

12th ANNUAL REPORT 2023-24



Biotechnology Industry Research Assistance Council

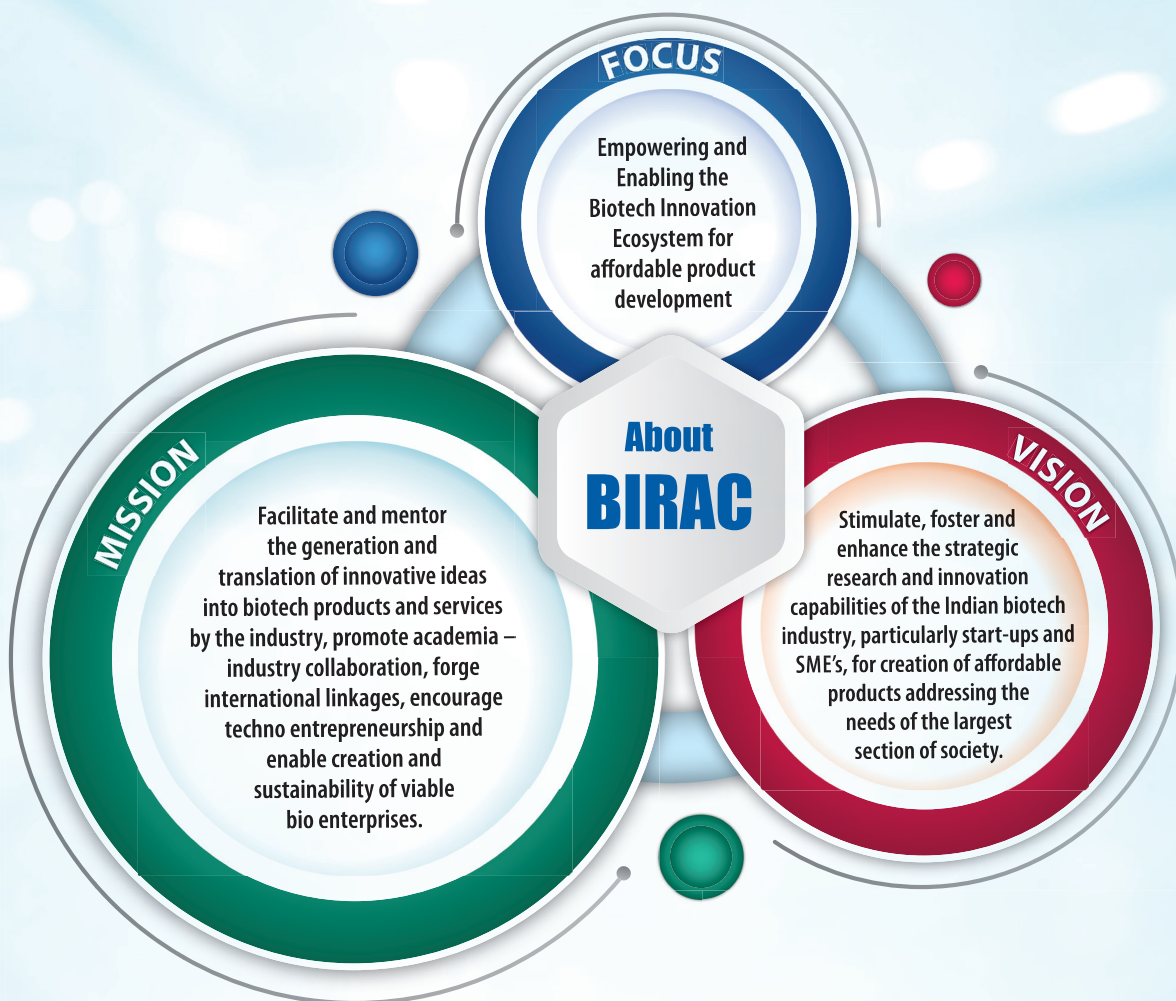
Central Public Sector Enterprise (CPSE)
Under Department of Biotechnology (DBT)
Ministry of Science and Technology, Government of India

12th ANNUAL REPORT 2023–24



Biotechnology Industry Research Assistance Council

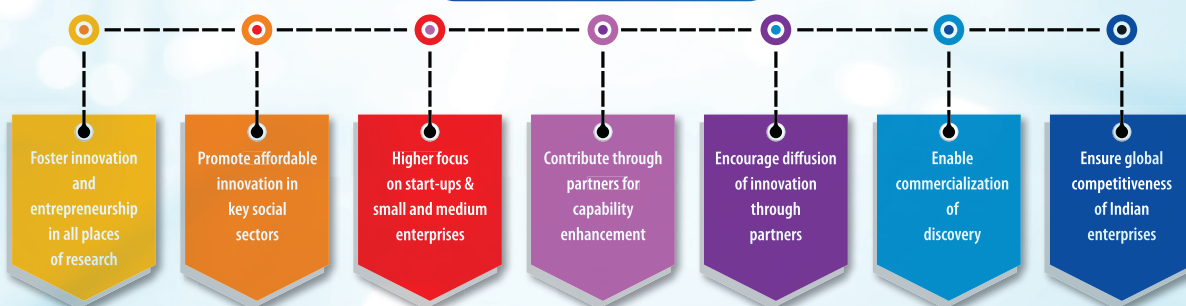
Central Public Sector Enterprise (CPSE)
Under Department of Biotechnology (DBT)
Ministry of Science and Technology, Government of India



CORE VALUES



KEY STRATEGIES



Executive Summary

Biotechnology Industry Research Assistance Council (BIRAC) is a Not-for-Profit, Section 8, Central Public Sector Enterprise set up in 2012 by the Department of Biotechnology under the Ministry of Science and Technology, Government of India. BIRAC's mandate is to strengthen and empower emerging Biotech enterprises. The organization is committed to promote, nurture and enable the Biotech Innovation Ecosystem for development of globally competitive, affordable products to address unmet needs of society at large. BIRAC's 12 years of strategic and systematic efforts have led to the establishment of a robust and prominent biotech innovation ecosystem in the country. Through Public-Private Partnerships, BIRAC has taken up a multitude of activities, ranging from funding high-risk translational research, supporting nascent ideas, capacity building, and creating shared infrastructure by setting up specialized bio-incubation centers, handholding through mentoring and training to policy advocacy, all aimed at accelerating growth of the biotech innovation ecosystem in India.

Biotechnology has been recognized as the sunrise sector as it holds immense potential to contribute to India's target of USD 5 Trillion by 2025. Policy initiatives of the Government of India (GoI), such as Make in India and Startup India programs, are aimed at developing India as a world-class Biotechnology innovation and Biomanufacturing hub. India's Bioeconomy as of December 2023 crossed USD 150 billion (IBER 2024), a target set for 2025. The Bioeconomy contributed 4.25% to the overall GDP, up from its corresponding figure of 4.10% in 2022, positioning the biotech sector as a key contributor to the country's growth. The biotech ecosystem in the country is set for continued expansion, with a Bioeconomy target of \$300 billion (USD) by 2030. The growth trends within the biotech sector over the last decade underscore a significant contribution by this sector towards advancing the overarching goal of Viksit Bharat by 2047.

Startups primarily fuel the biotech innovation pipeline. However, the proportion of deep-tech biotech startups within the country's overall startup ecosystem, which ranks as the world's third largest, remains relatively small. Here, BIRAC's enabling efforts are recognized as fundamental in its growth from <50 biotech startups in 2012 to 8500+ as of Dec 2023 (IBER 2024). These numbers are expected to grow further to over 12,000 by 2025.

BIRAC's unwavering commitment and support for the growth of the biotech sector have facilitated development of an ecosystem that competes at the global level. Success of the BIRAC model stems from the visionary approach of the Department of Biotechnology (DBT) in promoting innovation and R&D by setting up a dedicated arm for the same. BIRAC's programs, schemes, and initiatives are customized and tailored to meet evolving needs of the ecosystem. New schemes and programs are introduced, and existing ones are refined based on ground-level assessments by project divisions and stakeholder consultations. The programs cater to the entire product development cycle, i.e., from ideation, proof of concept, validation, and commercialization.

BIRAC celebrated its 12th Foundation Day on 20th March 2024 at Scope Complex, New Delhi. Twelve years of BIRAC are reflected in a strong ecosystem growth seen in terms of the increase in the number of startups, robust infrastructure facilities, rise in private investments, national & global awards and recognitions for our beneficiaries, commercialization of made-in-India biotech products, and so on.



12th Foundation Day of BIRAC, held on 20th March 2024 at Scope complex, New Delhi

BIRAC operates through Public Private Partnerships (PPP) using various models:

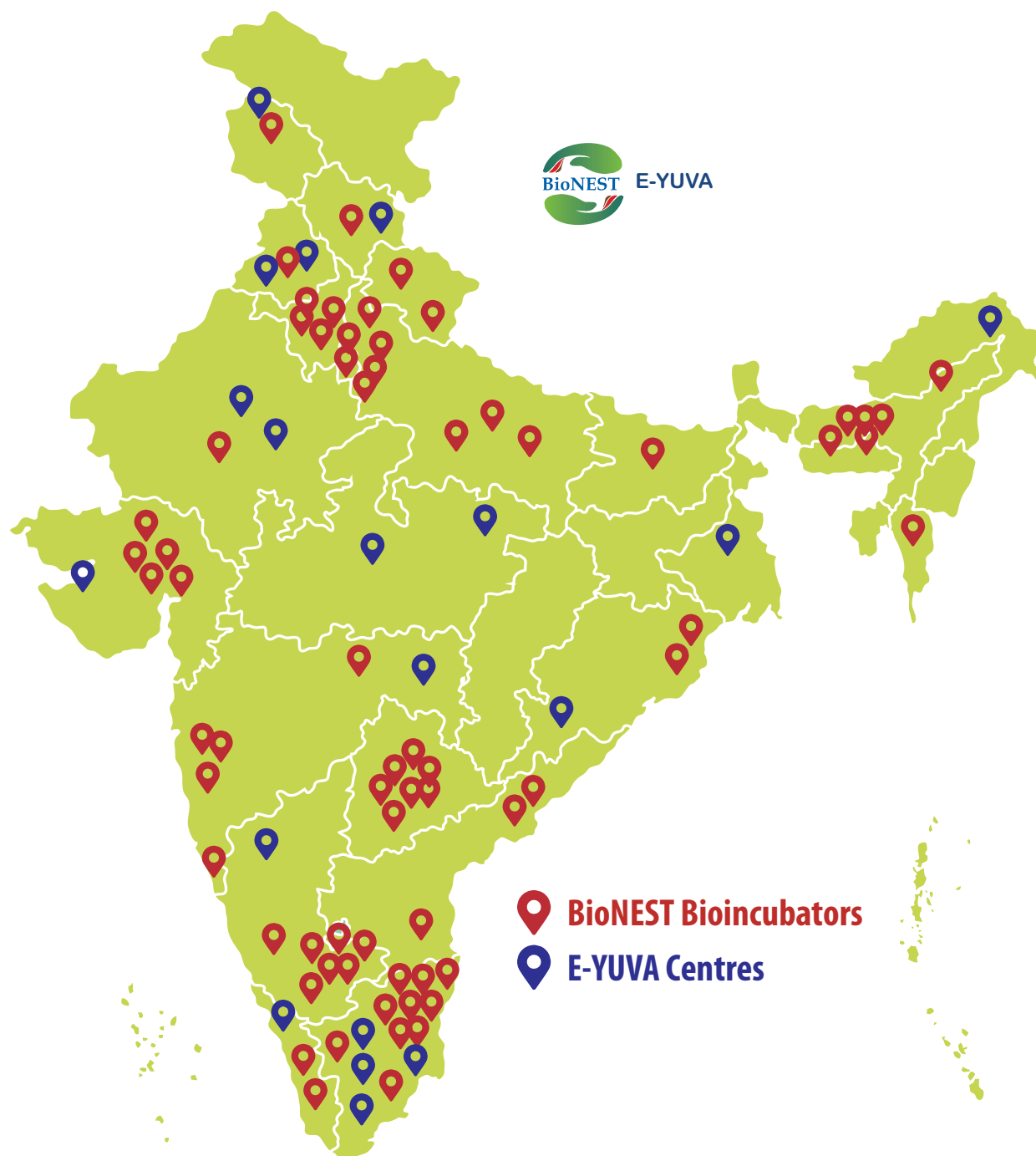
BIRAC's programs, schemes, and policy initiatives are supplemented through strategic collaborations, partnerships with National & International bodies, Government departments, Agencies, States, Industry, Angels/ VCs, Mentors, Experts, Philanthropic organizations, NGOs etc.



*BIRAC's Partners'

*Non-exhaustive representation

BIRAC's Bioincubation (BioNEST) and pre-incubation (EYUVA) programmes have supported 95 bioincubation facilities across the country. These facilities provide nurturing grounds for nascent ideas by providing access to high-end infrastructure, specialized and advanced equipment, business mentorship, IP, legal and regulatory guidance, and networking opportunities. These facilities are located within Universities, Research Institutes, Research Hospitals, or as stand-alone centres. The centres have also been seeded in 21 States & 4 UTs, including Tier 2 & 3 cities bringing opportunities closer to the entrepreneurs, thereby obviating the need to dislocate from their home towns for the lack of opportunities locally. BioNEST & E-YUVA centres have supported more than 2500 incubatees & students, more than 1300 IPs have been filed by the incubatees, and 800+ products have reached market.



BIRAC's BIG programme has been instrumental in nurturing a pipeline of biotech startups. So far, more than 1000 innovative ideas have been supported out of 13,000+ applications received from across the country. The spread of aspirants covers 550+ cities and 38 aspirational districts pan India. More than 50% of the applications under BIG are from Tier 2&3 cities. Early-stage schemes like SITARE, Social Innovation Immersion Programme (SIIP), E-YUVA have been creating a pipeline of innovators for BIG scheme.

Small Business Innovation Research Initiative (SBIRI) and Biotechnology Industry Partnership Programme (BIPP), the two flagship schemes of BIRAC support biotechnological product/technology development by strengthening R&D capabilities of start-ups/companies/LLPs. They provide the desired impetus for taking translational ideas forward for validation, scale-up, demonstration and pre-commercialization. SBIRI facilitates companies to take their Proof of Concept (PoC) towards early-stage validation. Since its inception in 2005, the scheme has supported 338 projects resulting in the validation/commercialization of 89 products/technologies and filing of 52 patents. BIPP scheme serves as a launch pad for scaling and commercializing high-risk innovations through cost-sharing between BIRAC and the Industry. Since its inception, 249 projects including 69 collaborative projects have been supported under BIPP. A total of 103 products/technologies have been successfully developed and validated till date. While some of these have already been commercialized, others are at the pre-commercialization stage.

The PACE Scheme (Promoting Academic Research Conversion to Enterprise) boosts translational research within academia. PACE has 2 components, namely AIR (Academic Innovation Research) which promotes the development of Proof-of-Concept (PoC) for a process/product by academia; and CRS (Contract Research Scheme) which enables validation of a process or prototype (developed by the academia) by an industry partner. So far, 169 projects have been supported under the scheme, with 10 technologies/products validated and 26 IPs filed.

BIRAC Equity schemes constitute another major vertical of support for startups and biotech companies. SEED (Sustainable Entrepreneurship and Enterprise Development) Fund; LEAP (Launching Entrepreneurial Driven Affordable Products) Fund and Biotechnology Innovation (AcE-Accelerating Entrepreneurs) Fund-of-Funds, which offer support to the early-stage start-ups for differential growth, have helped the entities to attract private investment from Angels and VCs. By FY 2023-24, nearly 210 startups have been supported through equity support under SEED and LEAP. Out of these startups, more than 60% have raised follow-on funding amounting to about ₹ 856 Cr. There is a significant increase in the number of Startups getting investments from Angels, HNIs, and early-stage VCs, contributing to the growth story of the biotech industry. AcE-Fund-of-Funds has 14 daughter funds with BIRAC's investment commitment of ₹ 149.50 Cr. This has successfully mobilized ₹ 1172 Cr. investment in 88 biotech Companies. The AcE fund portfolio is being expanded by onboarding new daughter fund partners.

BIRAC's in-house IP & Technology Management group (IPTeM) supports biotech innovators, start-ups, academia, and SMEs by providing expertise in patent searches, drafting, and filing, both domestically and internationally. The group also facilitates technology transfer, licensing, and commercialization to advance technology translation. To further enhance IP and Tech Transfer capabilities, the group regularly conducts sensitization workshops and webinars to increase knowledge and awareness.

BIRAC's new initiative Regulatory Affairs and Policy Advocacy (RAPA) aims at strengthening the regulatory and policy milieu of India. The "Ask Me Anything" platform "FIRST HUB" is first of its kind single window facilitation platform to address the queries of start-ups, entrepreneurs, researchers, academicians, incubation centres, SMEs etc. Till now, more than 850 queries have been addressed.

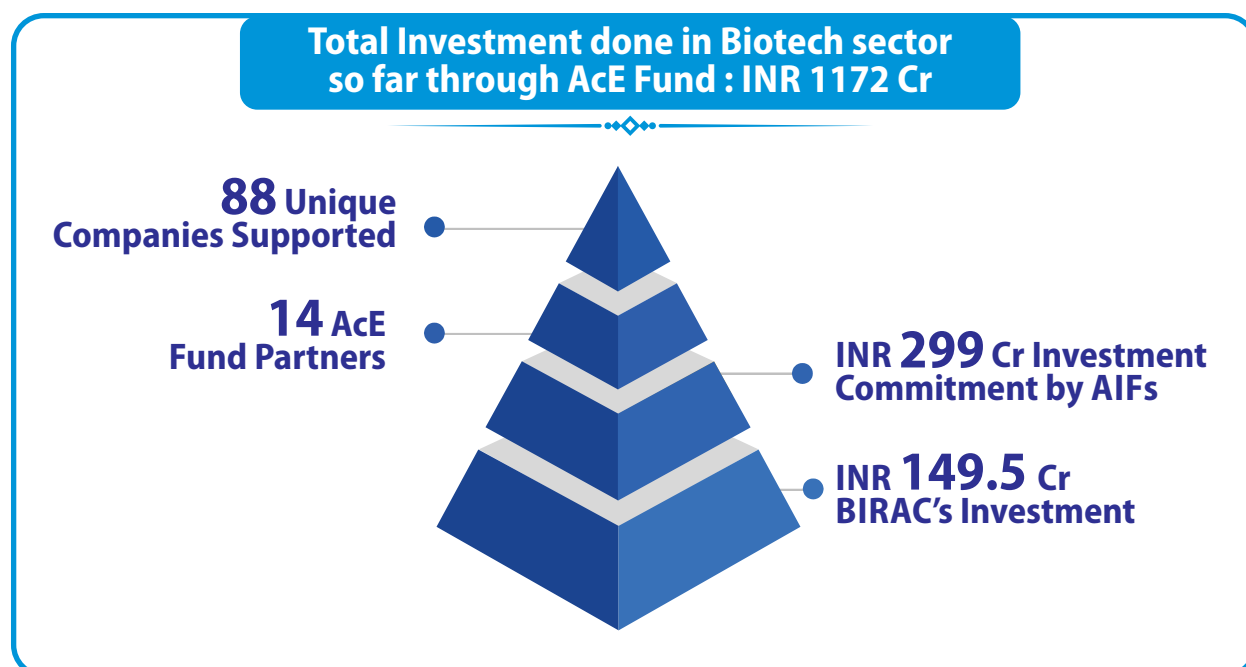
BIRAC has been at the forefront of engaging with all stakeholders- the innovators, academia, Industry, SMEs, Investors, national and international partners and so on. BIRAC spearheads regular national and international events that bring together stakeholders to showcase India's growing strength in the sector and create opportunities for connection, co-creation, co-development, and co-scaling. These events emphasize peer-to-peer learning, identifying gaps and opportunities, networking, and showcasing innovations.

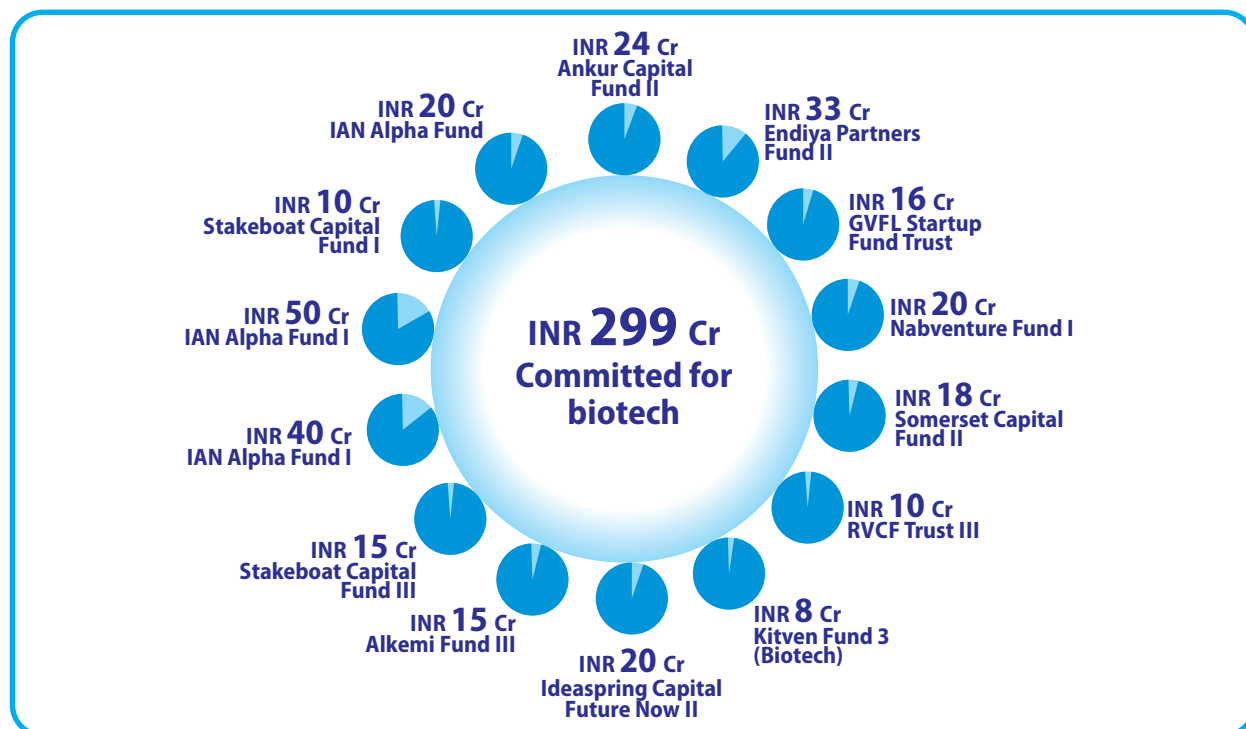
Global Bio-India (GBI) is a mega international event led by the Department of Biotechnology (DBT) and Biotechnology Industry Research Assistance Council (BIRAC) to showcase India's potential and growth opportunities to the international world. GBI offers a platform to biotechnology stakeholders, including international bodies, regulatory bodies, Central and State Ministries, SMEs, large industries, bio clusters, research institutes, investors, and the startup ecosystem to meet and interact. 3rd edition of GBI was held from 4-6 December, 2023 at Bharat Mandapam, Pragati Maidan, New Delhi and was attended by over 5500 delegates representing 30+ countries. Other notable events hosted by BIRAC in the past include Biotech Start-Up Expo 2022 and the Startup Conclave event at the India International Science Festival (IISF 2022).

BIRAC houses Project Management Units (PMUs) for programmes of global repute. PMU for Grand Challenges India (GCI) is a collaborative initiative between the Department of Biotechnology (DBT) and the Bill & Melinda Gates Foundation (BMGF). Over the past 12 years, the Grand Challenges Model supported thematic open calls and targeted programs in areas such as maternal and child health, nutrition, sanitation, infectious diseases, data science, agriculture, vaccines, and capacity-building initiatives. These efforts align with key priorities of the Government of India, including the National Health Mission, Atmanirbhar Bharat, Swachh Bharat Abhiyan, National Nutrition Mission, Make in India, and Skill India. GCI currently manages 43 programs, ranging from basic science research to proof-of-concept and scale-up innovations across these thematic areas. Notable achievements of the BIRAC-GCI PMU include successful support for India's first quadrivalent HPV vaccine, CERVAVAC, introduced under the National Immunization Programme (NIP). Another impactful initiative, the WINGS interventional trial, demonstrated significant reductions in low birth weight (24%), stunting (51%), underweight (44%), and maternal anemia (56%). These outcomes led to NITI Aayog's facilitation of pilot scaling these interventions in Himachal Pradesh.

The Make in India (MII) PMU of the Department of Biotechnology at BIRAC ensures wider dissemination of Government programmes and other information relevant to the establishment and growth of startups, SMEs, and large companies. MII PMU also contributes to the Start-up India action plan integrating BIRAC's facilitation for funding and incubation support to start-ups. It carries out annual mapping of India's Bioeconomy, facilitation of biotech innovation ecosystem, VCs, Angels & HNIs investors, Startups, and entrepreneurs onto the gamut of business-related issues in biotechnology such as regulatory landscape in the country, investment opportunities, FDI/EXIM/ Industrial policies while working closely with Invest India and Startup India Cell at DPIIT and DBT. Policy-level inputs, leading new initiatives, and identifying and creating national and international opportunities for the biotech ecosystem are essential functions of the biotechnology Industry facilitation under Make In India facilitation PMU.

Notable outcomes of the Make in India initiatives led by BIRAC and DBT include Global Bio-India gaining international recognition as India's leading biotech business event, the abolishment of the angel tax, recalibration of customs duties for small-volume biotech reagents and standards, the invigoration of the NCR biotech cluster as India's first planned Bioscience Innovation Park, and the upscaling of the Fund of Funds – AcE to attract private equity and venture capital into the biotech ecosystem. There is a significant increase in the numbers of Startups raising private investments from VCs, Angels, and HNIs catalyzed by the Fund of Funds – AcE scheme. We now have 14 daughter funds with BIRAC's investment commitment of ₹ 149.5 Cr. It has successfully resulted mobilization of INR 1172 Cr. investment in 88 biotech Companies so far. The AcE fund portfolio is being expanded by onboarding new daughter fund partners.

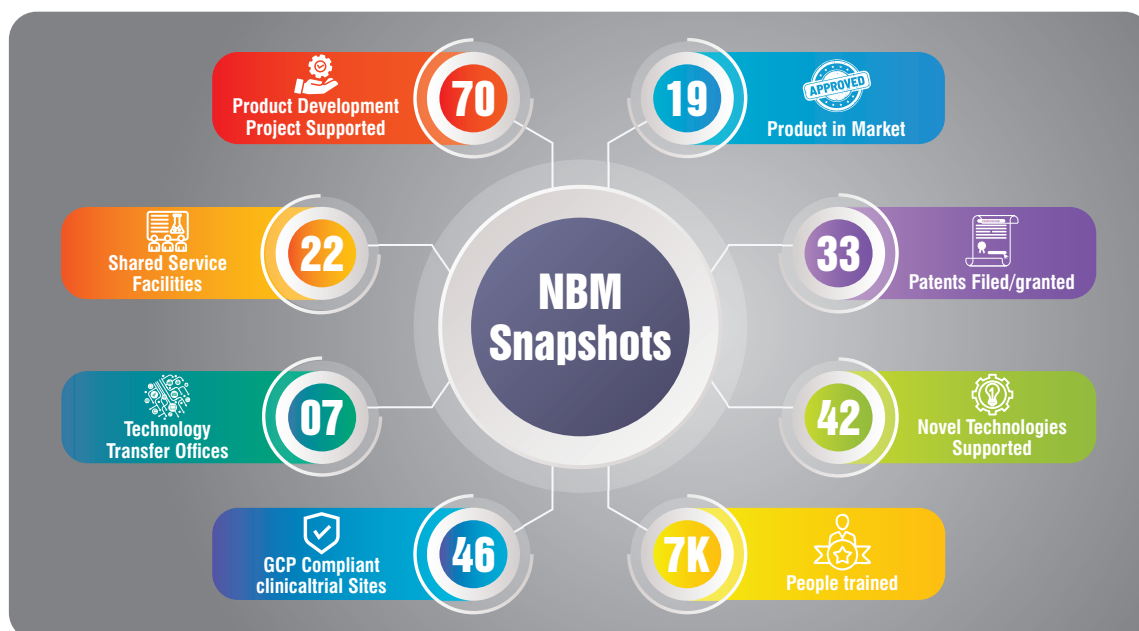




IMPACT OF AcE Fund

Bio-manufacturing and Bio-innovation are two key drivers identified for the growth of India's Bioeconomy and have been proposed in the BioE3 policy. Strategic reports, like the Annual India Bioeconomy Report (IBER) and the Biotech Showcase e-portal have become referral documents/repository for national and international stakeholders. The creation of Technology cluster as a national initiative recommended by MII cell through BIRAC, is expected to augment the capacity building under the Bio-Manufacturing initiative led by DBT/ BIRAC. The #BioE3 Policy is expected to give a new direction for the growth of future India that is powered with Jaiv Shakti.

The National Biopharma Mission approved by the Union Cabinet in May 2017 with a total cost of USD 250 million (INR 1500.00 Crores) is co-funded by DBT and World Bank. The mission focuses on industry-academia collaboration to accelerate the transition from discovery research to early-stage development for bio-pharmaceuticals under the banner of "Innovate in India (i3) Empowering biotech entrepreneurs & accelerating inclusive innovation". The Mission is implemented through a dedicated Program Management Unit (PMU) established at BIRAC.



The National Biopharma Mission is designed to be one of the key growth drivers for the projected growth target of USD150 billion in the Indian Bioeconomy by 2025. The mission is strategically aligned with the goals of national initiatives like “Make in India” and “Start up India” and also aims to take forward the commitments made by DBT in the National Biotechnology Development Strategy.

The mission is supporting 215 grantees working in different verticals- viz., Medical devices and diagnostics, Vaccines, and Bio-therapeutics to plug in the necessary gaps in biopharmaceutical development pipeline.

Some of the successful innovations supported by NBM include: First indigenously developed MRI scanner developed by Voxelgrids Innovations; First biosimilar of Victoza ‘Liraglutide’ by Levim Biotech LLP; indigenous HEV vaccine being developed by Zydus under translational research consortia mode; support for the clinical development of BBV87, India’s 1st, inactivated Chikungunya vaccine by Bharat Biotech International Ltd, (Phase II and III), and live attenuated tetravalent recombinant dengue; Dengue vaccine for phase I and II by Indian Immunologicals Limited. HiMedia’s serum-free, chemically defined media and feed supplements for therapeutic proteins; OmniBRx’s 5L and 50L India’s 1st single use bioreactors for adherent cell culture; Development of an indigenous flexible video endoscope by Healthcare Technology Innovation Centre (HTIC) in collaboration with Mitra Medical Services; Affordable dental implant by Intessence solutions; Real-time ECG by Carditek for evaluation of chest pain in emergency, Human Bone marrow derived Mesenchymal Stem Cell based VELGRAFT technology as a skin substitute for difficult to cure diabetic foot ulcers by Datt Mediproducts etc.

Support for clinical trials of India’s first CAR-T cell therapy for pediatric cancer patients; Lupin’s efforts for clinical (Phase III) development of Aflibercept with biosimilar global clinical trial at 30 trial sites in India and 5 sites in Russia are additional examples of breakthroughs expected in near future.

Translational Research Consortium for Chikungunya and dengue vaccine developments resulted in development of in-vitro and in-vivo assays with India specific strains; which is being leveraged for evaluation of immunogenicity and safety of Chikungunya, Dengue Vaccine candidates; Call launch to support the development of diagnostics to detect Antimicrobial Resistant pathogens and development of new antibiotics, therapeutics, or any novel approaches to combat Antimicrobial Resistance,

NBM has established 17 shared facilities for the development of vaccines, devices, diagnostics and bio-therapeutics, serving Indian and global clients. It has also set up serum bio-banks and virus repositories for dengue, 10 Demographic and Health Surveillance sites under the DRIVEN Network, and five clinical trial networks across 36 hospitals for oncology, diabetology, rheumatology, and ophthalmology indications. Since the mission’s inception, over 7,000 professionals have been trained, 56 peer-reviewed publications released, and 33 IPs filed.

An important element of BIRAC’s strategy is facilitating technology transfer between academia and industry both within India and internationally. Under the National BioPharma Mission, BIRAC has supported 7 Technology Transfer Offices (TTOs) complementing the BioNEST Incubators.

DBT’s Ind-CEPI mission entitled “Epidemic preparedness through rapid vaccine development: Support of Indian vaccine development aligned with the global initiative of the Coalition for Epidemic Preparedness Innovations (CEPI)” is being implemented through a dedicated Program Management Unit (PMU) at BIRAC. The mission has supported two vaccine candidates. One mRNA platform vaccine for COVID-19 developed by Gennova Biopharmaceuticals Ltd received market authorization. The Chikungunya vaccine (Inactivated Virus Vaccine Platform) developed by Bharat Biotech International Ltd completed phase 1 clinical studies. The vaccine is ready for Phase 2/3 clinical trial.

