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NITI Aayog Bioeconomy Roadmap: India as a BioEconomy Powerhouse by 2035

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REPORTS & SCHEMES ·

GS3

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NITI Aayog Bioeconomy Roadmap: India as a BioEconomy Powerhouse by 2035

17 July 2026 · 4 min read ·

Source: ujjyari.com — researched, fact-checked & UPSC-mapped

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On , NITI Aayog, working through the **NITI Frontier Tech Hub (FTH)**, released a landmark roadmap titled “**Building India as a Leading BioEconomy** (<https://ujjyari.com/terms/bioeconomy/>) **Powerhouse**”. The report was launched by the Union Minister of State (Independent Charge) for Science and Technology, **Dr Jitendra Singh**, at the National Media Centre, New Delhi. It sets out how India can grow its bioeconomy to roughly **USD 691 billion by 2035** and place the country among the world’s top three biotechnology powers.

WHAT THE ROADMAP PROPOSES

India’s **bioeconomy** covers all economic activity derived from biological resources and processes, spanning biopharmaceuticals, industrial biotechnology, bio-agriculture, bio-based fuels and bio-services. The roadmap positions this sector as a core engine of **Atmanirbhar Bharat** and the **Viksit Bharat 2047** vision.

The document lays out a two-stage ambition. In the near term, it aims to lift the bioeconomy to about **USD 691 billion by 2035**. In the longer term, it projects a scale of roughly **USD 2.6 trillion by 2047**, which would be about **8 to 10 per cent of GDP**. Alongside this, it targets the creation of **more than 30 million high-value jobs** and the emergence of India as one of the world’s three leading biotech nations.

The BioEconomy Growth Fund

A central recommendation is a dedicated **Rs 50,000 crore BioEconomy Growth Fund (2026 to 2035)**. The fund is designed to bridge the persistent **lab-to-market gap**, where promising research fails to reach commercial scale for want of patient, risk-tolerant capital. The roadmap pairs this with **Production Linked Incentive (PLI) style incentives** to reward manufacturing and value addition inside India rather than the export of raw intellectual property.

THE SIX NATIONAL BIOMISSIONS

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The roadmap organises delivery around six mission-mode programmes, each targeting a frontier where India has scientific strength or strategic need.

BIOMISSION	FOCUS AREA	STRATEGIC RELEVANCE
Gene and Cell Therapies	Advanced curative medicine	Affordable treatment for genetic and chronic disease
Climate-Resilient Agriculture	Stress-tolerant crops	Food security under climate stress
Synthetic Biology	Engineered biological systems	High-value industrial and pharma products
Disease Surveillance	Pathogen and outbreak monitoring	Pandemic preparedness and biosecurity (https://ujiyari.com/vocab/biosecurity/)
Marine Biotechnology	Ocean-derived bioresources	Blue economy (https://ujiyari.com/terms/blue-economy/) and novel compounds
Next-Generation Biopharmaceuticals	Biologics and vaccines	Reduced import dependence in medicine

Each **BioMission** is intended to run in mission mode with clear targets, dedicated funding lines and a mix of public research institutions and private industry.

Link to the BioE3 Policy

The roadmap builds directly on the **BioE3 Policy (2024)**, which stands for **Biotechnology for Economy, Environment and Employment**. BioE3 shifted Indian biotech strategy toward high-performance biomanufacturing and a circular, sustainable model. The new roadmap operationalises that policy by attaching financing, missions and regulatory reform to its objectives.

REFORMS AND ENABLERS

Beyond funding, the roadmap stresses that money alone will not deliver scale. It calls for streamlined **regulatory and approval pathways**, a stronger **intellectual property (IP) regime**, and better coordination among the Department of Biotechnology, ministries and state governments. It also flags the need for skilled talent, shared research infrastructure and bio-foundries that let start-ups prototype at low cost.

The report frames the bioeconomy as a rare **convergence** (<https://ujiyari.com/vocab/convergence/>) of **economic growth, environmental sustainability and mass employment**, which is precisely the promise embedded in the BioE3 acronym.

UPSC RELEVANCE

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GS Paper 3: Science and Technology, developments and applications; Indian economy, mobilisation of resources, growth and employment; issues relating to intellectual property rights.

Prelims pointers:

- Roadmap name: **“Building India as a Leading BioEconomy Powerhouse”**, released by **NITI Aayog** via the **NITI Frontier Tech Hub**.
- Target: about **USD 691 billion by 2035**; roughly **USD 2.6 trillion by 2047** (8 to 10 per cent of GDP).
- Proposed **Rs 50,000 crore BioEconomy Growth Fund (2026 to 2035)**.
- **Six National BioMissions**, including synthetic biology and marine biotechnology.
- Builds on the **BioE3 Policy (2024)**: Biotechnology for Economy, Environment and Employment.

★ FACTS CORNER, KNOWLEDGE PEDIA

Bioeconomy refers to economic activity based on renewable biological resources and biotechnological processes, cutting across health, agriculture, industry and energy.

India's bioeconomy has grown rapidly on the strength of vaccines, biosimilars (<https://ujiyari.com/terms/biosimilars/>) and bio-services, with vaccine manufacturing a global standout.

The BioE3 Policy was approved by the Union Cabinet in 2024 and promotes high-performance biomanufacturing.

The NITI Frontier Tech Hub (FTH) is NITI Aayog's unit for emerging technologies such as biotech, quantum and advanced materials.

India's stated climate goal of net zero by 2070 intersects with bio-based fuels and materials that can lower industrial emissions.

Sources: NITI Aayog roadmap release “Building India as a Leading BioEconomy Powerhouse” (July 16, 2026); Press Information Bureau; Ministry of Science and Technology; BioE3 Policy 2024 documents.

Source: NITI Aayog Bioeconomy Roadmap: India as a BioEconomy Powerhouse by 2035 — Ujiyari.com | Free
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