



**Research Unit**  
Press Information Bureau  
Government of India

## Science and Biotech Initiatives to Boost Innovation

### *Cabinet Approves Vigyan Dhara and BioE3 Initiatives to Accelerate Research and Biomanufacturing Sectors*

(Ministry of Science and Technology)

August 28, 2024

India is making significant strides in Science and Technology (S&T) and biotechnology, aiming to position itself as a global leader in innovation, research, and sustainable development.

Two major initiatives approved by the Union Cabinet in August 2024—the **Vigyan Dhara scheme and the BioE3 (Biotechnology for Economy, Environment, and Employment) Policy**—are set to transform the country's S&T and biomanufacturing landscapes. These initiatives align with India's broader vision of becoming a developed nation by 2047, enhancing the country's capabilities in scientific research, biomanufacturing, and sustainable practices.

पुष्पी सिंघान  
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MINISTRY OF  
EARTH SCIENCES

Cabinet approves **'Vigyan Dhara'** scheme

It will promote S&T capacity building, Innovation & technology development towards strengthening STI ecosystem in the country

The DST scheme will strengthen S&T infra-structure of the country by fostering well-equipped R&D labs in Academic Institutions

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### Vigyan Dhara Scheme

The Indian government's commitment to fostering scientific research, innovation, and capacity building has taken a significant step forward with the approval of the **Vigyan Dhara** scheme. The Union Cabinet, chaired by Prime Minister Shri Narendra Modi, recently approved this unified central sector scheme under the **Department of Science and Technology (DST)**. The

scheme consolidates three key umbrella schemes into one, with an ambitious budget of **Rs. 10,579.84 crore** for the period of 2021-22 to 2025-26, aligning with the 15th Finance Commission.

### Objective of the Scheme:

The primary objective of the Vigyan Dhara scheme is to promote capacity building in science and technology (S&T), as well as to advance research, innovation, and technology development. The scheme aims to:

- ✓ Strengthen the Science, Technology, and Innovation (STI) ecosystem in the country.
- ✓ Enhance the S&T infrastructure by fostering well-equipped R&D labs in academic institutions.
- ✓ Promote research in key areas such as sustainable energy, water, and other critical sectors.
- ✓ Build a critical human resource pool to expand India's R&D base and improve the Full-Time Equivalent (FTE) researcher count.
- ✓ Enhance the participation of women in the field of S&T, with the goal of achieving gender parity in Science, Technology, and Innovation (STI).
- ✓ Reinforce innovations at all levels, from school education to industry and startups.

**It merges three key umbrella schemes into one, focusing on:**

❖ *Science and Technology (S&T) Institutional and Human Capacity Building:*

This component focuses on strengthening India's scientific infrastructure and human resource pool. It aims to build and enhance research and development (R&D) labs across academic institutions, creating a robust environment for scientific research.

❖ *Research and Development (R&D):*

Vigyan Dhara emphasises research in various critical areas, including basic research, translational research in sustainable energy and water, and access to international mega facilities. This component also fosters collaborative research through international bilateral and multilateral cooperation.



- ❖ *Innovation, Technology Development, and Deployment:* This segment of the scheme aims to drive innovation at all levels, from schools to higher education and the industry. It seeks to promote technology development and deployment, with a particular focus on increasing collaboration between academia, government, and industry, as well as supporting startups.

### Key Impacts:

- ❖ Enhanced collaboration between academia, government, and industry
- ❖ Increased participation of women in S&T fields
- ❖ Strengthened R&D capabilities, aligned with global standards and national priorities.

The Vigyan Dhara scheme is strategically aligned with India's national vision, focusing on building a strong S&T foundation to drive the country's development. With its significant budget and ambitious goals, the scheme is set to transform India's Science, Technology, and Innovation ecosystem, positioning the country as a global leader in these fields.

By addressing both national and global priorities, Vigyan Dhara ensures long-term benefits that will contribute to India's growth and progress in the coming decades.