New Initiatives:

During the FY2023-24, BIRAC took up a few new initiatives including the following:

- BIRAC entered into a MoU with the Foreign, Commonwealth and Development Office (FCDO, UK) with a broad mandate to facilitate knowledge transfer of innovations to other developing/under-developed countries to deliver global development impacts. A trilateral pilot project involving India-UK-South Africa in the area of food security and nutrition has been initiated under the umbrella of the BIRAC-FCDO partnership.

- BIRAC entered into a funding partnership with India Health Fund, a philanthropic fund under the umbrella of Tata Trusts, to jointly support startup innovations in the area of diagnostics & digital solutions for infectious diseases.
- BIRAC's Investment group has launched MASTER FORUM wherein outreach webinars along with grant writing workshops were organized across India to apprise the company representatives/ academicians about the i4 and PACE scheme guidelines.

Way forward:

Bioeconomy has been recognized as a new chapter under the Brazilian G20 presidency to sensitize the world with regard to a sustainable future using advances in biotechnology. India is one of the few countries already following up on the country's Bioeconomy year on year. The 13.6-fold growth in bioeconomy since 2013, with a notable acceleration seen between 2018 to 2023 has helped us to set an aspirational target of \$300 billion USD by 2030. Bioeconomy's current contribution of 4% at \$150.1 billion in 2023 is expected to increase to 10% of country's GDP by 2047. The BioE3 policy championed by DBT/ BIRAC is very timely. This is likely to bring focus on augmenting both Bio-manufacturing and Bio-innovation; and setting up biotech clusters in the country.

Achieving India's BioEconomy growth to the \$300 billion mark by 2030 would necessitate a focused and strategic use of current resources. This goal requires additional resource mobilization and effective integration with national and international stakeholders through Public-Private Partnership models. Furthermore, undertaking strategic tasks with clearly defined deliverables aligned with the overarching mandate will be crucial for success.

As we progress, BIRAC would focus on consolidating its existing achievements and identifying key components that need further development. Priorities will include advancing Atmanirbhar Bharat, establishing India as a biomanufacturing hub, and transitioning from biosciences to bioeconomy.

CONTENTS

Chairman's Message	17
Managing Director's Message	19
Board of Directors	21
Corporate Information	25
Directors' Report	27
Management Discussion & Analysis Report	35
Report on Corporate Governance	169
Auditors' Report	179
Annual Accounts	186
Comments of Comptroller and Auditor General of India (C&AG)	231

Biotechnology Industry Research Assistance Council

CIN: U73100DL2012NPL233152

Regd. office: 5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi - 110020

Website: www.birac.nic.in | **Email:** birac.dbt@nic.in

Tel: 011-29878000 | **Fax:** 011-29878111

Notice

NOTICE is hereby given that the Twelfth Annual General Meeting of the Company will be held on:

Day and Date: Friday, 27th September, 2024

Time: 4:30 P.M.

Venue: Biotechnology Industry Research Assistance Council, BIRAC, 5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi - 110020.

For transacting the following business:

Ordinary Business:

1. To receive, consider and adopt the Audited Financial Statement of the Company as on March 31, 2024 together with the Reports of the Directors and Auditor thereon and comments of the Comptroller & Auditor General of India in terms of Section 143(6)(b) of the Companies Act, 2013;
2. To fix the remuneration of the Statutory Auditor for the financial year 2024-25, in terms of provisions of Section 139(5) read with Section 142 of the Companies Act, 2013.

NOTES:

1. MEMBERS ENTITLED TO ATTEND AND VOTE MAY APPOINT ONE OR MORE PROXIES TO ATTEND AND VOTE INSTEAD OF THEMSELVES. PROXIES TO BE VALID MUST BE RECEIVED AT THE REGISTERED OFFICE OF THE COMPANY NOT LESS THAN FORTY-EIGHT HOURS BEFORE THE APPOINTED TIME OF THE MEETING.
2. Only bona-fide members of the Company whose names appear in the Register of Members in possession of valid attendance slips duly filed and signed will be permitted to attend the meeting. The Company reserves its right to take all steps as may be deemed necessary to restrict non-members from attending the meeting.
3. It will be appreciated that queries, if any, on accounts and operations of the Company are sent to the registered office of the Company at least 48 hours in advance of the meeting so that the information may be made readily available.
4. This meeting is being called at shorter notice with the consent of the requisite number of shareholders as prescribed under Companies Act, 2013.

By Order of the Board

Sd/-

Kavita Anandani

Company Secretary

Registered Office:

5th Floor, NSIC Business Park, NSIC Bhawan,
Okhla Industrial Estate, New Delhi - 110020

Date: 19th September 2024

Chairman's Message



Dr. Rajesh S. Gokhale

Secretary, Department of Biotechnology
Ministry of Science & Technology, Govt. of India,
DG BRIC & Chairman, BIRAC

With great pride and optimism, I present the 2023-24 Annual Report of the Biotechnology Industry Research Assistance Council (BIRAC). As we prepare to address some of the most pressing challenges facing India and the world, I am glad to see the remarkable progress and contribution made by BIRAC to the overall growth of the biotech ecosystem in terms of supporting technological advances, capacity building, and steering an innovation-driven bioeconomy.

Economic growth over the next two decades is set to be driven by the industrialization of biology, and this is where biotechnological advancements play an extremely critical role. The announcement of the first-ever biotechnology policy by the Cabinet, the BioE3 Policy (Biotechnology for Economy, Employment, and Environment), has instilled confidence in the potential that biotech solutions hold for a sustainable future. The policy will drive investments in biomanufacturing facilities, bio-foundry clusters, and Bio-AI hubs, helping bridge the gap between research and commercial manufacturing.

Bioeconomy crossing a mark of USD 150 bn dollar in December 2023, a target earlier envisaged for 2025, is a testimony to the existence of a strong engine powering up the growth. As we celebrate this achievement, the bars are now higher, and therefore, BIRAC's role as a catalyst for bio-innovation has never been more crucial. Our mission to foster entrepreneurship and create a supportive ecosystem for startups and small enterprises remains at the heart of everything we do. Over the past year, we have made significant strides in promoting public-private partnerships, supporting cutting-edge research, facilitating the commercialization of novel technologies, and fostering global development impacts.

Our various funding schemes, incubation initiatives, IP and regulatory support for innovators, mentorship, and networking activities have played a pivotal role in nurturing talent and driving entrepreneurial growth across the country. This year, our network of incubation, pre-incubation, and social innovation centers, supported by BIRAC's BioNEST, E-YUVA, and SPARSH schemes, surpassed the milestone of 100 centers-a truly remarkable achievement.

BIRAC's Program Management Units (PMUs) and Mission Programs, namely Grand Challenges India (GCI), National Biopharma Mission (NBM), Ind-CEPI, and the Make in India (MII), have been progressing well and achieving higher targets year on year. The year witnessed the launch of new bio-therapeutics, high-end medical devices, and platform technologies supported through BIRAC schemes and PMUs.

As we look ahead, BIRAC remains steadfast in its vision of transforming India into a global biotechnology hub. The challenges we face-ranging from climate change to public health-demand innovative solutions. I am confident that with the continued support of our partners, stakeholders, and the government, we will rise to meet them.

Further, BIRAC has been complying with the requirements of Corporate Governance as stipulated by the Department of Public Enterprises (DPE) for Central Public Sector Enterprises (CPSEs). The Corporate Governance report for the year 2023-24 forms a part of this Annual Report.

I want to express my appreciation for the entire BIRAC team and thank our partners for their unwavering commitment and collaboration. Together, we are confident of building a brighter, more sustainable future for all.

Dr. Rajesh S. Gokhale

Secretary, DBT, DG, BRIC & Chairman, BIRAC

Managing Director's Message



Dr. Jitendra Kumar
 Managing Director, BIRAC & Managing
 Director, BICOL (Additional Charge)

The year 2023-24 has been particularly significant for me, as I stepped into the role of Managing Director, BIRAC this year. Reflecting on the past year, it is quite gratifying to see and share the remarkable achievements of BIRAC and its network of beneficiaries through this Annual Report.

BIRAC completed 12 years this year, and over the past decade, we have witnessed a remarkable transformation in the biotech innovation ecosystem. The growth we have seen—expanding 10 to 15 times in just over a decade—is nothing short of extraordinary. Back in 2012, we had fewer than 500 startups and only 6-8 biotech-focused incubators. Today, we celebrate an ecosystem with more than 100 specialized bio-incubators and over 8,000 startups. Our bioeconomy, which was valued at under USD 30 billion in 2014, has surpassed USD 150 billion in 2023—two years ahead of our target.

BIRAC has been powering this growth relentlessly with guidance from our Hon'ble Union Minister of State (Independent Charge), Science & Technology, Dr. Jitendra Singh ji and Secretary, DBT, Chairperson, BIRAC & DG-BRIC Dr. Rajesh S. Gokhale.

The BioE3 Policy (Biotechnology for Economy, Environment, and Employment), recently approved by the Cabinet and led by DBT, has set a clear path for a sustainable, innovative, and globally responsive future, aiming for a "Viksit Bharat @2047." Aligned with this vision, BIRAC introduced the Bio-Enabler initiative, which focuses on biomanufacturing as a key driver of green growth. This initiative will help establish biomanufacturing hubs to scale up domestic production of biotech products, reducing reliance on imports.

During the year 23-24, BIRAC continued to support new centers through its BioNEST, EYUVA, and SPARSH schemes, taking the total number of Bio-incubators to more than 100. Additionally, we funded startups, innovators, SMEs, and industries through our flagship programs like BIG, SBIRI, BIPP, as well as investments through SEED, LEAP, and the AcE Fund. Our support extends beyond funding, providing comprehensive mentoring on IP, technology transfer, regulatory guidance, and showcasing opportunities. Our supported base now exceeds a count of 5,000 beneficiaries.

Global Bio-India, BIRAC's annual event has emerged as a mega international event, widely recognized by the biotechnology community. BIRAC's partnership with the World Bank for the National Biopharma Mission (NBM) entered its fifth year, strengthening capacities in clinical trials, technology transfer, and shared service facilities. NBM has supported the development of notable products such as India's first indigenous MRI scanner, Biosimilar-Liraglutide, and serum-free media, among others.

BIRAC's Program Management Units (PMUs) for the Grand Challenges India (GCI) initiative continue to address critical areas like maternal and child health, nutrition, infectious diseases, data science, and vaccines. Some key

successes include India's first quadrivalent HPV vaccine, CERVAVAC, and the WINGS interventional trial, which led to NITI Aayog's pilot program in Himachal Pradesh.

The Ind-CEPI mission, managed by a dedicated PMU at BIRAC, has supported the development of two vaccines: an mRNA platform vaccine for COVID-19 by Gennova Bio-pharmaceuticals and a Chikungunya vaccine (Inactivated Virus Vaccine Platform) by Bharat Biotech.

As the Make-in-India PMU for Biotechnology, BIRAC has invigorated the NCR Biotech Cluster, India's first planned Bioscience Innovation Park, and expanded the Fund of Funds – AcE program to attract private equity and venture capital into the biotech ecosystem. We also launched the India Bioeconomy Report (IBER) 2024, a key reference document for stakeholders at both national and international levels.

BIRAC's achievements in 2023-24 reflect our relentless commitment to advancing biotechnology in India. We remain focused on supporting innovation, fostering collaboration, and addressing unmet needs. As we move forward, we recognize the challenges ahead but are excited about the opportunities that await us.

I extend my heartfelt congratulations to the entire BIRAC team for their hard work and dedication. I also express my gratitude to our partners and the entire biotechnology community for their continued support and trust.

Dr. Jitendra Kumar

Managing Director, BIRAC &

Managing Director BIBCOLD (Additional Charge)

BOARD OF DIRECTORS

Dr. Rajesh S Gokhale	:	Chairman
*Dr. Jitendra Kumar	:	Managing Director
**Dr. Alka Sharma	:	Managing Director
***Dr. Subhra Ranjan Chakrabarti	:	Director (Operations)
CA. Nidhi Shrivastava	:	Director (Finance)

Government Nominee Director

Shri Vishvajit Sahay	:	Government Nominee Director
----------------------	---	-----------------------------

Non-Official Independent Director

#Dr. Penna Krishna Prasanthi	:	Non-Official Independent Director
------------------------------	---	-----------------------------------

***Was appointed as Managing Director w.e.f. 9th June 2023.**

****Held the position of Managing Director on additional charge till 8th June 2023.**

*****Held the position of Director (Operations) till 24th December 2023.**

#Was appointed as Non-Official Independent Director w.e.f. 27th March 2023.

Chairman



Dr. Rajesh S. Gokhale

Secretary, Department of Biotechnology
Ministry of Science & Technology, Govt. of India,
DG BRIC & Chairman, BIRAC

Prof. Rajesh S. Gokhale is the Secretary at Department of Biotechnology in the Ministry of Science & Technology, Government of India. He is presently on deputation from Indian Institute of Science Education & Research (IISER) Pune. Prior to this, he was at National Institute of Immunology (NII) and was also Director of CSIR Institute of Genomics and Integrative Biology (CSIR-IGIB) for seven-and-half years. During his tenure he established the South Campus of CSIR-IGIB, where he led interdisciplinary initiatives in translational genomics research programs focused in delineating a variety of complex diseases.

Dr. Gokhale is trained as a chemical biologist from Indian Institute of Science (IISc), Bangalore and Stanford University, USA. His significant research contributions are in discovering novel metabolites and their pathways, which dictate pathophysiology of human diseases. Recent work from his laboratory have identified two novel metabolites from infectious pathogen *Mycobacterium tuberculosis*, that are crucial for initiating complex infection process. His group have also significantly contributed to the understanding of autoimmune disease Vitiligo. Studies from his group has elucidated complex interplay between metabolic reprogramming and immune system, to develop novel therapeutic strategies that can tackle the underlying causes, rather than just the symptoms. Scientific work from his laboratory has been published in prestigious journals like Nature, Nature Chemical Biology, Molecular Cell, The Proceedings of the National Academy of Sciences etc. He has mentored more than 200 students and about 25 students have completed PhD thesis from his group.

Dr. Gokhale co-founded Vyome Biosciences Pvt. Ltd. (VYOME) in 2010, a biopharmaceutical company developing best in class drugs for dermatology. This company is presently completing Phase IIb clinical trial for drug-resistant acne and has launched OTC products in the market.

Dr. Gokhale was a Wellcome Trust Senior Research Fellow, UK and an International HHMI Fellow, USA. He is recipient of several awards, including Infosys Prize, Shanti Swarup Bhatnagar Prize, National Bioscience Award, J C Bose National Fellowship and IIT Bombay Distinguished Alumni Award. He is also Fellow of all the three Indian National Science Academies.

Managing Director



Dr. Jitendra Kumar
Managing Director, BIRAC

Dr. Jitendra Kumar, Managing Director, Biotechnology Industry Research Assistance Council (BIRAC) & Managing Director (Additional Charge) Bharat Biologicals and Immunologicals Corporation Limited (BIBCOL), Department of Biotechnology, Government of India

Dr. Jitendra Kumar holds a PhD degree (Year 2002) in Biotechnology from the Institute of Microbial Technology, Chandigarh. Subsequently, he moved to the University of Illinois, Chicago as a visiting research scholar, where he worked on leukemia. He then joined Ohio State University, Columbus Ohio (USA) as Post Doctoral Researcher (year 2004). Additionally, he holds an MBA degree from the Fisher College of Business at Ohio State University in the United States (Year 2009).

After returning from the United States (Year 2009), he joined as a Vice-President of the Life Sciences Innovation at IKP Knowledge Park in Hyderabad where he was actively involved in mentoring incubate companies, creating a pipeline of entrepreneurs through innovative models of team building around the technologies, and collaborated with public R&D laboratories and universities to develop entrepreneurial models of commercialization. Dr. Kumar then moved to Bangalore to set up operationalize the Bangalore Bioinnovation Centre (BBC) (as Head and Managing Director), a joint initiative of the Department of Biotechnology, Government of India. He joined BIRAC as Managing Director in year 2023.

Dr. Kumar has helped several companies in raising funds through seed funding & Government grants and is involved in the due diligence process for venture funding. He was involved in setting up a world-class centre for translational research and technology entrepreneurship in Bangalore. He has contributed immensely to the growth and development of two Biotech Innovation clusters- Hyderabad (through IKP Knowledge Park) and Bangalore (through Bangalore Bioinnovation Centre- a joint initiative of DBT and Karnataka Government). Currently involved in spurring the Bioinnovation ecosystem at a national level as Managing Director, Biotechnology Industry Research Assistance Council (BIRAC).

Dr. Kumar is an Internationally acclaimed thinker and advisor on Biotech Innovations and entrepreneurship. He has been invited as a speaker at various conferences in the USA, South Korea, Germany and the Netherlands to represent India. He has inspired thousands of youths to start and build successful Biotech ventures. He has around 20 years of experience in research and innovation management in the area of life sciences. He has around 44 peer-reviewed publications and around 47 products have been launched under his mentorship. He has been an external PhD and MSc thesis supervisor at University of Agricultural Sciences, Bangalore and has supervised 2 PhD's and 6 MSc students. He has been recently conferred "Life time achievement award for promoting & nurturing Innovation in Agritech" from India Chamber of Food & Agriculture.

Government Nominee Director



Shri Vishvajit Sahay

Additional Secretary & Financial Adviser,
Department of Science & Technology,
Ministry of Science & Technology, Govt. of India and
Government Nominee Director, BIRAC

Shri Vishvajit Sahay belongs to the 1990 batch of the Indian Defence Accounts Service. An alumnus of St. Stephen's College Delhi, he has diverse experience of working in the Government of India, having earlier served as Jt. Secretary in the department of Heavy Industry and Director in the Ministry of Information & Broadcasting. He has held additional charge of the posts of Chairman & Managing Director, Heavy Engineering Corporation Ranchi, a Schedule 'A' CPSE, CEO & Project Director of National Automotive Testing Research & Development Infrastructure Project (NATRIP) and Director in the Directorate of Film Festivals, Delhi. Within the Defence Accounts Department, he has experience of working in the Acquisitions Wing of the Ministry of Defence as Finance Manager (Land Systems), a cadre post in the MoD. He has also worked in several field and Headquarters Organizations of the Defence Accounts Department with experience of closely working with the MOD, Army and Ordnance Factories. He is presently working as Additional Secretary and Financial Advisor in the Department of Science & Technology with additional charge of the Department of Biotechnology and Ministry of Earth Sciences. In this capacity, he is handling several central areas of scientific research and innovation under the National Quantum Mission, Cyber Physical Systems, Ocean Technologies and Biomanufacturing.

Director Finance



CA. Nidhi Shrivastava

Director Finance, BIRAC

CA. Nidhi Shrivastava is a Fellow member of "The Institute of Chartered Accountants of India" and also holds a Bachelor's degree in Law from Delhi University (DU). She has graduated in Environmental Sciences from Ramjas College, North Campus, (DU) & earned certification in "Risk Mitigation through Forensic Document Examination" from Lok Nayak Jayaprakash Narayan National Institute of Criminology & Forensic Science (LNJN), Ministry of Home Affairs. As an astute professional, CA Nidhi Shrivastava has over 20 years of diverse experience in various aspects of Finance & Accounts with thematic expertise in Financial Planning, Budgeting, Taxation, Audit, Banking & Treasury, Asset Liability Management and Fund Management etc. CA Nidhi Shrivastava has played an instrumental role at several noteworthy companies which include NTC Ltd., NAFED, Deloitte and Ernst & Young.

Non-Official Independent Director



Dr. Penna Krishna Prasanthi
M.D; FICP; FRSSDI; FIAMS
Non-Official Independent Director, BIRAC

Dr. Penna Krishna Prasanthi is Senior Consultant Physician, Harshitha Hospital & Best's Diabetic Care Centre, Tirupati, Andhra Pradesh. She completed her MBBS from Sri Venkateswara Medical College, Tirupati in 1994 and M.D. General Medicine from Kurnool Medical College, Kurnool in 2000.

She is the only Lady Physician from the State of Andhra Pradesh reaching to National level in Association of Physicians of India (API), Research Society for Study of Diabetes in India (RSSDI) and Indian Medical Association (IMA) in these two decades. She has been instrumental in forming Women Doctors Wing of IMA in the State of Andhra Pradesh and presently she is the Advisory Committee Member. At Present she is Member, National API Credentials Committee and she is the Chairman of Andhra Pradesh Chapter of API. She is the Governing Council Member of Andhra Pradesh Chapter of RSSDI.

She was the Fellow of Indian College of Physicians of India, Research Society for Study of Diabetes in India, IMA Academy of Medical Specialities. She has many awards to her credit like Best Woman Diabetologist Award, IMA President Appreciation Award for Academic Excellency and Community Services, Ugadhi Puraskar Award from Delhi Telugu Academy and innumerable for her Community Services. She is the Life Member of Various Prestigious Professional Organisations like API, RSSDI, IMA, Endocrine Society of India, Indian Thyroid Society, Diabetes in Pregnancy Study Group India (DIPSI), Diabetic Foot Society of India, Nutrition Society of India.

She served in Government Service for few years and later shifted to private sector. To quench her academic thirst and research she has been active in pursuing fellowships in the field of Diabetology and actively working on Diabetic Foot Problems with Diabetic Foot Research Initiative. She is keenly involved in research activities on Nutrition in Diabetes and Infections in Diabetes along with various educational institutions.

During the Covid Pandemic she did exemplary work in Tirupati along with district administration in starting Covid Care Centres and tele medicine consultation to thousands of patients. She has been recognized with Covid Warrior Award and many more for her selfless services in COVID situation. Her main motto is empowering the citizens with preventive health care and promoting our traditional healthy lifestyles to preventive non communicable diseases in young age.

CORPORATE INFORMATION

REGISTERED OFFICE	: 5 th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020 CIN: U73100DL2012NPL233152 Website: www.birac.nic.in Email: birac.dbt@nic.in Tel: +91-11-29878000 Fax: +91-11-29878111 Twitter handle: @BIRAC_2012
STATUTORY AUDITORS	: M/s Gupta Garg & Agrawal Chartered Accountants G-55 Royal Palace, IInd Floor, Laxmi Nagar, Vikar Marg, Delhi-110092 Tel: 01143016663 Email: cabbgupta@gmail.com
BANKERS	: Union Bank of India Block 11, CGO Complex, Lodhi Road, New Delhi-110003.
	: STATE BANK OF INDIA Core 6, SCOPE Complex, Lodhi Road, New Delhi-110003.
	: HDFC Bank Ltd A3 NDSE, South Ex Part 1 New Delhi-110049
	: Union Bank of India MTNL Building, Opp. Gate No. 13 JLN Stadium, New Delhi-110003
	: ICICI Bank E 30, Saket, New Delhi-110017
	: RBI Branch RBI, No 6, Sansad Marg, New Delhi-110001
COMPANY SECRETARY	: Ms. Kavita Anandani



Directors' --- Report

DIRECTORS' REPORT

To the Members,

1. ABOUT BIRAC

Biotechnology Industry Research Assistance Council (BIRAC) is a not-for-profit Section 8 company under Companies Act 2013 (incorporated under the Companies Act, 1956) and a Schedule B, Central Public Sector Enterprise, (CPSE) under Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India as an interface agency to strengthen and empower the emerging biotech enterprise to undertake strategic research and innovation, addressing nationally relevant product development needs. BIRAC is at the industry-academia interface and implements its mandate through a wide range of impact initiatives, be it providing access to risk capital through targeted funding, technology transfer, IP management and handholding schemes that help bring innovation excellence to the biotech firms and make them globally competitive. In its twelve years of existence, BIRAC has initiated several schemes, networks and platforms that help to bridge the existing gaps in the industry-academia Innovation research and facilitate novel, high quality affordable product development through cutting edge technologies. BIRAC has initiated partnerships with several national and global partners to collaborate and deliver the salient features of its mandate.

2. OUR PHILOSOPHY & ACHIEVEMENTS

Biotech sector is complex, multi-disciplinary, knowledge intensive area, prone to high attrition that inherently has long gestation. It requires patient risk-capital with access to high end infrastructure and cost intensive consumables and equipment. For Biotech sector to innovate and translate scientific knowledge into products and technologies, needed an enabler that could support and holistically nurture the ecosystem. BIRAC has emerged as a recognized enabling agency that has nurtured the biotech innovation ecosystem in the country. BIRAC's ability and commitment has demonstrated with evidence seeding of a globally competent biotech ecosystem. It has resulted in progression of hundreds of innovations into commercialized products and technologies to address the societal unmet needs. With support from the Department of Biotechnology, today India's Biotech Innovation ecosystem is recognized not only locally but globally as well.

BIRAC's vision has been to 'Stimulate, foster and enhance the strategic research and innovation capabilities of the Indian biotech industry, particularly Start-Ups and SMEs, for creation of affordable, globally competitive products addressing the unmet need.

Over the last 12 years, BIRAC has been instrumental in creating and expanding the base of the 'Innovation Pyramid'. It has successfully inculcated a culture of biotech entrepreneurship in the country. This ecosystem is growing year on year and requires handholding that is constantly evolving. Need assessment followed by actionable measures are required on a constant basis, to bridge the gap and expedite the growth. BIRAC, known for its agility and strategic initiatives, has revised existing schemes, operationalized a few new schemes, enhanced strategic capacity building and expanded the partnership network in order to bring new and value-added opportunities for Biotech Start-ups, Entrepreneurs across the stages of product development cycle.

BIRAC has established a network of 95 specialized bio-incubation centres in 21 States & 4 UTs under BioNEST (Incubation) and E-YUVA (pre-incubation) schemes. Regular nationwide awareness programs, workshops, webinars have started resulting in engagement at tier 2, tier 3 cities, and aspirational districts.

BIRAC's flagship scheme-Biotechnology Ignition Grant (BIG) receives close to 2000 applications per year. Out of the 13000+ applications received from aspirants, more than 50% have come from non-metros & non-tier 1 cities; 38 aspirational districts have got integrated.

Under PPP initiative of BIRAC, flagship schemes namely, Small Business Innovation Research Initiative (SBIRI) and Biotechnology Industry Partnership Programme (BIPP) have provided pathways to facilitate development of innovative products and technologies by small and medium companies bringing together the private industry, public institutions and the government under one umbrella to promote the research and innovation in the Indian Biotech Sector. The projects funded under the schemes have resulted in 200+ products and technologies attaining TRL 7-9.

BIRAC supports academia to facilitate translational research in partnership with Companies to take the products and technologies of societal/national importance towards commercialization through the Promoting Academic Research Conversion to Enterprise (PACE) Scheme.

Social Innovation programme for Products Affordable & Relevant to Societal Health (SPARSH) is the unique social innovation programme of BIRAC aimed at development of innovative solutions to society's most pressing problems. Since its inception in 2013, the programme has been investing in high impact ideas and innovations that could address neglected unmet needs and challenges specifically in tier II and III cities of India. Over time, the program has effectively identified innovative solutions through rigorous immersion and translated them into successful enterprises.

There are 8,500+ Biotech Start-Ups in the country as of Dec 2023 (India Bioeconomy Report (IBER)-2024). BIRAC's BioNEST incubation center network has been accessed by 2500+ Incubatees. Considering this subset alone, more than 1,300 IPs have been filed and 800+ biotech products/ technologies reached the market. BIRAC's handholding and support has covered 377 academic institutes.

The journey from discovery to identifying translational lead candidates often begins in research institutes and other knowledge creation centers. Transforming these leads into products necessitates the collaboration of various specialized teams and stakeholders. From a broad perspective, thousands of such initiatives are advancing simultaneously within the ecosystem, requiring contributions from numerous diverse players with complementary roles and responsibilities.

BIRAC has strategically expanded partnerships and alliances with both Indian and international entities and stakeholders. As a Government of India Enterprise, BIRAC has established connections with ministries, departments, government-to-government, government-to-science, and government-to-business entities, as well as industry, academia, investors, legal and IP professionals, regulatory experts, mentors, and advisors. The benefits of these engagements are accessible to the entire ecosystem, including individual entrepreneurs and start-up companies.

Some partnerships provide funding, while others offer access to networks and knowledge. Several partners have also collaborated with BIRAC to launch new programs and initiatives. Example include Grand Challenges India, National BioPharma Mission, Ind-CEPI, Mission Covid Suraksha, Swachh Bharat, Start-Up India, Make In India, Ayushman Bharat, Aatmanirbhar Bharat.

Platforms: Bringing together the biotech community stakeholders

BIRAC spearheads regular national and international events that bring together stakeholders to showcase India's growing strength in the sector and create opportunities for connection, co-development, co-creation, and co-scaling. These events emphasize peer-to-peer learning, identifying gaps and opportunities, networking, and showcasing innovations.

Global Bio-India (GBI) is a mega international event led by the Department of Biotechnology (DBT) and Biotechnology Industry Research Assistance Council (BIRAC) to showcase India's potential and growth opportunities to the international world. GBI offers a platform to biotechnology stakeholders, including international bodies, regulatory bodies, Central and State Ministries, SMEs, large industries, bio clusters, research institutes, investors, and the startup ecosystem to meet and interact. Other notable events hosted by BIRAC in the past include Biotech Start-Up Expo 2022 and the Startup Conclave event at the India International Science Festival (IISF 2022).

We have established national-level annual platforms like the Innovators Meet and Foundation Day for Start-Ups and Entrepreneurs. These events bring together technical experts, business leaders, innovators, and entrepreneurs on a common platform for showcasing and interaction.

First hub: To promote government initiatives, a "Single window" facilitation unit, FIRST Hub has been created to address the queries of Startups, Entrepreneurs, Researchers, Academicians, Incubation Centres, SMEs etc. FIRST HUB was created on the recommendation of NITI Aayog in August 2018. Officers from various departments like CDSCO, ICMR, NIB, BIS, GeM, and DBT meet on first Friday of the every month to answer queries of innovators. Queries related to regulatory pathways, funding opportunities, market access, and are being addressed in this appointment-based platform.

For operational purposes, BIRAC has developed the 3i Portal, a well-established online platform for application submission, screening, and post-grant monitoring. The BIRAC 3i Portal offers a user-friendly, bilingual, and convenient solution for managing various funding schemes effectively. It provides single-window access to information and services delivered electronically to its users.

Biotech Innovation Showcase e-portal (<https://biotechinnovations.com>) features 700+ products/technologies from BIRAC supported Start-Ups and companies that is accessible in public domain.

BIRAC's Facilities Network E-Portal ([https://www.birac.nic.in/birac facility network e potrtal.php](https://www.birac.nic.in/birac%20facility%20network%20e%20portal.php)) provides a comprehensive list of equipment available at all BioNEST Incubation Centres. The portal provides information

on equipment specifications, user charges, and other related details, which can be accessed through the portal. Start-ups can avail these facilities by directly reaching out to the respective Incubation Centres.

3. AUDIT COMMITTEE

During the year 2023-24, BIRAC did not have an Audit Committee. As mandated by DPE Corporate Governance Guidelines the Audit Committee should have minimum three Directors with two thirds of them being Independent Directors and Chairman being an Independent Director. The term of four Independent Directors ended on 15th March, 2020 and only one Non-official Independent Director was appointed by the Board on 27th March, 2023. Three of the four sanctioned positions still remain vacant from 15th March, 2020. BIRAC is not in a position to form an Audit Committee as per DPE Guidelines. In absence of adequate number of Non official Directors the role of Audit Committee is being discharged by the Internal Audit Committee to recommend financial matters and approval is by Board of Directors.

4. FINANCIAL STATEMENTS

The financial statements are made on accrual method of accounting under the historical cost convention, in accordance with the accounting standards issued by the Institute of Chartered Accountants of India.

5. ANNUAL RETURN

Pursuant to Section 92(3) read with Section 134(3)(a) of the Companies Act 2013, the Annual Return as on 31st March, 2024 is available on the Company's website on www.birac.nic.in (web link of BIRAC website).

6. NUMBER OF MEETINGS OF THE BOARD

The Board met 5 (Five) times during the financial year, the details of which are given in the Corporate Governance Report, which forms a part of the Annual Report. The intervening gap between any two meetings was as prescribed under the Companies Act, 2013.

7. PARTICULARS OF CONTRACTS OR ARRANGEMENTS MADE WITH RELATED PARTIES

BIRAC has not entered into any contracts or arrangements with related parties as per the provisions of Section 188(1) of the Companies Act, 2013.

8. RTI

BIRAC follows all the necessary procedures and processes in accordance with the Right to Information Act, 2005, as amended from time to time and Government Guidelines. It has appointed a Central Public Information Officer (CPIO), Deemed Public Information Officer (DPIO), Transparency Officer and Appellate Authority. The details are available on its website (<https://www.birac.nic.in>).

9. RISK MANAGEMENT POLICY

BIRAC has a Risk Management Policy in place approved by the Board. The mandate of BIRAC is to nurture innovation by mentoring and funding high risk, highly innovative projects by itself or with multiple partners throughout the innovation value chain, namely, early-stage innovation research, product development, product validation and commercialization. BIRAC, being a Government organization, the need for Risk Management is reflected in its commitment to ensure transparency and public accountability of its partnerships, activities and schemes. The schemes, activities, workshops and partnerships are monitored by Standard applications, formats, MoUs and funding agreement which have inbuilt controls and accountability mechanisms at every stage.

