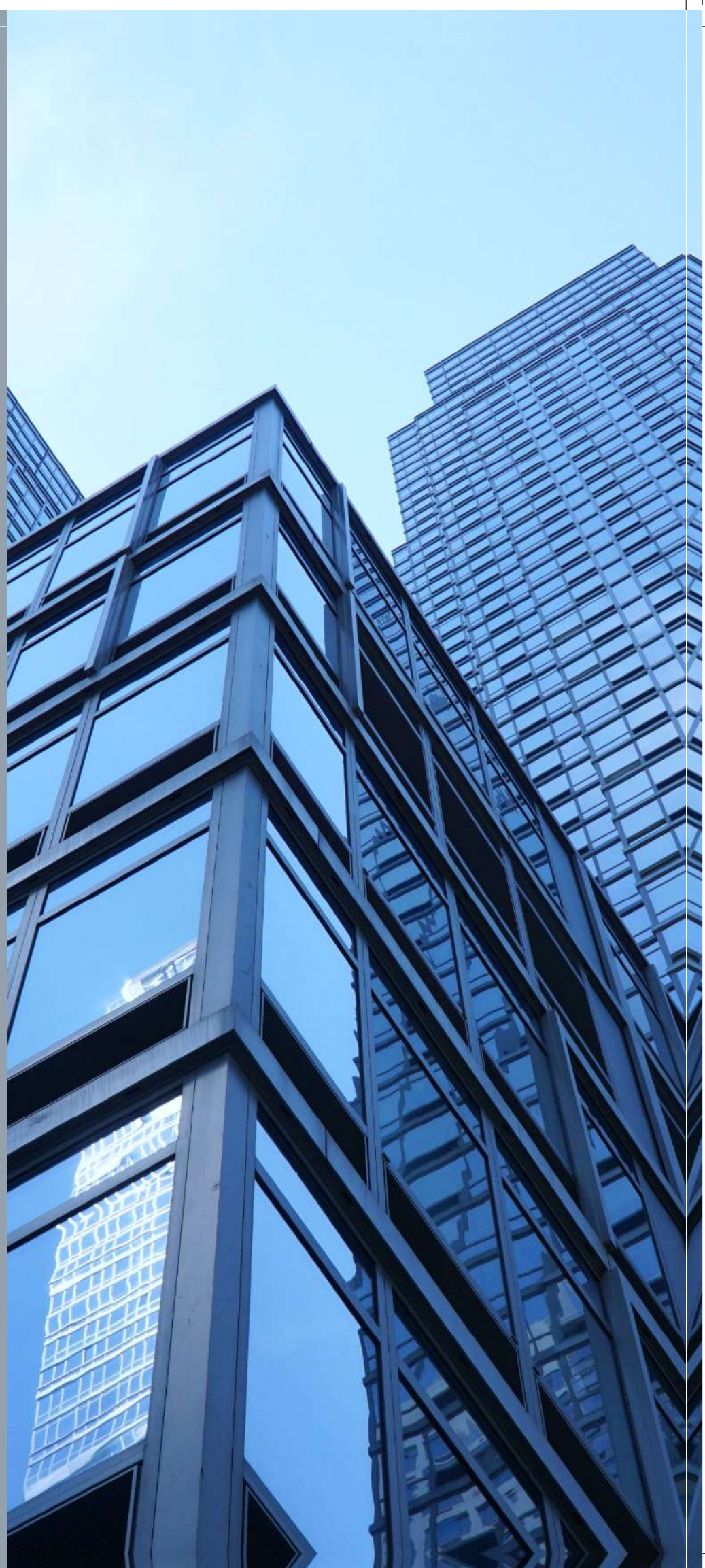
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