BIOTECHNOLOGY

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Executive summary

2. STRONG START-UP ECOSYSTEM

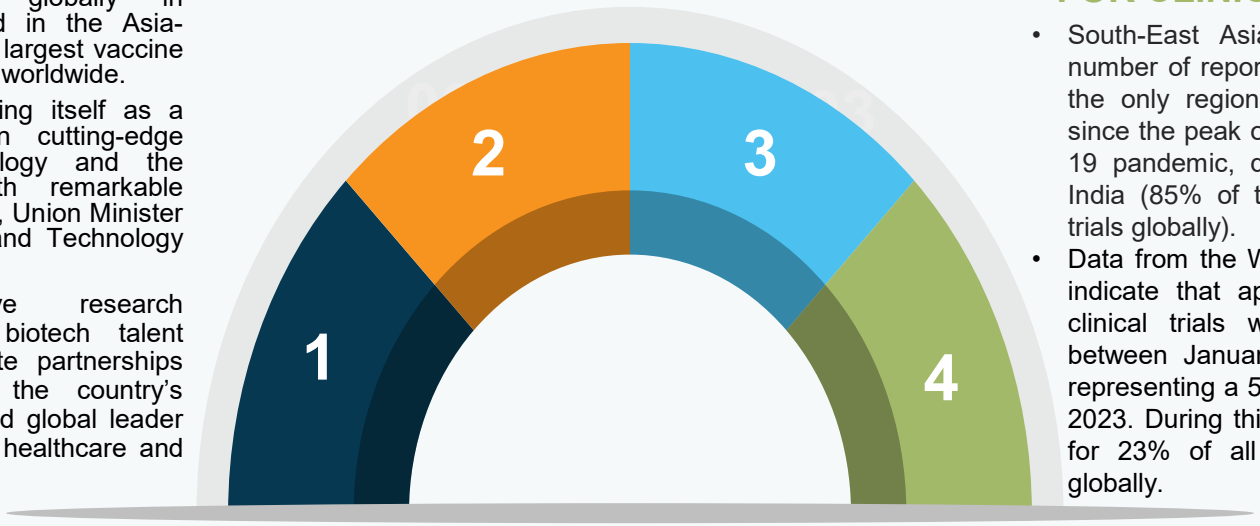
- India has a strong start-up ecosystem, originating from gradual improvements in the ease of doing business, proof-of-concept funds for start-ups, and favourable government policies.
- India's biotechnology start-up ecosystem expanded to 11,855 start-ups in 2025, up from 10,075 in 2024, reflecting sustained innovation across therapeutics, diagnostics and digital life sciences.
- Biofoundries and biotech clusters represent a crucial step in India's journey towards becoming a global leader in biotech innovation. With continued government support and industry collaboration, the sector is poised to break new ground, empowering startups to turn their ideas into impactful ventures.
- Through Bio-NEST, BIRAC has supported 73 bio-incubators creating a cumulative area of 11,02,430 sq. ft. for budding entrepreneurs.

3. STRONG GROWTH IN BIOPHARMACEUTICALS

- India's Bio-economy reached US$ 195.30 billion in 2025, progressing towards a US$ 300 billion target by 2030.
- Bio-industrial (US$ 90.20 billion) and Bio-pharma (US$ 64.50 billion) remain key contributors, reflecting a diversified sector.
- The Indian vaccine market is valued at over USD 2.71 billion in 2025 and projected to reach USD 5.19 billion by 2033, growing at a CAGR of 8.3%, driven by rising demand for preventive and adult vaccines.
- India's cell and gene therapy market is projected to reach US$ 674.5 million by 2030, growing robustly. Bharat Biotech, Syngene, Laurus Labs, and Aragen are entering next-gen medicine manufacturing, including approvals for two indigenous CAR-T therapies, expected to make advanced cancer and genetic treatments more accessible and affordable.

1. GLOBAL POSITION

- India ranks 12th globally in biotechnology and 3rd in the Asia-Pacific region, with the largest vaccine manufacturing capacity worldwide.
- India is fast establishing itself as a global powerhouse in cutting-edge technology, biotechnology and the digital economy, with remarkable progress highlighted by, Union Minister of State for Science and Technology Dr Jitendra Singh.
- India's cost-effective research environment, strong biotech talent pool, and public-private partnerships as key drivers for the country's emergence as a trusted global leader in affordable precision healthcare and biotech innovation.



4. LEADING DESTINATION FOR CLINICAL TRIALS

- South-East Asia is quickly growing in number of reported clinical trials and was the only region not to see a decrease since the peak of trials during the COVID-19 pandemic, driven largely by trials in India (85% of trials and almost 10% of trials globally).
- Data from the World Health Organization indicate that approximately 27,000 new clinical trials were registered in India between January 2024 and June 2025, representing a 50% increase compared to 2023. During this period, India accounted for 23% of all clinical trials registered globally.

Source: *Global Bio-India 2019, Biotechnology Industry Research Assistance Council, FDI India, PIB*

Key Statistics: India's Bio-economy Ecosystem Landscape

Core Biotech Workforce (2025)	Total Biotech Startups (2025)	Total Deals (2025)	Products & Technologies Developed
350k – 400k	11,855	208	900 +

Life Sciences Workforce (2025)	New Startups In 2025	Total Investment (2025)	GDP Contribution
3–3.5 Million	1,780	US$ 4.6 Billion	4.8%

Source: *India Bio-economy Report 2026*

Advantage India



Advantage India

1. Skilled human capital

- With a total population of 1.4 billion, 47% being under the age of 25, India has a large pool of young and skilled workforce.
- The country is globally recognised for its dynamic innovation ecosystem and expanding biotech start-up base (11,855 start-ups in 2025).
- India has 1,39,489 MBBS and 86,360 postgraduate medical seats in government and private medical colleges across the country during the academic year 2025-2026.

2. Infrastructure facilities

- The government, at present, supports nine biotechnology parks in various states, with the bulk being in the southern region and 73 BIRAC-supported bio-incubators as of early 2026.
- Government of Odisha launched a five-year "Development of Biotechnology" umbrella scheme (2025-26 to 2029-30) with an outlay of Rs. 1,113.50 crore (US$ 126 million) to position the state as a biotechnology hub, comprising 17 sub-schemes focused on infrastructure development, research advancement and start-up incubation.
- Department for Promotion of Industry and Internal Trade (DPIIT) signed an MoU with Thermo Fisher Scientific to support over 500 biotech startups in the next three years through advisory, technology access, mentorship, and investor connect.



4. Epidemiological factors

- The country has undertaken large-scale preventive screening, with 41.5 crore individuals screened for hypertension, 41.3 crore for diabetes, 35.3 crore for oral cancer and 16.5 crore for breast cancer, reflecting strong focus on early diagnosis and disease management.
- Rising prevalence of lifestyle-related conditions is accelerating demand for vaccines, biologics, diagnostics and personalised medicine.

3. Policy support

- The Research, Development and Innovation (RDI) Fund, valued at Rs. 1 lakh crore (US$ 11.32 billion), is supporting deep-tech innovation across sectors, including biotechnology.
- The National Biopharma Mission (NBM–i3), led by DBT and implemented by BIRAC with World Bank support, has a Rs. 2,137 crore (US$ 250 million) budget, supports 101 projects with 150+ organisations and 30 MSMEs, set up 11 shared facilities, and created 1,000+ jobs including 304 scientists, alongside the Genome India Programme sequencing 10,000 genomes.
- The Government has approved the Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs) in India, with a total budgetary outlay of Rs. 6,940 crore (US$ 882.95 million) and scheme tenure from FY2022-23 to FY2028–29.

