

India's Biotech Leap

Navigating the Landscape of Innovation, Growth, & Investment Potential



Representing 3% of the global biotechnology market, India's biotechnology sector is regarded as a 'sunrise sector.' It ranks among the top 12 biotechnology destinations worldwide and is the 3rd largest in the Asia-Pacific region. The industry has gained significant momentum post-COVID-19 and is expected to reach USD 150 billion by 2025, with projections to nearly double by 2030, driven by a compound annual growth rate (CAGR) of approximately 17%. According to the 2023 India BioEconomy Report, India's innovation ecosystem is on track to secure a spot among the top 10 global biotechnology destinations.

The bio-economy encompasses all economic activities that utilises biotechnology to generate value, including vaccines, diagnostics, bio-ethanol, bio-plastics, and genetically modified crops. This briefing highlights the key trends and strategic growth areas within India's bioeconomy and biotechnology sector, equipping economic developers with crucial insights to inform their business expansion strategies in the country.

The Indian Biotech Universe

Sources: Invest India, Department of Biotechnology, BIRAC

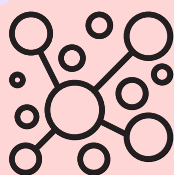
Biotechnology has played a pivotal role in various sectors including food and agriculture, medicines and healthcare, environmental conservation, informatics, and industrial development in India. The Indian biotech sector comprises five main segments: biopharmaceuticals (62% share), bio-industry (15%), bio-agriculture (13%), and bio-IT & bio-services (10%).

**6,000+**

Biotech Startups

11

Biotech Parks supported by the DBT

**4**

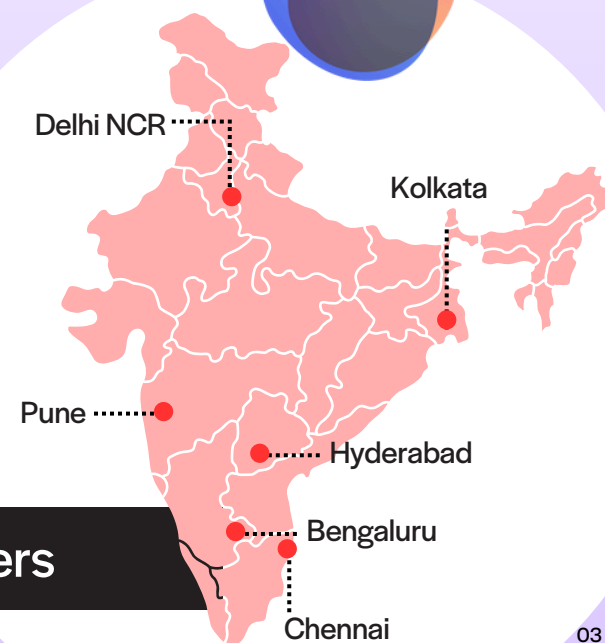
Biotech Science Clusters

75+

Bio-Incubators supported by DBT-BIRAC



Biotech Clusters



Top Indian Biotech Firms



Major Foreign Biotech Players with an Established Manufacturing Presence in India



* These companies do not have direct manufacturing or R&D presence in India; however, they maintain a strong market presence through well-established partnerships with local companies and regional offices for sales, distribution, services, and marketing.

The Indian Biotech Competitive Edge

India: A Rising Biotech Manufacturing and R&D Powerhouse

As indicated by recent reports, India is on track to become one of the top 5 global bio-manufacturing hubs by 2025. It is a top international destination for contract manufacturing, boasting the second-largest number of USFDA-approved manufacturing plants outside the United States. The country is also renowned for its cost-effective and innovative healthcare solutions, including clinical trials. Indian biotech firms have effectively utilised generics and biosimilars to reduce healthcare costs. Furthermore, there is growing advocacy for greater collaboration between the government and private sector to harness India's untapped biotechnology resources. The Department of Biotechnology actively promotes Research and Development in advanced biofuels and 'waste-to-energy' technologies. The Anusandhan National Research Foundation (NRF), proposed by Prime Minister Narendra Modi, aims to propel India's R&D efforts and establish it as a global leader within the next five years.

India is a Leading Force in Vaccine Production

Today, India is recognised as the vaccination hub of the world. Supplying vaccines to over 150 countries, the country stands as the largest supplier of DPT, Measles, and BCG vaccines globally and is also the first to develop a DNA vaccine against COVID-19. India's vaccine production capabilities are reinforced by initiatives like Mission Indradhanush, the Electronic Vaccine Intelligence Network, and the National Cold Chain Management Information System.