There is a proper technical evaluation of projects by a committee of experts and an in-house legal drafting and vetting process, financial due diligence and screening of projects is undertaken, internal controls and audit protocols are in place with the Comptroller & Auditor General of India (C&AG) conducting supplementary audit.

Risk Management monitoring process in the organization is based on compliance reporting in the Risk calendar which is circulated to all the Department Heads with comprehensive parameters drawn from the Risk Register for managing schemes, activities and providing funding support. The Board ensures the integration and alignment of the risk management system with the corporate and operational objectives and also ascertains that risk management is undertaken as a part of normal business practice and not as a separate task at set times.

10. DISCLOSURE UNDER THE SEXUAL HARASSMENT OF WOMEN AT WORKPLACE (PREVENTION, PROHIBITION AND REDRESSAL) ACT, 2013

BIRAC has in place an Internal Complaints Committee under the Prevention of Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 and the rules notified thereunder with the terms of reference as required under the CSS (Conduct) Rules and the Guidelines laid down by the Hon'ble Supreme Court in Vishaka and others vs. State of Rajasthan. The mandate of the Internal Complaints Committee is to redress the complaints, if any, received regarding sexual harassment as defined in the said Act.

All employees of BIRAC including regular employees, contractual, part time, daily wage earners, either employed directly or through an agent or contractor, whether for remuneration or not, trainees, apprentices, those working on a voluntary basis, directors and experts on various committees are covered under this policy.

The organization has not received any grievances under this Act, during the financial year 2023-24. During the year 2023-24, a workshop was conducted on "Gender Sensitization & Prevention of Sexual Harassment at Workplace" to sensitise the employees on Gender issues and educate them on the various aspects of the Act.

11. PROCUREMENT FROM MICRO AND SMALL ENTERPRISES (MSES)

The Total annual procurement for financial year 2023-24 was ₹ 7,07,52,143/-, out of which the procurement from MSEs was ₹ 5,84,44,669/- amounting to 82.60 % of the total procurement and the procurement from MSEs owned by Women Entrepreneurs was Nil amounting to Nil of the total procurement from MSEs.

12. DIRECTORS RESPONSIBILITY STATEMENT

In accordance with the provisions of Section 134(5) of the Companies Act, 2013, the Directors' state that:

- ❖ in the preparation of the annual accounts, the applicable accounting standards had been followed along with proper explanation relating to material departures;
- ❖ the directors have selected such accounting policies and applied them consistently and made judgements and estimates that are reasonable and prudent so as to give a true and fair view of the state of affairs of the company at the end of the financial year and of the Statement of Income and Expenditure of the company for that period;
- ❖ the directors have taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of this Act for safeguarding the assets of the Company and for preventing and detecting fraud and other irregularities;
- ❖ the directors have prepared the annual accounts on a going concern basis; and
- ❖ the directors had devised proper systems to ensure compliance with the provisions of all applicable laws and that such systems were adequate and operating effectively.

13. CORPORATE GOVERNANCE

A separate report on Corporate Governance is annexed with this report.

14. AUDITORS' REPORT

M/s Gupta Garg & Agrawal, Chartered Accountants are the Statutory Auditors of the Company appointed by the Comptroller and Auditor General of India for the period under review (Financial year 2023-24). The Auditors' report and CAG report are appended to the financial statements and are self-explanatory and suitably explained in the various Notes to the accounts.

15. (a) BANKERS

The Bankers of the organization are:

- ❖ Union Bank of India, Block 11, CGO Complex, Lodhi Road, New Delhi-110003.
- ❖ State Bank of India, Core 6, SCOPE Complex, Lodhi Road, New Delhi-110003
- ❖ HDFC Bank Ltd., A3 NDSE, South Ex Part 1, New Delhi-110049
- ❖ Union Bank of India, MTNL Building, Opp. Gate No 13 JLN Stadium, New Delhi-110003.
- ❖ ICICI Bank, E 30, Saket, New Delhi-110017
- ❖ RBI, No. 6, Sansad Marg, New Delhi-110001

- (b) Treasury Single Account- As per DoE, Ministry of Finance, OM No 1/(18)/PFMS/FCD/2021 dated 9th March, 2022 regarding flow of funds under Central Sector Schemes, BIRAC has opened Zero Balance Saving Account (ZBSA) with ICICI Bank as a subsidiary account of a Central Nodal Agency (CNA) NIPGR, and disbursement to Grantees are processed out of the allocated drawing limits in ZBSA account. Further, as per DBT communication, Treasury Single Account (TSA) has been opened with RBI for BIRAC Core grant and payment are made through TSA account.

16. ABOUT DIRECTORS

BIRAC is guided by a Board comprising of senior professionals, academicians, policy makers and eminent professionals from the industry. Dr. Rajesh S. Gokhale, Secretary, DBT is the Chairman of BIRAC w.e.f 1st November, 2021. Dr. Jitendra Kumar is the Managing Director of BIRAC w.e.f 9th June, 2023. The tenure of Dr. Alka Sharma, as Managing Director (additional charge), BIRAC ended 8th June, 2023. Further, Shri Vishvajit Sahay, Additional Secretary & Financial Advisor, DBT was continued as Government Nominee Director on the Board of BIRAC w.e.f. 24th December, 2020. Dr. Subhra Ranjan Chakrabarti was appointed as Director-Operations w.e.f 14th December, 2021 and ceased to be Director (Operations) w.e.f 24th December, 2023. CA. Nidhi Shrivastava was appointed as Director-Finance w.e.f 15th December, 2021 on the Board of BIRAC. Dr. Penna Krishna Prasanthi was appointed as Non-Official Independent Director w.e.f 27th March, 2023 on the Board of BIRAC.

17. CONSERVATION OF ENERGY, TECHNOLOGY ABSORPTION AND FOREIGN EXCHANGE EARNINGS AND OUTGO

The information pertaining to conservation of energy, technology absorption, foreign exchange earnings and outgo as required under Section 134(3)(m) of the Companies Act, 2013 read with Rule 8(3) of the Companies (Accounts) Rules, 2014 is as follows:

A. Conservation of Energy

Disclosure regarding conservation of energy is not applicable to our Company.

B. Technology Absorption, Adoption and Innovation

Particulars required under Rule 8(3)(B) of the Companies (Accounts) Rules, 2014 have not been given since the company has no direct Research and Development activity. However, the main function of BIRAC is to facilitate and provide financial support for generation and translation of innovative ideas into biotech products/technologies, foster innovation in all places of research and to encourage diffusion of innovation through partners. The details are provided in the Management Discussion and Analysis Report.

C. Foreign Exchange Earnings & Outgo

The foreign exchange earnings and outgo during the year are given below:

(₹ in lakh)

Grant Received in Foreign Exchange/Indian Rupee to the Extent Utilized	
A. Outflow from grant received in Foreign Exchange in Indian Rupees	1419.12
B. Foreign Exchange Outflow from grant received in Rupees	23.83
1. Books, Journal and Database Subscriptions	-
2. Entrepreneurship Development	-
3. Advertisement/Publicity/Publication	-
4. Foreign Travel and Meetings	1.47
C. CIF Value of Import	-

18. PARTICULARS OF LOANS, GUARANTEES OR INVESTMENTS UNDER SECTION 186

The details of Loans and investments as covered under the provisions of Section 186 of the Companies Act, 2013 are given in notes no. 7 and 8 of notes forming part of the Balance Sheet as on March 31, 2024.

19. SIGNIFICANT ORDERS PASSED BY REGULATORS OR COURTS OR TRIBUNAL

There are no significant material orders passed by the Regulators/Courts/Tribunals which would impact the going concern status of the Company and its future operations.

20. FRAUDS REPORTED BY AUDITORS UNDER SECTION 143(12), OTHER THAN THOSE WHICH ARE REPORTABLE TO THE CENTRAL GOVERNMENT

The Statutory Auditors have not reported any incident of fraud to the Board of Directors of the Company.

21. DETAILS OF APPLICATION MADE OR ANY PROCEEDING PENDING UNDER THE INSOLVENCY AND BANKRUPTCY CODE, 2016 (31 OF 2016) DURING THE YEAR ALONG WITH THEIR STATUS AS AT THE END OF THE FINANCIAL YEAR-

Seven cases are pending under the Insolvency and Bankruptcy Code, 2016 (31 of 2016) as on March 31, 2024. Total amount outstanding is ₹ 49,84,29,246.94/-.

22. ONE-TIME SETTLEMENT AND VALUATION

Biotechnology Industry Research Assistance Council (BIRAC) is a not-for-profit Section 8, Schedule B, Central Public Sector Enterprise (CPSE), set up by Department of Biotechnology (DBT), Government of India has not taken any loan from Banks and Financial Institutions.

23. CORPORATE SOCIAL RESPONSIBILITY UNDER SECTION 135 OF COMPANIES ACT, 2013

(a) CSR Contribution by BIRAC

The Board of BIRAC at its 45th Board Meeting held on February 24, 2021 approved the Corporate Social Responsibility Policy (CSR Policy). The CSR Policy of the BIRAC was formulated in line with the provisions of the Companies Act, 2013 read with the Companies (Corporate Social Responsibility) Rules, 2014 and 'DPE Guidelines'.

Further, as per Companies (Amendment) Act, 2020 (applicable w.e.f. January 22, 2021), if the amount to be spent by a company does not exceed fifty lakh rupees, the requirement for constitution of the CSR Committee shall not be applicable and the functions of such Committee provided under Section 135 shall be discharged by the Board of Directors of the Company.

Further Amendment in Rule 3 of Companies (Corporate Social Responsibility Policy) Rules, 2014 (applicable w.e.f. September 20, 2022) mentioned that if a company having any amount in its Unspent Corporate Social Responsibility Account as per sub-section (6) of section 135 it shall constitute a CSR Committee and comply with the provisions contained in sub-sections (2) to (6) of the said section.

Hence, as per the above-mentioned provisions, BIRAC does not have any unspent Corporate Social Responsibility amount. As per Board directions BIRAC has formed CSR Internal Committee.

Hence, the Board in its 59th Board Meeting held on 27th September, 2023 has approved the budgetary allocation of ₹ 16,51,706/- being 2% of the net surplus/profit made during three immediately preceding financial years for CSR activities. During financial year 2023-24, the Board of Directors authorised the Managing Director to examine the proposals as Chairman of the CSR Internal Committee. Further, the CSR Internal Committee members deliberated and approved that the CSR Fund for the Financial Year 2023-24 of ₹ 16,51,706/- (Rupees Sixteen Lakh Fifty-One Thousand Seven Hundred Six only) be deployed to Swachh Bharat Kosh which is one of the listed activities specified in Schedule VII (i) of Companies Act, 2013.

A detailed report on CSR activities as per the provisions of the Companies Act, 2013 is available at Annexure-1 to this report. The CSR policy of the Company has been provided on the Company's website at <https://www.birac.nic.in>

(b) To take note of CSR funding received by BIRAC.

BIRAC has registered itself as an implementing agency under the Companies Act 2013 and rules made there under vide filling the Form CSR-1 to the Ministry of Corporate Affairs (MCA). The CSR registration number is CSR00025388.

BIRAC can undertake CSR activities as permitted by its Memorandum of Association and for activities as specified under Schedule-VII 9(a) of the Companies Act, 2013.

"9(a) Contribution to incubators or research and development projects in the field of science, technology, engineering and medicine, funded by the Central Government or State Government or Public Sector Undertaking or any agency of the Central Government or State Government."

BIRAC being a Section 8 company, the Board in its 40th Board Meeting held on February 12, 2020 has approved accepting CSR fund for furthering the mandate of BIRAC for setting up Incubation centers and innovation networks in the country.

CSR funds received and utilised during the Financial Year 2023-24

(₹ in lakh)

Particulars	Stryker Global Technology Center Private Limited	Stryker India Private Limited
Opening Balance as on 1 st April 2023	80.63	20.42
Add: Interest earned during the year	2.01	0.51
Add: Fund received during the Financial Year	-	-
Less: Fund Utilized during the Financial Year	74.99	19.00
Closing Balance as on 31 st March 2024	7.65	1.93

ACKNOWLEDGMENT

The Directors wish to place on record their appreciation for the valuable guidance and co-operation extended by the Auditors, Banks and various Government agencies. The Directors also wish to place on record their appreciation for the sincere efforts put in by the executives and staff of the Company.

For and on behalf of Board

Sd/-

Dr. Jitendra Kumar

(Managing Director)

DIN: 07017109

Date : 27th September, 2024

Place : New Delhi

Sd/-

Dr. Rajesh S. Gokhale

Chairman

DIN: 03121276



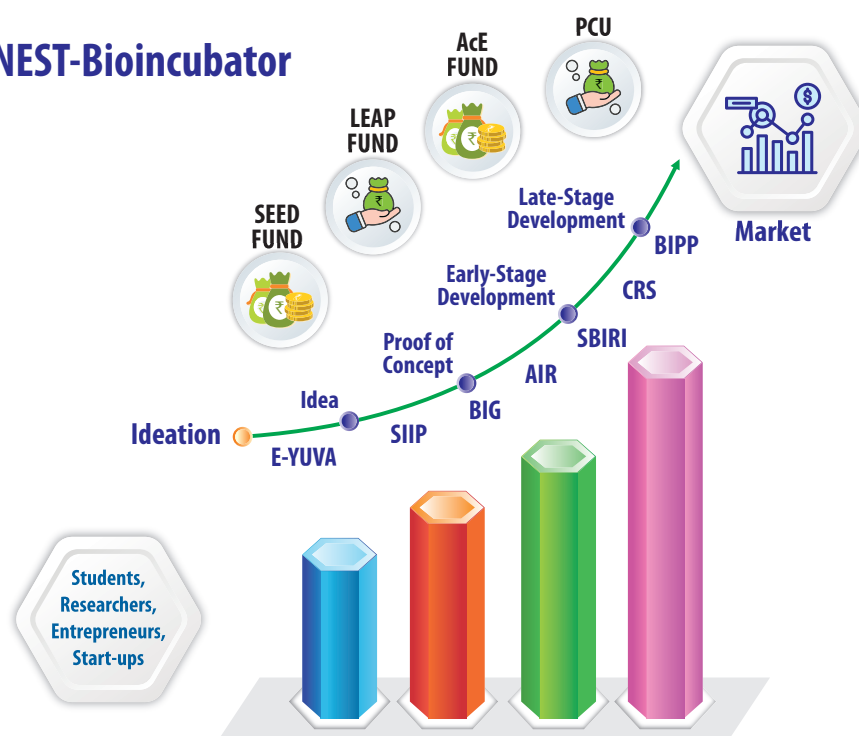
Management Discussion and Analysis Report

BIRAC Schemes



BIRAC Schemes

BioNEST-Bioincubator



BIRAC support programs along the Product Development Cycle

Bioincubators Nurturing Entrepreneurship for Scaling Technologies (BioNEST)

BIRAC's BioNEST network has now grown to 75 Bioincubators and 20 E-YUVA Centres contributing to a cumulative incubation space of 9,00,000+ sq. ft. and supporting 2500+ entrepreneurs & Startups. Following activities were undertaken in the FY 2023-24:

- Overall support to the BioNEST Network of existing 65 Incubation Centres.

- 2000+ Incubatees supported through the network of 65 Incubation Centres.
- Regular Expert meetings conducted to review progress of ongoing Incubation Centres.
- In addition to the ongoing support to the 65 BioNEST incubators in the FY 2022-23, following 10 new bio-incubators were identified for support under the BioNEST scheme:
 1. BioNEST Incubation Centre, IIT Patna Campus.
 2. BioNEST Dayananda Sagar Entrepreneurship Research and Business Incubation Foundation, Karnataka.
 3. BioNEST ITE Research Foundation, DMIHER.
 4. BioNEST Jaypee Institute of Information Technology, Noida, Uttar Pradesh.
 5. BioNEST Dharwad Research and Technology Incubator (DhaRTI) Foundation, IIT Dharwad, Karnataka.
 6. BioNEST JSS STEP Noida.
 7. BioNEST SRM Medical College Hospital and Research Centre, Tamil Nadu.
 8. BioNEST IIT Mandi Catalyst, Himachal Pradesh.
 9. BioNEST Industrial Park, Kathua, Jammu & Kashmir.
 10. BioNEST National Agri-Food Biotechnology Institute (NABI), Punjab.
- Following Centres were also considered for Phase 2 support:
 1. BioNEST NIPER- Guwahati.
 2. BioNEST Indigram Labs Foundation.
 3. BioNEST Crescent Innovation and Incubation Council.
- Call for proposals under BioNEST scheme was announced (15th Feb 2024-31st March 2024) wherein 154 new proposals received. Proposals are currently under review.
- BioNEST Centres regularly organize workshops, mentoring programs for startups, new incubators etc. (Approx 200 such events are organized by the BIRAC network of BioNEST centres during the year).

Highlights of the FY 2023-24:

- Global Bio-India 2023:
 - ❖ ~50 roadshows were conducted across the BioNEST network to promote Global Bio-India 2023 and also to create awareness about BIRAC's various initiatives.
 - ❖ Around 95+ Bioincubation centres participated in the Global Bio-India 2023 out of which 60 were BioNEST Centers.





Snapshots of the roadshows conducted across the BioNEST network to promote Global Bio-India 2023



Bioincubation centres participated in the Global Bio-India 2023

- ❖ Best Incubation Centre Awards were presented under different categories to following incubation centres during the Global Bio-India 2023.
 - BioNEST CfHE, IIT Hyderabad won the Best Incubation Centre Award for the Exhibit Category.
 - BioNEST Bangalore Bioinnovation Centre (BBC) won the Best Incubation Centre Award among the Tier I Cities Category.
 - BioNEST Punjab University won the Best Incubation Centre Award among the Tier II Cities Category.
 - BioNEST Shanmugha Arts, Science, Technology & Research Academy (SASTRA) won the Best Incubation Centre Award among the Tier III Cities Category.



Snapshots of the Best Incubation Centre Awards presented during Global Bio-India 2023

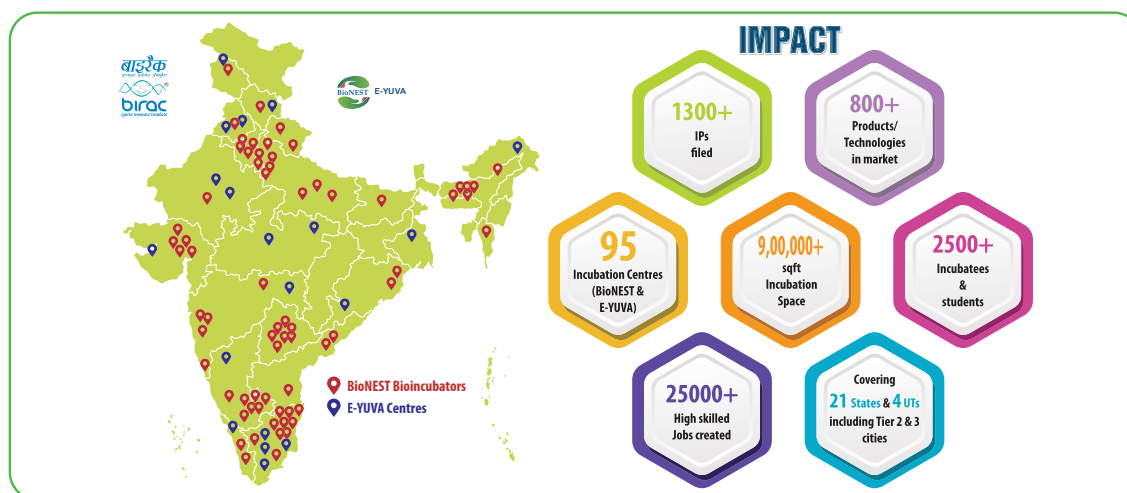
- ❖ A panel discussion on **India-Germany Start-up Connect – International exchange for early-stage start-ups** was also organised by the Incubation team along with German Centre for Research and Innovation (DWIH) New Delhi on the 2nd day of GBI-2023. The session was moderated by Dr. Katja Lasch, German Center for Research and Innovation (DWIH) New Delhi. The Panelist members included representatives from the Incubation ecosystem from Germany and India.



Panel discussion on India-Germany Start-up Connect – International exchange for early-stage start-ups during Global Bio-India 2023



Launch of the Exhibitor Compendium of Bio-incubation Centres during Global Bio-India 2023



Network of Incubation Centres & Pre-incubation Centres across the country and its impact



BioNEST Incubation facilities

E-YUVA

E-YUVA (Empowering Youth for Undertaking Value Added Innovative Translational Research) is an initiative aimed at fostering a culture of applied research and entrepreneurial innovation among young students and researchers. Tailored for undergraduates, postgraduates, and post-doctoral scholars, this scheme offers various forms of support including pre-incubation space, financial assistance in the form of fellowships and research grants, technical and business mentorship, and early exposure to bio-incubators. Implemented through designated E-YUVA Centers (EYCs), housed within university and institutional frameworks, these centers serve as hubs providing essential support and guidance to participating students. Additionally, each E-YUVA Center partners with a BIRAC's BioNEST Centre (Knowledge Partner) to further enhance the entrepreneurial journey of the participants.

Support under E-YUVA Scheme:

1. E-YUVA Centres

- ❖ Pre-incubation space (3,000 sq. ft. or more)
- ❖ Conduct Entrepreneurial Awareness Workshops & Fellowship management

2. Fellowships:

a. E-YUVA Fellows

- A team of 3-5 UG pursuing students, guided by a mentor
- Fellowship and mentoring support for 12 months

b. Innovation Fellows

- Students who have completed post-graduation/PhD
- Selected fellows work full-time from the EYC
- Fellowship and mentoring support for 18 months

Growth of E-YUVA:

The E-YUVA network has expanded from 10 pre-incubation centres to 19 centres nationwide, establishing its footprint in 15 states and union territories. The following activities were undertaken in the FY 2023-24:

- Overall support to the E-YUVA Network of 10 pre-incubation Centres. The 1st cohort of 223 fellows i.e 48 E-YUVA teams (comprising 197 UG students) and 26 Innovation fellows) are being supported through these 10 existing E-YUVA Centres.

- **Second National Call for setting up E-YUVA Centres** was announced on 1st July 2023 and was active till 17th August 2023. 141 applications were received against the call and 9 new E-YUVA centres have been identified for support under the 2nd call for centre establishment:
 1. College of Horticulture and Forestry, CAU Pasighat
 2. Shoolini University of Biotechnology & Management Sciences, Solan
 3. University of Kashmir, Srinagar
 4. Kannur University, Kannur
 5. AKS University, Satna
 6. Punyashlok Ahilyadevi Holkar Solapur University, Solapur
 7. Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry
 8. Central University of Punjab, Bathinda
 9. Central University of Rajasthan, Ajmer
- **Second National Call for proposals** for E-YUVA and Innovation Fellows was announced on 10th Feb 2024 (Call closed on 15th March 2024).
- 814 applications have been received (611 Teams comprising 3-5 members each under the E-YUVA Fellow Category and 203 PG/PhD individuals applied under the Innovation Fellows Category).



Pre-incubation Network of 19 E-YUVA Centres

Highlights of the FY 2023-24:

- All the 10 existing E-YUVA Centres along with their respective fellows participated during the Global Bio India (GBI) 2023



Glimpse of E-YUVA Centres along their fellows during GBI 2023

- Product launch by one of the Innovation fellows of Adamas University during the Global Bio India (GBI) 2023.
- The Excellence Award for Startup was received by a former Innovation fellow of University of Rajasthan at the international platform of GBI 2023.



Innovation Fellow of University of Rajasthan won The Excellence Award for Startup



Product launch by Innovation fellow of Adamas University

- E-YUVA Centres organised various workshops and training programs to create awareness & evangelisation of the E-YUVA Scheme



Training programmes at E-YUVA Centres

Early Translation Accelerator (ETA)

BIRAC is supporting Early Translation Accelerators (ETAs) to focus on catalysing the transformation of young academic discoveries (publications/patents) with possible commercially viable ventures and technologies. ETA aims to add the translational component to establish proof-of-concept/validation in line with the BIRAC's mission of facilitating the translation of innovative ideas into biotech products and to attract industry to take these validated technologies further in terms of development and is expected to collaborate with academic investigators, engage industry and to leverage international translation ecosystems.



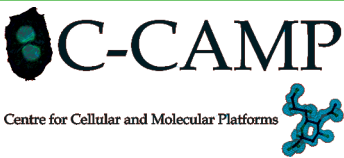

To date, six ETAs have been established. ETAs at C-CAMP and Yenepoya Foundation for Technology Incubation, established for health care, IIT-Madras Bio incubator and EDC-VC for Industrial Biotechnology, KITT-TBI and BETIC –IIT Bombay for devices & Diagnostics respectively.

ETA at C-CAMP completed 3 projects with the support of ETA funding and filed 2 patents. The industries have embraced all of the technologies developed by C-CAMP.

ETA at IIT-Madras bio incubator completed 4 projects in the field of Industrial Biotechnology and is in negotiation with the industries for adoption of the technologies.

Clinical validation is in progress for the projects supported under ETA-Yenepoya and under ETA-BETIC

Project identification for KITT-TBI is in progress and, that of EDC-VC has been completed.

 <p>Yenepoya Technology Incubator</p>	 <p>BETIC</p>	 <p>IITM BIOINCUBATOR</p>
ETA: focused on Healthcare	ETA: focused on Devices & Diagnostics	ETA focused on Industrial Biotechnology
 <p>C-CAMP Centre for Cellular and Molecular Platforms</p>	 <p>VENTURE CENTER</p>	 <p>KITT KITT Technology Business Incubator KITT-TBI</p>
ETA focused on Healthcare	ETA focused on Industrial Biotechnology	ETA focused on Devices & Diagnostics

Social Innovation programme for products Affordable & Relevant to Societal Health (SPARSH)

Social Innovation programme for Products Affordable & Relevant to Societal Health (SPARSH) is the social innovation programme of BIRAC aimed at promoting development of innovative solutions to society's most pressing problems through biotechnological approaches.

Since its inception in 2013, the programme has been investing in high impact ideas and innovations that could address neglected unmet needs and challenges. The phase II of the program witnessed two cohorts of SPARSH fellows developing in the following six thematic areas:

- (i) **Maternal and Child Health**
- (ii) **Ageing and Health**
- (iii) **Food and Nutrition**
- (iv) **Waste to Value**
- (v) **Combating environmental pollution and**
- (vi) **Agri-Tech (including reducing post-harvest losses)**

The 14 SPARSH Centres mentored a group of 65 Social Innovators during cohort 2.

The Venture Design Workshop was organized from 22nd to 24th August 2023 at AIC-CCMB for the SPARSH fellows and Centres. During the workshop, SPARSH fellows displayed the alpha prototypes developed through the SPARSH mini kickstart grant of 5 Lakhs each.



SPARSH Felicitation Meet was organized on completion of cohort 2 on 4th December 2023 during Global Bio India-2023. SPARSH Centres and their fellows displayed and presented their prototypes to the subject experts and investors. After the evaluation, three SPARSH fellows were awarded with **"SPARSH - Award of Excellence"**.



3 SPARSH fellows were awarded with "SPARSH - Award of Excellence".



SPARSH Centre booth at Global Bio India-2023

The new SPARSH call for the **Establishment of SPARSH Centres and Knowledge Partners** was announced on 15th August 2023 for 3 thematic areas: Public Health, Farm to Plate, and Climate Resilience. Eighteen SPARSH Centres and three knowledge partners were selected for the next phase III of the program.



Sparsh Centres and Knowledge Partners

Few companies germinated through SPARSH Phase I & II:

Over time, the program has effectively identified novel solutions through rigorous immersion and translated them into successful enterprises such as Janitri, Sahayatha HealthCare, Bagmo, Blackfrog Technologies, Swayogya Rehab Solutions, SpotSense, Prantae Solutions, Craste, Accord Innovations Private Limited, Sedign Solutions, Greenikk, Greenamor Venture, Nutrigenetics Life Science, Sabera Healthcare Pvt. Ltd., Renaissance Superfoods, Vision Nanny, Shuddham, I-EON, etc.

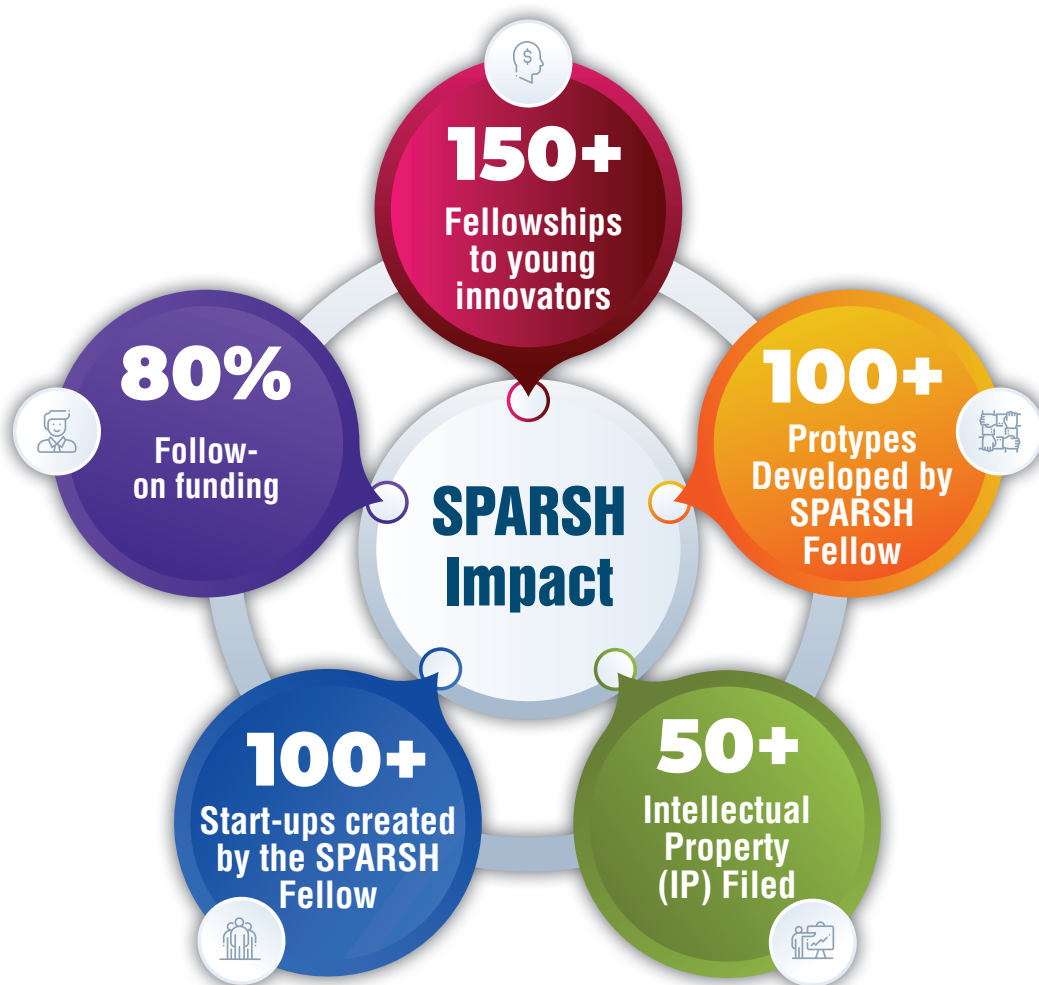


Few innovative and incredible products developed under SPARSH:

			
UviVigor Innovative Pvt Ltd.: Saliva based electrolyte detection	ByLin Meditech Pvt. Ltd.: Hydrating patch	Babycue pvt. Ltd.: product design- detection for bacterial diarrhea infection	
			
Janitri: Janitri portable intrapartum Fetal monitor Keyar	Dhanvantri Biomedical: Sahayatha (Smart Defecation Cleansing Assistive Wheelchair For Immobile Population)	Prantae: Profo-U (Self Health Monitoring Kit)	Swayogya Rehab: Miknee: A chondroprotective knee health monitoring orthosis
			
Sociodent: Assistive Oral Care Device	Nutrigenetics Lifescience: Plant-based Egg Protein Alternative	Amritattava: Nutrient enhanced Cashew Apple Powder	Renaissance Superfoods: Contemporary breakfast options for the health
			
CRASTE: Crop residue derived straw panel board analyser	Cordwood Technologies LLP: Tools for reducing post partum haemorrhage	UrbanBlue Technologies: Development of Aerobic granulated Biomass for High strength wastewater	UrbanBlue Technologies: ViewDX-Rapid Assay readout

SPARSH impact:

SPARSH is embarking on an amazing path that fosters innovative solutions and may be assessed in terms of fellowships awarded to young innovators, entrepreneurial germination, capacity building, intellectual property filed, fellow-on funding raised, etc. as summarized below:



Biotechnology Ignition Grant

Biotechnology Ignition Grant (BIG) is the flagship programme of BIRAC, which provides the right admixture of funding fuel and enabling support to young startups and individual entrepreneurs for incubation, team building, startup incorporation, equipment, operations, mentoring, training, etc. BIG scheme started in 2012, is one of the largest early-stage biotech funding programmes in the country. Funding grant of up to ₹ 50 lakhs for a period of 18 months is provided for translation of innovative ideas to proof-of-concept.