Source: *Department of Biotechnology, FDI India, BIRAC*

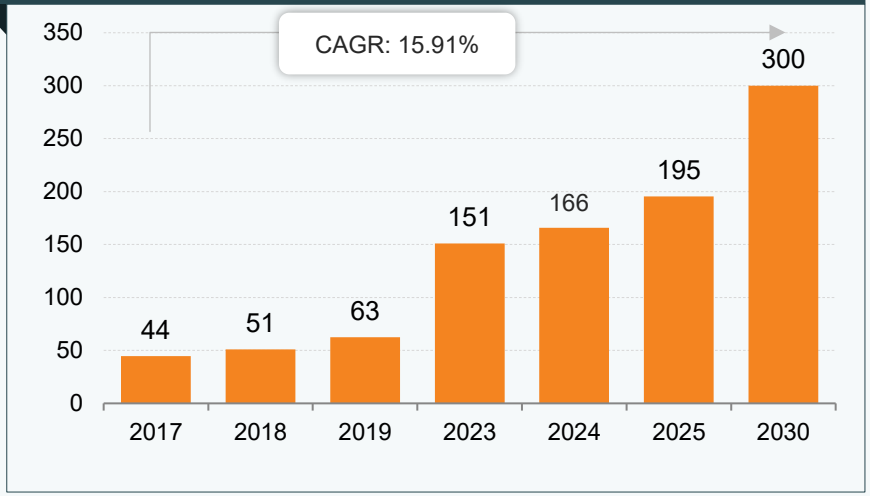
Market Overview



Biotechnology Market

- India's bio-economy sector expanded from US$ 10 billion in 2014 to US$ 195.30 billion by 2025 and is projected to reach US$ 300 billion by 2030.
- India exports biopharmaceutical products to 150+ countries and is a key hub for contract manufacturing and clinical research services.
- The Indian pharmaceutical industry ranks 3rd globally by volume and 11th by value, with more than 3,000 companies and 10,500 manufacturing units. The domestic pharmaceutical market is projected to reach US$ 130 billion by 2030.
- Growth is driven by strong domestic and international demand, supported by government initiatives like Aatmanirbhar Bharat and Make in India.
- Key sub-sectors include Bio-Pharma, Bio-Agri, Bio-Industrial, Bio-Energy, Bio-Services, and Med-Tech, with the sector positioned to provide solutions across health, agriculture, environment, energy, and industry.
- India is the largest vaccine manufacturer globally, supplying around 55% to 60% of global vaccine demand and playing a critical role in global immunisation programmes.
- The Government has approved the Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs) in India (commonly known as "PLI Scheme for Bulk Drugs"), with a total budgetary outlay of Rs. 6,940 crore (US$ 882.95 million) and scheme tenure from FY2022-23 to FY2028–29.
- Government initiatives such as the Biopharma SHAKTI programme (US$ 1.13 billion) and the Research, Development and Innovation (RDI) Fund (US$ 11.32 billion) are accelerating domestic biomanufacturing, innovation and scale-up capabilities.
- The pharmaceutical sector is evolving towards complex biologics, biosimilars, cell and gene therapies and precision medicine, supported by increased investments in R&D and advanced manufacturing platforms.
- India's biotechnology market size was valued at approximately US$ 37.09 billion in 2025 with an expected compound annual growth rate (CAGR) of 13.09% during 2026-34, potentially reaching US$ 112.18 billion by 2034. Growth drivers include rising demand for personalized medicine, chronic disease treatments, and integration of IT with biotech for precision medicine.

Indian bio-economy industry valuation (US$ billion)

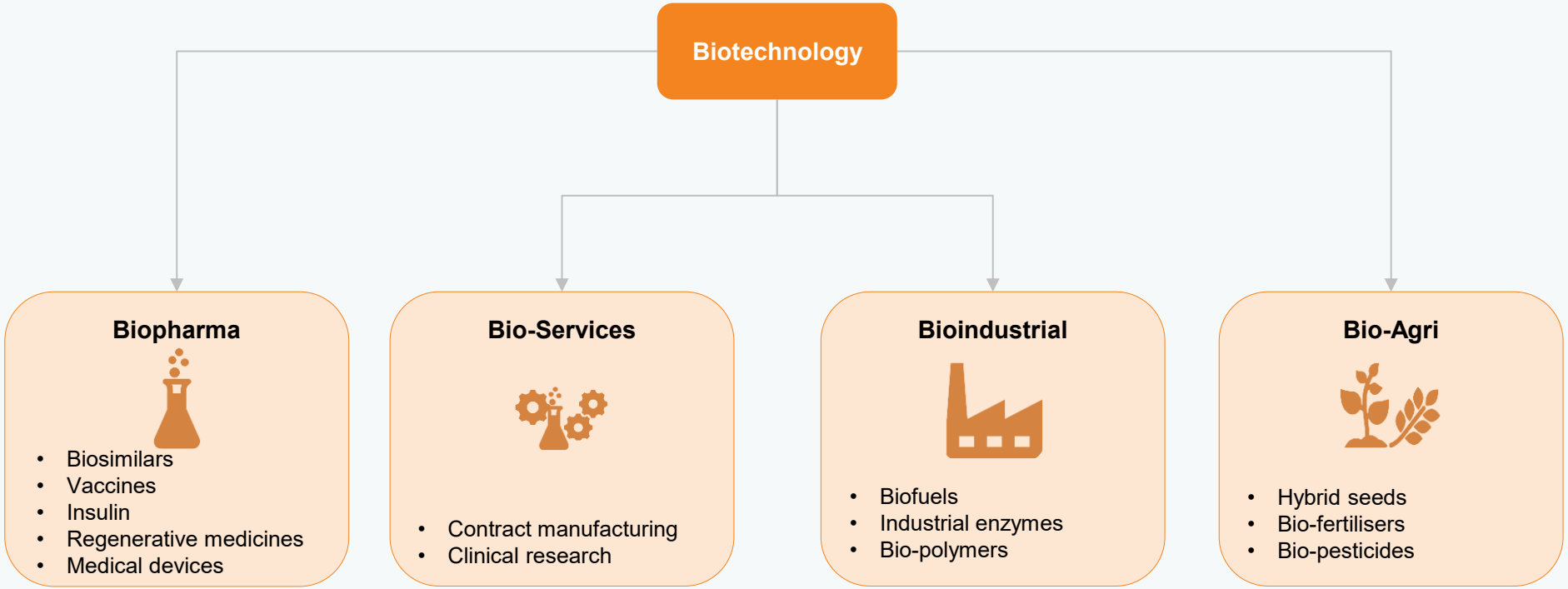


Indian bio-economy at a glance (Industry Valuation and % Share in 2047)

US$ 119.5 billion (46%) Bio-industrial	**US$ 85.7 billion (33%)** Bio-pharma
US$ 20.8 billion (8%) Bio-services	**US$ 33.8 billion (13%)** Bio-agri

Notes: *FDA: Food and Drug Administration, USFDA: United States Food and Drug Administration*
Source: *DPT-BIRAC, Association of Biotechnology Led Enterprises (ABLE), PIB*

Indian biotechnology sector is divided into four segments



Source: *Association of Biotechnology Led Enterprises (ABLE)*

Key players

Biocon	Indian pharmaceutical company based in Bangalore that manufactures generic active pharmaceutical ingredients.
Serum Institute of India	Manufacturer of immuno-biologicals, which include Diphtheria, Tetanus, Pertussis, Hib, BCG, r-Hepatitis B, Measles, Mumps and Rubella vaccines.
Panacea Biotec Limited	Innovation-driven biotechnology company, undertaking research and development, manufacturing, sales, distribution and marketing of pharmaceuticals, vaccines and biosimilars.
Dr Reddy's Laboratories Limited	Integrated pharmaceutical company, providing affordable and innovative medicines.
Wockhardt	Global pharmaceutical and biotechnology organisation, manufacturing pharmaceuticals, biopharmaceutical formulations and active pharmaceutical ingredients.
Jubilant Pharmova Limited	Globally operating pharmaceutical company engaged in radiopharmaceuticals, allergy immunotherapy, sterile injectables CDMO services, contract research, development and manufacturing (CRDMO), generic medicines, and proprietary novel drug development.
AstraZeneca Pharma India Ltd.	Indian biopharmaceutical company based in Bengaluru that manufactures cardiovascular, renal and metabolic diseases, oncology, and respiratory medicines.
Bharat Serums and Vaccines Ltd	Indian pharmaceutical company based in Mumbai that manufactures plasma derivatives, monoclonals, fertility hormones, antitoxins, antifungals, anaesthetics, cardiovascular drugs and diagnostic products.
Indian Immunologicals Ltd	Indian biopharmaceutical company based in Hyderabad that manufactures animal and human vaccine including rabies, Hepatitis B, Diphtheria and Influenza vaccines.
Bharat Biotech	Indian biotechnology company based in Hyderabad that engages in drug discovery, drug development as well as manufactures vaccines, bio-therapeutics, pharmaceuticals and health care products.