A Rising Biosimilars Leader

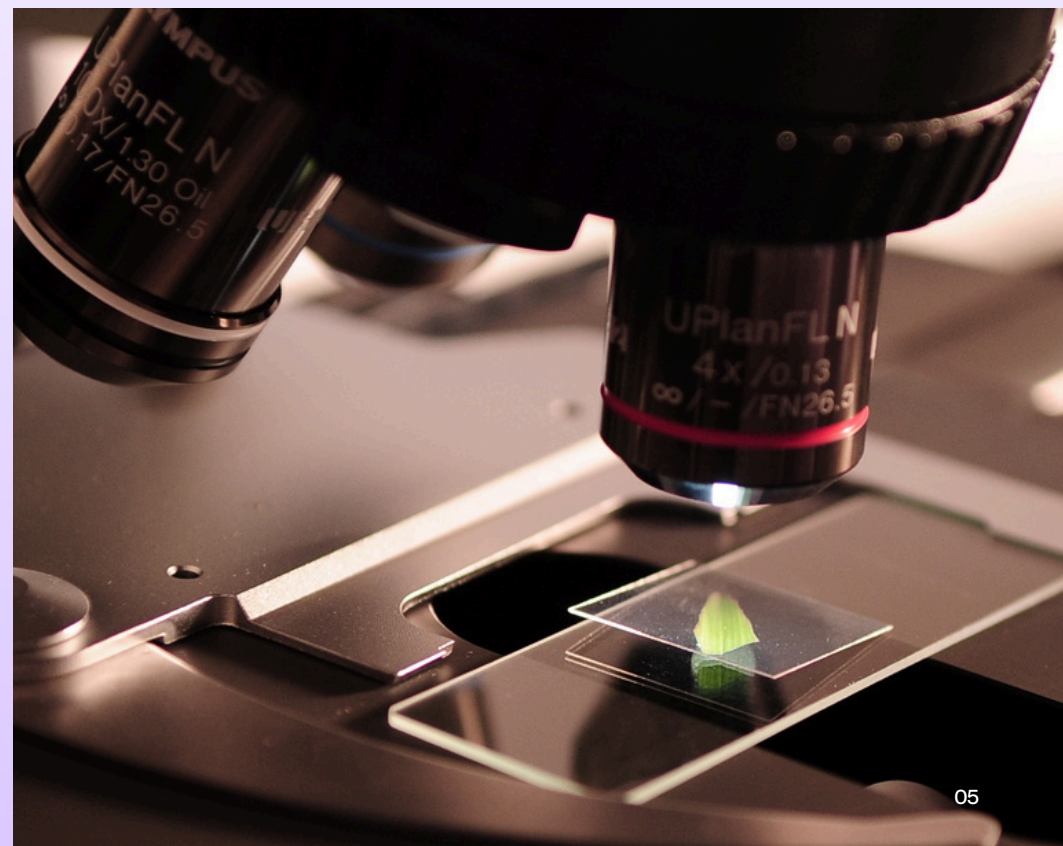
India has over 127 approved biosimilars in its domestic market, the highest number in the world.

Biotechnology: A Trending Career Choice Among Youth

Emerging fields such as genome editing, synthetic biology, microbial bioresources, and metabolic engineering are becoming increasingly popular areas of study among the young academic population.

An emerging Bio-IT & Bio-Services Hub

India is at the forefront of health record digitization, and its low-cost environment for clinical trials has driven a 19% growth in the sector.



Institutional Support

The Indian Biotechnology sector is overseen by the Department of Biotechnology (DBT) at the Ministry of Science and Technology.

In addition, several key organisations and councils support the sector, including the Biotechnology Research and Innovation Council (BRIC), Regional Centre for Biotechnology (RCB), International Centre For Genetic Engineering And Biotechnology (ICGEB), Council of Scientific and Industrial Research (CSIR), and the Biotech Research Society, India.

The Association of Biotechnology Led Enterprises (ABLE), a not-for-profit forum with 400 members, actively promotes the sector's growth, alongside Public Sector Undertakings (PSUs) such as Biotechnology Industry Research Assistance Council (BIRAC), Bharat Immunologicals and Biologicals Corporation Limited (BIBCOL), and Indian Vaccine Corporation Limited (IVCOL).

भारत सरकार
GOVERNMENT OF INDIA

विज्ञान और प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY



सत्यमेव जयते

जैवप्रौद्योगिकी विभाग
DEPARTMENT OF
BIOTECHNOLOGY



क्षेत्रीय जैव प्रौद्योगिकी केन्द्र

**The Regional Centre for
Biotechnology (RCB)**



Key Projects

The Ministry of New and Renewable Energy (MNRE) has launched six bio-CNG plants and over 11,100 small biogas plants under the National Bioenergy Programme (NBP), which has a total budget outlay of Rs. 1,715 Crore (approx. 206.63 million USD), to encourage biomass utilisation for energy production.