The BIG scheme is implemented through 8 BIG Partners, which are BIRAC's mature BioNEST Bioincubators. These partners create awareness, provide thorough mentorship (technical, IP, business), handholding and networking support to the aspirants and grantees, from pre-submission stage to completion of the project and even after.

BIRAC'S BIG Partners

			
www.ikpknowledgepark.com	www.kiitincubator.in	www.fitt-iitd.org	www.ccamp.res.in
			
www.venturecenter.co.in	www.sineiitb.org	www.siicincubator.com	www.aidea.naarm.org.in

During the financial year 2023-24 following activities were carried out:

- BIG 23rd Call was launched on 1st July 2023 and 1000+ applications were received under the call.
- Selection for BIG 22nd and 23rd Call was completed. Out of 2065 proposals received in both the calls, 109 new projects were recommended for support after multi-tiered selection process including eligibility check, online review by subject matter experts followed by face-to-face presentations and final scoring cut-off decision by Expert Selection Committee.

BIG scheme's successful execution over the last 12 years has been able to promote and amplify the culture of biotech entrepreneurship across the country. There are close to 1000 projects that have been supported through BIG so far, out of 13,000+ applications received. About ₹ 500 Crores have been committed by BIRAC under BIG. BIG scheme has facilitated new startup creation, development of 200+ innovative products & technologies, filing of 500+ IPs, supported nearly 250 women entrepreneurs and generated more than 3500 high skilled work-force. Several BIG Grantees have received national & international recognitions and awards. It is also notable that 150+ BIG grantees have secured more than ₹ 3000 Crores as follow-on funds through private investors.



Product Launched by BIG Awardees during Global Bio-India 2023

Intensifying the Impact of Industrial Innovation (i4)

The programme supports biotechnological product/technology development by strengthening R&D capabilities of start-ups/companies/LLPs. i4 is operated through 2 schemes



Small Business Innovation Research Initiative (SBIRI)



Biotechnology Industry Partnership Programme (BIPP)

Proposals funded under i4 are categorized under the following thematic areas:

Drugs (including Drug Delivery), Biosimilar and Stem Cells (including Regenerative Medicines) & Vaccines and Clinical Trial

Devices and Diagnostics

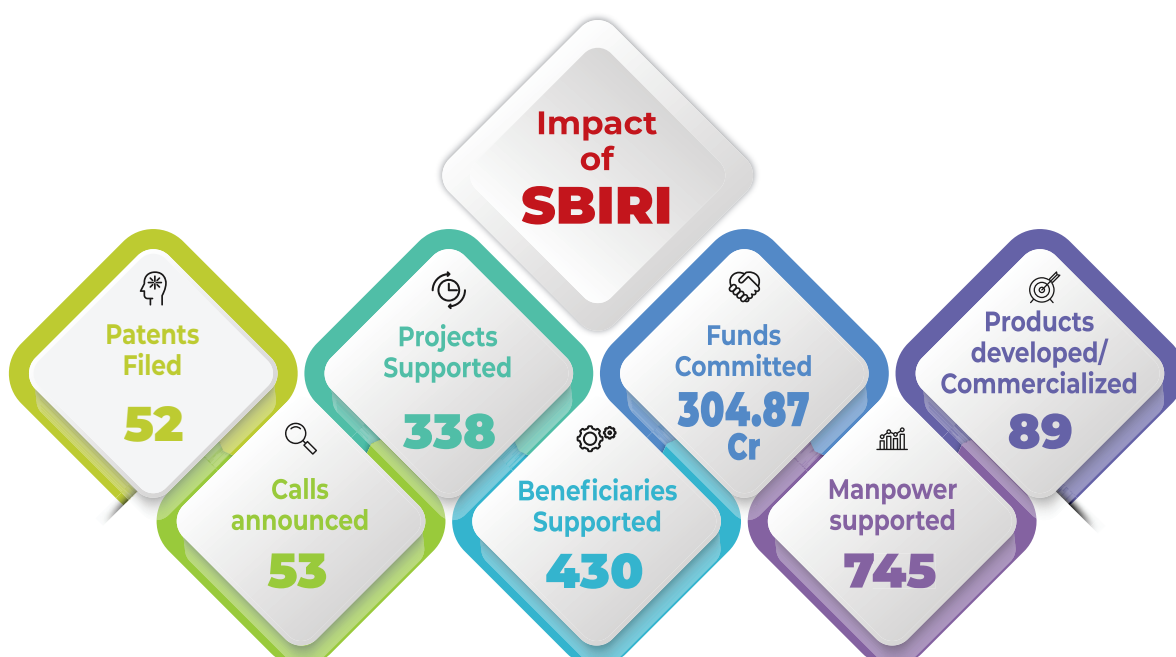
Energy, Environment and Secondary Agriculture

Agriculture (including Aquaculture & Veterinary sciences)

During the financial year 2023-24, one regular call and one challenge call for proposals was announced under i4 (SBIRI and BIPP) and PACE (AIR and CRS). In order to align the BIRAC efforts to the Government initiatives, the challenge call (announced on 15th June, 2023) focussed on priority areas under various Mission programs of Government of India.

Small Business Innovation Research Initiative (SBIRI)

Small Business Innovation Research Initiative (SBIRI) promotes and facilitates companies to take their established Proof of Concepts (PoC) towards early-stage validation, thus fulfilling a major gap in the product development cycle. The scheme has been instrumental in nurturing not only established companies, but also Start-ups and Small and Medium Enterprises (SMEs) who are now availing this grant by submitting proposal directly under the scheme or after completing the PoC studies under Biotechnology Ignition Grant (BIG)/other schemes of BIRAC.



Since the inception of the scheme, 338 projects involving 260 sole and 78 collaborative projects have been supported. The total beneficiaries supported are 430 which include 338 companies and 92 academic institutions. So far, 89 products/technologies have been developed under this scheme.

During 2023-24, 34 projects (including 9 new projects) were supported under the scheme. Five projects completed during the year. Ongoing projects under the various thematic areas were mentored and monitored by Project Monitoring Committee (PMC) through online evaluations, site visits or presentations before Technical Evaluation Committee.

Under 52nd and 53rd calls announced in the FY 2023-24, 150 proposals were received out of which 131 were eligible and are under different stages of evaluation.

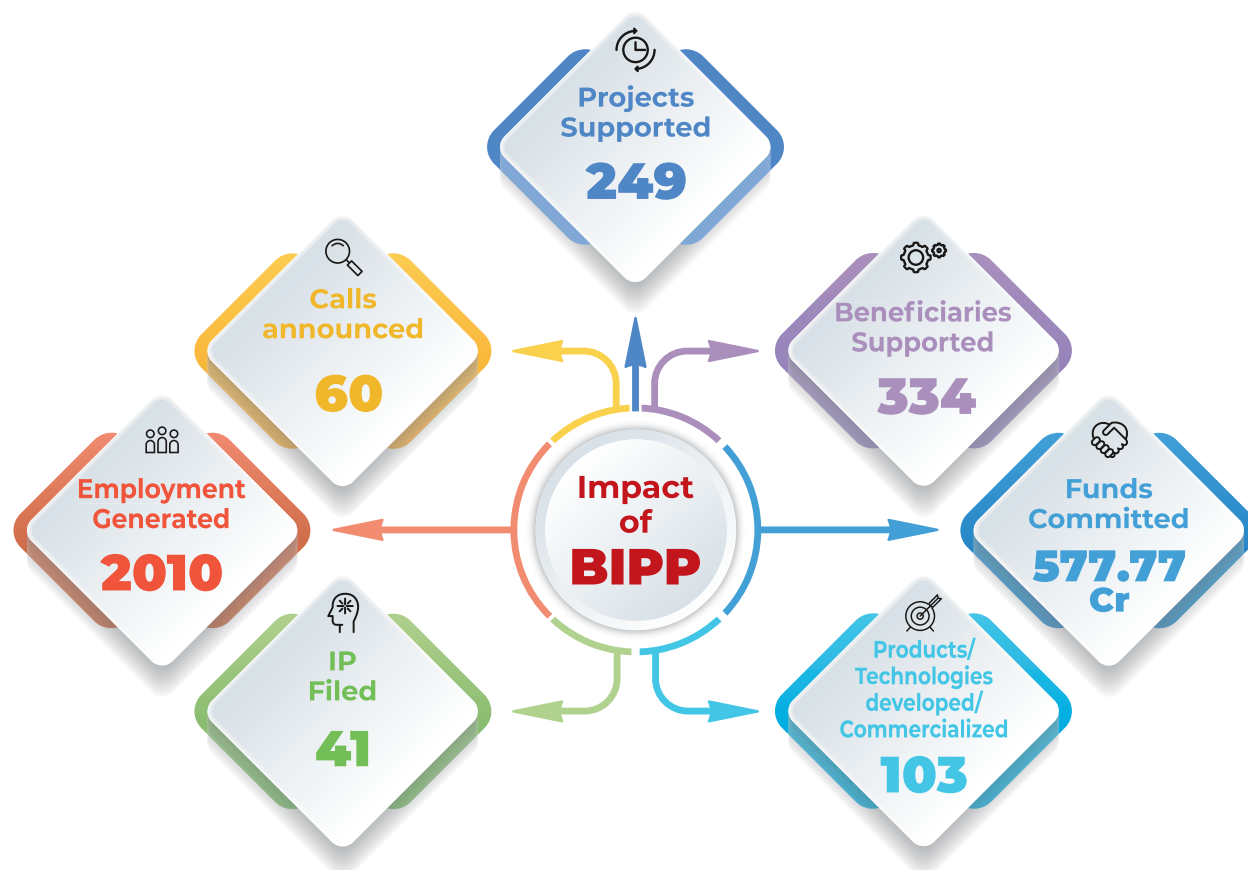
Biotechnology Industry Partnership Programme (BIPP)

The Biotechnology Industry Partnership Programme (BIPP), a Public-Private Partnership scheme, promotes innovative research for development of transformational technologies/products 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.

Since inception, 249 projects including 69 collaborative projects have been supported under the scheme. A total of 103 products/technologies have been developed till date. While some of these have already been commercialized, others are at the pre-commercialisation stage.

During 2023-24, 31 projects, including 9 new ones were supported. 5 projects completed during this period. 13 products/technologies reached TRL 7-9 taking them closer to commercialization. Regular monitoring and mentoring of the projects was undertaken to ensure successful outcomes.

Two new calls (59th and 60th) for proposals were announced during the year under which 82 proposals were received, out of which 72 proposals were found to be eligible. These proposals are under different stages of evaluation.



Promoting Academia Research Conversion to Enterprise (PACE)

Promoting Academic Research Conversion to Enterprise (PACE) supports academia to develop technology/ product of societal/ national importance and its subsequent validation by an industrial partner.

Salient features of the Scheme:

- Bridge Industry-Academia gap (Academia having an established lead engages the industry for validation)
- Funding (in form of grant) for both academic as well as industry partner
- Although the IP rights reside with the academia, the industry partner has the first right of refusal for commercial exploitation of the New IP

The Scheme has two components:

Academic Innovation Research (AIR):

Promotes development of Proof-of-concept (PoC) for a process/ product by academia with or without the involvement of industry

Contract Research Scheme (CRS):

Enables validation of a process or prototype (developed by the academia) by an industry partner

Since inception, 31 calls have been launched and 169 projects have been supported under the scheme. So far, 10 technologies/products have achieved TRL 7 and above and 26 IPs have been generated. More than 75% projects funded under AIR component of PACE achieved TRL 3/or higher TRL.

During FY 2023-24, 46 ongoing projects (including 14 new projects) involving 46 academic institutions, 12 companies and 19 collaborations were supported. The ongoing projects were mentored and regularly monitored through online interactions/site visits and presentation to the Technical Expert Committee to ensure successful outcomes.

During the year, two calls for proposals (30th and 31st) were announced under which 201 proposals were received out of which 121 proposals were found to be eligible. These proposals are under different stages of evaluation.

Impact of PACE



Equity Funding Schemes

SEED Fund

Sustainable Entrepreneurship and Enterprise Development (SEED) Fund is the first equity exposure to startups with new and meritorious ideas, innovations and technologies. SEED support of upto ₹ 30 lakhs to a startup who are positioned to act as a bridge between promoters' investment and Venture/Angel investment. The scheme is implemented through selected BioNEST Incubators which, as SEED Fund partners, manage the equity.

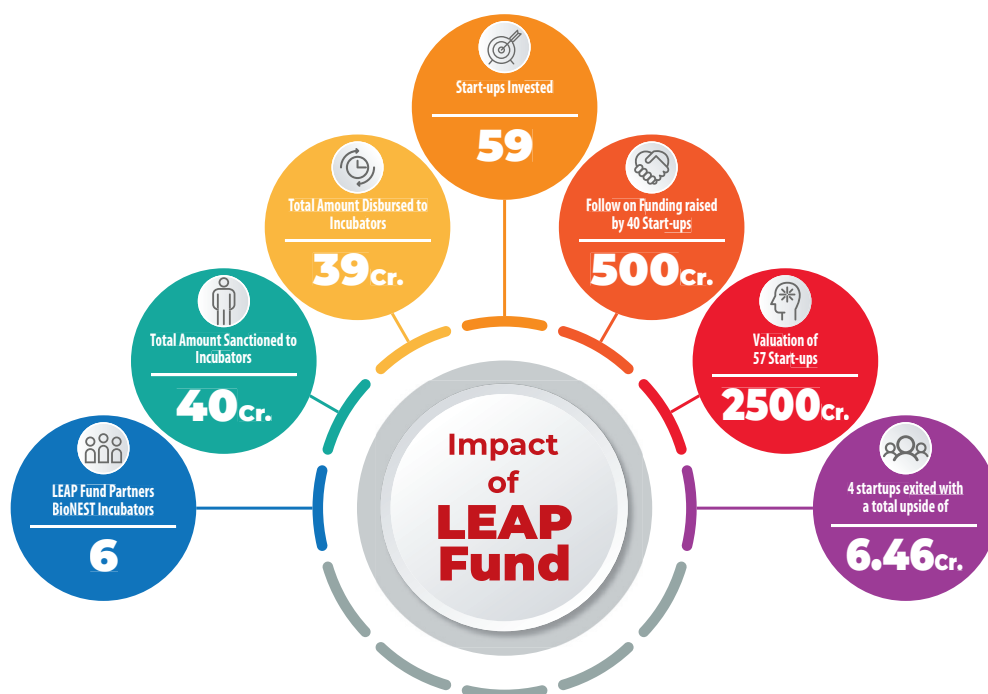
Impact of SEED Fund



During the year 2023-24, 10+ startups were supported under SEED Fund. So far, seven exits with a total upside of ₹ 3 Cr. has been reported.

LEAP Fund

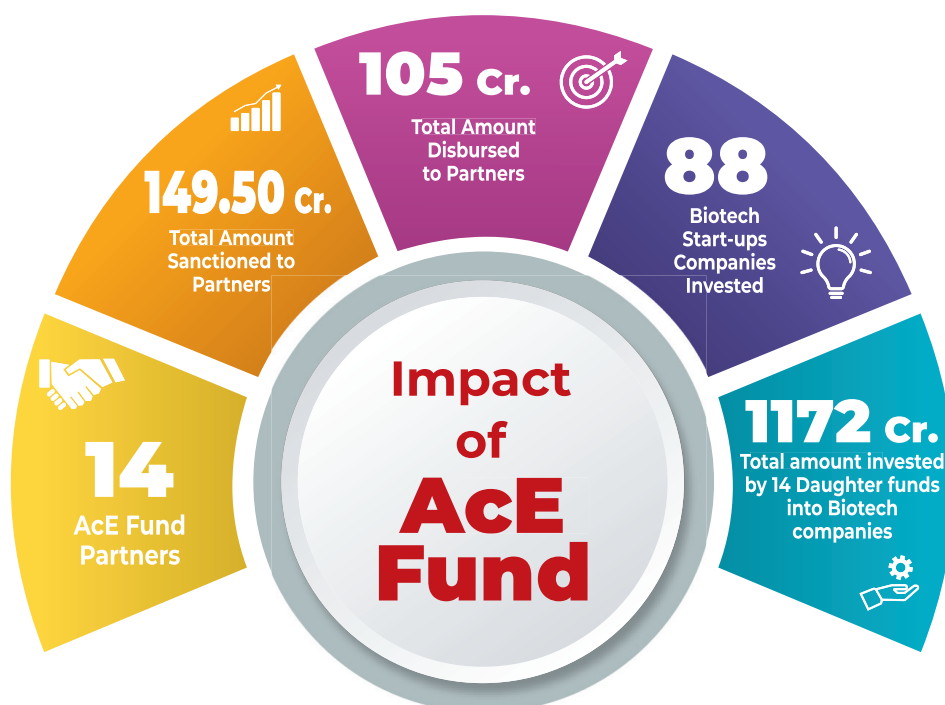
Launching Entrepreneurial Driven Affordable Products (LEAP) Fund is providing funding support to potential startups to pilot/commercialize their products/technologies. LEAP provides funding support of up to ₹ 100 lakhs/Startup that has reached pre-commercialization stage in order to reduce its gestation period. The scheme is implemented through selected BioNEST Incubators which, as LEAP Fund partners, manage the equity.



During the year 2023-24, 10+ startups were supported under LEAP Fund. So far, 4 startups exited with a total upside of ₹ 6.46 Cr.

Fund of Funds-Biotechnology Innovation Fund AcE (Accelerating Entrepreneurs)

Accelerating Entrepreneurs (AcE) Fund is a “Fund of Funds” which aims to foster R&D and innovation in Biotechnology by plugging the gap of “Valley of Death” encountered by Biotech start-ups during their ‘product development cycle’ and ‘growth phase’. AcE Fund invests and partners with SEBI- registered AIFs (Venture Funds and Angel Funds), which are professionally managed and desirous of investing in biotech sector. The Daughter Funds are committed to invest 2x of BIRAC’s investment amount from fund corpus in Biotech start-ups. AcE Fund provides equity investment of up to ₹ 7 Cr. per startup. The AcE Fund has been able to infuse private equity commitment into the Biotech ecosystem using AcE fund as a catalyst.



During the FY 22-23, 3rd National call for applications for inducting additional daughter funds was announced. Phase II was conducted during FY 2023-24 and selected of 4 new daughter funds.

Biotechnology Innovation Fund-AcE has been able to attract several Venture Funds willing to invest in Biotech Startups. It has reflected a willingness of private equity into the high risk area of Biotech. This is a very encouraging change that this Fund of Funds scheme has been able to trigger.

AcE 2.0 proposal with a fresh fund corpus of ₹ 500 Cr. is under discussion. With 25 additional AcE Partners, BIRAC can aim to mobilize 2x fund commitment from VCs thereby mobilizing another ₹ 1000+ Cr. into the Biotech ecosystem. Thus, a larger pool of additional Biotech startups can be supported.

**The agreement signing is under process with 4 newly identified daughter funds. After the onboarding of these daughter funds, the total number of partners will be 16, with a total commitment of INR 174.50 Cr.*

AcE Fund Partners

Product Commercialization Program Fund

BIRAC launched Product Commercialization Program Fund (PCP Fund) to hasten the product commercialization process by providing support to product technologies, which are at or above TRL-7 stage, developed by Indian Start-ups.

BIRAC is promoting product/technology development in different fields of biotechnology through various funding schemes such as BIG, BIPP, SBIRI, PACE, IIPME and SPARSH. On successful project completion, the technologies developed with BIRAC support attain certain level of maturity, which is measured on a TRL (Technology Readiness Level) scale of 1 to 9. When the technology/product has been successfully validated (TRL 7 and above) and is moving towards commercialization, then besides technical and funding support, the start-ups also require guidance and support on various other issues such as IP, technology transfer, regulatory, business plan, market conditions, networking, etc. PCP fund addresses few of these critical requirements through target funding.

The main objectives of PCP Fund are:

- To hasten the product commercialization processes by providing all necessary support to the projects that have performed well under the ongoing funding programs of BIRAC and have high commercial potential.
- To become a Product Development Partner of such technologies by providing required support including financial grants, mentoring, connecting with Investors, regulatory facilitation, market access, etc.

Besides BIRAC supported start-ups, Indian Biotech start-ups with products/technologies of nationally importance, developed through support from other sources, and which are at TRL-7 or above are also eligible. PCP fund application is submitted online throughout the year and is evaluated once in every quarter.

Seven products/technologies were supported out of which Five projects are ongoing and a few more projects have been shortlisted for funding support in 2023-24, two projects have been successfully completed.

List of the supported start-ups and their technology/project are as follows:

1. Aarna biomedical products Pvt.Ltd.

(Sampoorti: A mobile and concise suitcase comprising of prosthesis of different sizes, pocketed bras of different sizes with prosthesis covers).

2. Medtra Innovative Technologies Pvt. Ltd.

(Vein tracking/finder device with augmented reality using NIR).

3. InnAccel Technologies Pvt. Ltd

(VAPCare: An intelligent secretion and oral hygiene management system to prevent a deadly infection called ventilator associated pneumonia, which is responsible for more than 250,000 deaths every year in India alone).

4. BonAyu Lifesciences Pvt Ltd (Jubeln Lifesciences Pvt Ltd)

(Oral thin film platform for the delivery of Nutraceuticals, Cosmetics & Personal Care industries as a better alternate to the conventional tablets, capsules, liquids and gels.)

5. Fibroheal woundcare pvt.ltd

(Silk protein derived surgical wound dressings and other wound management solutions).

6. Innaumation Medical Devices Pvt Ltd

(AUM Tracheo-Esophageal Voice Prosthesis for Laryngectomy Patients)

7. Aspartika Biotech Pvt Ltd

(Production & Commercialization of Omega 3 Fatty Acids based products and nutraceuticals using Supercritical fluid extraction technology)

Projects from Aarna Biomedical Products Pvt. Ltd. and Aspartika Biotech has been successfully completed. Aarna Biomedical Products Pvt. Ltd has started benefit sharing from the Financial Year 2023-24.

BioAngels

BioAngels program has been launched by BIRAC with Indian Angels Network (IAN). It is positioned to become India's single largest horizontal platform for seed and early-stage investing. It is focused on supporting Biotech, Medtech, Healthtech, Pharma, Agritech & Cleantech startups to raise their angel round from Investors who also bring deep domain expertise. It aims to fuel the ecosystem through interactions with high-quality investors and industry leaders. BioAngels Platform was launched on 4th May 2022.

BioAngels initiative would encourage and mobilize Private Equity into the ecosystem especially the early-stage investments. This platform will lead to the creation of a consortium of Angels, HNIs, early-stage VCs. It is expected that about 145 startups would receive equity investment of about ₹ 350 Cr.

Highlights of BioAngels so far:

- **Startups received funding under BioAngels :**
 - a. Voiceoc Innovations Private Limited received ~INR 4 Cr.
 - b. Serigen Mediproducs received ~INR 5.8 Cr. with other investors.
- **Investors Onboarded: 4**
- **Partnerships:**
 - a. BioAngels was one of the sponsors for TieCon Delhi.
 - b. BioAngels onboarded Nathelath and LVPEI incubator as their investment partner.
 - c. A series of webinars organised in partner with GFI, FITT, IITK, ABLE and Startup India.
 - d. An MoU has been executed with FABA.
 - e. BioAngels booth was set up at BIRAC's Biotech Startup Expo 2022, New Delhi and India International Science Festival 2022 at Bhopal.

- f. BioAngels “Angel Investment masterclasses” having 8 sessions concluded. The masterclass received more than 1200 registrations.
- g. BioAngels representation at CAHOTTECH 2022 edition at SINE, Mumbai.
- h. BioAngels Partnered with IITM HTIC.
- i. BioAngels participated as an Investment Partner with Himalayan startup Trek (IIT Mandi).

IP & Technology Management

- The BIRAC in-house Intellectual Property and Technology Management Group (IPTeM) has been instituted with an aim to provide comprehensive assistance to innovators, entrepreneurs, start-ups, companies and academic institutions in navigating various facets of Intellectual Property, Technology Transfer, and Commercialization.
- The group conducts thorough IP due diligence and evaluation of proposals received through various flagship programs of BIRAC. Additionally, the group provides advisory on Intellectual Property and licensing matters, addressing both domestic and collaborative international projects.
- BIRAC through its BIRAC- PATH program, has been facilitating intellectual property protection, Technology Transfer and commercialization of biotech innovations to industries since 2013. Under this initiative, BIRAC beneficiaries receive funding assistance for drafting and filing of Provisional, Complete Indian, and PCT applications, along with National Phase filing and their limited maintenance.
- During the last Financial year, BIRAC extended support to 5 beneficiaries for filing Provisional patents and National Phase filing in countries such as US, Europe, Japan and China.
- Further, the program offers a wide range of IP and Technology Management services to Start ups, SME's and Academia.



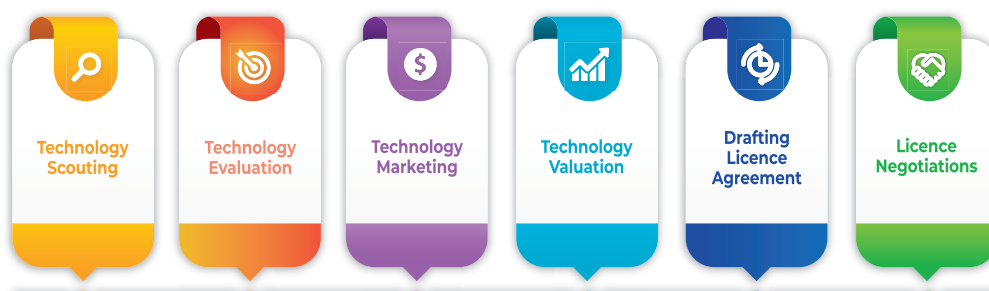
**TAKE YOUR
INNOVATION
FORWARD
WITH**

**birac
PATH**

BIRAC-PATH (Patenting & Technology Transfer for Harnessing Innovations) to support BIRAC funded Biotech Start-ups, Innovations and SMEs



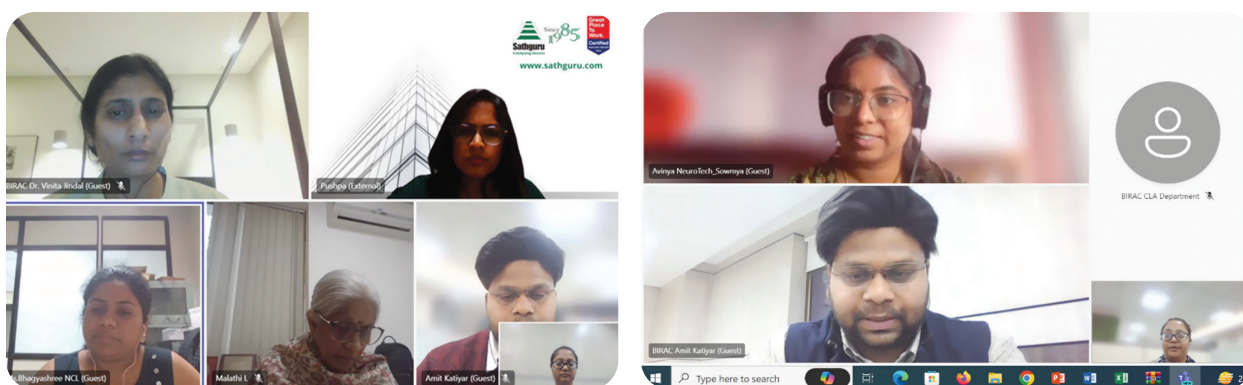
Technology Transfer Services



- Regarding Technology Transfer, BIRAC so far has successfully transferred two technologies. Last year, in partnership with Agrinnovate, BIRAC facilitated the transfer of the “Ruminant Pregnancy Detection Kit,” developed by ICAR-Central Institute for Research on Buffaloes (CIRB), to Technivent Pvt. Ltd.



- The BIRAC's IPTEM group runs a pro bono mentoring program called “IP & Technology Management Law Clinic Connect” on the Second Friday of each month. This platform allows various stakeholders to interact with experts, addressing queries on IP filing, licensing, spin-off formation, equity allocation, and more. In the year 2023-2024, four such virtual sessions were conducted, benefiting over 20 start-ups and innovators.



Glimpses from IP & TM law Clinic Connect Session

- BIRAC actively promotes awareness of IPR and endeavours to instil a culture of commercialization across the nation through regular sensitization workshops and capacity building programs. Notably, during the last financial year, three webinars and two in-person workshops were conducted in tier 2 and tier 3 cities on the theme of “Bio-Entrepreneurship and Intellectual Property & Technology Management in Life Sciences” at Vikram University, Ujjain and PSG College of Technology, Coimbatore.



IP Sensitization Workshop at Ujjain



IP Sensitization Workshop at Coimbatore

Regulatory Affairs and Policy Advocacy

BIRAC, through its various support schemes, plays a pivotal role in fostering innovation in the biotechnology sector. Given the diverse areas of support, ranging from biologics to medical devices, a dedicated Regulatory Affairs & Policy Advocacy (RAPA) division is established on 01st January 2024 to navigate the dynamic regulations and policies impacting start-ups, SMEs and young entrepreneurs.

The mandate of BIRAC's Regulatory Affairs & Policy Advocacy division is "To drive innovation through navigation of regulatory complexities, convergence of regulations & policies at both national and global levels, and fervently advocate for policies that catalyse the growth of start-ups, SMEs, and entrepreneurs in the dynamic landscape of regulatory and policy affairs"

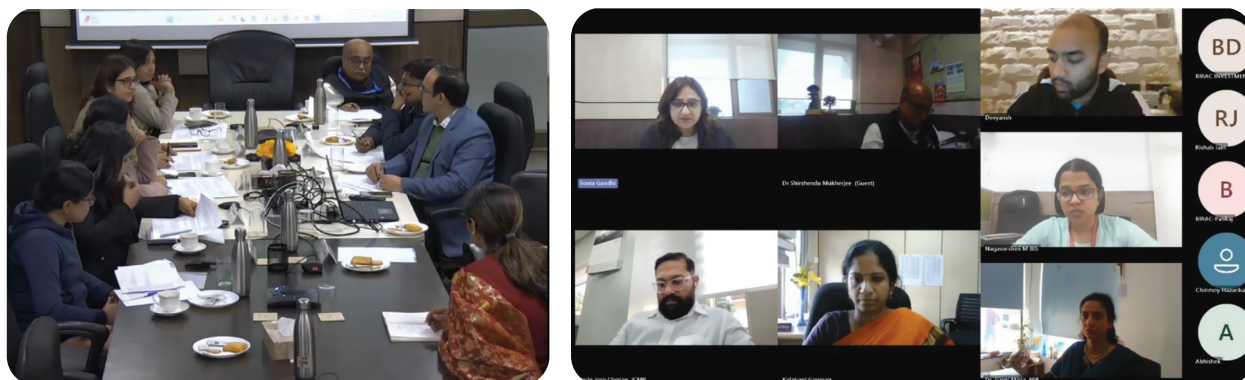
The main objectives of RAPA division are as mentioned below:

- Foster innovation by assisting entrepreneurs in navigating regulatory challenges
- Dedicated policy advocacy with industry and government bodies to ensure alignment with national missions and the needs of innovators
- Facilitate harmonization of regulations at national and global levels
- Publish impactful white papers/concept notes based on Stakeholders' consultative meets

FIRST HUB - Facilitation of Innovation and Regulations for Start-ups and Innovators

A single window facilitation unit set-up by BIRAC to address the queries of start-ups, entrepreneurs, researchers, academicians, incubation centres, SMEs etc.

The FIRST HUB has been created on the recommendation of NITI Aayog on August 2018. The 1st meeting of the FIRST HUB was conducted on 07th Sep 2018 at BIRAC. Officers from various departments like CDSCO, ICMR, NIB, BIS, GeM, DBT come together on the first Friday of every month to take queries from innovators. Queries related to regulatory pathways, funding opportunities, market access, IP, technical support, and mentorships are addressed on this appointment-based platform.



To date, over 55 meetings have been organized, and more than 850 queries have been addressed.



A special FIRST HUB session during GBI 2023 was conducted to address the queries of innovators.

A panel discussion titled was organised **“Accelerating Biomanufacturing: Fostering enabling ecosystem with conducive regulatory frameworks”** in collaboration with Sathguru Management Consultants on 5th December 2023. The panel converged a cross-section of senior leaders across bio-manufacturing opportunity areas to identify and outline key imperatives for regulatory reform to accelerate the journey of bio-transformation.



The panel discussed expansive opportunities in established industries such as manufacturing of pharmaceutical API and industrial chemicals as well as emerging opportunities like cell and gene therapy for erstwhile curable diseases, and cell-culture proteins for food and feed. Across applications, achieving the potential of biomanufacturing hinges on fostering enabling regulatory frameworks across R&D and manufacturing operations as well as final product approvals. Harmonization with evolving global regulations will also be essential.

A workshop cum engagement session with National and International regulators was organised on **“National & Global Regulatory Trends Shaping the Future of Biotech and Med-Tech Innovation”**

This discussion explored how evolving national and global regulations impact the development and adoption of cutting-edge biotech and Med-Tech solutions. Experts from regulatory agencies and industry leaders delved into the strategies and trends driving this transformative sector forward, ensuring both patient safety and the fostering of innovations. The session provided a comprehensive overview of the regulatory challenges and opportunities, offering valuable insights into global harmonisation efforts that are shaping the future of healthcare innovation on a global scale.



