## “Biotechnology sector is recognized as the key driver for contributing to India's $ 5 Trillion economy target by 2024” -- Dr Harsh Vardhan “Biotechnology impacts each sector and the Biotechnology Sector in the country is growing rapidly.”

Biotechnology Industry Research Assistance Council (BIRAC) has been established by Government of India as a Public Sector Enterprise under Department of Biotechnology (DBT) in March, 2012 to foster and nurture the Startup Ecosystem and promoting Academia –Industry Collaboration in Biotechnology.

BIRAC, through its various funding schemes, supports all stages of product development right from proof-of-concept demonstration to product commercialization. The schemes support entrepreneurs, start-ups, Companies and academic institutions, to work on research ideas that have translational potential. The details of Programs undertaken and their output during the last three years and the current year including funds allocated may please be seen at **Annexure – A.**

The Department of Biotechnology has a major focus on promotion of Biotechnology through Research & Development and also in terms of Human resource and Infrastructure Development. The key areas of support are Research and Development, Demonstration, Product Development and Commercialization, Capacity building through Human Resource Development and Infrastructure strengthening.

DBT’s major focus is on building Centre of Excellence in different areas. DBT also has 16 Autonomous Institutions under its administrative control with focus on promoting and strengthening Biotechnology through national and international partnerships. The key activities supported under Human Resource and Infrastructure are enlisted below**.**

Biotechnology sector is recognized as the key driver for contributing to India's $ 5 Trillion economy target by 2024. The biotechnology sector, mainly due to its multi-disciplinary approach holds the potential to provide an array of solutions for challenges in Health, Agriculture, Environment, Energy and Industrial Processes. This includes innovative solutions for various societal challenges, use of biosimilars for helping millions of people around the world in battling life-threatening medical issues, development and manufacture of vaccines for nearly 60% of Global immunization.

Improved crop varieties for increased production and providing better yields to the farmers while reducing the dependence on heavy consumption of water and energy. Industrial biotechnology is being channeled to produce biofuels that can help in ensuring cleaner environment. Biotechnology impacts each sector and the Biotechnology Sector in the country is growing rapidly.

The Biotechnology research and development activities involving use of r-DNA technology and/or hazardous microorganism are being regulated in accordance with Rules for the manufacture, use, import, export & storage of hazardous microorganisms, GE organisms or cells,1989 of the Environment Protection Act, 1986. The Review Committee on Genetic Manipulation (RCGM) established under the Department of Biotechnology, Ministry of Science and Technology to monitor the safety of on-going research projects and activities (including small scale field trials, import, export etc) involving genetically engineered organisms.

This information was given in a written reply by the Minister of Science and Technology, Earth Sciences, and Health & Family Welfare, Dr Harsh Vardhan in Lok Sabha on September 23, 2020.

Details of Activities supported by BIRAC and outcomes during last 3 years:

# Annexure A

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the program/ scheme** | **Focus Area** | **Stakeholders** | **Budget (in Crores) (2017- till**  **date)** | **Impact** |
| **BioNEST** | Incubation support via grant in aid/capital investment for a maximum of 5 years | Academic institutions, Research institutes, existing incubators | 301.00 | 50                      BioIncubators established  across  the country 549219 Sq.Ft. incubation space created 700+ incubates supported |
| **BIG** | Ideation to early stage.  Milestone based funding for 18 months in the form of grant in Aid | Indian citizens, company/LLP | 250.00 | * 8 BIG Partners engaged to implement the scheme * 125 new start ups incorporated through scheme support * More than 50 products/ technologies commercialized through BIG support * More than 500 innovative ideas supported * More than 150 IPs have been filed * 75+ start-ups have raised follow on funding |
| **SITARE** | Ideation to early stage. Support is in the form of award grant | Indian students | 13.00 | * Implemented through SITARE Partner- SRISTI, Ahmadabad * 64 SITARE- GYTI Awardees * 4 Start Ups * 20 IPs * 5 Residential Workshops * 170+ appreciation awardees |
| **E-YUVA** | Pre-incubation, creating an entrepreneurial culture at University Level. | Undergraduate and post graduate students | 11.20 | * 5 Universities recognized as EYUVA Centres * 5-10 more centres being inducted * 30 Innovation Fellows |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  | * 8 Start Ups incorporated * 10 IPs filed |
| SEED Fund | Equity funding | Start ups& SMEs | 29.00 | * 16 BioNEST Incubators engaged as SEED Fund Partners * 55+ start ups supported * Cumulative valuation of start * ups is more than 750   Cr. |
| **LEAP Fund** | Equity funding | Start ups& SMEs | 24.50 | * 6 BioNEST Incubators engaged as LEAP Fund Partners * 10 start ups supported * More than 50% companies have been able to raise external source of funding from Angel, VC, other sources |
| **ACEFund** | Equity Funding | Start Ups, SMEs and large companies | 62.00 | * Fund size: INR 150 crore * Number of ACE Daughter Funds:6 * Committed in ACE Daughter Funds: INR   82crores |