In 2023, the Cabinet Committee on Economic Affairs (CCEA) approved the PM-PRANAM (Programme for Restoration, Awareness, Generation, Nourishment, and Amelioration of Mother Earth) initiative, with a total budget outlay of around Rs. 3.7 lakh Crore (approx. 44.4 billion USD). This programme aims to promote sustainable agriculture through nutrient-based biofertilizers.

Alongside the Biotechnology Policy for Assam (2022-2027), a Business Enterprise Zone will be developed at Guwahati Biotech Park in Amingaon, with an allocated budget of 3.71 million USD.

“ India’s biotech sector grew eight fold in eight years.
India is not too far from reaching the league of top-10
countries biotech’s global ecosystem

-Narendra Modi, Prime Minister of India

Growth Catalysts

Sources: Invest India, Department of Biotechnology, BIRAC

Policy Outlook

India offers 100% Foreign Direct Investment (FDI) under the automatic route for greenfield projects in pharmaceuticals, which attracts substantial foreign investment and fosters international partnerships. In 2022, India's investment in biotechnology R&D reached approximately USD 1 billion. Key government policies and strategies aim to position India as the 'Pharmacy of the World.'

National Biopharma Mission- Innovate in India (I3)

BIRAC works to catalyse and transform the Biotech Innovation Ecosystem in India as part of its broader goals to build a USD 100 billion Bioeconomy by 2025. Working in a similar interest is the National Biopharma Mission (NBM,) co-funded by the World Bank with USD 250 million, which supports the Innovate in India (I3) programme. This initiative focuses on enhancing biopharmaceutical product development, including vaccines and diagnostics, with the goal of making India a leading hub for affordable biopharmaceuticals. The programme aims to enable India to capture 5% of the global biopharmaceutical market by 2025.

#ViksitBharat2047

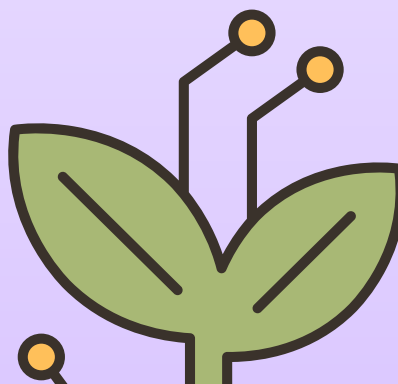
This strategy outlines India's biotechnology vision for the coming years. The plan aims to position India as a key biotechnology manufacturing hub and a knowledge-based economy. It seeks to leverage new financial models and roadmaps to enhance the collective biotechnology capabilities of BRIC institutes, with the goal of achieving Viksit Bharat (Developed India) by 2047.

BioE3 (Biotechnology for Economy, Environment and Employment) Policy for Fostering High Performance Biomanufacturing

The Department of Biotechnology's BioE3 policy supports innovation in biotech R&D and entrepreneurship, aiming to advance technology deployment through biomanufacturing, bio-AI hubs, and bio-foundries. It also emphasizes regenerative bioeconomy models, workforce development, and job creation while reinforcing government efforts in circular bioeconomy to foster a sustainable and innovative future.

Union Budget 2023 and 2024: Boosting Biotechnology in India

The Union Budget 2023-24 has allocated Rs. 1,345 Crore to the Department of Biotechnology, with provisions to establish 500 new waste-to-wealth plants under the GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan) scheme to promote a circular economy. To achieve a bio-economy valued at USD 300 billion by 2030 and potentially reach USD 1 trillion by 2047, the 2024 budget introduced an innovative scheme for bio-manufacturing and bio-foundry, with plans to set up 10,000 bio-input resource centres. The 2023 India Bioeconomy report highlights opportunities such as a USD 2 billion-investment to assist startups in scaling up their manufacturing capabilities, a production-linked scheme to enhance output, and a single-window clearance system for bio-manufacturers.