Note: *News Articles*

Recent Trends and Strategies



Key Product Launches in India (2025)

Mounjaro (tirzepatide)	Wegovy (semaglutide)	Shigella Vaccine Candidate (GMMA platform)	GMP Biologics Manufacturing Platform	DharAmrut BioStimulant	CANTEL MicroRNA Breast Cancer Test
Segment: Bio-pharmaceutical **Company**: Eli Lilly **Month/Year**: March 2025 **Product Name**: Mounjaro (tirzepatide) **Description**: Once-weekly GLP-1/GIP receptor agonist introduced in India for treatment of type-2 diabetes and obesity, improving glycaemic control and supporting weight reduction.	**Segment**: Bio-pharmaceutical **Company**: Novo Nordisk **Month/Year**: June 2025 **Product Name**: Wegovy (semaglutide) **Description**: GLP-1 receptor agonist therapy introduced for obesity management, helping regulate appetite and blood glucose levels.	**Segment**: Vaccines **Company**: Bharat Biotech **Month/Year**: June 2025 **Product Name**: Shigella Vaccine Candidate (GMMA platform) **Description**: Vaccine candidate licensed for further clinical development targeting shigellosis, a major cause of diarrhoeal disease in children.	**Segment**: Biomanufacturing Platforms **Company**: Aragen Life Sciences **Month/Year**: July 2025 **Product Name**: GMP Biologics Manufacturing **Description**: Contract development and manufacturing platform supporting monoclonal antibody development and biologics production using single-use bioreactor technology.	**Segment**: BioAgri – Biostimulants **Company**: IFFCO **Month/Year**: October 2025 **Product Name**: DharAmrut BioStimulant **Description**: Bio-stimulant formulation containing amino acids and micronutrients designed to enhance plant metabolism and crop productivity.	**Segment**: Diagnostics **Company**: PrecisionRNA **Month/Year**: October 2025 **Product Name**: CANTEL MicroRNA Breast Cancer Test **Description**: Non-invasive blood test detecting circulating microRNA biomarkers linked to breast cancer for early screening applications.

Source: *Company Website, News Articles*

Recent Developments

2025-26

- In March 2026, the Government of India expanded support for Biotechnology Ignition Grant (BIG) scheme, providing funding of up to Rs. 50 lakh (US$ 0.06 million) per start-up. The initiative aims to promote early-stage biotech innovation and accelerate proof-of-concept development.
- In February 2026, the Union Budget introduced the Biopharma SHAKTI initiative with an outlay of US$ 1.13 billion (Rs. 10,000 crore). The programme aims to strengthen domestic biologics and biosimilars manufacturing and enhance India's global competitiveness.
- In January 2026, Union Home Minister Mr. Amit Shah laid the foundation stone for the state-of-the-art Bio-Containment Facility, a Bio Safety Level-4 (BSL-4) laboratory. The facility, to be constructed in Gandhinagar at a cost of Rs. 362 crore (US$ 40.96 million), will be the first BSL-4 laboratory operated by a state government in India.
- In January 2026, the Government of India operationalised the Research, Development and Innovation (RDI) Fund valued at US$ 11.32 billion (Rs. 1 lakh crore). The fund supports deep-tech innovation, including biotechnology, with a focus on scaling technologies from lab to commercial production.
- In 2026, India expanded the National Biofoundry Network under the BioE3 policy framework. This initiative supports advanced biomanufacturing and accelerates translation of research into industrial-scale production.
- In January 2026, the Government of Telangana unveiled a Life Sciences Policy targeting US$ 25 billion (Rs. 2,32,000 crore) in investments. The initiative aims to expand biotech manufacturing, strengthen R&D infrastructure and attract global partnerships.
- In January 2026, The Gates Foundation awarded a US$ 4.90 million five-year grant to researchers at the University of California, Berkeley and the ICAR-Indian Agricultural Research Institute (ICAR-IARI) to advance self-cloning crop technology (synthetic apomixis) for key Indian staple crops such as pearl millet and Indian mustard.
- In December 2025, the Indian Council of Agricultural Research (ICAR) and Argentina's National Institute of Agricultural Technology (INTA) signed a Work Plan (2025–27) to strengthen bilateral cooperation in agricultural biotechnology and research. The collaboration focuses on areas such as crop and animal biotechnology, germplasm exchange, digital agriculture and sustainable agronomy, aimed at enhancing innovation, capacity building and technology transfer between the two countries.
- In October 2025, the Union Cabinet approved Phase III of the Biomedical Research Career Programme (BRCP) with an outlay of Rs. 1,500 crore (US$ 169.74 million). The programme is focused on strengthening India's biomedical research talent and innovation pipeline.
- In October 2025, PrecisionRNA Biotech launched CANTEL, a microRNA-based blood test for breast cancer screening. The innovation represents a significant advancement in gene-based diagnostics and early disease detection
- In August 2025, the Indian Sugar and Bio-energy Manufacturers Association (ISMA) launched a National AI-ML Network Programme in collaboration with the Agriculture Development Trust (ADT), Baramati, and agri-tech firm Map My Crop. The initiative leverages artificial intelligence and machine learning to enhance sugarcane productivity, improve crop quality and sustainability.

Note: *CSIR-CMERI - Council of Scientific & Industrial Research-Central Mechanical Engineering Research Institute*
Source: *News Articles, ABLE India*

Recent Developments

2024-25

- In June 2025,, the Government of Odisha launched a biotechnology development scheme with an outlay of Rs. 1,113.50 crore (US$ 126 million). The scheme includes multiple sub-programmes aimed at infrastructure development, research and start-up incubation during FY 2025–26 to 2029–30.
- The Union Budget 2025-26 strengthens India's biotechnology sector with increased funding for the Department of Biotechnology (DBT) to support R&D, biomanufacturing, and startups. It allocates Rs. 20,000 crore (US$ 2.30 billion) for private research, launches the National Manufacturing Mission, and promotes AI-driven biotech, precision farming, biofuels, and genetic research, driving innovation and sustainability.
- India allows 100% FDI under the automatic route (a non-resident or Indian company will not require any approval from the government) for greenfield pharmaceuticals and manufacturing medical devices.
- In April 2025, the Department of Biotechnology (DBT) and BIRAC issued multiple joint calls under the BioE3 policy for areas such as cell and gene therapy, enzymes and climate-resilient agriculture. These initiatives aim to strengthen high-performance biomanufacturing and accelerate innovation across biopharma and bio-agri segments.
- In February 2025, Amgen announced the establishment of an innovation centre in India with an investment of US$ 200 million, strengthening foreign direct investment and advancing R&D capabilities in the biotechnology sector.
- In February 2025, DBT-BIRAC initiated funding programmes for smart proteins and carbon capture technologies under the BioE3 framework. These programmes aim to promote sustainable industrial biotechnology and alternative protein development.
- In September 2024, the Government of India launched the Bio-RIDE scheme, integrating multiple biotechnology programmes with a focus on research, innovation and entrepreneurship. The scheme aims to streamline funding and enhance efficiency in biotechnology development.
- In September 2024, India expanded its biotechnology infrastructure with 12 DBT-supported biotech parks and over 95 BIRAC-supported incubators. These facilities play a critical role in enabling research translation and start-up growth.
- In August 2024, the Government of India approved the BioE3 Policy (Biotechnology for Economy, Environment and Employment) to promote high-performance biomanufacturing. The policy aims to enable bio-based solutions for sustainable agriculture, including biofertilisers and other bio-agri inputs, while strengthening India's bioeconomy and environmental sustainability.
- In July 2024, the Government of India launched the AgriSURE Fund, a Rs. 750 crore (approximately US$ 90 million) Category-II Alternative Investment Fund (AIF), to support high-impact agri-start-ups and rural enterprises. Jointly backed by the Ministry of Agriculture and Farmers Welfare and NABARD, the fund provides equity and debt financing for agritech, mechanisation and Farmer Producer Organisation (FPO)-linked ventures.