Compliance of BIRAC proposals to national regulatory requirements

Strengthening the BIRAC proposal evaluation system by identifying the regulatory impediment before the sanction of proposal so to avoid any regulatory hurdles related to the feasibility/timeframe of the proposal. As a PSU, it is of prime importance that proposals funded by BIRAC comply with national regulatory guidelines and requirements. Proposals shortlisted for Apex consideration under various BIRAC programs undergo review by the Regulatory Expert Committee (REC).

Regulatory Expert Committee (REC) meetings are conducted according to the requirements of program division, wherein REC members identify the regulatory requirements for the proposals to be funded for compliance with national regulatory guidelines. The 14th REC was held in July 2023 with 16 proposals submitted by the investment division.



Regulatory Expert Committee meeting

BIRAC Hosted Delegation from USFDA

On 18th January 2024, BIRAC hosted a delegation from USFDA. Dr. David C. Kaslow, M.D, Center for Biologics Evaluation and Research (CBER), USFDA, and Dr. Sarah McMullen, Ph.D., Country Director, USFDA India Office (INO), along with a group of senior officials. The visit provided an invaluable opportunity for BIRAC's scientists, who greatly benefited from their interaction with the delegation.

Dr. David Kaslow, renowned for his extensive experience in biologics research, shared critical insights on the regulatory landscape for biologics, underscoring the importance of robust regulatory frameworks in advancing scientific innovation. The interaction fostered a spirit of collaboration and mutual learning, reflecting the shared commitment of both organizations to advancing biotechnology.

This high-level meeting marked a significant step toward strengthening regulatory collaboration and fostering international partnerships aimed at advancing the global biotechnology landscape.



Programs for Niche areas, Specialized services, supplementary activities

A. Program on Synthetic Biology

The area of Synthetic Biology requires special attention in view of the enormous applicable potential. Since Synthetic biology is an emerging technology, BIRAC had supported a program on “Synthetic Biology for transition towards a bio-based economy”. The main aim of the program is to generate joint research, development and commercialization activities.

Two calls for proposals have been announced which led to supporting a total of 11 projects. These projects focus on developing products such as rose oxide, sandalwood sesquiterpenes and biobutanol production. The projects have resulted in development of PoC. Patents have been filed for a few technologies. Strategies for further supporting the developed outcomes as well as the promotion of research in this area is under process.

B. Innovation Clean Technology - Scale up

Under the 100 days agenda of the Department of Biotechnology, few promising technologies in the area of waste management/waste to energy were taken forward for Scale up/implementation at 10 sites/States. The implementation of these technologies had to be done in association with Municipal Corporations/Urban local bodies (ULBs) identified by the companies. Few potential technologies, that had achieved TRL 7, supported by DBT/BIRAC were shortlisted for consideration. Out of these, a total of 4 technologies are being implemented in association with the Municipality/ULB of Goa, Bangalore and Greater Mumbai.

Two projects have been completed.

1. **GPS Renewables:** A 2-ton-per-day plant using organic fraction of municipal solid waste for conversion to biogas has been installed at Haji Ali in Mumbai. The biogas generated is being converted to electricity and is being used at electric charging station.
2. **Openwater.in:** A membraneless, chemical free, waste water treatment system has been developed and demonstration at Gram panchayat, Mavallipura

The second call for proposals was announced in December 2022 and 2 proposals were recommended for funding support. These projects are being implemented in association with Srinagar Municipal Corporation and Bhavnagar Municipal corporation.



Fig. 2-ton-per-day plant using organic fraction of municipal solid waste for conversion to biogas installed at Haji Ali, Mumbai (GPS Renewables)

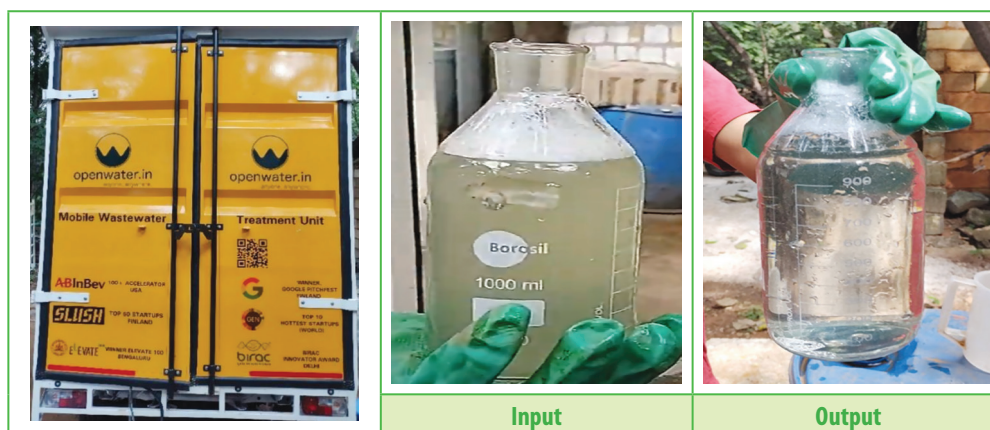


Fig. Membraneless, chemical free, wastewater treatment system (Openwater.in)

C. Program on Guar Gum

The Guar Industry has evolved from being used for domestic and ruminant feed purpose to finding use in industry. Owing to new technologies and ongoing R & D, the natural gum property of guar can have varied applications from food, pharma industry to oil Industry. The guar industry is poised to grow and develop owing to high focus on research in Universities and technical institutes of the world. Leading players operating in the global guar gum market include Jai Bharat Gum, Vikas WSP, Hindustan Gums, Shree Ram Gum, Cargill Inc., Lucid Group, Ashland Inc., Supreme Gums Pvt. Ltd, India Glycols Ltd, Rama industries and Lamberti.

To promote development of the area, focused call for proposals was announced and proposals were sanctioned in the area of building material mixtures, sealants, bioplastics, biomedical patch and guar derivatives.

Few of the products/technologies developed under this program include NUTRIFIBER (Nuevo Polymers Pvt. Ltd.); Indigenous biodegradable plastic (Ruhvenile Biomedical) and Indigenous Wall Putty (Shriram Institute for Industrial Research, Delhi).

Out of the 8 proposals considered for funding, 04 have been taken as completed, 01 have been closed and 03 are ongoing and the review for these is under progress.



Areas supported under Guar Gum

Technology and product development under Guar Gum in FY 2023-2024:

Natural dermal Bioadhesive (H N Shivakumar)

Dermal bioadhesives are integral part of the biomedical devices like transdermal patches, medical devices, and surgical accessories. Bioadhesives are known to play a key role in retaining the devices on the site of application and therefore determine the efficacy of the devices in most instances. Presently, India exports most of the medical grade adhesives that include cyanoacrylates, polyurethanes or silicones from abroad. Ethicon (US), 3M (US), B. Braun Melsungen AG (Switzerland), Baxter International (US) and Henkel (Germany) are the major players in the Medical adhesive market. There is no medical grade bioadhesive in India that is eco-friendly, economical, indigenously developed, biocompatible, safe and stable. The currently available synthetic bioadhesives normally do not allow the development of transdermal patches of polar therapeutic molecules. In addition, the presently available synthetic bioadhesives highly expensive, occlusive and flammable. Guar Gum is found to be a good base material for development of hydrogel bioadhesive transdermal patches for application to the skin and would be first of its kind from indigenous origin. The Guar gum based bioadhesive was proposed to overcome the limitation of most of the synthetic bioadhesives existing in the current market.

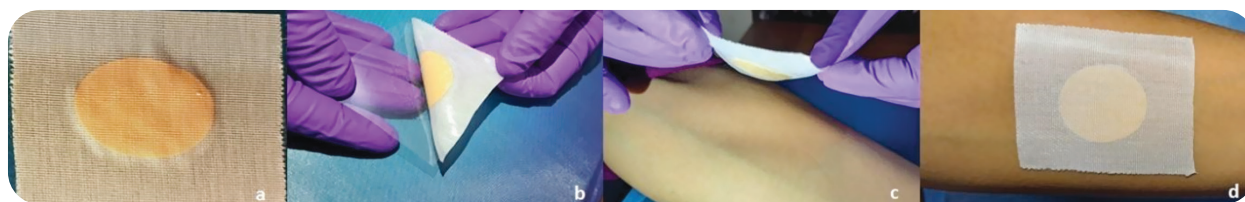
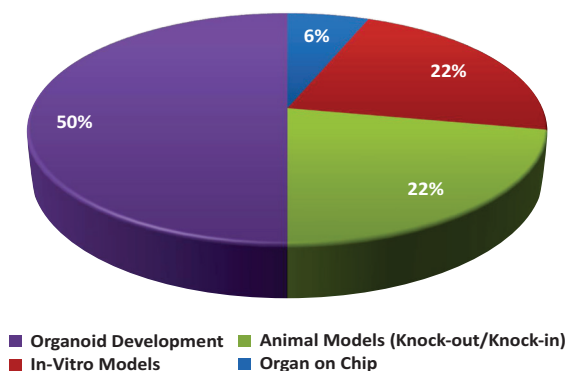


Fig. Guar-Gum Patch

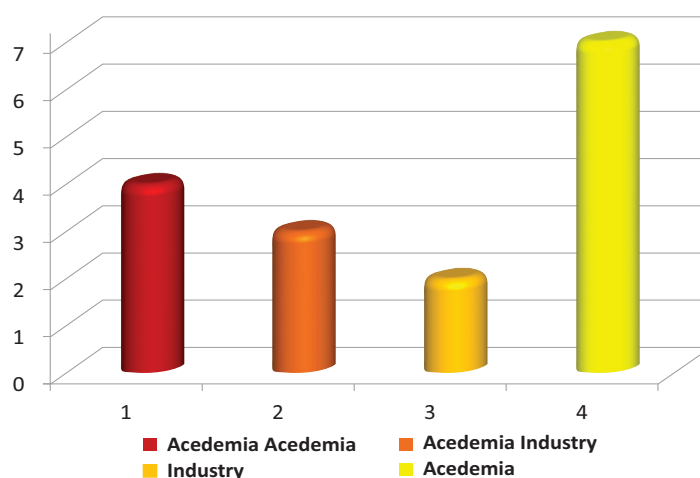
D. Preclinical Model Development for Drug Discovery

BIRAC puts its constant effort to fulfil the gaps in the area of drug discovery where one of the important identified gaps is failure of treatment therapies from preclinical to humans which could be also contributed to deficiency of robust preclinical models. To identify the unmet disease areas in India, a landscaping report was requested from Global data by BIRAC in 2019 and main objective of the report was to prioritize the disease areas of the country based on prevailing disease burden. Based on detailed methodology 19 diseases out of 130 were identified by applying high level filters and 10 indications were identified based on priority process based on two key parameters i.e. Disease potential and Impact on community. It was further noticed that support is also needed for developing robust models in these disease areas which could offer innovative insights into the multifaceted pathophysiology and the successful models can be expanded as a service-based platform model, where researchers/ Industries across the country may access to get their molecule tested.

In view of this, a special call on “Establishment of preclinical models for drug Discovery” was announced with the objective to establish preclinical disease models (In-vitro/In-vivo) for screening new drugs, NCE, natural compounds. A total of 16 proposals are being supported under the call with both academia, Industry as well industry- academia collaborative proposals. The support is being provided mostly for different types of models i.e. organoid development, mouse models, organ on chip and drosophila model for various diseases i.e. different cancers, rare diseases, neurodegeneration diseases, metabolic disorders etc.



Types of Preclinical models being supported



Support to collaborative Proposals

BIRAC Regional Centres

BIRAC Regional Centers serve as extended arms of BIRAC, designed to expand entrepreneurial ecosystem coverage across the country. Each regional center is also given a specific mandate so as to address certain gaps of the ecosystem collectively with all regional centres. Setting up of BIRAC Regional Centres is also a committed target for the biotech sector under the Startup India Action Plan announced by the Hon'ble Prime Minister in 2016.

The Four BIRAC Regional Centres are as follows:

1. BIRAC Regional Innovation Centre (BRIC) at BioNEST-IKP, Hyderabad
2. BIRAC Regional Entrepreneurship Centre (BREC) at BioNEST-C-CAMP, Bangalore
3. BIRAC Regional Bioinnovation Centre (BRBC) at BioNEST-Venture Centre, Pune
4. BIRAC Regional Techno-Entrepreneurship Centre for East & North East (BRTC-E&NE) at BioNEST-KIIT, Bhubaneswar

Impact created by the BIRAC Regional Centres so far:

1. Systematic Innovation mapping conducted region wise across 22 clusters covering the country. The study was carried out in 3 phases to understand local knowledge generation capacity and enabling factors to identify the gaps that hinder biotech entrepreneurship and progression of commercialization of innovations.
2. 25,000+ participants benefitted by Entrepreneurship development training programs & workshops
3. National Biotech Entrepreneurship Challenge (NBEC) has emerged as a flagship platform that has attracted over 15000 Registrations from 35 states across the country. The program mobilized over ₹ 35 Cr. as Cash Awards & Investments for startups and students.
4. A Regulatory guidance centre that is accessible to Startups called "Regulatory Information Facilitation Centre (RIFC)" has been set up.
 - a. 400+ startups facilitated for Regulatory Support
 - b. 12 ISO Certifications, 18 Licences/approvals facilitated
 - c. Reference Regulatory resource Database for Medical Devices and Diagnostics created
5. Incubator Manager Training program – a pioneering initiative
 - a. 150+ Incubation Centre new Managers trained
6. 1000+ One-on-one business meeting sessions between Startups & Investors
7. Promoting awareness and extending support through training, mentorship, and partnerships in the North

Eastern Region for Startups, Entrepreneurs, and Research Institutions

- a. 500+ Rural Women Entrepreneurs and SHGs across East and Northeast provided with the skillset to use traditional knowledge with modern biotechnology interventions through skill development training programs
- b. New collaborations and MoUs made with more than 15 institutes in NER

A new Regional Centre “BIRAC Regional Field Validation Centre (BRFC)” to facilitate Field Validation support to Startup products/technologies is currently under consideration through harnessing the strength of hospital based BioNEST Bioincubators.



Glimpses of activities conducted by BIRAC Regional Centres

3i Portal

The 3i Portal has become a cornerstone for effectively managing BIRAC's diverse funding schemes. Its user-friendly interface and regular updates have made it a go-to platform for all stakeholders. Now, expanding its reach to BIPP and SBIRI loan recoveries, the portal is streamlining financial operations.

Enhanced data mining capabilities, coupled with new reporting tools, are driving data-driven decisions. The portal has proven instrumental in conducting impactful surveys and generating valuable insights.

Looking ahead, advanced search functions and a dedicated mobile app will further elevate user experience. A groundbreaking networking portal is on the horizon, fostering collaborations within India's biotech community and eventually extending its reach globally. This platform will showcase products, services, research, and technologies, accelerating innovation and market entry.

Showcasing market-ready and soon-to-be-launched BIRAC-funded technologies and products, it's a dynamic marketplace connecting innovators with eager adopters.

Biotech Showcase Portal

Biotech Showcase e-Portal (<https://biotechinnovations.com>) was launched by Hon'ble Prime Minister Shri Narendra Modi ji during Biotech Startup Expo 2022. The portal features 700+ Biotech Products and Technologies.

The e-portal is a convergence point for Startups, SMEs, Incubation Centres, Mentors, Investors, and other stakeholders' networks, to explore, identify & create new business opportunities. It is accessible globally to provide an opportunity to showcase solutions from India's Biotech Startups solving unmet needs. This is an effort under Make-in-India Facilitation Cell.

This portal offers following features:

- **Spotlight:** To post achievements and get recognition at the national & international level
- **Get connected** with other Startups, entrepreneurs, Incubation Centres working in your domain
- **Networking** with relevant investors/experts with one-to-one connect
- **Discussion Board** to share and learn from peers
- **Post Jobs** to find the right talent & built a team, seek interns
- **Highlights:** Stay updated with the latest announcements, and opportunities in the field



BIRAC's Biotech Showcase portal

A platform to feature products & technologies developed by the vibrant biotech Innovation Ecosystem

A convergence point for Startups, SMEs, Mentors, Investors, other stakeholders' network, to explore, identify & create new business opportunities.

Find a product match addressing unmet needs in Healthcare, Medical Devices, Diagnostics, Agriculture, Food tech, Industrial product, Bioprocesses, Biodegradable alternatives, Bioservices, others for greener, clean environment & circular Bioeconomy.

710 Innovators Profiles	INR 5500 Cr Investment reported
718 Products/Technologies	1250 IPs Generated

Biotech Showcase Portal

Mission

Grand Challenges India (GCI)

Grand Challenges India (GCI) is a collaborative endeavor between the Department of Biotechnology (DBT), the Bill & Melinda Gates Foundation, and other strategic partners, including USAID and the Wellcome Trust, aimed at addressing critical health and developmental challenges in India and the Global South. Since its inception in 2012, GCI has played a crucial role in funding and supporting innovative solutions to improve public health and development outcomes, with a total joint investment of USD 75 million.

Over the past 13 years, the partnership has supported and funded scientific and technological research to alleviate critical global health and development issues, benefiting people in India and worldwide.

GCI's mandate is intentionally wide and diverse, covering a broad range of health and developmental priorities, including maternal and child health, infectious diseases, vaccines, point-of-care diagnostics, agriculture development, and food and nutrition, and added capacity building initiatives to its portfolio.

GCI has been actively supporting cross-disciplinary talent to create scientific solutions for improving the lives of the needy and to help build indigenous capacity by linking public and private organizations and their resources. This approach catalyzes impact at scale and sustainability in India and beyond through thematic open calls and specialized initiatives.

Since its inception, GCI has launched 47 programs, received over 3000 applications, and supported 224 projects (including 36 projects supported through GCE-India) to develop new medical technology devices, drug delivery systems, diagnostics, and technology-enabled service models that can potentially be made available to people from all socio-economic strata. The program has resulted in approximately 80 publications and numerous patents, with the learning and outcomes expected to have a greater long-term impact.



qHPV Clinical Development

India has come up with its first indigenously-developed vaccine against cervical cancer. The development of quadrivalent (6,11,16 and 18) Human Papillomavirus vaccine (qHPV) 'CERVAVAC' is an outcome of a partnership between the Serum Institute of India (SII), DBT through its Grand Challenges India, BIRAC along with the Bill and Melinda Gates Foundation (BMGF). The SIIPL qHPV vaccine i.e. CERVAVAC® has received Manufacturing & Marketing License. CERVAVAC® has been launched in the Indian market in Q1 2023. The phase 2/3 clinical study data (9-14 yrs cohort) was published in Lancet Oncology. The 36 Month follow up of all subjects is completed.

Garbh-Ini Research Projects

- The Garbh-Ini Cohort, an inter-institutional research program in India supported by DBT, has joined the international Multi-Omics for Mothers and Infants (MOMI) Consortium in 2021, which pooled data from

high-quality cohort studies and bio-repositories in Asia and Africa. The consortium addresses global health questions with harmonized clinical variables and capacity-building for omics analysis. Through the platform, under the **first phase**, Garbh-Ini contributed to the development of a standard sample inventory tracker by sharing clinical/phenotypic data in a harmonized format.

- **MOMI Phase II** is under implementation to advance and scale up genomic analysis in all MOMI Consortium Indian samples using low-pass whole genome sequencing (WGS) technology. The THSTI-led research group is conducting genomic analyses of various pregnancy phenotypes, bio-analytics, and micro-nutrients measured in the MOMI samples following the epidemiological evaluation of specific risk factors of adverse pregnancy outcomes.
- The cohort is also part of the **Selenium Study Consortium** under MOMI and the project primarily carried GWAS analysis with Selenium as a variable trait. A total of 2056 pregnant women were part of the sub-cohort for analysis of bio-markers of micronutrients. Of the 2056 participants, 220 delivered pre-term. The study reports micro-nutrient deficiencies in pregnant women at < 20 weeks of gestation and association between micro-nutrient levels and pre-term birth outcomes. The GWAS data has been analyzed to look for association between SNPs and selenium concentration in pregnancy. The study has also been published, may refer <https://doi.org/10.1016/j.ajcnut.2023.10.011>
- Another sub-study nested in Garbh-Ini is evaluating N-linked glycosylation dynamics in longitudinal samples from gestational diabetes mellitus (GDM) patients and controls. The aim is to develop innovative diagnostic and surveillance approaches for GDM to optimize diagnosis and reduce neonatal morbidity.
- GCI is also supporting the Garbh-Ini India Pregnancy Risk Stratification Platform Alignment (GIPA) led by CMC Vellore and supported by the Foundation. This project aims to align and validate findings from the Garbh-Ini platform in a subset of the India PRS Platform. The chosen sites are Makunda Christian Leprosy and General Hospital (MCLGH) in Bazaricherra, Silchar District, Assam, and the Community Health Centre (CHC) in Hodal, Palwal District, Haryana. A total of 294 pregnant women were recruited into the GIPA cohort from April 1, 2022, to September 30, 2023, when the recruitment window closed. As of 31 March 2024, the pregnancy outcomes of 293 women have been documented, yielding 33 pre-term births (11.3%), with 26 pre-term births delivering at the study site.

The Med-Tech Challenge

The Med-Tech Challenge: Market Acceleration Training & Award program was initiated with the intent to meet the needs of Indian innovators and entrepreneurs working in the areas of developing medical technologies for public health who have a validated proof-of-concept for their technology and are in the process of taking their product to market. Under this program, DBT-Gol, BMGF & Well come have supported 4 compelling and unfinished medical technologies and tools through a competitive grant process and a portfolio approach. The program intends to fill the gap in the development and delivery of affordable medical technologies in India and plans to address the low movement of affordable technologies through the development pipeline.

Diagnostics for Neglected Tropical Disease (NTD) – Lymphatic Filariasis (LF)

Aligned with Global and Government of India's accelerated plan to eliminate and end Neglected Tropical diseases (NTD) like Lymphatic Filariasis (LF), Grand Challenges India (GCI) with the funding support of the Department of Biotechnology (DBT), Government of India and Bill & Melinda Gates Foundation (BMGF) had launched an open call entitled "Diagnostics for Neglected Tropical Disease (NTD) – Lymphatic Filariasis (LF)".

This program solicited proposals that were aimed at exploring/ providing a reasonably inexpensive, novel diagnostic for LF, which can be used in developing/remote geographies. The program was intended towards trying to support diagnostics development in alignment with the WHO Diagnostic Technical Advisory Group-developed Target Product Profiles (TPP) and is intended for field use in the National LF Elimination Programme, primarily in India and globally.

Five projects supported under this program are underway and are mainly targeted at the development of point-of-care (PoC) field adaptable, lateral flow assays, Loop-mediated isothermal amplification (LAMP) assays, biomarker discovery, and microscopic tools for early and accurate diagnosis of LF.

Validation study of indigenous HPV tests for cervical cancer screening (i-HPV)

HPV vaccination is the most effective primary preventive approach against the disease however, secondary measures, i.e., routine screening and treatment of precancerous lesions can prevent most cervical cancer cases. Considering the same, GCI is supporting a program that is aimed at clinically evaluating/validating the indigenous HPV diagnostics platforms underway or available for the detection of main cancer-causing HPV genotypes in India as well as other LMICs. The main objective is the accelerated development of a test that would provide the best balance of diagnostic accuracy and cost-efficacy for utilization in primary care settings and is deployable in national programs using a single-visit approach. It should also be automated and not require a lot of technological know-how or elaborate infrastructure. A kick-off meeting for the program was held on March 6, 2024. The agenda included a discussion of the program's goals, schedule, milestones, test kit protocols, methodology, and deliverables.



Ki Data Challenge Dissemination Meeting - 8-9 November 2023

The two-day convening focused on sharing insights from Round 1 of the Global Challenge (GC) and building collaborations for Round 2. Inter-ministerial stakeholders discussed findings with grantees, fostering a culture of learning and planning future activities. During the meeting Round 2 objectives were defined, including data science solutions and team formation. Participants presented collaborations, such as THSTI with IITM, SJRI, and CMC-Vellore. Two high-level panels emphasized responsible data sharing and evidence-based decision-making, addressing prioritization, privacy, and accessibility. NIMS, ICMR institute director shared the new guidelines for AI ethics and data collection which were released recently for data programs. Looking ahead plans for Round 2, involve creating an outline of steps, emphasizing a workshop with infectious disease experts and NDMC as the initial phase, highlighting the need for collaboration to address infectious diseases.



AI for Ultrasound

The proposed work builds on the work that was started by DBT with the Garbh-Ini cohort and the ki Data Challenge Round 1, a unique opportunity to bridge clinical researchers and data scientists (IITM). The team has successfully developed three gestational age estimation models for the Indian population, covering the first to third trimester.

The Garbh-Ini team have developed three GA estimation models (Garbhini-GA1, Garbhini-GA2 (based on US biometry) and GAUGE (Garbh-Ini Ultrasound image-based Gestational age Estimator)) for predicting GA. These models have been tested on small external validation datasets. Before these tools can be deployed in clinical practice, it is proposed to validate them using pan-India datasets.

The Garbhini-GA2 model is a polynomial regression based on ultrasound measurements, which accurately estimates GA in the second and third trimesters, outperforming Hadlock and INTERGROWTH-21st models in two datasets.

The research group have also developed GAUGE, an image-based model that achieves precise GA estimation by focusing on fetal head details, surpassing Had-lock and INTERGROWTH-21st in accuracy across GA groups.

Non-Hormonal Contraceptive Discovery Program (NHC-DP)

GCI is supporting Strand Life Sciences, to conduct an extensive screening of 1000 women with idiopathic infertility, aiming to identify genetic targets for female contraception.

This biphasic study aims to develop a data set that will serve as a valuable resource for further assessment of the potential of these genetic variants in identifying potential target candidate for contraceptive drug. The feasibility study has finalized study documents including Clinical Study Protocol, including recruitment of 10 subjects and collection and bio-banking of blood samples and performed whole exome sequencing for all 10 subjects and generated QC metrics.

Implementing the expansion phase, Strand has completed ethics committee reviews and set up subject recruitment processes at 40 hospitals and infertility clinics across India. These recruitment sites are distributed across 18 cities and cover 9 states in India. So far, recruited 513 subjects have been recruited including 395 probands with a diagnosis of unexplained infertility and 118 mothers as controls. The enrolled subjects come from 14 different language groups. Blood samples have been collected from all these subjects and DNA extraction is underway. Whole exome sequencing of 497 of these samples have been completed and is in progress for other samples.

Establishment of UK National Institute of Health Research funded Global Health Research India Unit for Genomic Surveillance of Antimicrobial Resistance

Considering that there are greater levels of AMR resistance reported from India as compared to developed countries, Grand Challenges India has facilitated the establishment of the Global Health Research Unit at Kempegowda Institute of Medical Sciences (KIMS), Bangalore through the support of Wellcome Sanger Institute to provide intelligent global surveillance of bacterial pathogens using whole genome sequencing (WGS).

The study has led to the identification and warning systems of novel pathogen variants that may be particularly virulent or transmissible. Outputs of GHRU have been cited in key policy documents by the WHO as examples of best practices and have led to commissioned documents for the WHO, influencing policy and guidance for member states around the use of WGS. Considering the outcomes of Phase I of the GHRU study and to leverage and optimally utilize infrastructure and expertise developed during Phase I, the CRL KIMS team proposed Phase II of the study. The study proposes genomic surveillance of AMR uses and creates data on patients, their locations, bacterial isolates, and their genomes. These data will serve as feedback for patient care, hospital, national, and international information systems. The study envisions different landscapes and challenges as an opportunity to build compatible templates for generating and using sequence data to effectively integrate genomic surveillance.

Group B *Streptococcus* (GBS) Genomic Surveillance in LMICs

Given that WGS is a powerful tool that can provide new insights into disease transmission, virulence, and antimicrobial resistance (AMR) dynamics when combined with epidemiological, clinical, and phenotypic microbiological information, a study has been initiated under GCI ambit that plans to gather ~1000 GBS isolates from across India through a wide network of healthcare providers from on-going screening studies (which will mainly include: maternal carriage, neonatal disease, other GBS disease in humans, disease, and carriage in animals). The aim is to study the epidemiology and serotype distribution of *S. agalactiae* across India in all age groups.

Global Pneumococcal Sequencing Project: Establishing decentralized global genomic surveillance for the pneumococcus

S. pneumoniae is a commensal colonizer of the human nasopharynx and an opportunistic pathogen. Diseases caused by *S. pneumoniae* are a major public health problem affecting young children and the elderly. The burden of invasive pneumococcal disease (IPD) continues to pose a problem in India due to its varied epidemiological pattern, changing cellular and virulence characteristics and complex detection methods. Estimating the exact pneumococcal disease burden in India continues to be challenging, while morbidity and mortality rates remain high.

Catalyzing Equitable Artificial Intelligence (AI) Use to Improve Global Health

The call deadline ended on 23rd December 2023 and 172 proposals were received in response to the Request for Proposals (RFP) launched. Of 172 proposals received 15 were determined to be incomplete/out of the scope of call mandate as observed during internal eligibility triage and mandate responsiveness checking. The 152 eligible proposals received were assigned to the list of TAG experts for review, evaluation and grading as per GCI norms. Based on reviewers' score, 45 proposals have been identified/shortlisted (those with scores higher than 7) for pitch presentation before the TAG meeting to be convened shortly to shortlist select the promising innovations for funding support under the program.

One of the full grants supported under GCI BIRAC was “Linear Growth study” subsequently renamed as Women and Infants Integrated Growth Study (WINGS) as a Full grant. This individually randomized factorial design trial assessed the impact of a package of health, nutrition, psychosocial care and support and WASH interventions delivered throughout the pre- and per-conception period, pregnancy and first 2 years of life on weight, length and stunting at 2 years of age.

The study showed that LBW and stunting at 24 months were substantially reduced. The relative reduction was 51% and 24% in low birth weight and stunting respectively. Pregnancy and early childhood interventions alone had lower but important effects on birth outcomes and 24-month outcomes. These findings have been published in The BMJ (British Medical Journal). So, WINGS can be said to be a path-breaking study demonstrating that when a comprehensive package of better interventions (nutrition, health, psychosocial care, and WASH) is implemented in a population, it could accelerate reduction in stunting and improvement in several maternal outcomes. Thus, it has a profound policy and programmatic significance.

Considering the promising and encouraging results of the study, it has been proposed to bring the implementation of Pilot Scale-up of WINGS by Center for Health Research and Development, Society for Applied Sciences (CHRD-SAS), New Delhi as a specialized effort within the purview of GCI BIRAC in close collaboration with NITI Aayog, DBT, BMGF, ICMR, Government of Himachal Pradesh and other relevant Ministries. This implementation research is proposed in the Una district of Himachal Pradesh to develop a scalable, sustainable and adaptable model that has the potential to achieve high and effective coverage of the WINGS integrated interventions in the state. Currently, this program is under grant making process.

Immediate Kangaroo Mother Care (iKMC) scale up implementation research:

Kangaroo Mother Care is one of the main interventions that the Government of India (GoI) prioritizes in order to improve the health and survival of newborns. Given the new emerging evidence, it is imperative to advance the integrated scale-up strategy of comprehensive KMC, starting right away in facilities and extending throughout the facility community continuum. The World Health Organization (WHO) invited Expression of Interest (EOI) with the intent to support the scale up of iKMC in 6 sites of Africa and Asia. The CHRDS-SAS, New Delhi is one of the two Indian sites selected for the implementation of iKMC. Safdarjung Hospital (SJH) and THSTI will be providing technical support and will be responsible for developing the intervention and implementation strategy for iKMC by providing technical support in establishing and functioning of Mother-Newborn Care Unit (MNCU) and training of government staff. This program is under development and is expected to be launched in the first quarter of FY 2024-2025.

Prof. M.K. Bhan Mid-Career Research Fellowship Program

This fellowship has been instituted in memory of Padma Bhushan Prof. Maharaj Kishan Bhan, the renowned pediatrician, an eminent scientist and former Secretary, DBT and Chairperson, BIRAC, Government of India. Prof. Bhan was a luminary of Indian public health who contributed immensely to this field and revolutionize the biotechnology landscape in India.

The aim of the fellowship is to continue Prof. Bhan's vision for research and innovation in public health, by identifying and supporting extraordinary emerging scientific leaders in India while solving the country's most pressing health and development challenges. This fellowship intends to provide opportunities to mid-career researchers empowering them as independent investigators.

The call requesting for proposals was launched on 2nd February' 2024 and the last date to receive applications is 30th April' 2024.

Immersion Program for PhD Fellowship

In the GCI BIRAC XVII Executive Committee (EC) and Joint Steering Committee (JSC) Meeting held on 10th November' 2023, it was agreed in principle that GCI BIRAC will support the Immersion Fellowship Program by providing financial support for up to 100 fellows annually over a span of three months (total upto 300 fellows) for a duration of three years (2024-2026).

This program intends to train 100 PhDs per year for a duration of three years, aligning them with major global grand challenges, potentially focusing on biotechnology and related fields. It involves a unique approach of bringing participants from diverse areas such as agriculture, plant science, animal science and human health in one place in order to create a specialized workforce of around 500 individuals over the next five years, aligning them with major global grand challenges and transforming the way they approach scientific challenges with a focus on real-world applications in partnership with Biotechnology Research Innovation Council (BRIC). This program is under development and is expected to be launched this year.