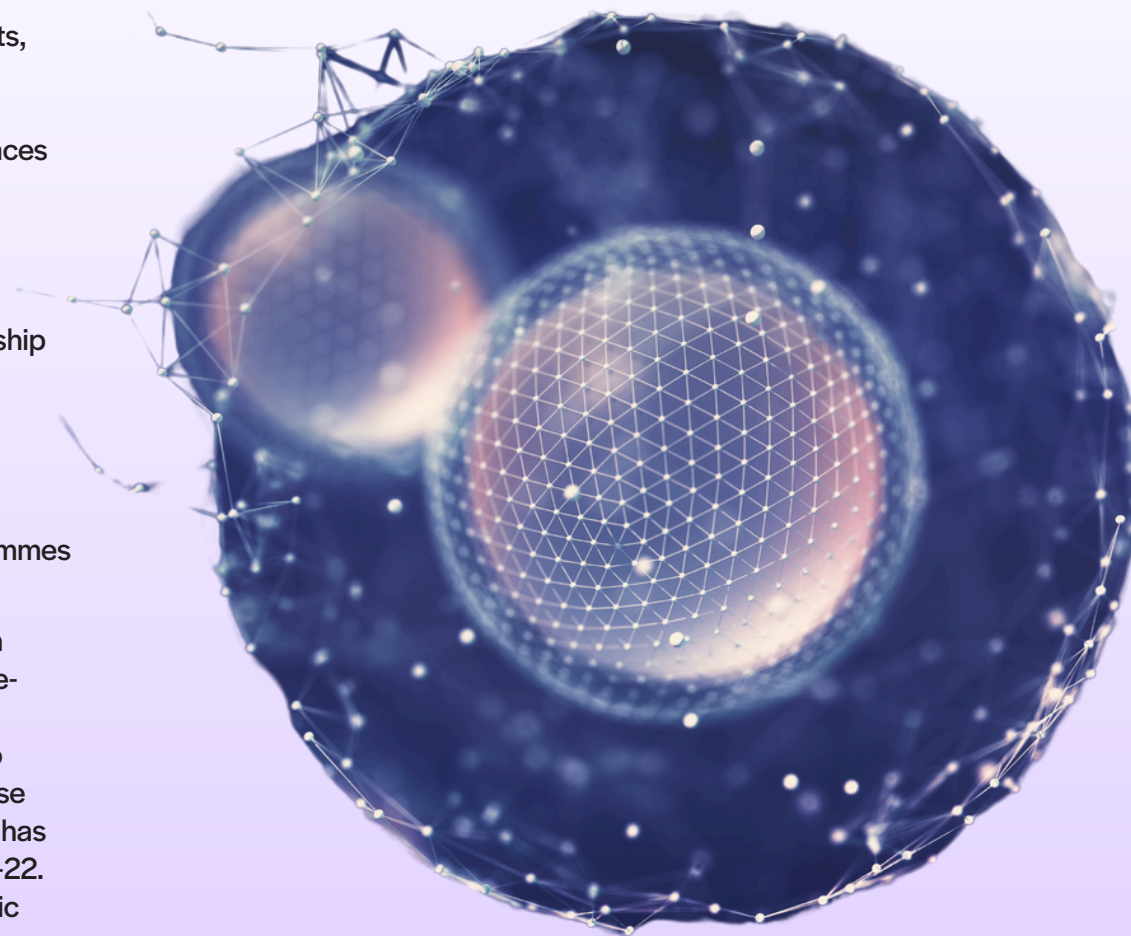
Accelerator and Incubator Support

The DBT-BIRAC institutions currently support around 75 bio-incubation centres, and more than 50 bio-incubators receive backing from BIRAC across India. The National Biopharma Mission encompasses 101 projects, including over 150 organisations and 30 Micro, Small, and Medium Enterprises (MSMEs). BIRAC's Bio-NEST programme is dedicated to nurturing the biotech innovation ecosystem by providing incubation spaces for startups, facilitating industry-academia connections, and promoting knowledge exchange, business mentorship, and technical support. Bio-NEST has supported 65 bio-incubators to date.

The National Biotechnology Parks scheme aims to help incubator-supported startups scale up their research and development in partnership with government and industry, with new biotech parks receiving DBT support for 3-5 years before transitioning to self-sustainability.

National Biotechnology Development Strategy & other Funding Programmes

The National Biotechnology Development Strategy 2021-25 focuses on fostering skill development and innovation to create a strong knowledge-sharing ecosystem. BIRAC's Biotechnology Ignition Grant (BIG), India's largest early-stage biotech funding initiative, provides crucial support to startups and entrepreneurs with innovative ideas, encouraging enterprise creation in the biotechnology sector. The 'Make in India 2.0' action plan has already promoted over 4,800 startups in the biotech sector in FY 2021-22. The Production Linked Incentive (PLI) scheme further supports domestic manufacturing in key areas such as starting materials, medical devices, drug intermediaries, and active pharmaceutical ingredients.