Note: *CSIR-CMERI - Council of Scientific & Industrial Research-Central Mechanical Engineering Research Institute*
Source: *News Articles, ABLE India*

Recent Developments

2023-24

- In the FY24, India's pharmaceutical exports increased by 9.67% to reach Rs. 2,42,395 crore (US$ 27.9 billion). The United States continues to be the largest market, accounting for more than 31% of the exports, with the UK and the Netherlands following.
- In March 2024,Union Minister of Science & Technology, Dr. Jitendra Singh, inaugurated the pioneering "National Speed Breeding Crop Facility" at the National Agri-Food Biotechnology Institute (NABI) in Mohali.
- In January 2024, Union Minister of State (Independent Charge) Science & Technology, Dr Jitendra Singh inauguration of Biotech Startups Expo on “Emerging Startup Trends in North India at Biotech Park, Kathua.
- In December 2023, the Gujarat Chief Minister also inaugurated the ‘Start-Up Product Launch’ which included innovative products developed by startups such as Bioscan, SynerSense, Iota, and STRUmed Solutions during the 10th Vibrant Gujarat Global Summit. The Pre-Summit also witnessed the signing of a Memorandum of Understanding (MoU) between Indus Setu Global Foundation and Gujarat State Biotechnology Mission.
- In November 2023, Bharat Biotech signs MoU with University of Sydney Infectious Diseases Institute (Sydney ID) to collaborate on vaccine research initiatives and strengthen academic-industry partnerships.
- In October 2023, the Uttarakhand government signed several MoUs worth Rs. 5,450 crore (US$ 653.97 million) with industrial bodies in Dubai.
- In August 2023, CSIR- National Institute of Science Communication and Policy Research (NIScPR) published a special issue of the Indian Journal of Biochemistry and Biophysics (IJBB) on Biological Electron Microscopy and Nanobiotechnology.
- In August 2023, the Department of Biotechnology (DBT) and the United States-National Science Foundation (US-NSF) announced to build bilateral collaborations between India and the USA through this Implementation Arrangement.
- In August 2023, the Technology Development Board (TDB) and the Department of Science & Technology (DST) partnered with Chemlife Innovations for the Innovative Bio-Trace Minerals Project to enhance livestock productivity, optimize feed and fodder resources and infuse technology into livestock management.
- In July 2023, National Biopharma Mission is supporting 101 projects including more than 150 organizations and 30 MSMEs. It has increased employment opportunities and engaged 1,065 manpower including 304 scientists/ researchers.
- In July 2023, Aurigene Pharmaceutical Services to set up US$ 40 million facility in Hyderabad.
- In April 2023, under the Biotech-KISAN scheme, 160,000 farmers received benefits during the last one-year (January-December 2022).

Note: *CSIR-CMERI - Council of Scientific & Industrial Research-Central Mechanical Engineering Research Institute*
Source: *News Articles, ABLE India*

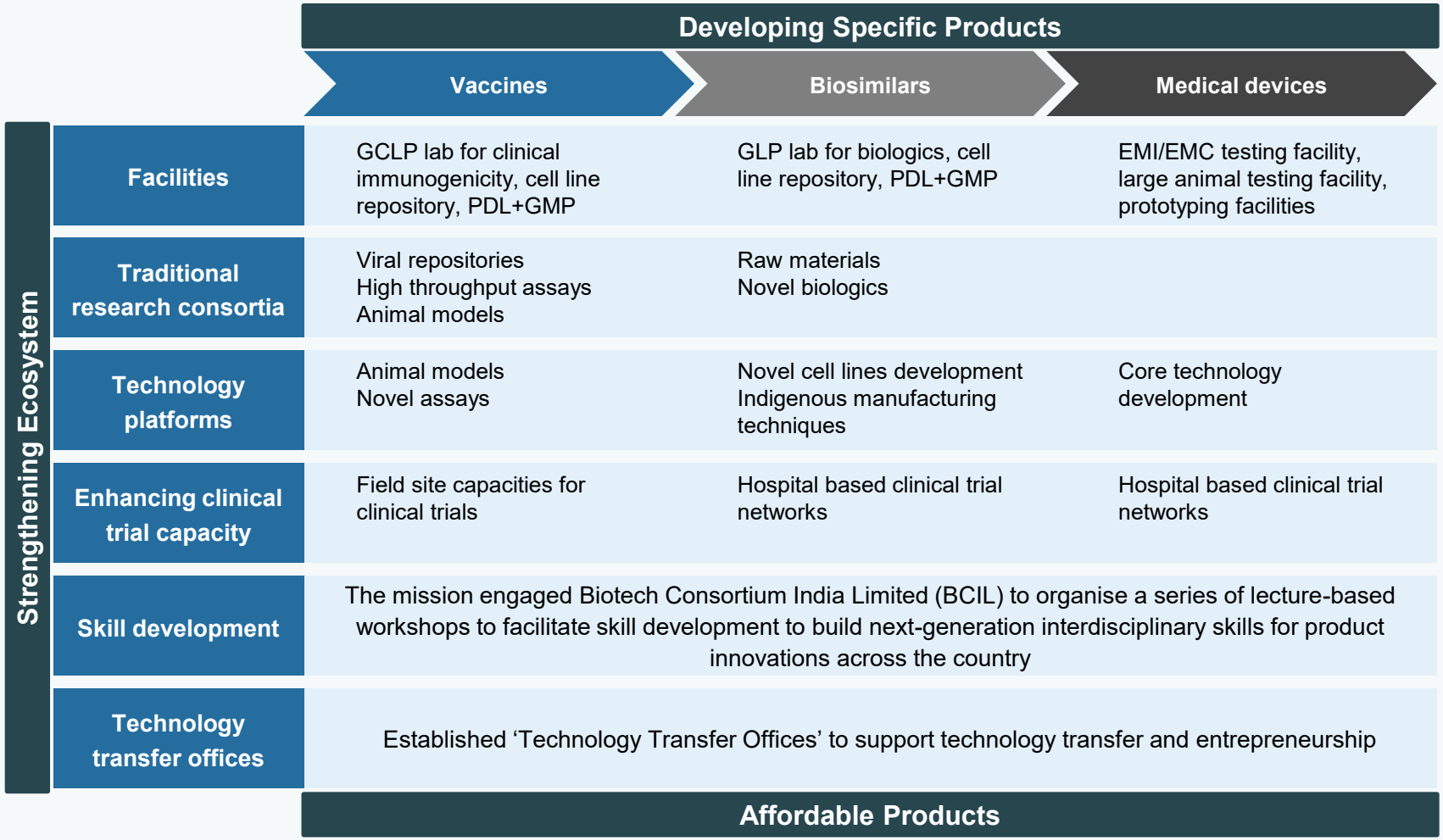
Recent Developments

2022-23

- In December 2022, Union Health Minister Dr. Mansukh Mandaviya and the Minister of State, Ministry of Science and Technology, Earth Science, Personnel, Public Grievances, Pensions, Space and Atomic Energy Minister, Dr. Jitendra Singh launched the world's first COVID-19 intranasal vaccine, iNCOVACC, which has been developed by Bharat Biotech.
- In December 2022, Bengaluru-headquartered Centre for Cellular and Molecular Platforms (C-CAMP), an initiative supported by the Department of Biotechnology, announced a next-generation Indo-Dutch bilateral collaboration to address challenges posed by Antimicrobial Resistance (AMR).
- In December 2022, the Department of Biotechnology has financed 51 Biotech-Kisan centres, of which 44 are operational. These centres are spread across 15 agro-climatic regions of the nation and operate in 169 districts.
- In November 2022, Yara India, which is part of the Oslo-based, Norwegian multinational Yara International, has tied up with a Bengaluru-based start-up and ABLE Member Sea6 Energy, to market and distribute its bio-stimulant AG Boost in India.
- On November 14th, 2022, India and Finland agreed to advance bilateral collaboration and expand cooperation in sectors like digital education, future mobile technologies, biotechnology, and the digital partnership in ICT.
- In FY22, India's pharmaceutical exports touched Rs. 1,80,000 crore (US$ 23.04 billion). Formulations and biologicals account for 73.31% of the country's total exports, followed by bulk drugs and drug intermediates.
- In February 2022, Genova Biopharmaceuticals, who were conducting phase 2 and 3 trials of India's first indigenous mRNA vaccine on humans, finished those trials. The data is currently being reviewed by the Drug Controller General of India (DCGI).
- In February 2022, American biotech company Vaxart announced plans to start phase II clinical trials of its oral tablet-based Covid-19 vaccine in India soon.
- In February 2022, India administered the world's first DNA vaccine – ZYCOV-D in Patna, which was developed by Ahmedabad-based vaccine manufacturer Zydus Cadila.
- In February 2022, the Malaysian Drug Control Authority (DCA) approved Bharat Biotech's Covaxin to be used in Malaysia.
- In February 2022, DCGA of India granted restricted emergency use authorisation to Biological E's Covid-19 vaccine Corbevax for kids in the 12-18 years age bracket.
- In February 2022, Union Minister Dr. Jitendra Singh inaugurates the Northeast's first International Biotech Conclave.
- In February 2022, the Indian government has accepted to announce a new initiative to encourage pharmaceutical research and development (R&D) in the Union Budget for 2023-24.