Accelerating Catalyzing Solutions for Climate Change's Impact on Health in India (Climate change and Health Program)

Grand Challenges India (GCI) launched a Request for Proposal (RFP) on 'Accelerating Catalyzing Solutions for Climate Change's Impact on Health in India' on December 3, 2023. This program is aligned with the Grand Challenges global initiative 'Accelerating Catalyzing Solutions for Climate Change's Impact on Health, Agriculture and Gender' launched during COP28. GCI conducted a grant writing webinar to encourage researchers for active participation and submission of novel ideas under this program. The proposals were solicited on innovative research, pilot feasibility studies and solutions to spur the development of adaptive and resilience -measures addressing the impact of climate change on human health. The call was closed on 31.01.2024 at 4:00 p.m. IST. The received 93 proposals are under evaluation for selection of awardees and funding support.

Fundamental and innovative research in Cachexia Tuberculosis to address the needs and gaps in India (Cachexia Tuberculosis program)

Tuberculosis (TB) patients suffer from progressive and debilitating loss of muscle mass and function, referred to as Cachexia. It is one of the critical and neglected areas in TB management and patient-care. Grand Challenges India (GCI)'s program on Cachexia Tuberculosis aims to foster collaborative research, develop solutions and generate evidence across a spectrum of gap areas. An open Request for Proposals seeking consortia-based innovative research-interests was launched from 28th November 2023 to 12th January 2024. The received 50 proposals are under evaluation for selection of awardees and funding support.

Climate change & Agricultural Development

Grand Challenges India (GCI) aligning with the global Grand Challenges launched a call on Accelerating Catalyzing Solutions for Climate Change's Impact on Agriculture in India during the COP 28. The program has been strategically designed to confront the hurdles within the agri-food system amidst the backdrop of climate variability and change. The program aims to support innovative research, solutions, and pilot/feasibility projects to better adapt or reverse the combined, deleterious effects of climate change on agriculture in India. The duration of the program is for three years. December 3, 2023 to January 31, 2024 was the application window for the call and the call received 160 applications in total. The proposals will undergo evaluation by the Technical Advisory Group, comprising of subject matter experts and 5-7 proposals would be funded through this initiative.

Women Leadership in STEM

In an effort to bolster the impact and prominence of women in Science, Technology, Engineering, and Mathematics (STEM) fields and drive meaningful progress toward gender equality in leadership roles, Grand Challenges India (GCI), in collaboration with Women Lift Health, has introduced the Women Leadership in STEM program. This part-time initiative is designed to elevate the authority and influence of mid-career women engaged in STEM disciplines. The program will provide a platform for 20 selected women scientists through three fully funded residential leadership workshops, each spanning five days. The application process commenced on October 27, 2023, and concluded on December 20, 2023. A total of 119 applications were received, which will be reviewed by the Technical Advisory Group, and the selected cohort will undergo training in the financial year 2024 - 2025.

Ind-CEPI Mission

BT's Ind-CEPI mission entitled "Epidemic preparedness through rapid vaccine development: Support of Indian vaccine development aligned with the global initiative of the Coalition for Epidemic Preparedness Innovations (CEPI)" is being implemented through a dedicated Program Management Unit (PMU) at BIRAC. The mission is supported two vaccine candidates. One mRNA platform vaccine for COVID-19 developed by Gennova Bio-pharmaceuticals Ltd received market authorization. Bharat Biotech International Ltd implemented the Chikungunya vaccine for phase 1 clinical studies, and the vaccine candidate is on an inactivated virus platform. The vaccine is ready for Phase 2/3 clinical trial.



National Biopharma Mission (NBM)

The National Biopharma Mission (NBM), is an Industry-academia Collaborative Mission for Accelerating Discovery Research to Early Development for Bio-pharmaceuticals – An “Innovate in India for Inclusiveness (I3)” project.

The National Biopharma Mission of Department of Biotechnology, Government of India, was approved by the Union Cabinet with a total budget outlay of ₹ 1,500 Cr., of which 50% is co-funded by The World Bank. The program is being implemented by Biotechnology Industry Research Assistance Council (BIRAC) Program Management Unit and is aligned with the national mission of “Make-in India’ and “Aatmanirbhar Bharat Abhiyan”.

The mandate of National Biopharma Mission is to enable and nurture an ecosystem to advance India’s technological and product development capabilities in bio-pharmaceuticals, to a level that will be globally competitive over the next decade, and transform the health standards of India’s population through affordable product development.

Program Component

NBM is focused on two components to realize its objectives:

A: Ecosystem Development: To create an enabling environment by strengthening and enhancing existing infrastructure, building effective collaborative partnerships/consortiums for development of cutting-edge technologies, enhancing clinical expertise, and accelerating translational research. The program sub components include the following:

A.1 Shared facilities: Establishing/strengthening shared research/ manufacturing facilities that are accessible, equipped with state-of-the-art infrastructure and employing relevant talent that can provide services at affordable cost.

A.2 Clinical Trial Networks: Clinical trial units linked to a network of clinical experts and sites for conducting standardized, regulated, as well as reliable clinical trials.

A.3 Scientific Research: Building a consortium of partners, a network of research entities, for development of innovative technologies and platforms currently not available in the country.

A.4 Skill development or Training: Development of skilled manpower equipped with next generation interdisciplinary competencies.

A.5 Technology Transfer Offices: To enhance Technology Transfer capabilities across different verticals.

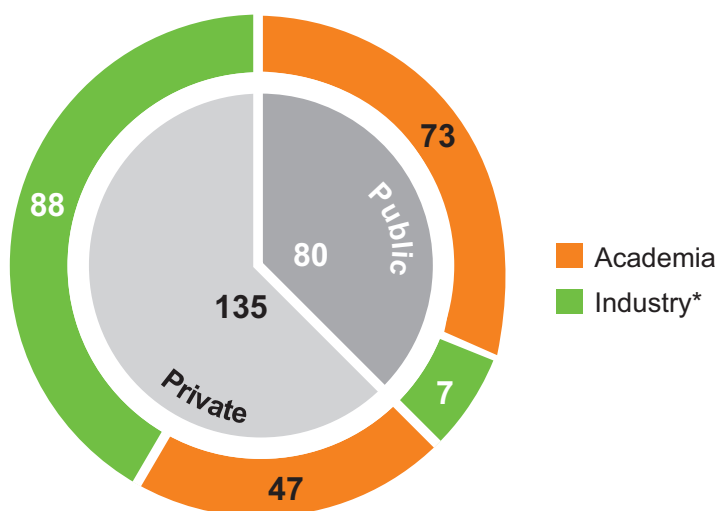
B: Development of Specific Products: The products supported are aligned with the objective of bringing affordable healthcare products for high disease burden/ need in the country. **The program subcomponent includes Vaccines, Bio-therapeutics, Medical devices and diagnostics.**

NBM Components and Subcomponents

Pilot-to-market innovation ecosystem



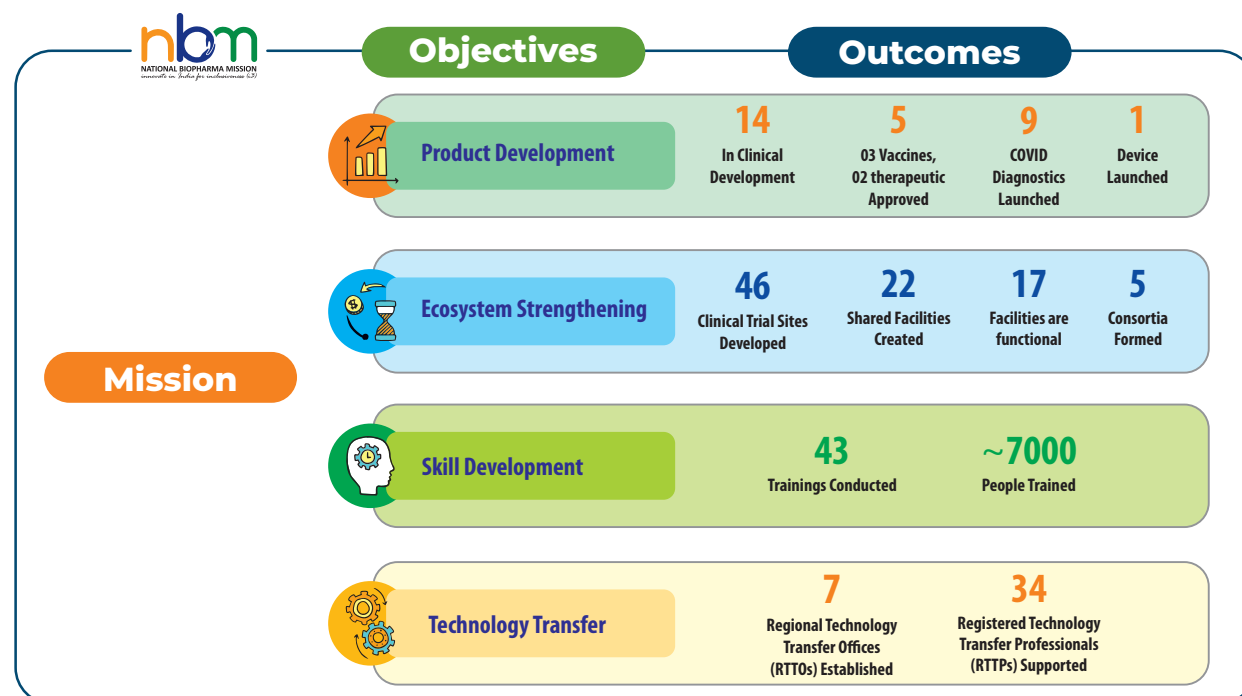
National Biopharma Mission Summary



Distribution of the grantees across Public & Private Sector And within Academia & Industry

*Industry includes start-ups, MSMEs, society, LLP, trust and large companies

Mission Objectives and Key Outcomes of the Program



Key Highlights of Year 2023-24

- First Biosimilar 'Liraglutide' named Liralift' was developed by Levim Biotech LLP in India, was launched at Global Bio India Event – December 2023. The biosimilar is marketed by Glenmark Pharmaceuticals Ltd. (Levim's marketing partner) at INR 1855 a price 65 % cheaper compared to INR 5324 of the innovator's Victoza.
- First-In-Human Clinical Trial using an indigenously developed CD-19 targeted chimeric antigen receptor (CAR)-T cells for relapsed/ refractory B-cell Acute Lymphoblastic Leukemia (ALL) in pediatric patients is progressing well at Tata Memorial Centre and in collaboration with IIT Mumbai enrolled 17 pediatric patients in Phase I/II clinical trial till now.
- Biosimilar of Aflibercept by Lupin Ltd for age related macular degeneration approved for Phase 3 global clinical trial at 30 trial sites in India and 5 sites in Russia, with 230 patients from India and 18 patients from Russia have been recruited in trials till now.
- The first indigenous Hepatitis E vaccines (HEV) is under development by Zydus Life Sciences Ltd., along with Translational Research Consortium partners, Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Council of Scientific & Industrial Research - Indian Institute of Chemical Biology (CSIR-IICB) Kolkata, Sanjay Gandhi Post Graduate Institute of Medical Sciences, (SGPGI) Lucknow and Shiv Nadar University. Phase II clinical trial is nearing completion.
- Hi-Media launched affordable serum-free, chemically defined media and feed supplements for therapeutic proteins at Global Bio India Event in December 2023.
- OmniBRx Biotechnologies Private Limited launched their 5L single-use bioreactors for adherent cell culture at Global Bio India Event in December 2023. They have sold more than 20 units globally.
- First indigenously developed Magnetic Resonance Imaging (MRI) Scanner developed by Voxelgrids Innovations Pvt Ltd. was launched in the month of August 2023. This is low power consuming, cost-effective, affordable, ultra-fast, high-field (1.5 Tesla) MRI scanner. It will reduce India's dependency on the imported MRI scanner and will make it available at 40% lower price of the currently marketed MRI Scanners.

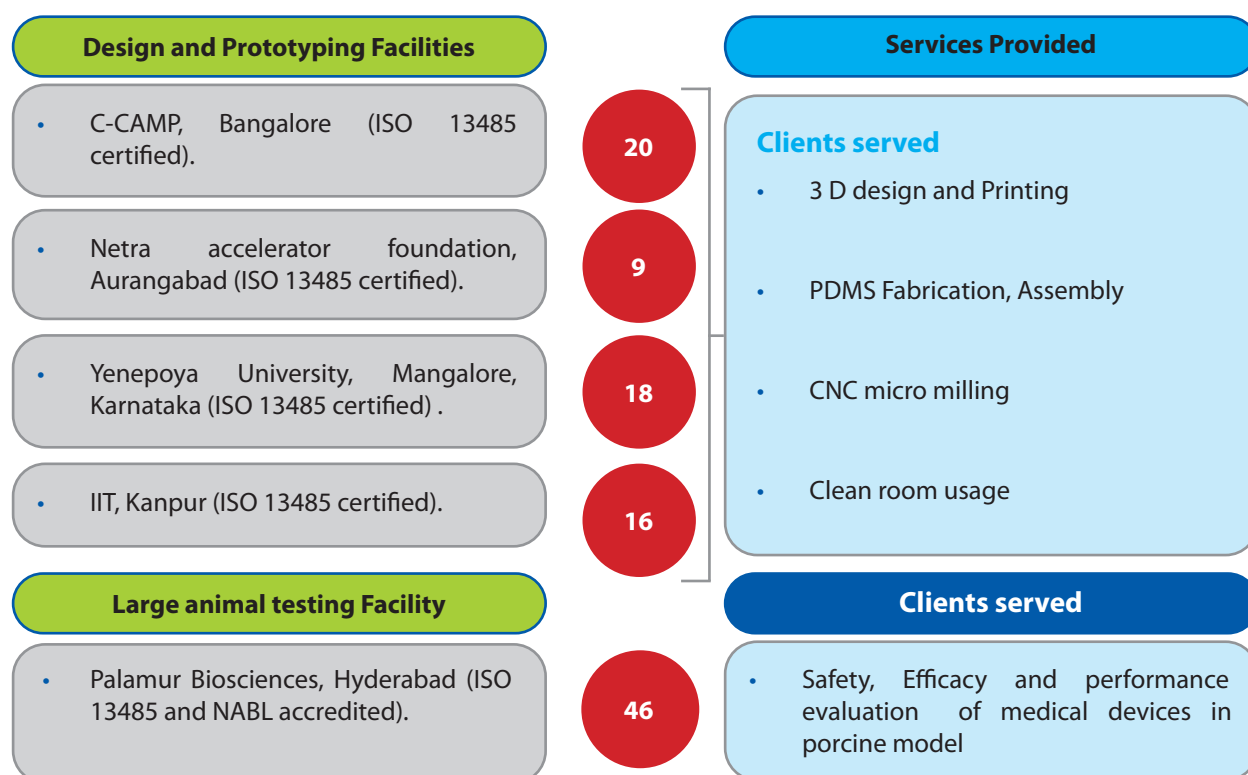
- The mobile platform-based MRI scanner and its designing has been completed. This will be having all the necessary equipment arranged on the mobile platform along with the MRI Scanner, which includes: generator, uninterrupted power supply units, compatible split chillers for mobile containers, and connections for earthing pits, etc.
- Healthcare Technology Innovation Centre (HTIC) in collaboration with Mitra Medical Services has developed a flexible video endoscope and has completed clinical studies and ISO13485 certification. CDSCO approval for license to manufacture and sale is awaited.
- TTK Chitra's has developed the second improved version of the Titanium Heart valve named: Model TC2. The designing improvements made are: effective orifice areas, improved MRI compatibility, and improved thrombo-resistance. Phase I clinical trials have been successfully completed with NBM support and application has been submitted to CDSCO for the approval to initiate the Phase II trial.
- Novel dental implant developed by Intessence Solutions Pvt. Ltd. has a competitive price range of 3,500 to 4,000 rupees per implant. They offer a suite of 24 implants and instruments and supply to Government hospitals in Bengaluru, enabling affordability and availability for wider community. NBM supported the clinical trial of their dental implant.
- Real time High frequency ECGs as a tool in the evaluation of chest pain for emergency room, has been successfully developed by the Carditek Medical Devices Private Limited. It was supported for pilot scale clinical trials, which have been successfully completed. Further large-scale trials have been planned and they will be commercializing the technology in collaboration with multinational organization.
- Human bone marrow derived Mesenchymal Stem Cell based VELGRAFT technology as a skin substitute for wounds of Diabetic Foot Ulcers, has been successfully developed by Datt Mediproducts Private Limited. The first phase of the clinical trials supported by NBM has been completed and report submission to CDSCO is under process.
- Translational Research Consortium for Chikungunya Virus (CHIKV) study has developed Serum bio-bank, Virus repository, multiplex immunoassay panel for cytokines prediction, and animal model for CHIKV study.
- Bharat Biotech International Ltd. Has completed a seamless Phase II/III, observer-blind, multi-centre, randomized clinical trial to evaluate immunogenicity and safety of BBV87, an Inactivated Chikungunya Virus Vaccine in healthy subjects, 12 - 65 years of age.
- Indian Immunologicals Ltd. received regulatory approval to initiate Phase I clinical trial for dengue vaccine. A phase I single blind randomized placebo-controlled study to evaluate the safety and immunogenicity of tetravalent recombinant Dengue Vaccine in healthy adults of 18 to 50 years of age has been initiated.
- Call for Antimicrobial Resistance (AMR) was launched to support the development of diagnostics to detect antimicrobial resistant pathogens and development of new antibiotics, therapeutics, or any novel approaches to combat antimicrobial resistance. Total 66 proposals were received and 62 were found to be eligible. The area review panel (ARP) recommended 24 proposals for consideration by Scientific Advisory Group (SAG). 10 proposals were recommended by SAG, out of which 5 have been finally recommended by the Technical Advisory Group (TAG) for funding support under National Biopharma Mission.
- Shared Facilities: 17 of the supported facilities for development/manufacturing of vaccines, medical devices/diagnostics and bio-therapeutics are actively providing services. They are providing services to Indian and global clients and more than 300 clients have been served.
- The Translational Research Consortia for Dengue have established serum bio-banks and virus repositories with sequenced and characterized isolates of Asia specific Dengue virus strains. The consortia have established in-vitro and in-vivo assays to perform as well as to transfer to industry/ academia as fee-for-service.

- Six new Demographic and Health surveillance sites (DHS) have been established under the DRIVEN Network (DBT's Resource of Indian Vaccine Epidemiology Network) with a pan India representation having access to urban/ semi-urban/ rural and tribal populations. More than 3,00,000 census enumeration and 50000+ land parcels have been registered till date. Data collection is being done through SOMAARTH e-data management platform. Another 05 DHS sites are performing COVID, Dengue and Chikungunya seroepidemiology study in 25000 population cohorts distributed across India. Additionally, activities are underway towards initiating acute febrile illness surveillance across 10 sites in India.
- Five Clinical Trial Networks for oncology, diabetology, rheumatology and ophthalmology with 36 hospitals across the country have been established. The past year saw the harmonization of SOPs across all sites of each network and establishment of online platform and database for disease Registries for 21 diseases within these areas. Collated registry reports based on data from all sites is being prepared. The networks have started conducting sponsor driven clinical trials and investigator-initiated studies within each network.
- Under the training component, over 7000 candidates were trained from beginning of the Mission.
- NBM grantees published 55 peer review publications since beginning of the Mission.
- NBM grantees filed 33 IPs since beginning of the Mission.
- Under the various verticals, there have been several successful projects which came to fruition in the year 2023-24.

NBM Success Stories

Ecosystem Strengthening/ Shared facilities

Shared Facility Services - Devices and Diagnostics



Manufacturing Facilities

- Andhra Pradesh Med-tech zone (AMTZ).
- Huwel Lifesciences, Telangana

EMI/EMC Facilities

- IIT Kanpur
- SAMEER, Navi Mumbai

4

27

Clients served

- 13 Cr. covid RT PCR diagnostic test kit, 11000 ventilators, 1.25 Cr. Viral transfer medium, 2 Cr. ELISA kits.
- 298 lakhs Covid RT PCR kits, 21 lakh MTM, 24 lakh Nucleic extraction kits.

Clients served

- EMI / EMC testing Facilities have also initiated services



Device Prototyping Facility



Large Animal Facility for Device's Testing

Shared Facility Services – Bio-therapeutics

Facility		Clients Served	Services
Bio-manufacturing Facility			
Shilpa Biologicals Pvt Ltd, Karnataka (Process Development and cGMP Manufacturing)	08	05 large industry; 02 international (US, UAE); 01 academic institute	<ul style="list-style-type: none"> Commercial lot of Covid vaccines Scale-up and generation of clinical trial batches of vaccines and biosimilars. Generation of MCB and WCB of biosimilars.
MJ Biopharma, Pune	02	MoUs with 2 companies	<ul style="list-style-type: none"> 100 L PDL and fill finish facility for insulin and non-insulin mAbs.
Biotherapeutics Characterization Facility			
Syngene, Centre for Advanced Protein Studies, Bangalore (GLP Analytical Characterization)	23	8 International, 13 start-ups/SMEs, 02 academic institutes	<ul style="list-style-type: none"> Biologics advanced characterization Services including dossiers for Regulatory dossier submission.
Entrepreneurship Development Centre, Pune (GLP Analytical Characterization)	29	15 industry; 9 start-up, SME, 05 academic institutes /academia	
CSIR-Indian Institute of Chemical Technology, IICT, Hyderabad	9	09 domestic clients, start-ups/SMEs/MSMEs	



Bio-therapeutics Manufacturing facilities



Bio-therapeutics characterization facilities

Shared Facility Services - Vaccines

94 Different Clients Served

	Clients	Services
NIBEC IRSHA, Pune: National Centre for Immunogenicity Testing to evaluate vaccines in clinical trials	20 <ul style="list-style-type: none"> International <ul style="list-style-type: none"> 2 Large Industry National <ul style="list-style-type: none"> 6 Large Industry 7 SME 1 Start-up 4 Academia 	<ul style="list-style-type: none"> 14 types of immunogenicity tests available Dengue NS1/IgG ELISA Dengue, Chikungunya, COVID DENV/CHIKV/SARS-CoV-2-specific plaque reduction neutralization test (PRNT) studies SARS-CoV-2 Microneutralization test
NIVER, CRL, KIMS, Bangalore: GCLP facility of Pneumococcal Vaccine Immunogenicity Evaluation	38 <ul style="list-style-type: none"> International <ul style="list-style-type: none"> NIL National <ul style="list-style-type: none"> 11 Academia 18 Corporate Hospital 8 Industry 1 Diagnostic Lab 	<ul style="list-style-type: none"> Bacterial ID/AST & Serotyping Determination of HL60 cell phenotype by FACS ELISA and Multiplex opsonophagocytosis assay (MOPA) assay Genetic characterization of Pneumococcal strains <i>S.pneumoniae</i> seed culture

Product Development/Bio-therapeutics

Bio-therapeutics

Biosimilar Liraglutide for Type-2 Diabetes-"Success Story"



Gaps and Need

- High disease burden of Type 2 Diabetes in the Indian population with ~72 Mn in India & has become Diabetes capital of world.
- Despite increase in available agents to treat diabetes, nearly 50% of all Type-2 diabetes treated patient do not achieve the blood glucose target of HbA1c. Less than 7 percent and are also at an increased risk of T2D-related complications including cardio-vascular diseases and weight gain.
- **An affordable biosimilar addressing Diabetes Type-2 needed.**



Progress

- **First Biosimilar of Liraglutide (Victoza) in India developed by Levim Biotech LLP.**
- **No generic alternatives to Victoza currently in India.**
- **Phase-3 trial successfully completed and obtained market authorization from CDSCO.**



NBM Support

- **Continuous funding support from NBM for Ph1, cGMP manufacturing to Ph3 Clinical Trial led to accelerated Product development.**

Impact

- *Liraglutide, has been among the first successful Glucagon-like Receptor Agonist drug to supersede use of Insulin and other drugs for the treatment of Type-2 Diabetes*
- *Liraglutide has advantages of weight loss, maintenance and promoting cardiovascular disease (CVD) risk reduction, by decreasing systolic blood pressure and glycemic index*
- *The cost of treatment by Liraglutide Biosimilar of Levim is 65% less than that of the Victoza, making it affordable and accessible.*
- *Indigenously developed Pen device to deliver the drug by SC route*
- *Successful grant of US patent for process innovation and European patent is expected soon.*

Levim Biotech Ltd has developed the biosimilar of Liraglutide injection after going through detailed physicochemical analytical characterization, preclinical studies, Phase-1 pharmacokinetics and Phase-3 efficacy & safety studies












Liraglutide developed by Levim Biotech Ltd.

Product Development/Medical Devices and Diagnostics

Medical Devices and Diagnostics

MRI Scanner by Voxelgrids Innovations Pvt. Ltd. – “Success Story”

 <p>Gaps and Need</p>	<ul style="list-style-type: none"> Lack of indigenous MRI Scanner. MRI scanner is very high capital product. It is dependent on import. <p>Over 70% of India's medical devices are imported and therefore indigenization of technology is must</p>	<p>Impact</p> <p> First Indigenously developed MRI scanner.</p>
 <p>Progress</p>	<ul style="list-style-type: none"> First Indian company to apply manufacturing license from CDSCO. Working on building a mobile platform for the scanner. 	<p> Accessible locally.</p> <p> 70% lower power consumption than existing scanners.</p> <p> Reduced import dependency.</p>
 <p>NBM Support</p>	<ul style="list-style-type: none"> NBM has supported development of compact, lightweight, next generation MRI Scanner to solve the unmet need of the country. 	<p> Cost effective (at 1/3rd cost of marketed products).</p> <p> Increased accessibility, and reduced turnaround time & cost.</p>



Magnetic Resonance Imaging (MRI) Scanner



Launch of Magnetic Resonance Imaging (MRI) Scanner developed by Voxelgrids Innovations Pvt Ltd on 1st August 2023

Real time High frequency ECGs Emergency Medical Tool

By Carditek Medical Devices Private Limited - "Success Story"



Gaps and Need

- Limitations of conventional ST analysis utilized in ECG.
- Tedious operation of the conventional system.
- Lack of cardiac emergency tools for onsite monitoring of the patient.
- Lack of indigenous technologies in the sector of ECG.



Progress

- It is one of the indigenously developed device.
- Ease of operation due to simplified version.
- The pilot scale clinical trials are successful.
- Regulatory clinical validation is ongoing.



NBM Support

- NBM has supported converting this into a high-resolution device revolutionising HF-ECG and ultra or uHF-ECG.

Impact



Fully Indigenized Real Time ECG tool.



Accessible locally and best for remote locations.



Reduction of unnecessary tests and diagnostic cost



Enhanced ease of operation.



Improved sensitivity than conventional ST analysis in ECG.



Increased accessibility, and reduced turnaround time & cost.

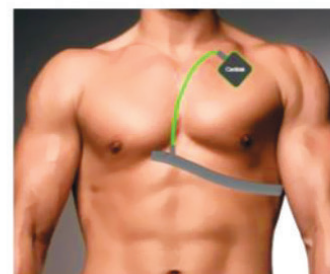
Real time High frequency ECGs as a tool in the evaluation of chest pain presenting to the emergency room by Carditek Medical Devices Private Limited.



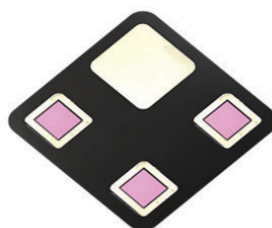
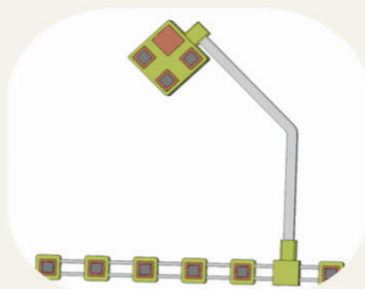
CONVERTED



SIMPLIFIED



Development and pilot batch manufacturing of HF-ECG patches



Controller Patch

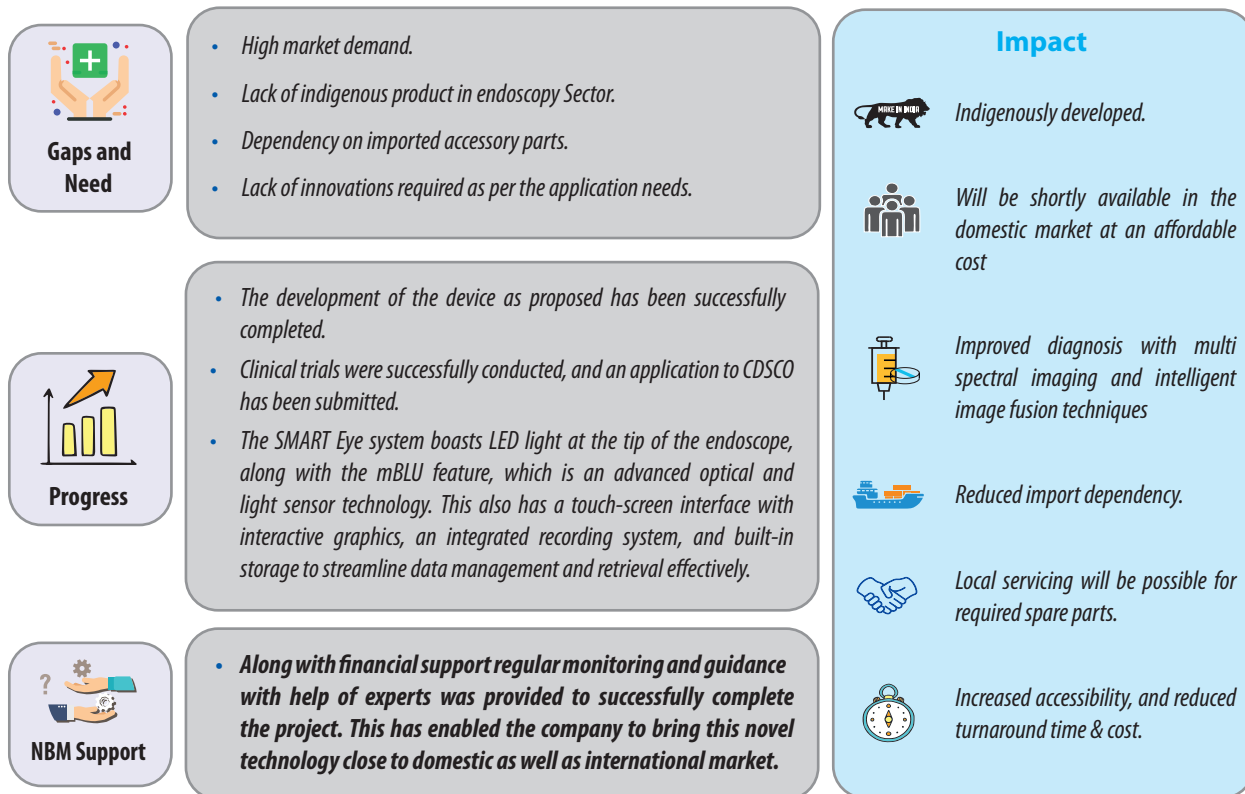


Connecting Cable

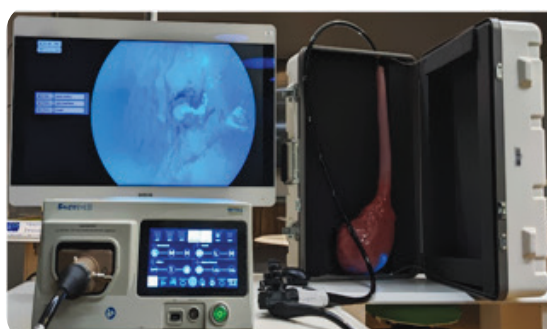


Modular Strip

SmartEye – Technology Platform for flexible endoscope developed by Healthcare Technology Innovation Center (HTIC), IIT Madras in collaboration with Mitra Medical Services



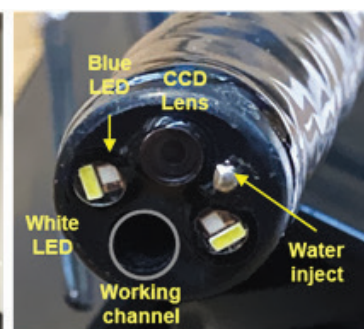
SmartEye – Technology Platform for endoscopy, A flexible endoscope developed by Healthcare Technology Innovation Center (HTIC), IIT Madras in collaboration with Mitra Medical Services.



SE+ v2 Advanced Multi-spectral Scope with SE3 Video Processor



Scope Tip with Blue LED ON



Scope Tip Components

Human Bone marrow derived Mesenchymal Stem Cell based VELGRAFT technology as a skin substitute on wounds of Diabetic Foot Ulcers, successfully developed by Datt Mediproducs Private Limited.

Gaps and Need

- High treatment failures in diabetic foot ulcer patients.
- Multiple complications are seen after conventional methods of the treatments.
- Critical requirement of alternative novel and effective treatment.
- Lack of indigenous product in this sector till now.