### BioE3 (Biotechnology for Economy, Environment, and Employment) Policy

The BioE3 (Biotechnology for Economy, Environment and Employment) Policy, recently approved by the Union Cabinet under Prime Minister Narendra Modi's leadership, marks a significant leap in India's biotechnology sector. This ambitious policy aims to transform India into a global biotech powerhouse by fostering high-performance biomanufacturing, addressing key areas of economy, environment, and employment.

India's economy has witnessed remarkable growth, surging from \$10 billion in 2014 to over \$130 billion in 2024. The BioE3 Policy seeks to accelerate this

**BioE3- Policy for Fostering High Performance Biomanufacturing**

**Cabinet approves** BioE3 (Biotechnology for Economy, Environment and Employment) Policy for Fostering High Performance Biomanufacturing'

**Salient features**

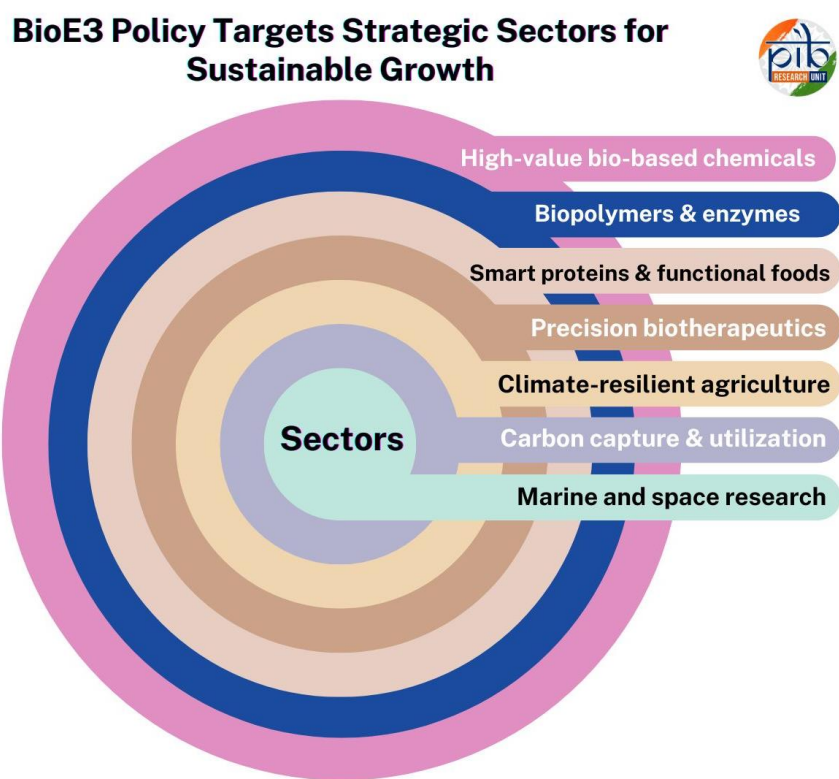
- ❖ Innovation-driven support to R&D and entrepreneurship across thematic sectors
- ❖ Acceleration of technology development and commercialization by establishing Biomanufacturing & Bio-AI hubs and Biofoundry
- ❖ Prioritizing regenerative bioeconomy models of green growth
- ❖ Facilitating expansion of India's skilled workforce and providing a surge in job creation

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growth trajectory, with projections to reach \$300 billion by 2030. By pivoting from traditional consumptive practices to high-performance, regenerative biomanufacturing, the policy aligns with India's vision of a cleaner, greener, and more prosperous future.

At its core, the BioE3 Policy is designed to tackle critical global challenges such as climate change and the depletion of non-renewable resources. It aims to facilitate a shift from chemical-based industries to sustainable bio-based models, promoting a **circular bioeconomy**<sup>1</sup> and working towards achieving net-zero carbon emissions. This approach supports environmental sustainability and contributes significantly to the 'Make in India' initiative by fostering the development of bio-based products with minimal carbon footprints.