**i4 (Intensifying the Impact of Industrial Innovation) programme**supports biotechnological product/technology development by strengthening R&D capabilities of start-ups/ companies/Limited Liability Partnerships (LLPs). The programme is operated through two schemes based on the Technology Readiness Level (TRL):

* 1. **Small Business Innovation Research Initiative (SBIRI):**The scheme was launched in 2005 to boost Public-Private Partnership (PPP) efforts in the country and promotes & facilitates companies to take their established proof of concepts (PoC) towards early stage validation.

Impact of SBIRI from 2017-till date:

|  |  |
| --- | --- |
| **SBIRI** | |
| Calls Announced | 10 |
| Projects Supported | 122 |
| Funds Dispersed | 20.54 Cr |
| Beneficiaries Supported | 144 |
| Products developed | 21 |
| Products Commercialized | 15 |
| Patents Filed | 28 |

* 1. **Biotechnology Industry Partnership Programme (BIPP):**BIPP is BIRACs Flagship “Late Stage Funding” scheme. It is a public-private partnership scheme that promotes innovative research for development of transformational technologies/processes in the Biotech Sector. The Scheme serves as a launch pad for scaling and commercializing high risk innovations through cost sharing between BIRAC and the industry. No incremental development is supported under BIPP.

Impact of BIPP from 2017-till date:

|  |  |
| --- | --- |
| **BIPP** | |
| Calls Announced | 10 |
| Projects Supported | 91 |
| Funds Dispersed | 77.17 Cr |
| Beneficiaries Supported | 115 |
| Products developed | 25 |
| Products Commercialized | 9 |
| Patents Filed | 10 |

**Promoting Academic Research Conversion to Enterprise (PACE) Scheme**: To encourage/support academia to develop technology/product (up to PoC stage) and its subsequent validation by an industrial partner.

Impact of PACE from 2017-till date:

|  |  |
| --- | --- |
| **PACE** | |
| Projects Supported | 104 |
| Funds Dispersed | 32.06 Cr |
| Beneficiaries Supported | 118 |
| Products developed | 4 |
| Products Commercialized | 1 |
| Patents Filed | 6 |

**SPARSH is Social Innovation program for Products:**Affordable & Relevant to Societal Health aimed at promoting the development of innovative solutions to society’s most pressing social problems through biotechnological approaches. The programme has already developed clusters across the nation on six thematic areas “Maternal and Child Health” “Ageing and Health” “Food and Nutrition” “Agri-Tech” “Combating Environmental Pollution” and “Waste to Value”. Through these clusters spread across 14 SPARSH centres in 9 states from India, around 33 Social Innovators are graduated and 70 are currently enrolled.

Impact of SPARSH from 2017-till date:

|  |  |
| --- | --- |
| **SPARSH** | |
| Projects Supported | 57 |
| Beneficiaries Supported | 133 including 70 SPARSH Fellows |
| Employment Generated | 218 |
| Patents Filed | 15 |
| SPARSH Centers Established | 14 |
| New Enterprises created | 20 |
| Products Commercialized | 8 |

The details of the output for the last three years and the current year are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | TRL-7 | TRL-8 | TRL-9 | IP filed |
| 2017-2018 | 27 | 6 | 9 | 32 |
| 2018-2019 | 29 | 7 | 12 | 35 |
| 2019-2020 | 40 | 15 | 10 | 46 |
| 2020-2021 (Q1) | 11 | - | - | 17 |

* TRL-7- Product/Technology completes late stage validation
* TRL-8- Product/Technology completes all essential requirements for commercialization
* TRL-9- Product/technology commercialized (includes technologies out licensed)

Source

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