High-Performance Biomanufacturing Platforms

Prelims – *Current events of National and International importance| Science and Tech, Biotechnology.*

Why in news?

Recently, Union Minister of State for Science and Technology launched the High-Performance Biomanufacturing Platforms under the BioE3 (Biotechnology for Economy, Environment and Employment) Policy.

India's bioeconomy has grown from about $10 billion to nearly $100 billion today, with a target of reaching $300 billion by 2030.

- **High Performance Biomanufacturing Platforms (HPBP)** - It is a network of 21 advanced bio-foundries and biomanufacturing hubs .

- **Launched by** – It is an initiative of the Department of Biotechnology (DBT) and the Biotechnology Industry Research Assistance Council (BIRAC).

The Bio Foundries and Biomanufacturing Hubs will aim at setting up of infrastructure/ facilities for augmenting scale up of technologies for bio-based products.

- **Objective** - They are designed to provide state-of-the-art infrastructure, technology, and expertise for scaling up bio-based innovations from the laboratory to pilot and pre-commercial stages.
- **Features of HPBP** – The platform integrates tools such as synthetic biology, artificial intelligence, machine learning, and omics technologies to accelerate the development of sustainable solutions in health, agriculture, food systems, clean energy, industrial biotechnology, and climate resilience.
- **Bio infrastructure** - By offering shared facilities to start-ups, SMEs, industries, and academic researchers, the initiative aims to fast-track innovation and position India as a global leader in the bioeconomy.
- **National Bio-Enablers** - The newly launched hubs, which are also called

National Bio-Enablers or Mulankur (roots of new growth), will support innovation across health, agriculture, energy, environment, industrial biotechnology, and AI-driven bio-manufacturing.

- **Stem cell repository** - These hubs include cutting-edge projects such as a state-of-the-art cell therapy facility, the nation's first animal stem cell repository, a hub for mRNA-based precision medicine, and advanced CO2 sequestration systems.
- **India's current Bio-capacity** - India already has over 21 bio-foundries, compared to just around 100 worldwide, and more than 4,000 biotech start-ups.

BIRAC

- Biotechnology Industry Research Assistance Council (BIRAC) is a not-for-profit Schedule B, Public Sector Enterprise, set up by Department of Biotechnology (DBT), Government of India.
- It acts as an Interface Agency to strengthen and empower the emerging Biotech enterprise to undertake strategic research and innovation, addressing nationally relevant product development needs.

Reference

1. PIB | High-Performance Bio-manufacturing Platforms

2. BIRAC | High Performance Biomanufacturing Platforms

3. The Hindu |Advanced biomanufacturing hubs