Note: *CSIR-CMERI - Council of Scientific & Industrial Research-Central Mechanical Engineering Research Institute*
Source: *News Articles, ABLE India*

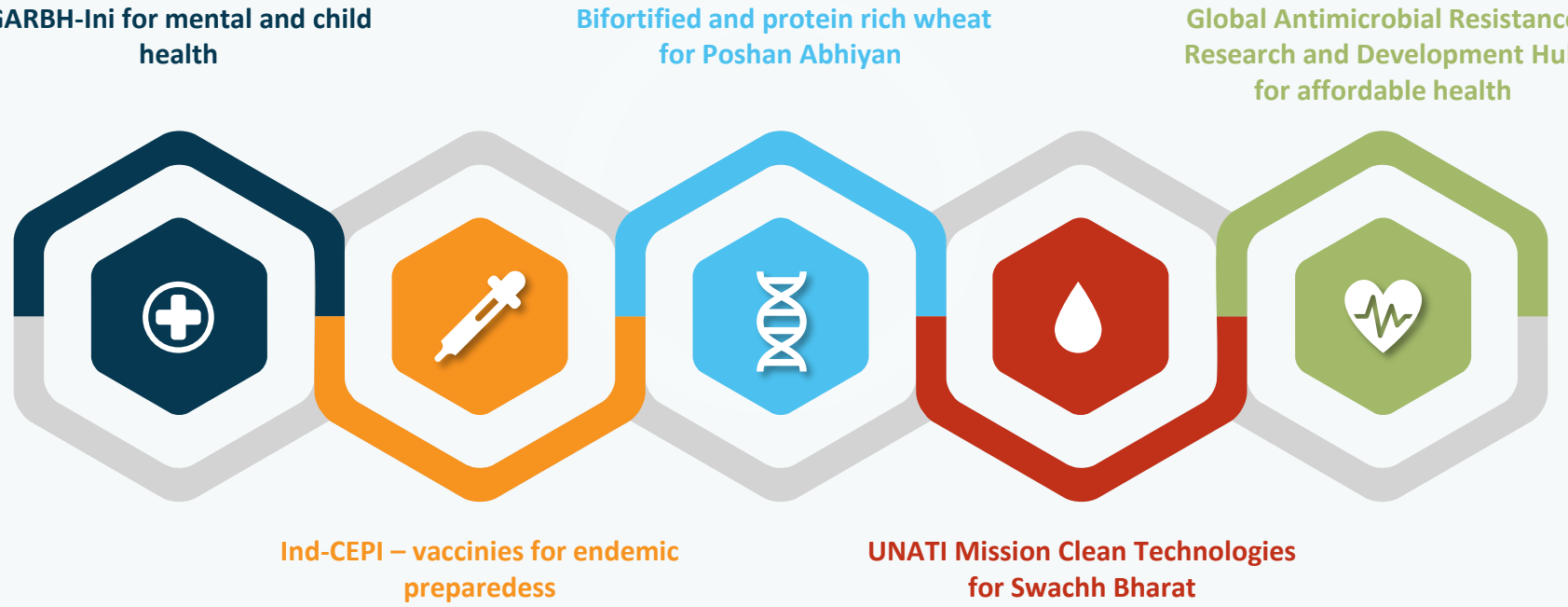
National Biopharma Mission



Notes: *GCLP: Good clinical laboratory practice, GLP: Good laboratory practice, EMI: Electromagnetic interference, EMC: electromagnetic compatibility, PDL: preferred drug list, GMP: Good manufacturing practices*
Source: *Department of Biotechnology*

Atal Jai Anusandhan Biotech Mission

- Atal Jai Anusandhan Biotech Mission is implemented by Department of Biotechnology (DBT), Ministry of Science and Technology.
- The purpose of this mission is to address the challenges of maternal and child health, antimicrobial resistance, vaccines for infectious disease, food and nutrition, and clean technologies.



Atal Jai Anusandhan Biotech Mission

Source: *Department of Biotechnology*

State-specific policies

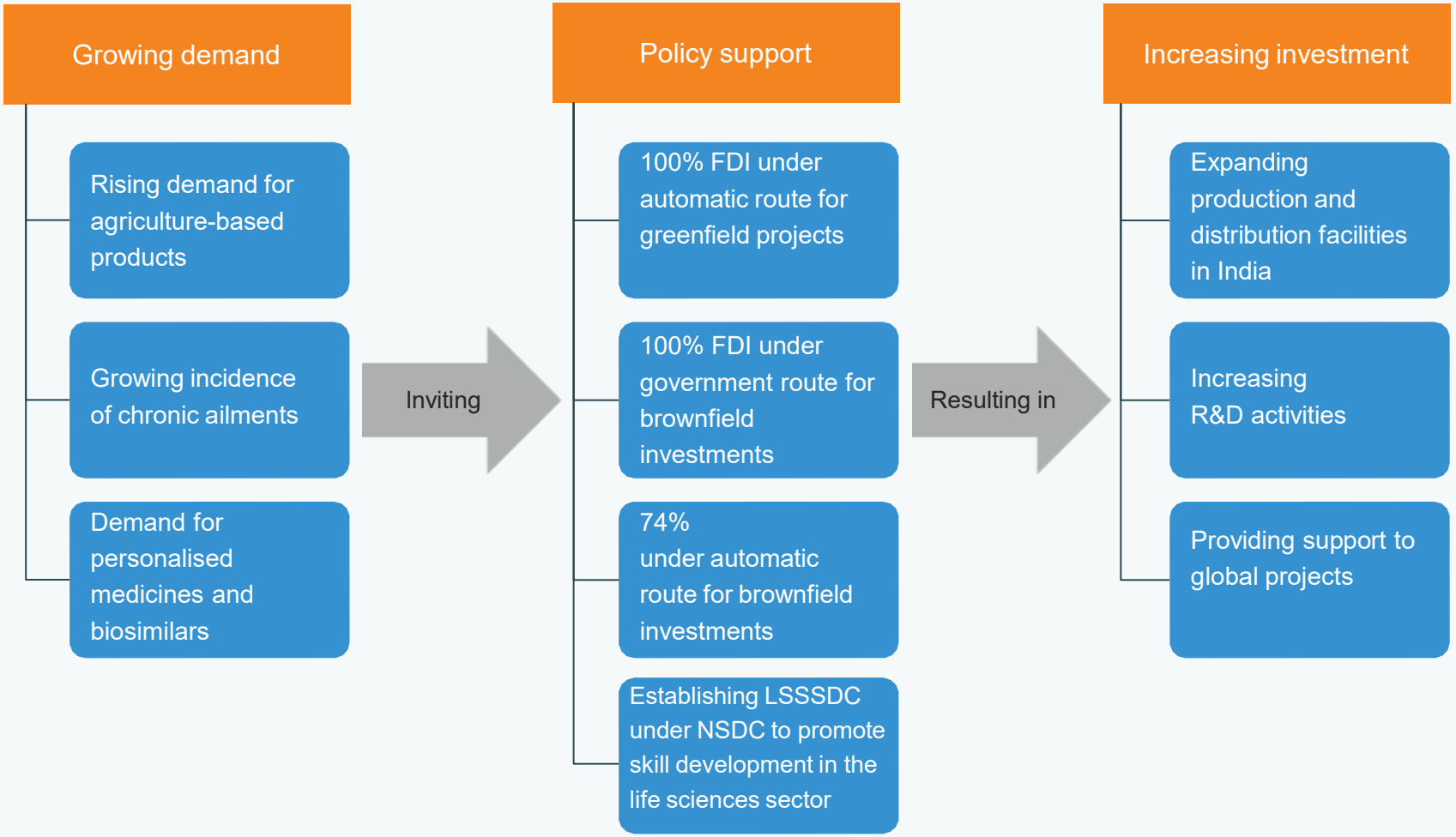
South	
Telangana Telangana Life Sciences: Vision 2030	Targets investments of US$ 25 billion (Rs. 2,32,000 crore) to position the state as a global hub for biologics, vaccines and advanced therapies, with strong focus on R&D and biomanufacturing infrastructure.
Andhra Pradesh Biotechnology Policy 2015-2020	Enhance Andhra Pradesh's competitiveness as a top biotech investment destination, creating 5,000 skilled jobs by 2020 and 10,000 by 2025.
Karnataka Biotechnology Policy 2024-2029	Building on a strong foundation, this policy aims to transform Karnataka biotech sector through impactful implementation, synergizing with existing state policies for exponential growth.
North	
Uttarakhand Biotechnology Policy 2018-2023	Aims to attract new investments worth Rs. 5,000 crore (~US$ 715 million) in the sector; generate employment opportunities for 5000 people by 2023.
West	
Gujarat Biotechnology Policy 2022-27	To make Gujarat a preferred and globally competitive destination for development of biotechnology products and services.
East	
Assam Biotechnology Policy 2018-2022	Development of the biotechnology industry in Assam, following the growth of bio-agri segment in the state.
Odisha Biotechnology Policy 2024	To transform Odisha into a globally recognized biotechnology hub and progressive bio-economy by leveraging its natural bioresources, human resources, and knowledge capital.