Biotech Talent Programmes

India has a strong base of highly skilled, English-speaking Biotech workforce, as well as dedicated programmes to help upskill them:

DBT-Star College Mentorship Programme

India's first ever Mentorship Programme, 'Star College Mentorship Programme for Young Innovators by the Department of Biotechnology (DBT),' is a pan-India scheme that promotes networking and outreach among Star Status Colleges through workshops, meetings, and outreach activities, particularly in rural areas. It will also enable newer colleges through hand-holding to bring them under the aegis of the Star College Scheme.

DBT-RA Programme in Biotechnology and Life Sciences

Initiated in 1999, the Department of Biotechnology-Research Associateship Programme facilitates post-doctoral training in career development, enabling the training and nurturing of young researchers and scientists to generate a skilled workforce to operate in modern areas of biotechnology and build a postdoctoral base for growth of biotechnology sectors in the country.

i3c BRIC-RCB Ph.D. Programme in Biosciences

A collaborative initiative between the Institute of Biotechnology Research and Innovation Council (iBRIC), Regional Centre for Biotechnology (RCB), and International Centre for Genetic Engineering and Biotechnology (ICGEB) to promote excellence in biotechnology research and education in India. It will enroll highly skilled Ph.D. scholars in foundational coursework and train them in high-end technology platforms.

Notable Biotech Events

SYNCHN 2024 (Synergy in science built through elements of collaboration for high quality data & expertise in NCR Biotech Cluster)

Led by Translational Health Science and Technology Institute (THSTI) under iBRIC, SYNCHN 2024 united experts from academia and industry to drive affordable healthcare innovations and advancements in biotechnology. It focused on accelerating progress in vaccines, drug discovery, and biotherapeutics for low and middle-income markets.

Global BioIndia

A mega international biotechnology congregation organised by BIRAC to bring together global biotech stakeholders to discuss opportunities and challenges in areas like bio-manufacturing and clinical trials. The event aims to build strategic partnerships and strengthen India's biotechnology ecosystem.

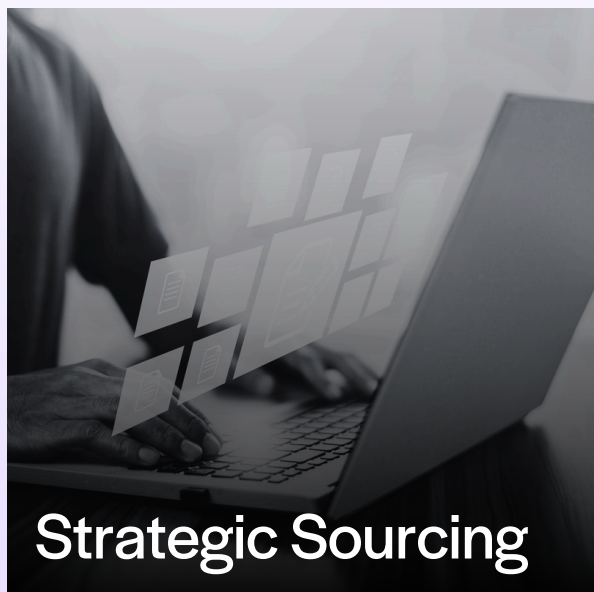
i3c BRIC-RCB Leadership Talks

A series of influential talk-shows hosted by RCB and BRIC institutions, that gathers leaders in biotech to share insights on innovation and tackle global health challenges. It fosters collaboration across academia, industry, and research to drive breakthroughs in biopharmaceuticals and life sciences.



About Nueconomy

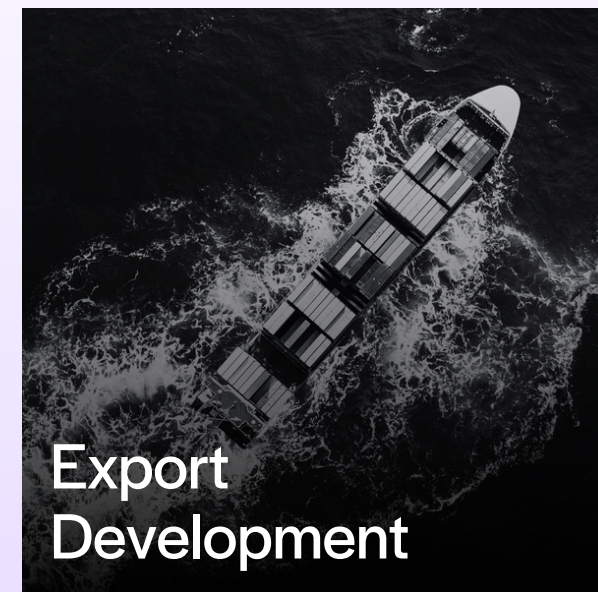
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USD 250m+ Investment Mobilized



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