Progress

- No serious adverse effects observed during phase-I trials.
- Positive feedback has been generated from the patients and clinicians.
- Phase I Clinical trials successfully conducted and Phase-II application to CDSCO is under process.
- The first phase of the clinical trials has been completed and report submission to CDSCO is under process.

NBM Support

- Along with financial support regular monitoring and guidance of experts was provided to successfully complete the project. This has enabled the company to bring this novel technology close to local as well as international market.

Impact



Indigenously developed and manufactured



Once approved will be availability in the local market at affordable cost.



VELGRAFT is immunologically inert-ensuring well-tolerance and less rejection from the graft recipient.

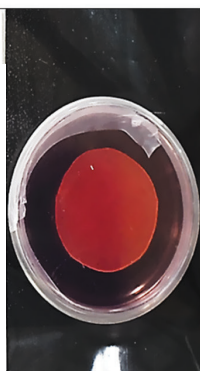
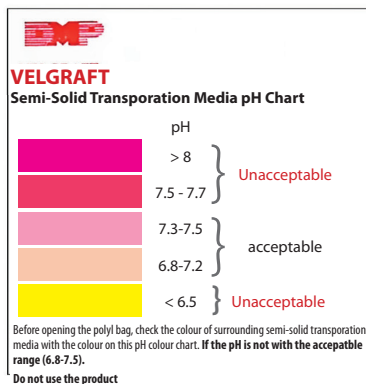


Product transportation and logistics system has been optimized.



It is addressing high unmet need in Diabetic foot ulcer. Increased accessibility, and reduced turnaround time & cost.

VELGRAFT – A technology of Mesenchymal stem cell differentiated adipocytes-based skin substitute for the foot ulcer treatment of the diabetic patients developed by Datt Mediproducs Private Limited.



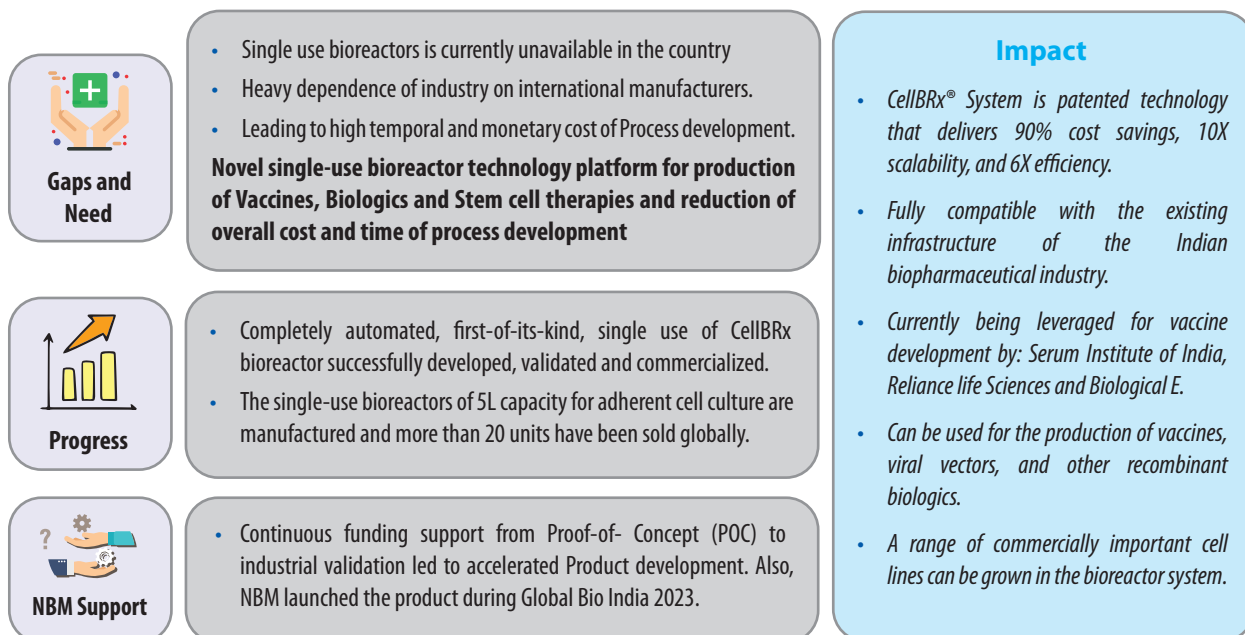
Before treatment

After treatment

A VELGRAFT Prepared and placed in Semi-Solid Transportation Media (Left), and its curative effect on Diabetic Foot Ulcer (Right)

Ecosystem Strengthening/Scientific Research

'CellBRx Bioreactor' system-"Success Story"



Novel single-use bioreactor technology platform developed by OmniBRx Biotechnologies Pvt. Ltd.



World's first integrated, automated & close-loop platform for manufacturing of vaccines and viral vectors, developed by OmniBRx Biotechnologies Pvt. Ltd. Launched during Global Bio India 2023.

Clone Specific Chemically defined Serum Free Medium

by Himedia Laboratories Pvt. Ltd. - "Success Story"



Gaps and Need

- Imported media carries significant costs often resulting in prolonged waiting periods due to dependencies on foreign suppliers.



Progress

- Himedia has developed an in-house optimization process specifically tailored to meet the requirements of Indian Biopharma CHO clones. This optimization process not only ensures a custom fit but also enables to swiftly deliver media solutions, with turnaround times as short as 3-4 weeks for both small and bulk quantities of media, up to 5000 Kg.



NBM Support

- With NBM support strategic additions to the current formulation was made to enhance its performance in terms of protein productivity. These additions include the incorporation of recombinant growth factors and amines, which have proven instrumental in boosting the overall efficiency of the new media formulation.

Impact



Indigenously developed and manufactured.



Once approved will be able to address affordability and accessibility issues for domestic market.



Bulk manufacturing facility as per the customized requirements of the clients for growing CHO clones.



Strategic improvement of protein content, growth factors and amines in the medium formulation has improved overall efficacy.

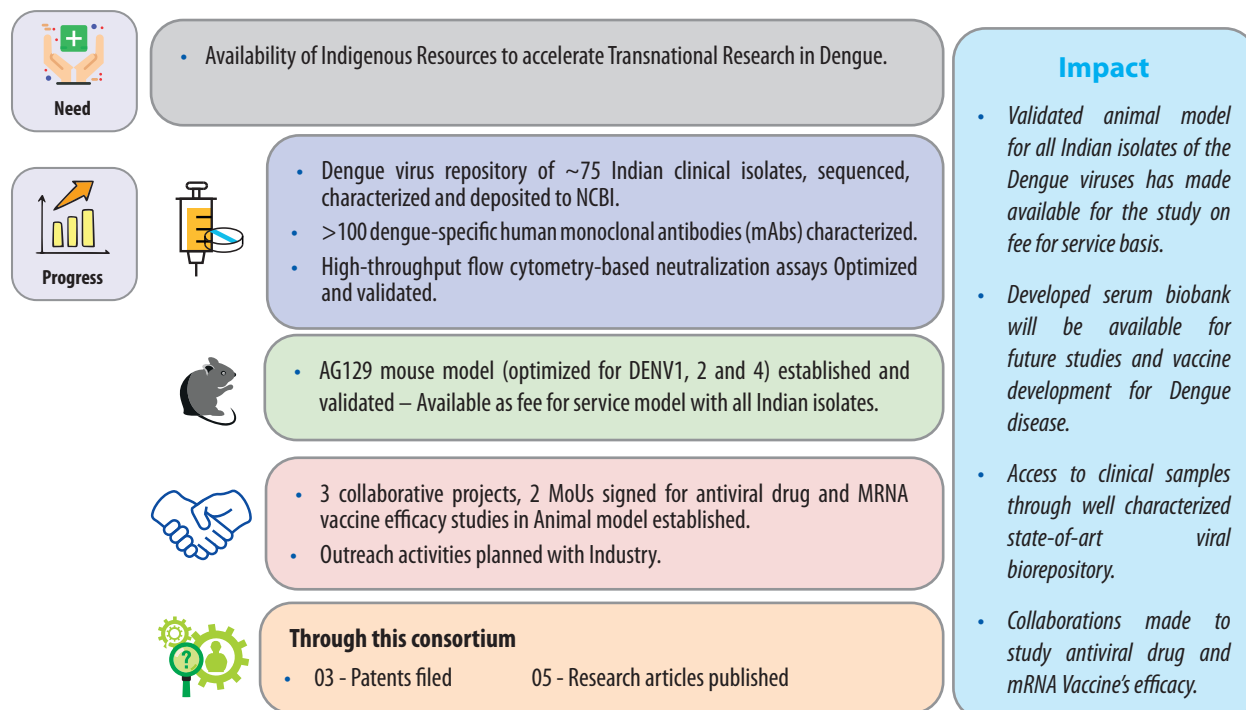


Clone specific chemically defined serum free medium at affordable price for biopharma produced by Himedia Laboratories Pvt. Ltd. Launched during Global Bio India 2023.

Ecosystem Strengthening/ Translational Research Consortia

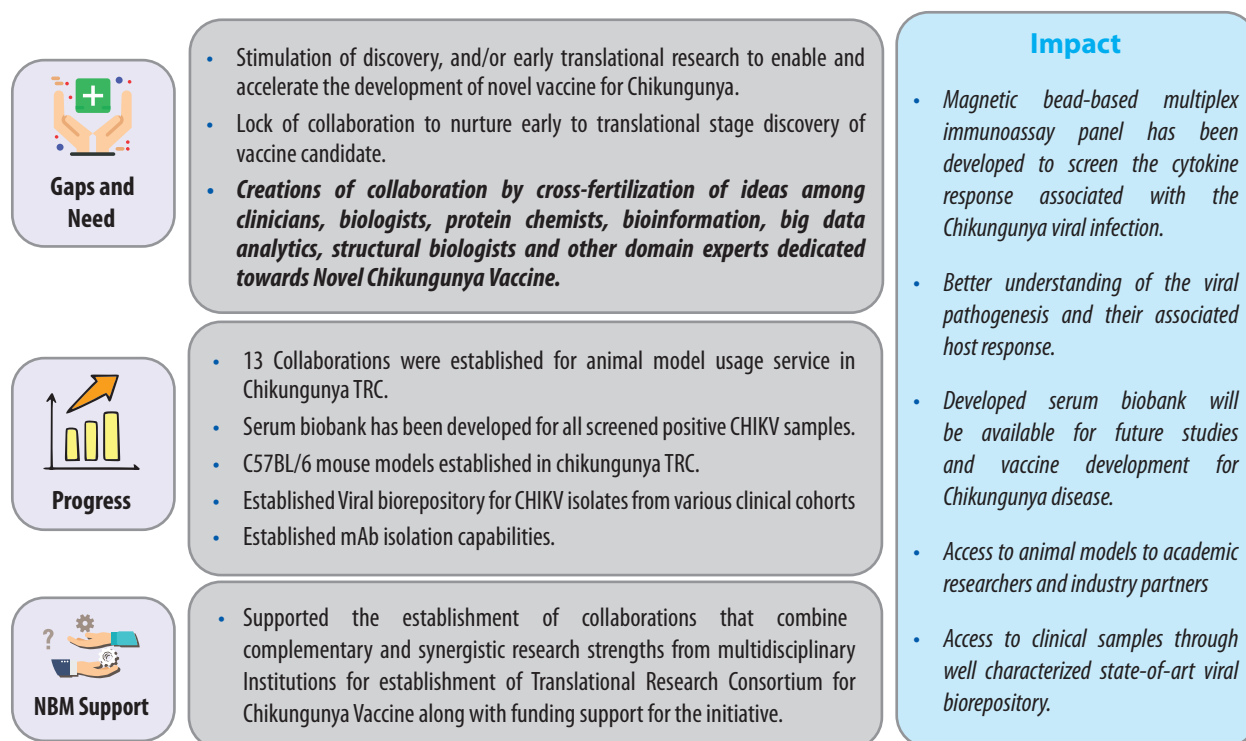
Focuses on ensuring the translational ecosystem to stimulate, standardize and provide support for advancing development and evaluation of vaccines and monoclonal antibodies.

Dengue TRC-"Success Story"



Dengue TRC: Consortia of 03 clinical partners (AIIMS Delhi, CMC Vellore and Manipal Academy of Higher Education), 04 laboratories (ICGEB, THSTI, NII and IIT Delhi) with CDSA as coordinator

Chikungunya TRC-"Success Story"

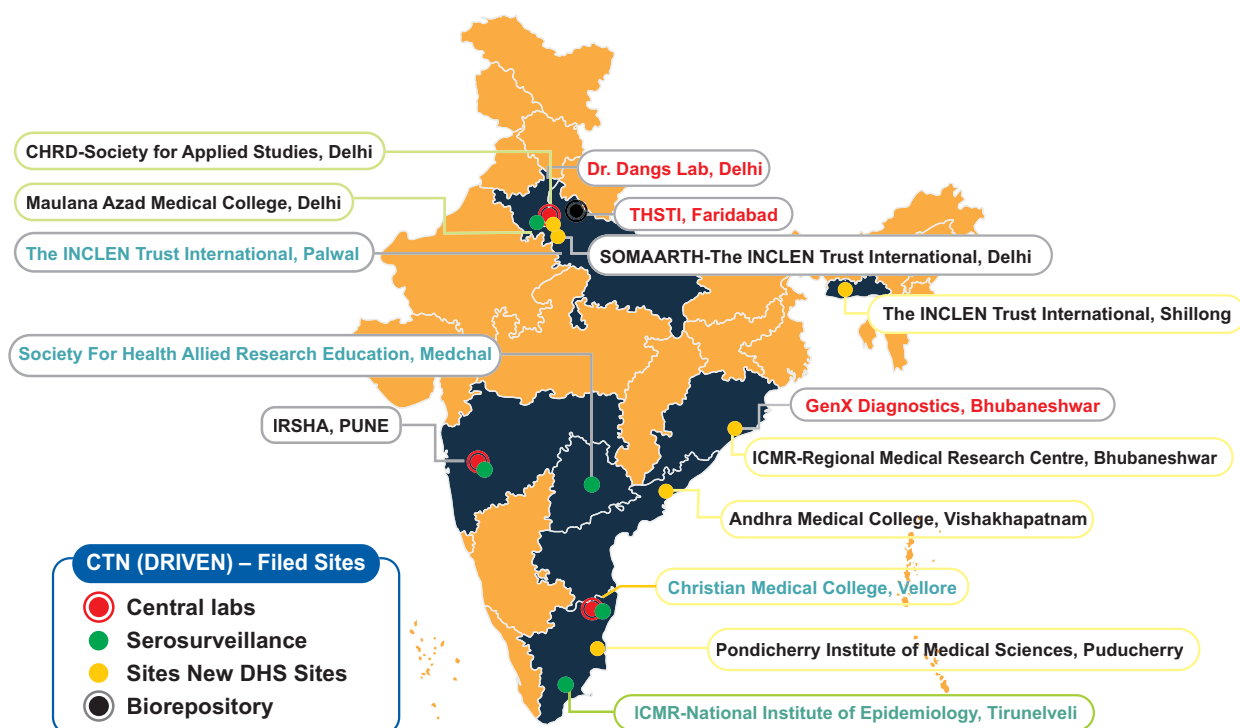


Chikungunya TRC: Consortia of 03 clinical partners (Tapiwala National Medical College, AIIMS Delhi, PGIMER), 02 laboratories (ICGEB, ILS Bhuvaneshwar) with Manipal Academy of Higher Education as coordinator and TRC lead

Ecosystem Strengthening/Clinical Trial Networks

DBT's Resource of Indian Vaccine Epidemiology Network (DRIVEN)

Driven Clinical Trial Network Sites



Outcome

- 10 GCP compliant sites ready.
- Population data including health parameters, household characteristics and other environmental factors mapped.
- Data entry using Android-based electronic format called 'SOMAARTH 1 & SOMAARTH 3'.
- The geographic locations of the sites are unique in nature, showing variation in terms of urban, peri-urban, rural, and tribal-predominant areas.
- Establishing GIS-enabled Surveillance Sites for supporting clinical trials research.
- Access to more than 900,000 healthy population.
- Baseline seroprevalence sample collection and investigations completed.
- COVID, Dengue & Chikungunya seroepidemiology study completed to obtain a baseline data of the respective diseases.
- Acute Febrile Illness study across 10 sites in India including North East is ongoing for Dengue and Chikungunya.
- Around 350 + Individual trained for GCP and GLP.
- From the total enrolment of 7634, a total of 1117 AFI cases were reported. Freq. (Sero Prevalence) of Dengue positive is 73% & Chikungunya is 35% from baseline data.
- 20 + Regulatory Trials conducted by clinical trial network for sponsors such as SIPL, Gennova, BBIL, ICMR-NARI-SIPL, Dr. Reddy's Laboratories (DRL) for vaccines development
- 33+ research articles published.

Ecosystem Strengthening / Clinical Trial Networks of Hospitals

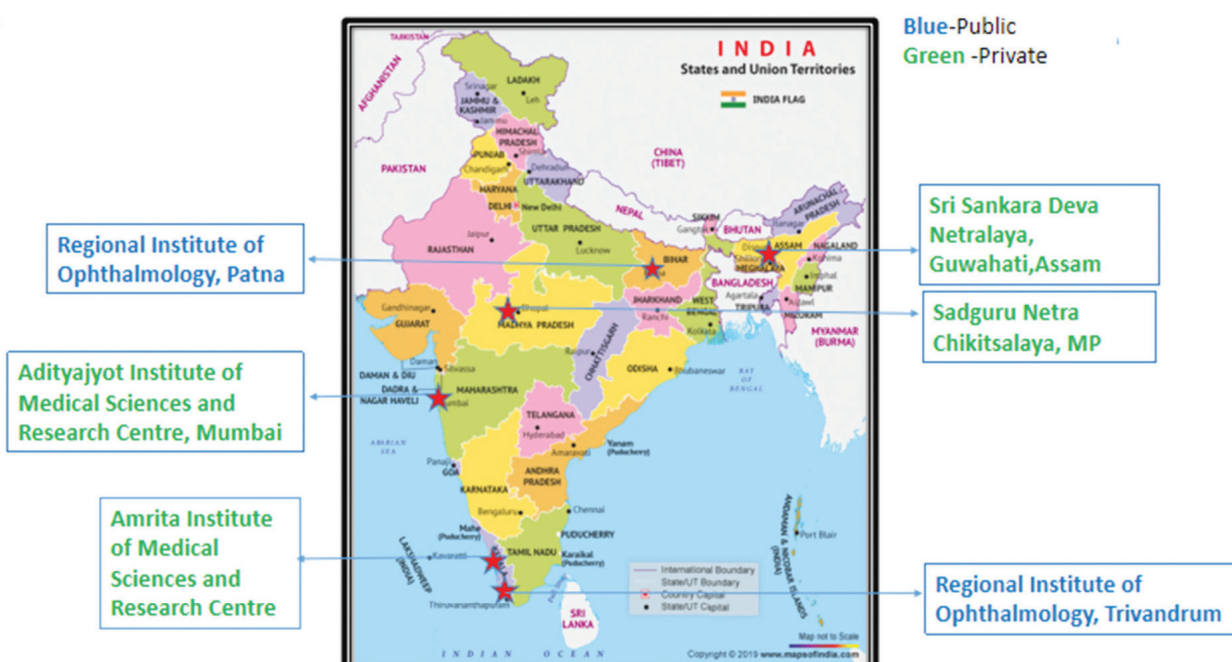
National Biopharma Mission has created pan-India clinical trial networks for the first time in the country for 5 disease areas. The project has made significant strides in various critical areas, achieving key milestones and ensuring robust infrastructure for the clinical trials.

Each network has a mix of public and private hospitals, All centers have completed capacity building exercise across all the sites of network over the last 3 years with trained manpower and purchase of equipment for conducting future clinical research. A Research department was established in every hospital for clinical study development and trials. Harmonized processed and uniform SOPs are followed at each network. For patient registry establishment, a common IT platform i.e. the registry software where the patient database has been stored with access controls has been established under an MoU with all sites of one network.

The networks can be accessed by start-ups looking out for sites for clinical trials through BIRAC by writing to nbm1.birac@nic.in or technical.birac@nic.in. The site details will be shared as per required.

A snapshot of achievements of each network is given below:

Ophthalmology network led by Amrita Institute, Kochi under the supervision of Lead investigator Dr. Gopal Pillai, has 5 more centres and has established Indi's first ophthalmology network.

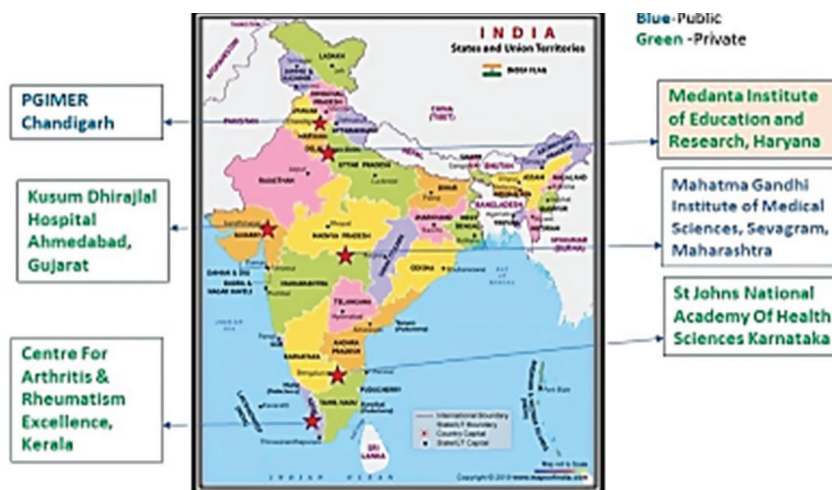


Registry – Network sites have enrolled ~ 11,000 patients of Diabetic retinopathy, Branch retinal vein occlusion and Central retinal vein occlusion, age-related macular degeneration, and chronic eye diseases registries across all sites.

Publications Team has published 02 manuscripts on “knowledge and perceptions on clinical trials among trial participants In India”, a cross-sectional survey study, and a questionnaire-based study. Further, the team plans to publish registry data revealing regional variations in treatment modalities and outcomes. For getting network mode trials MoUs signed with CROs, Fortea and Syneos Health etc.

Sustainability: Received 2 ICMR grants and currently 24 clinical trials are ongoing.

The rheumatology clinical trial network was established under supervision of Lead Investigator Dr. Rajiva Gupta, Medanta hospital with five Leading Private/Public Hospitals and Rheumatology centers.

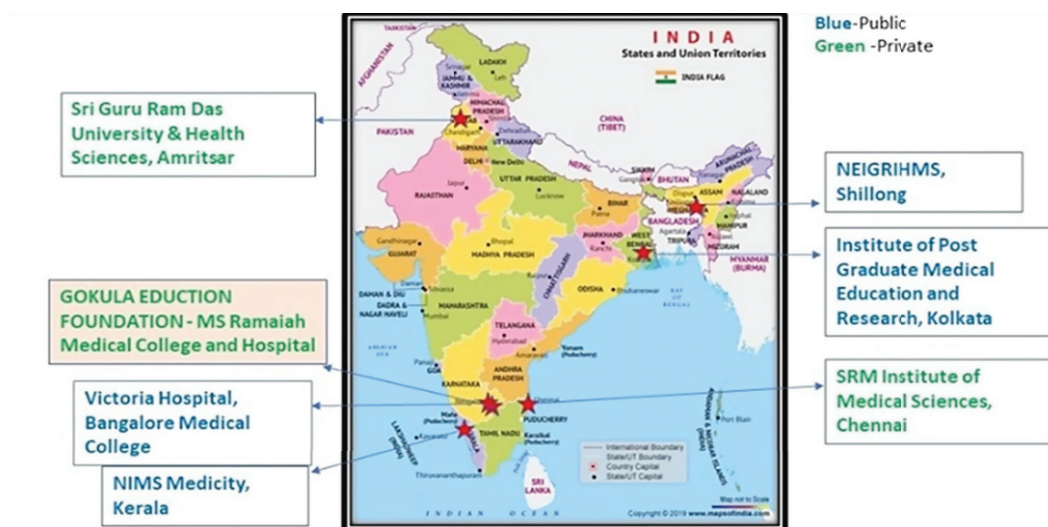


Registry: The network has established a registry of rheumatology diseases, followed by its Ethics Committee approval at all sites and **has enrolled 13444 subjects.**

Sustainability - Currently, 24 Sponsored studies and 03 Investigator Initiated studies.

Publication: The network has published 1 manuscript on *Conventional synthetic disease-modifying drugs (DMARDs) remain the mainstay of therapy of rheumatoid arthritis in India* in JAPI, and 03 more manuscripts from Registry data have been submitted for publication. Two network sites, MGIMS Wardha and KD hospital Ahmedabad were new sites in the network.

The Diabetology network led by MS Ramaiah Medical College and Hospital led by Dr. Pramila Kalra, has 06 more sites and has created a diabetes registry



Registry – Diabetes registry has a total of 25276 including type 2 diabetes mellitus and type 1 diabetes mellitus patients were enrolled across geographical locations in India.

Sustainability: There are 13 clinical trials in total being conducted at the network sites. 2 network sites NEIGRIHMS and SRM Chennai are new sites which are yet to start any trial. **The network has signed MoUs with Pfizer and Novo Nordisk.**

The oncology network led by JIPMER under the supervision of Dr. Prasanth Ganesan, has 5 more institutes, has created registries for cancer.

JIPMER Oncology Network (6 Sites)

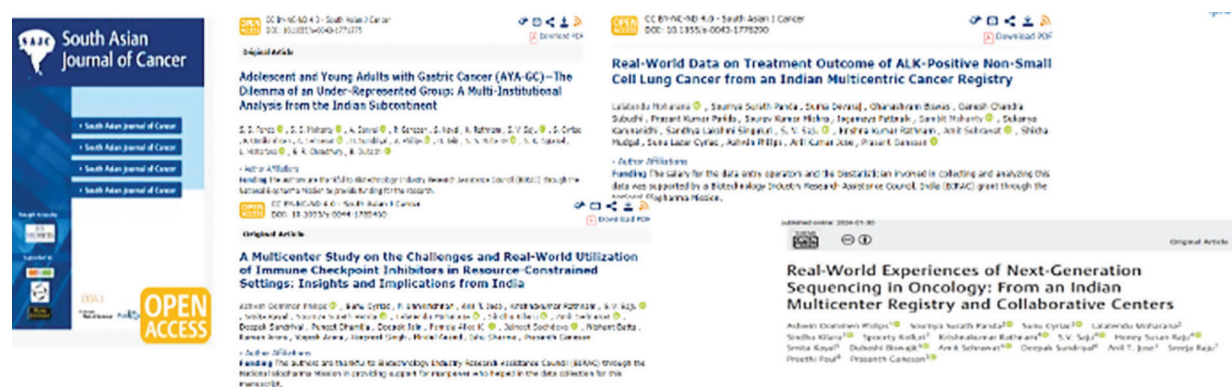


Cancer Registry data on 5 cancers entered with a total of over 4000 patient data.

The network had relatively new centers in oncology area

Sustainability: Funding support from ICMR-NCG for network mode trial and one more trial - *Scalp cooling trial to prevent chemo induced alopecia*, a device developed by BIRAC funded start-up is being conducted by the network sites.

Publications from network: There are 5 publications from the network based on Registry data on various cancers, usage of immune check point inhibitors in cancer. The network sites have conducted over 150 feasibility studies of which 35 trials have been initiated after selection.



Original Reports | Gastrointestinal Cancer

Clinicopathologic Profile and Treatment Outcomes of Colorectal Cancer in Young Adults: A Multicenter Study From India

Amir Selvaraj, MD, MBBCh, DrNB¹; Arindam Karmali, MD²; Smita Karmali, MD, DM³; Deepak Sundhriyal, MD, DrNB⁴; Shradha Tiwari, PharmD⁵; Sunu Cynias, DM⁶; Praveen Ravishankaran, MS⁷; Jomon Raphael, MD, DM⁸; Dominic Mathew, MS⁹; Soumya Surath Panda, MD, DM¹⁰; Lalendu Moharana, MD, DM¹¹; Sumit Subhadarshi Mohanty, MS¹²; Swati Suchanta Mohanty, PhD¹³; Ashwin Philips, DM¹⁴; Deepak Jain, MS¹⁵; Pamela Jeyaraj, MD¹⁶; Parvez Haque David, MS¹⁷; Jaimeet Patil, MD¹⁸; S.V. Saju, DM¹⁹; Krishnakumar Rathnam, MD, DM²⁰; Neha Sharma, MS²¹; Kavayita Dheva, BSc²²; Sree Rekha Jirakala, MD²³; Kalyanasaran Raja, MS, MCh²⁴; Prasanth Pennumadu, MS²⁵; and Prasanth Ganesan, MD, DM²⁶

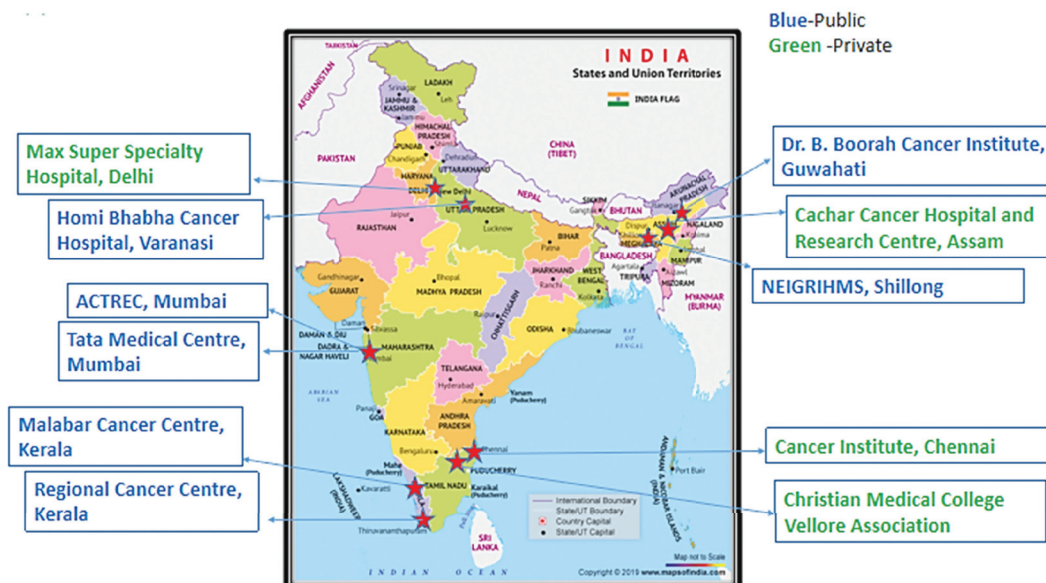
DOI: <https://doi.org/10.1007/s0023-022-0225>

ASCO JCO® Global Oncology

ACKNOWLEDGMENT

The authors express gratitude to their sponsor, the Biotechnology Industry Research Assistance Council (BIRAC) team, for their crucial financial support and continuous guidance throughout the study. Additionally, the authors extend their acknowledgment to Dr. Madhvi Rao for her administrative support and Ms Sathya N for contributions to the biostatistical analysis.

The Tata Memorial Hospital, under the supervision of Dr. Manju Sengar leads another big oncology network of 11 centres.



Registry: The network has developed registries for Lung cancer, Breast, cancer, Colorectal cancer, Gallbladder cancer, Lymphomas and Chronic Myeloid Leukemia with about 39,000 patient data.

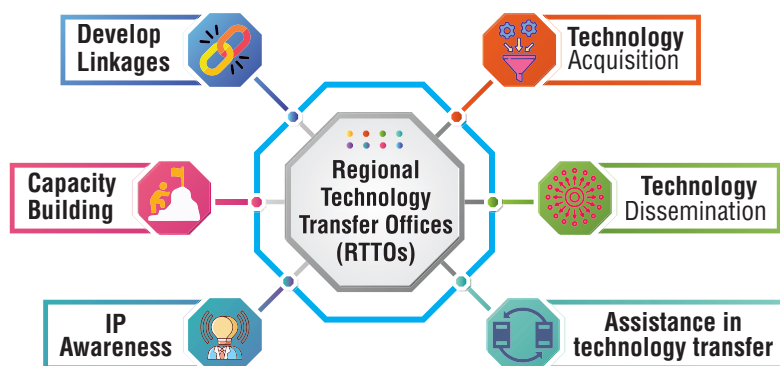
Sustainability: Over 150 feasibility assessments have been received and shared with the respective pharmaceutical companies, of which 21 have converted into trials. All network sites are included in Esophageal cancer trial funded by ICMR. TMH has MoU with Novartis.

Gaining Clinical trial experience by sites of networks – Sri Sankara Deva Nethralaya Guwahati, MGIMS Wardha, Kusum Dhirajlal Hospital Ahmedabad, NEIGRIHMS and SRM Chennai, CMC Ludhiana (an oncology division was established under the project), Amala Cancer Hospital Thrissur, NEIGRIHMS and Cachar Cancer Hospital Silchar, Assam.