Source: *State Government Website*

Growth Drivers



Strong demand and policy support driving investments



Notes: *LSSSDC: Life Sciences Sector Skill Development Council, NSDC: National Skill Development Corporation, R&D - Research and Development*

Source: *Department of Biotechnology, Association of Biotechnology Led Enterprises (ABLE)*

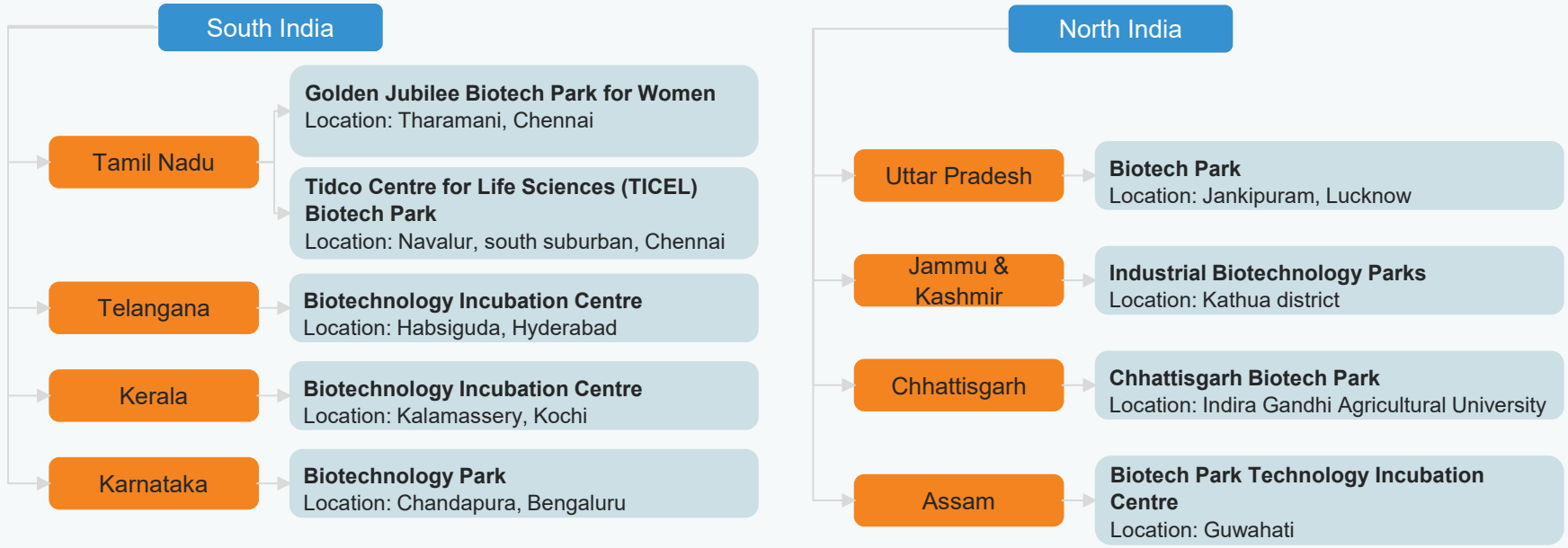
Ecosystem for start-ups

- The number of biotech startups has skyrocketed from just 50 in 2014 to nearly 11,855 in 2025, making India a global hub for biotech innovation. In bio-manufacturing, India now ranks third in the Asia-Pacific region and 12th globally, with its influence expanding rapidly.
- The start-up ecosystem in India is strongly supported on the back of gradual improvements in the ease of doing business, proof-of-concept funds for start-ups and favorable government policies.
- BIRAC, a public sector undertaking of DBT, partnered with innovative foundations and universities to focus on 'Make in India' and 'Start-up India' programmes.
- BIRAC established several industry-focused schemes such as SBIRI, BIPP Biotechnology Ignition Grant, BioNEST, SITARE, PACE, SIIP, SEED, LEAP and Fund of Funds-AcE. BIRAC has supported 73 bio-incubators for potential entrepreneurs.
- Department for Promotion of Industry and Internal Trade (DPIIT) signed an MoU with Thermo Fisher Scientific to support over 500 biotech startups in the next three years through advisory, technology access, mentorship, and investor connect.
- The Department of Biotechnology (DBT) of the Ministry of Science and Technology in India, and UNESCO-TWAS established a fellowship programme for foreign scholars from developing countries who wish to pursue research towards a PhD/post-doctoral research in biotechnology.

BIRAC (Bio-Incubator) (2025)	
Incubators supported	73
Amount Committed for BioNest	Rs. 433.37 crore (US$ 45.68 million)
Incubation area supported	11,02,430 sq. ft.
Incubatees supported	3,151
Total products/technologies commercialized	800+
Total employment generated	3,500
Total IPs filed	1,300+

Source: *BIRAC, DBT, News Articles*

Biotech parks



- Biotechnology parks and incubators are established across the country by the Department of Biotechnology (DBT), under the Ministry of Science and Technology, to translate research into products and services by providing necessary infrastructure support.
- The Department of Biotechnology (DBT) has supported 11 Biotechnology Parks in various States.
- These biotechnology parks offer facilities to scientists, and small and medium sized enterprises (SMEs) for technology incubation, technology demonstration and pilot plant studies to accelerate commercial development of biotechnology.
- The government, at present, supports nine biotechnology parks in various states, with the bulk being in the southern region.
- Kathua is projected to become a frontline leader in North India's biotech-driven economic growth, supported by startups and new incubation facilities at the biotech park, with government backing.

Source: *Association of Biotechnology Led Enterprises (ABLE), News Articles*

"These parks are successfully accelerating the commercialisation of new technologies, nurturing and maintaining emerging ventures and assisting new enterprises to forge appropriate linkages with other stakeholders of biotechnology sector including academia and the government."

- Secretary, DBT

Opportunities



Opportunities in various segments

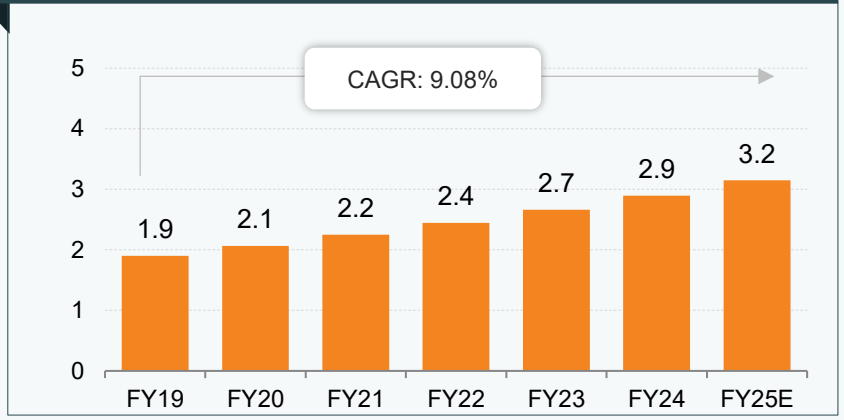
Bio-Services	Bioindustrials	Biopharma	Bio-Agri	Bio-IT
				
• The PRIP scheme is launched with an outlay of Rs. 5,000 crore (US$ 565.80 million) for transforming India's Pharma MedTech sector. • Bio-Services sector is projected to reach US$ 208 billion in 2047. • Expansion of Ayushman Bharat Digital Mission and data platforms is enabling growth in clinical trials, bioinformatics and research outsourcing services.	• Biofuels and bioenergy are considered alternative resources and are gaining popularity in India. • National Bioenergy Programme (Phase II) supports development of biofuels, biogas and sustainable energy alternatives. • BioE3 Policy (2024) promotes high-performance biomanufacturing for biofuels, enzymes and bio-based chemicals.	• Biopharma SHAKTI Scheme Rs. 10,000 crore (US$ 1.13 billion) aims to boost biologics and biosimilars manufacturing in India. • Research, Development and Innovation (RDI) Fund of Rs. 1 lakh crore (US$ 11.32 billion) supports deep-tech innovation including biotechnology. • PLI Scheme for Pharmaceuticals encourages domestic production of high-value drugs, biologics and APIs, reducing import dependency.	• BioE3 Policy (2024) supports development of biofertilisers, bio-inputs and climate-resilient crops. • AgriSURE Fund of Rs. 750 crore (US$ 86.74 million) provides funding to agritech and agri-biotech start-ups. • Biotech-KISAN Scheme promotes technology transfer to farmers and supports sustainable agriculture practices.	• Biotechnology has immense growth potential in the Bio-IT segment, given the rising need for technology to transform data generated by R&D institutes, clinics, hospitals, etc., into a defined format. • India's IT industry is witnessing substantial growth and has the requisite IT infrastructure to cater to the needs of the global Bio-IT industry.