**The policy's scope is broad and ambitious, encompassing several strategic sectors:**



The policy introduces several key initiatives to support these sectors. It establishes cutting-edge biomanufacturing facilities, bio-foundry clusters, and bio-AI hubs. These infrastructures will serve as centralised facilities crucial for the production, development, and commercialisation of bio-based products. They will bridge the gap between laboratory-scale and commercial-scale manufacturing, fostering collaboration among startups, SMEs, and established manufacturers.

**Employment generation** is a significant focus of the BioE3 Policy. It is expected to create substantial job opportunities, particularly in tier-II and tier-III cities where bio manufacturing hubs will be set up. These hubs will leverage local biomass sources, thereby enhancing economic

<sup>1</sup> For more information: <https://www.cifor.org/wp-content/uploads/2021/03/Flyer%20-%20Knowledge%20Guide%20Circular%20Bioeconomy-v4.pdf>



development in these regions and contributing to a more equitable distribution of economic growth across the country.

The policy also places a renewed focus on **ethical biosafety considerations and global regulatory harmonization**. By aligning with international standards, it aims to enhance India's competitiveness in the global biotechnology market while ensuring responsible and safe development of biotechnologies.

The infographic features a dark blue background with a molecular structure pattern. At the top left, the title "BioE3- Policy for Fostering High Performance Biomanufacturing" is written in bold yellow text. To the right, the logos of the Ministry of Earth Sciences and BIO (Bio Innovation Organisation) are displayed. Below the title, an illustration shows a woman sitting at a desk with a laptop displaying a DNA helix, and a man standing next to a microscope. A vertical banner on the right side reads "CABINET DECISION 24<sup>TH</sup> AUGUST, 2024". In the bottom right corner, there is a portrait of Prime Minister Narendra Modi. The central text is enclosed in a white rounded rectangle with a blue border.

## BioE3- Policy for Fostering High Performance Biomanufacturing

पृथ्वी विज्ञान मंत्रालय  
MINISTRY OF EARTH SCIENCES

BIO  
BIO INNOVATION ORGANISATION

### Benefits

- ❖ Strengthening Government's initiatives such as 'Net Zero' carbon economy & 'Lifestyle for Environment'
- ❖ Steering India on the path of accelerated 'Green Growth' by promoting 'Circular Bioeconomy'
- ❖ Fostering and advancing future that is more sustainable, innovative, and responsive to global challenges
- ❖ Laying down the Bio-vision for Viksit Bharat

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### Key Features of the BioE3 Policy:

1. Innovation-driven support for R&D and entrepreneurship across thematic sectors
2. Establishment of Biomanufacturing & Bio-AI hubs and Biofoundry
3. Prioritization of regenerative bioeconomy models for green growth
4. Facilitation of India's skilled workforce expansion
5. Alignment with government initiatives like 'Net Zero' carbon economy and ['Lifestyle for Environment'](#)

The BioE3 Policy represents a comprehensive approach to leveraging biotechnology for India's economic growth, environmental sustainability, and employment generation. Investing in the country's economy, environment, and employment supports India's vision of a 'Viksit Bharat' (Developed India), setting a benchmark for how effective science policies can drive national development and sustainability. As India emerges as a Global Biotech Powerhouse, this policy is poised to be a game-changer, positioning the country as a potential leader in the 4th industrial revolution.

## **Conclusion**

The Vigyan Dhara scheme and BioE3 Policy represent significant milestones in India's scientific and biotechnological excellence journey. While Vigyan Dhara focuses on enhancing the S&T infrastructure and fostering innovation across various sectors, BioE3 is poised to revolutionise biomanufacturing, aligning with global efforts to address climate change, food security, and health challenges. Together, these initiatives will not only strengthen India's position in the global scientific community but also contribute to sustainable and inclusive growth, paving the way for a Viksit Bharat by 2047.

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