Source: *Association of Biotechnology Led Enterprises (ABLE), Institute for Competitiveness*

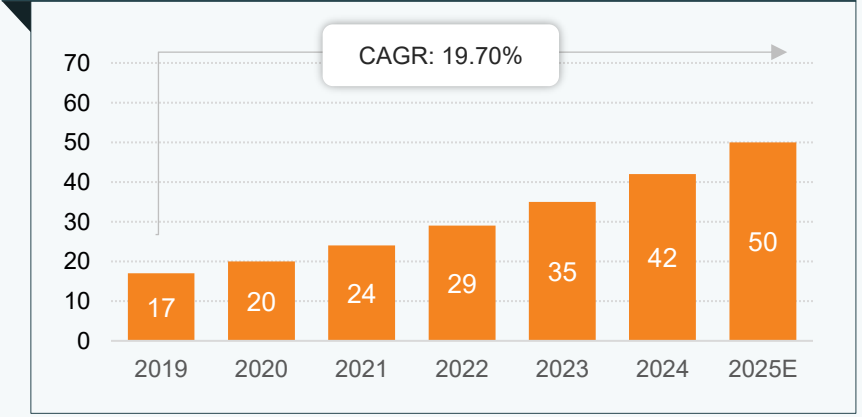
Key investment opportunities

- South-East Asia is quickly growing in number of reported clinical trials and was the only region not to see a decrease since the peak of trials during the COVID-19 pandemic, driven largely by trials in India (85% of trials and almost 10% of trials globally).
- India is among the preferred destinations for clinical trials owing to a large patient pool, transformation of the healthcare market, well-educated physicians and cost competitiveness.
- The Union Ministry for Health and Family Welfare had introduced new Drugs and Clinical Trials Rules in 2019, which changed the regulatory landscape for approval of new drugs and conducting clinical trials in the country.
- The Indian Venture and Alternate Capital Association (IVCA), in collaboration with the Biotechnology Industry Research Assistance Council (BIRAC), hosted a pivotal roundtable at Global Bio-India 2024.
- Bharat Biotech made a major US$ 75 million investment in its first integrated cell and gene therapy facility in Hyderabad, signaling a shift to advanced personalized medicine with expected launches by 2028.
- In March 2025, in a significant step towards strengthening technology driven collaboration, Microsoft co-founder and philanthropist, Mr. Bill Gates, called on Minister of State (IC) of the Ministry of Science & Technology, Dr. Jitendra Singh and held detailed discussions to expand private sector and start-up participation in India's innovation push and biomanufacturing surge.
- In December 2023, IPL Biologicals signed a MoU with the Gujarat government to establish a Rs. 400 crore (US$ 48.1 million) bio-fertilizer and bio-pesticide facility in the state.
- In August 2023, the Department of Biotechnology (DBT) and the United States-National Science Foundation (US-NSF) announced to build bilateral collaborations between India and the USA through this Implementation Arrangement.
- In July 2023, India and Argentina agreed to a bilateral exchange of young researchers and Startups, particularly in the field of Biotechnology and Agriculture.

Clinical trials market in India (US$ billion)



Medical devices market in India (US$ billion)



Source: *News Articles*

Upcoming biotechnology projects in India

Upcoming Biotechnology Projects	Geography Presence	Cost of the Project (US$ million)
The Genome India Project	Bangalore	21.28
Mangalapuram Bio 360 Life Sciences Park Project - Phase II	Kerala	52.18
Kupwara Biotechnology	Jammu & Kashmir	4.45

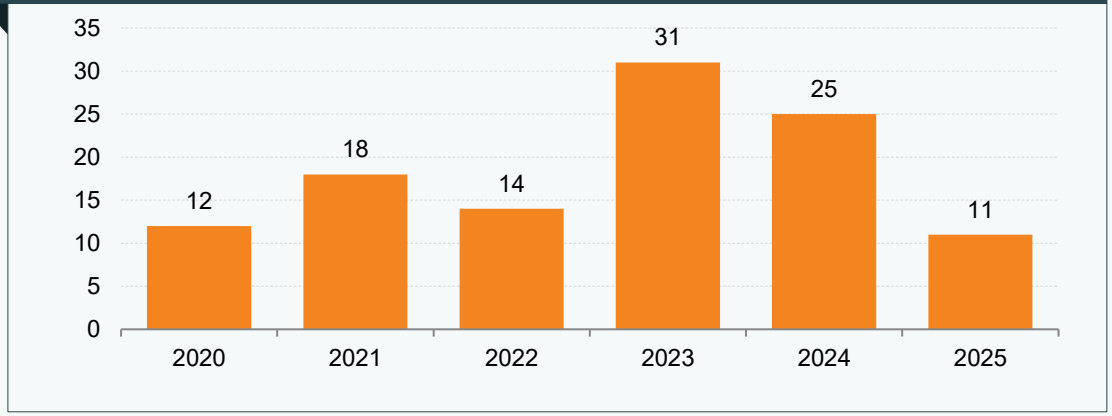
Source: *News Articles*

India: Emerging hub for biologics and biosimilars

The global life sciences industry is shifting from chemical-based drug to biologics and biosimilars; India approved its first biosimilar as early as 2000.

- As of 2025, India has strengthened its position as a global leader in biosimilars, with over 146 biosimilar approvals and a rapidly expanding pipeline across oncology, immunology and metabolic disorders. The country continues to enhance its footprint in regulated markets such as the US, Europe and Canada.
- In September 2025, Biocon Biologics Ltd received US Food and Drug Administration (FDA) approval for its denosumab biosimilars, Bosaya and Aukelso, referencing Prolia and Xgeva. These approvals strengthen India's presence in the global biosimilars market.
- India plans to invest US$ 1.1 billion over the next five years to strengthen biologics and biosimilars research and manufacturing. As part of this initiative, the government is establishing three new national research institutes, providing funding to seven existing research facilities, and developing a network of more than 1,000 clinical trial sites to enhance the country's clinical research ecosystem.
- By 2035, 40% of all global medicines are expected to be biologics and US$ 300 billion worth of blockbuster biopharmaceuticals will go off-patent by 2030 creating a historic window for India to enter global value chains.

Number of biologics and biosimilars approved in India



Drug Name	Company Name	Indication (Import/New CDSCO Approval)
Pertuzumab	Intas Pharmaceuticals	Treatment of HER2-positive metastatic breast cancer
Insulin Aspart	Eris Lifesciences	Management of diabetes mellitus (insulin analogue formulations)
Tislelizumab	Glenmark Pharmaceuticals	Immune-oncology therapy for multiple cancer indications
Serplulimab	Intas Pharmaceuticals	Treatment of solid tumours (immune checkpoint inhibitor)
Tildrakizumab	Sun Pharmaceuticals	Treatment of plaque psoriasis
Aflibercept	Biocon Biologics	Treatment of retinal disorders and ophthalmic conditions
Trinbelimab	Various / Emerging players	Targeted therapy for specialised and rare oncology indications
Bevacizumab	Multiple companies	Treatment of colorectal, lung and ovarian cancers
Ranibizumab	Lupin / Intas Pharmaceuticals	Management of wet age-related macular degeneration (AMD)

Source: *Biologics Division, CDSCO, Association of Biotechnology Led Enterprises (ABLE)*

Opportunity in Biopharma

2. VACCINES

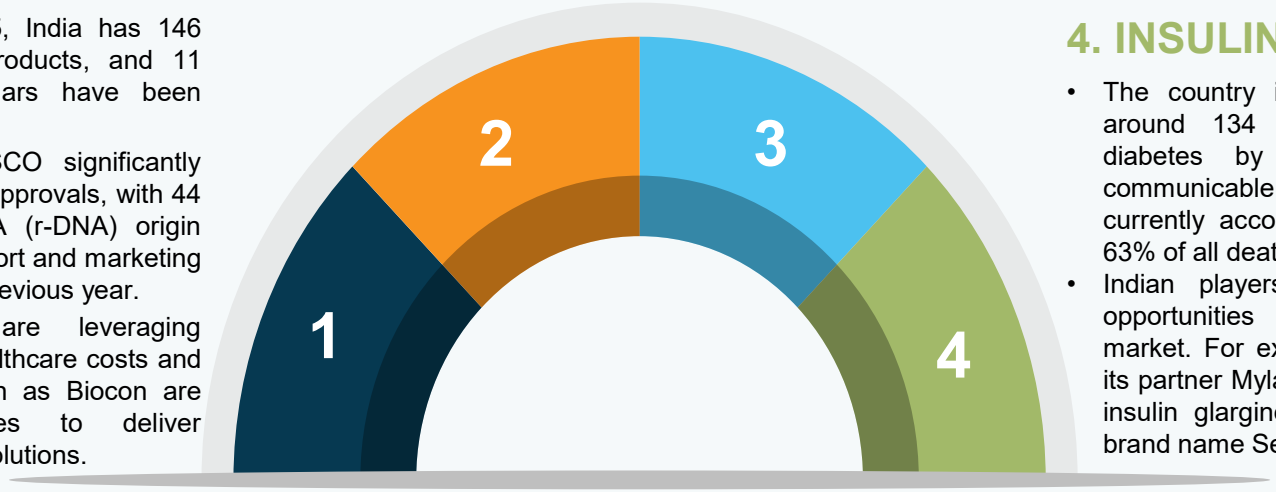
- India exports vaccines to about 150 countries.
- India plays a pivotal role in global immunisation, supplying 55–60% of UNICEF's vaccine requirements and meeting 99% of World Health Organization (WHO) demand for DPT vaccines.
- India supplies approximately 52% of the world's Bacillus Calmette-Guérin (BCG) vaccines and 45% of global measles vaccines, highlighting its significant role in global immunization programs. The country's strong manufacturing capabilities enable the large-scale production of high-quality, cost-effective vaccines for international organizations and global health initiatives.
- The Indian vaccine market, valued at over USD 2.71 billion in 2025, is projected to reach USD 5.19 billion by 2033, growing at a CAGR of 8.3%.
- India has successfully eradicated smallpox, polio, and maternal and neonatal tetanus through vaccination and continues to strengthen its immunisation programme. In 2026, India expanded its vaccination efforts with the launch of the HPV vaccine and the indigenous Td vaccine.

3. REGENERATIVE MEDICINE

- Several research institutes in India are investigating the use of stem cells to regenerate nerve, heart and adult muscle cells, and repair damaged bone tissues.
- Rise in chronic disease incidents is driving the demand for regenerative medicine.
- The Indian Council of Medical Research has issued the National Guideline for Stem Cell Research to promote clinical applications of stem cell research in ophthalmology, cardiology and spinal cord repair.
- The phase I clinical trial on gene therapy for haemophilia, enhancing the quality and shelf life of stored blood, potential therapy for psoriasis, testing over 3 lakh samples for COVID-19, novel nanobody inhibiting SARS-COV2 entry, germicidal masks and many more.
- The India Stem Cell Therapy Market is expected to reach at US$ 10.17 Million by 2032 and is projected to grow at a CAGR of 13.14% from 2025 to 2032. The growth is being driven by a mix of enhanced government investment, engaged private sector investment, and robust academic and research infrastructure.

1. BIOSIMILARS

- As of December 2025, India has 146 approved biosimilar products, and 11 biologics and biosimilars have been approved in 2025.
- In 2025, India's CDSCO significantly accelerated biosimilar approvals, with 44 new recombinant DNA (r-DNA) origin drugs approved for import and marketing as compared to 26 in previous year.
- Global companies are leveraging generics to contain healthcare costs and Indian companies such as Biocon are positioning themselves to deliver affordable healthcare solutions.



4. INSULIN

- The country is expected to have around 134 million people with diabetes by 2045, while non-communicable diseases (NCDs) currently account for approximately 63% of all deaths in the country.
- Indian players are also creating opportunities in the international market. For example, Biologics and its partner Mylan N.V. launched their insulin glargine injection under the brand name Semglee in the US.

Source: *BIRAC, CII*

Key Industry Contacts



Key industry organisations

Agency		Contact Information
	Department of Biotechnology, Ministry of Science & Technology	6th-8th Floor, Block 2 CGO Complex, Lodhi Road New Delhi- 110 003.India Phone: +91-11-24365547 Email: webupload@dbt.nic.in Website: www.dbtindia.gov.in
	Department of Science and Technology, Ministry of Science and Technology	Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110 016 Phone: +91-11-26590215 Fax +91-11-26863847, 26515637 Website: www.dst.gov.in
	Biotechnology Industry Research Assistance Council (BIRAC)	5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi- 110 020 Phone: +91-11-49968888 / +91-11-49968830 Fax: +91-11-49968853 E-mail: birac.dbt@nic.in Website: www.birac.nic.in
	Council of Scientific and Industrial Research (CSIR)	Council of Scientific and Industrial Research, Anusandhan Bhawan, 2 Rafi Ahmed Kidwai Marg, New Delhi- 110 001 Phone: +91-11-23737889 Website: www.csir.res.in
	Association of Biotechnology Led Enterprises	# 123/C, 16th Main Road,5th Cross, 4th Block, Near Sony World showroom / Headstart school, Koramangala, Bangalore- 560 034, India Phone: +91-80-41636853 E-mail: info@ableindia.org.in Website: www.ableindia.in
	The Biotech Research Society, India	Biotechnology Division, NIIST, Industrial Estate P.O., Trivandrum- 695 019 Phone: +91-471-251 5279 Website: https://www.brsi.in/

Departments concerning biotech approvals



Government of India

- Ministry of Science & Technology
  - Department of Biotechnology
    - Review Committee on Genetic Manipulation
    - Recombination DNA Advisory Committee
    - Institutional Biosafety Committee
- Ministry of Environment & Forests
  - Department of Environment, Forests & Wildlife
    - Genetic Engineering Approval Committee
- Ministry of Chemicals & Fertilisers
  - Department of Pharmaceuticals
- Ministry of Health & Family Welfare
  - Central Drug Standards Control
    - Clinical Trials

Appendix



Glossary

- CAGR: Compound Annual Growth Rate
- Capex: Capital Expenditure
- CENVAT: Central Value-added Tax
- EHTP: Electronic Hardware Technology Park
- EPCG: Export Promotion Capital Goods Scheme
- FDI: Foreign Direct Investment
- FY: Indian Financial Year (April to March); So, FY10 implies April 2009-March 2010
- LCD: Liquid Crystal Display
- R&D: Research and Development
- US$: US Dollar
- Wherever applicable, numbers have been rounded off to the nearest whole number

Exchange rates

Exchange Rates (Fiscal Year)

Year	Rs. Equivalent of one US$
2004-05	44.95
2005-06	44.28
2006-07	45.29
2007-08	40.24
2008-09	45.91
2009-10	47.42
2010-11	45.58
2011-12	47.95
2012-13	54.45
2013-14	60.50
2014-15	61.15
2015-16	65.46
2016-17	67.09
2017-18	64.45
2018-19	69.89
2019-20	70.49
2020-21	73.20
2021-22	74.42
2022-23	78.60
2023-24	82.80
2024-25	86.47
2025-26	88.37
2026-27*	94.97

Exchange Rates (Calendar Year)

Year	Rs. Equivalent of one US$
2006	45.33
2007	41.29
2008	43.42
2009	48.35
2010	45.74
2011	46.67
2012	53.49
2013	58.63
2014	61.03
2015	64.15
2016	67.21
2017	65.12
2018	68.36
2019	69.89
2020	74.18
2021	73.93
2022	79.82
2023	82.61
2024	84.49
2025	87.16
2026*	93.67

Note: **- Until August 2026*

Source: *Foreign Exchange Dealers' Association of India*

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