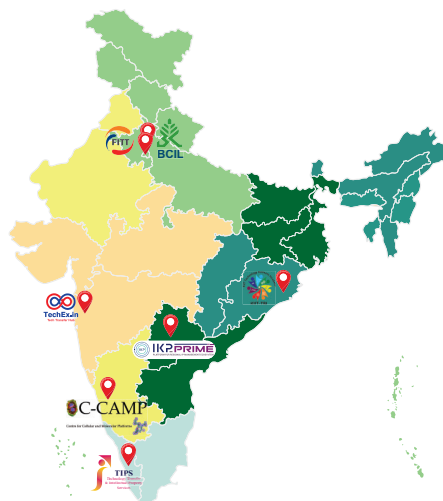
Ecosystem Strengthening/Regional Technology Transfer Offices (RTTOs)

NBM supports establishment of RTTOs to enhance academia-industry inter-linkages, strengthen bio-cluster ecosystem and to provide increased opportunities for academia to translate knowledge

Mandate for establishing RTTOs



Nationwide Network of TTOs



RTTOs Impact



KEY –

RTTO: Regional Technology Transfer Office,
RTPP: Registered Technology Transfer Professional,

Impact and Outcomes in Financial Year-2023-2024



Regional RTTO meeting and capacity building workshop with international and national experts organized from 30th to 31st January 2024 at C CAMP, Bangalore



NBM- BIRAC Team attended the STEM Summit 2024 Organized by Society for Technology Management on 1st and 2nd FEBRUARY 2024. Initiated support under NBM and BIRAC to prepare future leader in the domain of intellectual property and technology transfer.

Requests for Proposals

- 1. Request for Proposal:** The Indo-US Clinical Research Ethics Fellowship was announced on 3rd August 2023.
The Indo-US Clinical Research Ethics Fellowship Program is jointly conceptualized by Department of Bioethics, National Institutes of Health (NIH) and Department of Biotechnology, Government of India. The program has been designed to create leaders in the field of bioethics with the aim to create capacity in the area of clinical research ethics.
- 2. Two requests for proposals (RFPs) on Antimicrobial Resistance were announced on 10th March 2023.**
RFP1- Call for supporting development of diagnostics to detect Antimicrobial Resistant pathogens.
RFP2- Development of candidate therapeutics, or any other novel approaches, and counter measures to combat AMR. The evaluation of proposals was completed.
- 3. Proposal evaluation completed for Follow-on Funding call.** Out of 50, 12 projects recommended by SAG and TAG for funding.

Round Table Discussion on Biopharma: Next Decade at the Global Bio-India 2023

The round table session began by emphasizing the need to translate world-class ideas into ventures, laying the foundation for the National Biopharma Mission (NBM). Key highlights included NBM's initiatives and significant investments in vaccines, bio-therapeutics, devices, diagnostics, and its outputs in product development support, clinical trial networks, and skill development. The panel discussion focussed on emerging trends in the biopharma space, cell and gene therapy application of mRNA technology for diseases with high unmet need, biosimilars, development of indigenous AI capabilities, and investment challenges, concluding with a call for continued collaboration to drive innovation and tackle future challenges.

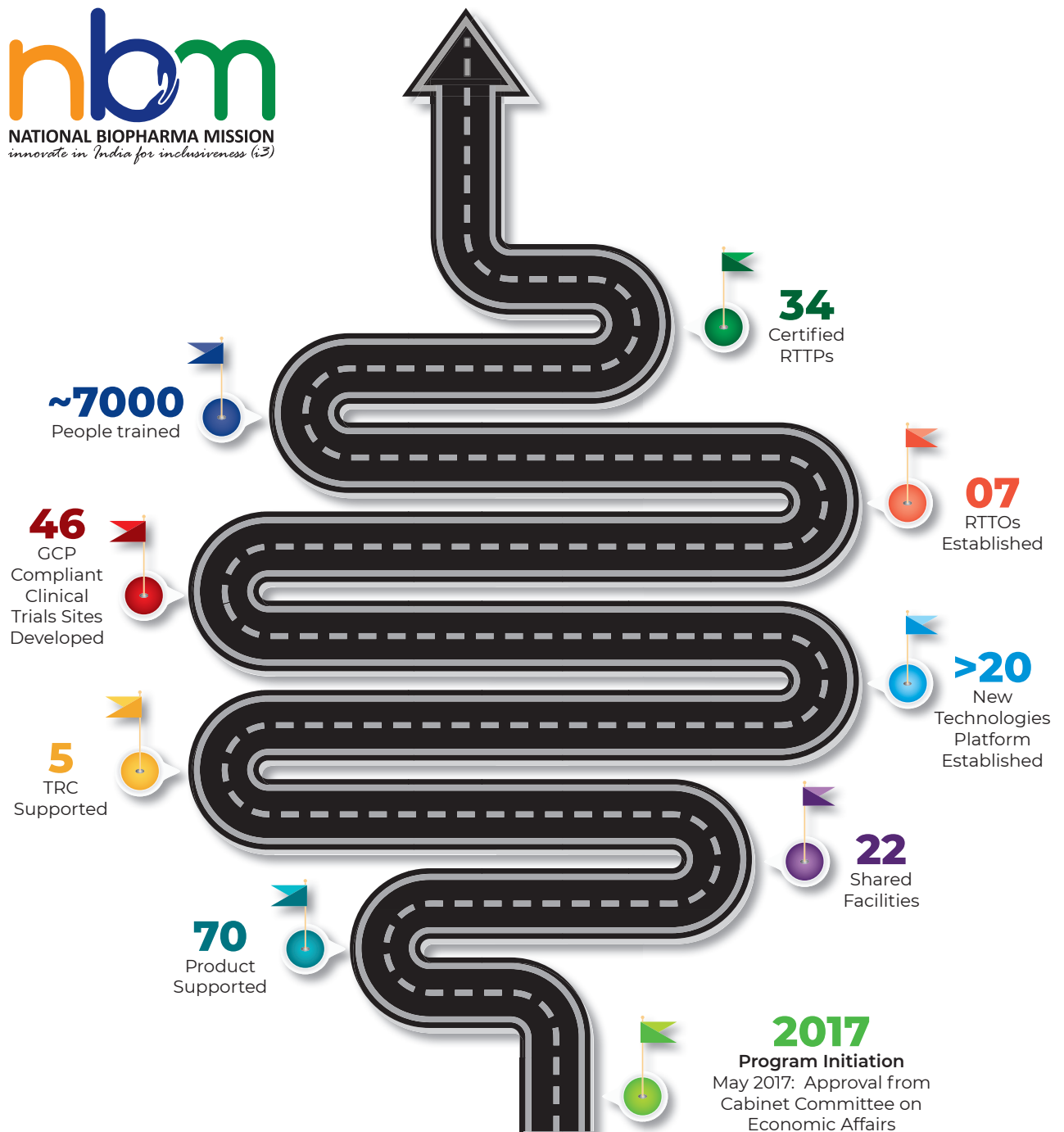


Roundtable for Biopharma: Next decade

Theme 1: Biopharma trends in the Next decade

Theme 2: Investing in Biopharma-Opportunities and challenges in the Next decade

NBM: The Journey So far



RTTOs: Regional Technology Transfer Offices,
RTPPs: Registered Technology Transfer Professionals

Make in India

1. Make-in-India & Start-up India Programs in Biotechnology

National Mission of Make In India is being led by the Department of Biotechnology and supported by BIRAC since 2015. It has established Biotechnology Industry Facilitation Cell PMU for Make In India at BIRAC. The unit is involved in Bioeconomy mapping, Strategic Analysis of Startup Innovation Ecosystem growth and opportunities, Strategic discussion meets, Policy inputs, State Connect, Regulatory facilitation, VC and Private investments mobilization for biotech sector like different PPP initiatives. For example, Fund of funds – AcE, BioAngels, CSR, steering mega events - Global Bio-India, Biotech Startup Expo, Landscaping reports, expanding Startup ecosystem, global connect and others.

1.1 Make in India PMU at BIRAC as an umbrella unit shall set up PDC and ICC to support Next Level Initiatives:

- ❖ Project Development Cell (PDC) shall support FDI and manufacturing in Biotech sector
- ❖ National Investment Clearance Cell (ICC) shall promote Ease of doing business.
- ❖ Biofoundry & Biomanufacturing for scale up support to Startups and medium scale companies: To enable piloting & manufacturing of products, the Biofoundry and Biomanufacturing infrastructural and R&D funding support would be extended to Startups, SMEs, Industry and Academia. The cabinet note for Biomanufacturing initiative is under approval for INR 1500 Cr. allocation.

1.2 Global Bio-India 2023

Global Bio-India 2023 was organized by BIRAC from 4th- 6th December, 2023 at Bharat Mandapam, Pragati Maidan, New Delhi. The three-day event was the largest showcase of entire biotechnology stakeholders in the country for national and international biotech community. Global Bio-India 2023 theme highlighted the potential and opportunities in 'Biotech Innovation' and 'Bio-manufacturing' and its impact on the Bioeconomy. Indian Bioeconomy Report 2023 was released highlighting India's bioeconomy has reached to \$137 Bn Bioeconomy in 2022.

The event was inaugurated by Hon'ble Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh.

The Mega event saw 500+ exhibitors, 5600 + delegates, 25+ countries, 8 States representation promoting their Biotech policies; 200+ Universities and Research Institutions, 1200+ Biotech start-ups, 100+ bioincubators, 300+ Industry representation from Biopharma, Medtech, Diagnostics, Industrial Biotech, Bio-Agri; Stakeholder discussion on National and Global Regulatory Trends; Industry Academia interactions; Representation from Major Industry Associations, Investor Associations, Global Entrepreneurship Organizations, 1000+ B2B business meetings. There were 40+ sessions, 7 super sessions, CEO Roundtables, policy dialogues, 40+ Startup pitches to Investors and 5 International pitches; 30 new products of Startups were launched during Global Bio India 2023.



Global Bio-India 2023 Logo and Pavillion

The three-day program witnessed global leaders participation in technical sessions on Biomanufacturing; Biosciences to Bio-Economy for 'Atmanirbhar Bharat'; Preparing for the next Pandemic-Accelerate Biotech Innovations and deliver biotech products for sustainable future; Cell and Gene Therapy; Food and energy through biological manufacturing; Accelerating Biomanufacturing: Fostering enabling ecosystem with conducive regulatory frameworks; Niche Area meeting on AI in Drug Discovery; Harnessing the unlimited opportunities of Smart Proteins in India; Powering the Future: Bio-Based Energy Solutions; Harnessing the power of Genomics for personalized medicine; Emerging Agri-technologies for a Sustainable Future. The event also saw Masterclass for Startups- Art of Pitching; B2B, B2G, G2G Meetings; Policy Dialogues; Science Community Connect; Startup pitching; Investors Conclave and CEOs Roundtable Meetings.

Announcements:

- Grand Challenges India, BIRAC and Women Lift Health announced a leadership development program titled "Women Leadership in STEM" that aims at mid-career women working in STEM.
- BIRAC's "Global Bioincubators Network" initiative.
- BIRAC promoting Private Public Partnerships announced MOUs - BIRAC-Foreign, Commonwealth and Development Office (FCDO, UK); BIRAC-Takeda; BIRAC-Miltenyi Biotec and BIRAC-India Health Fund (IHF).
- DBT's Resource of Indian Vaccine Epidemiology Network (DRIVEN) Monograph on 'Setting Up Demographic Development and Environmental Surveillance Sites (DDESS)'.

Felicitation of the awardees:

- BIRAC's Innovators Award
- Exhibitor awards for Incubators and Startups
- Women Biotech WInER Fellowship Awards
- Top WInER Fellows under BIRAC-TiE WInER Fellowship Programme
- SPARSH Awards

Startup Product Launch

- 29 Products of Startups were launched
- ज़ेराCARE healthtech innovations for Low resource settings deployed in PHCs, CHCs & last mile across 11 States bringing together State Government, Industry & other stakeholders.

Publications released:

- India BioEconomy Report 2023
https://www.birac.nic.in/webcontent/India_BioEconomy_Report_2023.pdf
- ज़ेराCARE Healthcare Innovation Challenge Field Deployment Report:
https://www.birac.nic.in/webcontent/1701942506_Deployment_Jancare_Report.pdf
- Bioincubation Centres Exhibitors Directory
https://www.birac.nic.in/webcontent/Bioincubation_Centres_Exhibitors_Directory.pdf
- Exhibitor Compendium
<https://heyzine.com/flip-book/9ee3d34fa3.html>
- Scientific Chronicles During COVID Times-DBT-BIRAC Efforts
https://www.birac.nic.in/webcontent/DBT_Coffee_tablebook_New_1.pdf
- BIRAC Compendium: Start-UP
https://www.birac.nic.in/webcontent/start_up_compendium_2023.pdf



Glimpses of Global Bio-India 2023

4th edition of Global Bio-India will be held in second week of September, that is 12th-14th September, 2024.

Several partners associated to organize this event including Association of Biotechnology Led Enterprises (ABLE), Invest India, Startup India, TIE-Delhi-NCR, Federation of Indian Chambers of Commerce & Industry (FICCI), Indian Venture and Alternate Capital Association (IVCA), Teamwork Arts and Global Business Inroads.

1.3 India BioEconomy Report 2023:



Glimpses of Global Bio-India 2023

India BioEconomy Report 2023 launched in the Global Bio-India 2023 showed that India's bioeconomy has grown to \$137.2 Bn USD in 2022 with a double digit CAGR consistently for last 6-7 years. The report was launched by Hon'ble Minister Dr. Jitendra Singh, Minister of State (I/C) Ministry of Science and Technology; Ministry of Earth Sciences; Minister of State Prime Minister's Office; Ministry of Personnel, Public Grievances and Pensions; Department of Atomic Energy and Department of Space, Govt of India. This detailed referral document covering various aspects of India Bioeconomy is being published by BIRAC regularly through MII PMU. This has become an important referral document at national and international levels.

1.4 BIO International Convention 2023:

BIO International Convention 2023 was held during June 5-8, 2023 in Boston Convention & Exhibition Centre. The India Pavilion had high-level Indian delegation led by Secretary DBT, BIRAC, CEOs of leading Biotech companies, Academic Heads, and Startups. A brain storming session was held to understand the Global manufacturing practices, existing challenges and to discuss the policy requirements to enable "High Performance Biomanufacturing" globally. There was participation from EU, UK, USA, Poland, Africa, Ireland and global and Indian Agencies like NIH, USFDA, ABLE and BIRAC. The importance of revision of existing regulatory framework, supply chain, pilot scale to large industry scale were recognized as common challenges. The event gave opportunity to interact with different CDMOs in Process Development and GMP Contract Manufacturing of Biologics.

1.5 BIRAC Participation in G20:

BIRAC contributed in the Startup20 group, a new engagement group added in G20 activities during India's G20 Presidency in 2023. BIRAC participated actively in various Startup20 summits across the country and contributed for drafting the Startup Policy Communique released at the Startup20 Shikhar Summit held in Gurugram. The Communique focuses on an inclusive ecosystem promoting innovation, economic growth and collaboration at global level. BIRAC also participated in different working groups meeting held under G20 India Presidency, including Health Working Group (HWG) and G20 Digital Innovation Alliance (G-20 DIA) and G20-Chief Science Advisers Roundtable (G20-CSAR).

1.6 Supporting Startups for progression to commercialization:

- Startups Product/ Technologies were provided recognition and attention of relevant stakeholders to promote their scale up and commercialization through following successful efforts:
- Number of Startups in the country: 7000+
- The Incubation centre network supported by BIRAC has expanded to 75 across 22 States/ UT.
- Product Launch platform: 29 startup products were launched from the prominent platforms of Global Bio-India 2023.
- Cumulatively INR 5500+ Cr. has been raised by 130+ startups as follow on funding.

1.7 Regulatory Facilitation:

- **FIRST HUB:** Regulatory Facilitation is being extended to Startups through FIRST HUB wherein experts from CDSCO, ICMR, DBT, BIS, GeM and others resolve queries of Innovators and Startups. More than 790 queries from Startups have been addressed.
- **Regulatory Facilitation Information Cell (RFIC):** Biotech Startups seek regulatory guidance from RFIC, which is established at BIRAC's Regional Centre – BRBC, Pune. So far, 250+ startups facilitated; 11 ISO certifications assisted (4 received), 10 Product Approvals for Startups.

1.8 Fund of Funds:

Fund of Funds - AcE initiative with an initial corpus of INR 150 Cr. is steered through Make In India PMU. It has been able to successfully attract SEBI registered Alternate Investment Funds (Category I and II) for investment in biotech Startups and SMEs. AcE fund's **14 Daughter Funds** have supported 88 biotech Startups, SMEs with a total funding support of **INR 1172 Cr. so far**. Encouraged by the success of this initiative, a proposal for AcE 2.0 with a fresh fund corpus of ₹ 500 Cr. is under discussion.

Start-up India Initiative

Corporate Social Responsibility (CSR) Funds:

BIRAC can receive and deploy Corporate Social Responsibility (CSR) Funds for the promotion and growth of Biotech Innovation Ecosystem. BIRAC received CSR contribution from Stryker Corporation in FY 2021-22, FY 2022-23 and again in FY 2023-24 to support digital health innovations under the BIRAC Amrit Grand Challenge- “जलCARE ” ‘Reimagining the Healthcare Delivery -Touching a billion lives’ programme during FY23-24.

Partnerships

National Partnerships

BIRAC-TiE (The Indus Entrepreneurs) Delhi NCR

BIRAC has partnered with TiE-Delhi NCR to leverage partner’s strengths for business mentoring of biotech start-ups and providing a continuous platform to interface with investors.

BIRAC and TiE have jointly institutionalized “BIRAC-TiE WInER (Women in Entrepreneurial Research) Fellowship”-a dedicated effort to recognize and reward women entrepreneurs in the Biotech sector. Under this national fellowship programme, 15 women entrepreneurs working on innovative ideas with societal impact are provided ₹ 5 lakhs each; and access to accelerator programme for mentoring, and hand-holding. After the accelerator programme, the 15 contestants compete through Business Pitching for the fellowship amount of ₹ 25 lakhs each to 3 final winners. So far, 60 women entrepreneurs have been felicitated through 4 successful editions of WInER fellowship programme.

During FY 2023-24, 3 final winners of 4th edition of BIRAC TiE WInER Fellowship were felicitated and 5th edition of WInER fellowship was announced during Global Bio India 2023.



Announcement of 5th edition and felicitation of final winners of 4th edition of WInER Fellowship during Global Bio India 2023

जलCARE Innovation Challenge-Reimagining the Healthcare Delivery in Low Resource Settings

BIRAC and NASSCOM in collaboration with Grand Challenges India (GCI) launched जलCARE-Innovation Challenge in Dec 2020 to discover, design and scale health-tech innovations that can work in low resource settings (PHCs, CHCs, Sub-Centers, etc., in rural and semiurban locations) especially in the areas of Cardiovascular Diseases, Maternal & Childcare, Diabetes, COPD, Cancer.

The “जलCARE” Challenge program was supported by industrial partners: AstraZeneca, GE Healthcare, Siemens Healthineers, Medanta Hospitals, St John’s Research Institute, Health Care Global Enterprises and TATAAIG to offer their support and mentorship to the winners till the end of pilot phase.

Field validation studies for 14 awardees have been completed across 11 states successfully across the nation. Noticeably, certain products have been successfully adopted by Government and Industry stakeholders.

During FY 2023-24, following activities were carried out:

- A session on “जनCARE Innovation Challenge” was organized during the Global Bio-India 2023 where a report on “जनCARE Healthcare Innovation Challenge Field Deployment” was launched showcasing the impact generated by the जनCARE awardees across the nation.



Launch of “जनCARE Healthcare Innovation Challenge Field Deployment Report”

- 9 healthtech products of startups supported under जनCARE program, were launched by esteemed dignitaries from organizations such as DBT, CSIR, TiE Delhi- NCR, NASSCOM, GCI, and BIRAC at the global platform of Global Bio India 2023.



Sunfox Technologies Pvt. Ltd.



Savemom Pvt. Ltd.



Giftoloxia Solutions Pvt. Ltd.



Arogyam Medisoft Solution



Onward Assist (Inventigen Technologies Pvt. Ltd.)



Yuvitel Technology Pvt. Ltd.



Avyantra Health Technologies Pvt. Ltd.



Aindra Systems Pvt. Ltd.



Embright Infotech Pvt. Ltd.

Launch of Product developed by जलCARE awardee startups

Amrit Grand Challenge- जलCARE-Reimagining the Healthcare Delivery - Touching a billion lives

DBT/BIRAC, MeitY, and NASSCOM, in collaboration with Grand Challenges India (GCI) and several other partners, launched the program Amrit Grand Challenge-जलCARE" (AGCJ) with IKP Knowledge Park as its Implementation Partner in Jan, 2022.

The program envisioned to identify Digital Healthtech Innovations in Telemedicine, Digital Health, mHealth with Big Data, AI ML, blockchain and other technologies from Start-ups/Individuals/Companies for strengthening the Healthcare ecosystem in India, importantly in tier-2, 3 cities and rural settings.

89 solutions were identified under the following categories:

- **Stage-1 (Early-Ideation and Testing stage):** 74 innovations were facilitated to receive INR upto 10 Lakhs each. CSR funds were utilized to facilitate 15 of these innovations.
- **Stage-2 (Pre-commercialization-Late-Pivotal validation studies and field testing):** 13 innovations were selected to receive INR 20 Lakhs each.
- **Stage-3 (Advanced-Multi-centric Product Deployment stage):** 2 innovations were selected to receive INR 50 Lakhs each.

The projects are being facilitated financially by the funding partners including; DBT, GCI, India Health Fund, and Stryker, and innovators would also get an opportunity for connection with state and central government programs, field validation of their products, and contact relationship with corporates, investors and sector specific subject mentors.



AMRIT GRAND CHALLENGE

जलCARE

Reimagining the Healthcare Delivery - Touching a billion lives

75 Healthtech innovation from startups and entrepreneurs

Innovation for Telemedicine, Digital Health, mHealth with Big Data, AI/ML, Block Chain and other technologies

Opportunities for Funding, Mentorship and Scaling up Several States, MedTech Industries, Hospitals and Corporates onboard

AREA OF FOCUS

- Access to primary healthcare in tier-2, tier-3 cities and rural settings
- Solutions to enhance patient compliance
- Health Data Collection, Predictive Analysis and Digital Learning in Medicine
- Data Privacy, Storage and Security Solutions
- Solutions for improved community outreach
- Data driven modeling to enable pharma/biopharma research development and Innovation

Solutions aligned with National Health Digital Mission and Ayushman Bharat will get preference.

Funding Support

Ideation and Testing	Pre-commercialization	Multi-centric Product Deployment
60 early-stage innovations	13 Late-stage innovations	2 Advanced stage innovations
INR 10 Lakh each	INR 20 Lakh each	INR 50 Lakh each

75 Azadi Ka Amrit Mahotsav

DBT BIRAC AMR Mission

Considering AMR as a National priority, under National Action Plan endorsed by Govt. of India, the Department of Biotechnology (DBT) has initiated a major Mission program on Antimicrobial Resistance with the vision to develop indigenous and cost-effective therapies against AMR; categorization of AMR-specific pathogen priority list of India; establishment of Bio-repository for AMR-specific pathogens; and development of rapid and cost-effective diagnostic kits to identify AMR-specific pathogens. In a process to fulfil the ambition of this program, DBT has announced this Joint call with the BIRAC on antimicrobial resistance (AMR). This joint mission program focuses on nurturing collaborations between academia and industry partners to enhance their capabilities for developing new antibiotics and therapeutics for AMR. First joint call has been announced in 2018-19 where academia was supported by DBT and Industry will be supported by Industry.

A single proposal from JNU was awarded in collaboration with Anthem Bioscience, IIT B and ICT, Mumbai in first round of call & was supported for 3 years. The proposal focused on development of the lead compound PPEF, (dibenzimidazole) targeting topoisomerase IA from the library of dibenzimidazoles that have shown to inhibit selectively topoisomerase IA enzyme. The proposal aimed to undertake development of bio-enhanced and targeted drug delivery systems (DDS) of PPEF to enable translation of this new lead for clinical application. The proposal is completed in 2023. It was concluded that there was less correlation between Anthem and JNU results. PPEF and nano formulation are giving same protection.

International Partnerships

NESTA BOOST GRANT

BIRAC has collaborated with NESTA, a UK based innovation charity organization, for creating a pipeline of innovators for the Longitude prize, in the area of anti-microbial resistance (AMR). Longitude prize is an initiative of NESTA focused on finding solutions to help tackle the problems in the AMR domain. Two calls have been announced under NESTA discovery program. In order to build successful collaboration between BIRAC and NESTA the 3rd round of BIRAC NESTA discovery award funding (BIRAC-DAF) is awarded in the form of BIRAC NESTA boost grants. Purpose of these grants were to ensure that the strongest Indian teams have the financial support necessary to complete their projects and to be potential candidates for the Longitude Prize.

Three teams (NanoDx, Module Innovations & OmiX in Collaboration with Spot sense) were awarded in first round of under the BIRAC boost grant. The three proposals focuses on developing rapid and & point of care diagnosis of uropathogens causing urinary tract infection (UTI), point-of-care diagnostic device for rapid identification and stratification of bacterial septicemia in critically-ill patients and detecting urinary tract infections by automation of bacterial DNA extraction process and real-time voltametric readout during the isothermal amplification process. The projects have been evaluated for their completion work. Usense developed by Module Innovations has developed an credit card size test, which detects four major uropathogens in a single test and Omix and Spotsense are using voltametric detection of bacteria as the first step of 15 minutes to determine urinary tract infections.

Awards/Recognitions/Success Stories (FY 2023-24)



1. Salcit Technologies Private Limited.

- Number of patients directly screened through Swaasa® AI in intervention areas – 15,877.
- Number of patients screened positive for COVID-19, TB or other lung infections.
 - ❖ COVID-19 : NA.
 - ❖ TB - 62 out of 1000 tests with TB plan.
 - ❖ Obstructive lung diseases - 5% of total tests.
 - ❖ Restrictive lung diseases - 4% of total tests.
 - ❖ Upper respiratory tract infections - 35% of total tests.
 - ❖ No. of healthcare workers/ medical professionals trained - 192.
- Number of facilities partnered with Salcit for project implementation - 28.
- Number of facilities enrolled on subscription model with Salcit - 8.
- Number of centers where commercial validation was done - 11.
- Expected reach through these facilities - 1,61,651.

Recognitions

1. Winner of the India-Sweden Healthcare Innovation Challenge, December 2023.
2. Winner of Arohan Social Innovation Jury Award in 2023 by Infosys Foundation.
3. "Innovator Award in the area of AI" in recognition of the significant contribution and high level of innovation research at Global Bio India 2023, BIRAC.

On ground activities/facilities:

North-East India: 7 states





Primary Healthcare Centres



Not-for-profit Organization





2. Monitra Health

- Selected for the UK Government's 'UK-India Emerging Tech Exchange Programme' to foster collaboration and drive advancements in cutting-edge technologies, seeking to use both nations' capabilities in artificial intelligence (AI) and semiconductors.
- Monitra Health Secures USD 1.5mn in Pre-Series A Funding Led by Equanimity and Kotak.



3. Sunfox Technologies Pvt Ltd.

- Sunfox technologies has raised INR 1 Cr. from Shark Tank India.
- 2000+ live saved & diagnosed 20Mn+ heart beats.
- Leading portable ECG brand globally.



4. Roundworks Technologies Pvt. Ltd.

- Completed the pilot studies in 20+ Employee's State Insurance Corporation (ESIC) and Command hospitals across the nation.
- Patented, CDSCO, ISO-13485, IEC and USFDA approved.
- Partnered with AstraZeneca to scale up the diagnosis of lung diseases in India.



5. Arogyam Medisoft Solutions

- The Arogyam TeleHealth system was used in Sarkar Aapke Dwar, Ayusman Bharat Clinics, Community Health Centres and Drug Deaddiction Clinic in 4 circles of the district where 1750+ patients got served by the system
- The pilot has been carried out in four primary health centres in Changlang district of Arunachal Pradesh (Bordumsa, Miao, Yatdam and Diyun).
- 14 doctors and 25 health workers got associated with the Arogyam Telehealth and HaemurEx system.
- Indian Patent granted.
- ISO 9001 Certified, ISO 13485 Certified, & ICMED 13485 certified.
- Winner of BIRAC ज़रुCare Innovation Challenge under the Non-communicable Diseases category.



6. Giftalexia Solutions Private Limited

- Under BIRAC ज़रुCARE Innovation Challenge, screened 300 primary school children (aged 7-9) and trained teachers in a government school in Palakkad Municipality, Kerala.
- Developed Gaze pattern-based Screening in English, Marathi and Malayalam Languages and Screened **3000+ students.**



- Winner of National Startup Award 2023 in the Category 'Retail Innovation of the Year'. Received the award from Shri Piyush Goyal, Hon., Minister of Commerce & Industry, Government of India.
- 'Shark Tank India (Season 1) Finalist', one of 198 finalists from 65000+ applicants across the country.
- Received invitation by ex-IPL Chairman, Mr Brijesh Patel to install our CaneBOT machine at M. Chinnaswamy Cricket Stadium, Bengaluru for the ICC Cricket World Cup 2023 for a period of one month.
- Received invitation from BIRAC Head, Dr. Manish Diwan to showcase our CaneBOT machine at the Global Bio India 2023 Expo organised by BIRAC at Pragati Maidan.
- CaneBOT became India's first hardware solution to integrate with the Bhashini platform and signed an MoU with Digital India BHASHINI Division (DIBD) under the Ministry of Electronics and Information Technology (MeitY), Government of India.
- Runner up of Bhashini Startup Velocity 1.0 challenge organised by Digital India BHASHINI Division (DIBD) under the Ministry of Electronics and Information Technology (MeitY), Government of India and received a prize money of INR 3 lakh in Mar 2024.
- Winner of Best Pitch Award at UPSTART'23 - The Indian Business Model Competition conducted by IIT Kanpur and received a prize money of 50K in Oct 2023.
- Winner of 'Emerging Startup of the Year Award' at Bharat Pitchathon'23 organised by Headstart in Oct 2023.
- Winner of TiE Women Global Pitch Competition 2022 for Pune Chapter - 1st Runner Up.
- Winner of 'Pitch of the Day Award' at Atman 2023, an initiative by Department of Science and Technology (DST) and **4 Technology Innovation Hub at** IIT-Bombay, IIT-Ropar, IIT-Kharagpur & IIT-Indore and received a funding commitment of 50 lakhs in Sep 2023.
- Winner of SAMRIDHI 1.0 Pitching Competition conducted at iHub - AwaDH, IIT Ropar and received a funding commitment of 43 lakhs in Aug 2023.
- Finalist at the Global Pitching Competition at AIM Congress (one of the 15 DeepTech startups globally).
- Successfully completed Cornell Maha60, India's first Ivy League Business Accelerator Program jointly organised by Govt of Maharashtra and Cornell University.
- Selected for Qualcomm Women Entrepreneurs India Network (QWEIN) Program organised by Qualcomm in collaboration with Niti Aayog, Govt of India.
- Part of India Delegation (20 DeepTech startups from India) selected by Software Technology Parks of India (STPI) for the AI Ubiquity Event at TiEcon Silicon Valley in the Silicon Valley.
- Part of India Delegation (5 startups from Maharashtra) for the AIM Congress 2024 selected by MSINS.



8. ICAR-Indian Veterinary Research Institute and M/s Genomix CARL Pvt. Ltd., Pulivendula

- **Best Research Laboratory (First prize)** of ICAR-Indian Veterinary Research Institute awarded during 74th Institute Republic Day Celebrations 2023.
- **Shyama Singh and Balamati Devi Memorial Award** conferred by Indian Association for the Advancement of Veterinary Research for the year 2024 for innovations in Veterinary Science.



9. Actorius Innovations and Research Private Limited

- **Approved Medical Device with ISO 13485:** Circulating Tumor Cells (CTC) Technology – OncoDiscover- Approved by Drug Controller General of India 2019
- **Multiple Clinical Trials:** Over 2000+ cancer patient's clinical evaluations for CTC
- **Statistics:** Total Hospitals - 326; Physicians - 376; Tests - 5365; CTC (including clusters) - 30,000+
- **Joint Venture:** Tie-up with OneCell Diagnostics, India & US for OncoDiscover test distribution
 - ❖ **MOU/Tie up with Cancer Hospitals:** Tata Memorial Hospital, Mumbai and other hospitals in and around the world
 - ❖ **Commercial Operations: India, Europe** - Cyprus, Canada, UAE, Bangladesh, Thailand, South Korea, etc.



10. Nava Design and Innovation Pvt Ltd

- In Thrissur, Kerala, Nava Saper, introduced through Nabard's pilot project, reshaped coconut farming for K.A. Jacob. Before the innovation was introduced, his income relied on selling coconuts at market rates, yielding modest returns of ₹ 300 every 45 days per tree due to the cyclical nature of coconut blooming.
- Post-implementation, Nava Saper revolutionized Jacob's farm. Instead of selling coconuts alone, the device efficiently tapped coconut sap. This sap, now a valuable commodity, was sold to the Thrissur Coconut Producer Company, bringing a fixed monthly income of ₹ 1000 per tapped tree.
- This innovation significantly increased the farm's revenue, providing stability and fostering sustainable practices. Jacob's success with Nava Saper has started attracting neighbouring farmers, creating a ripple effect of prosperity and collaboration within the community.



11. TRA-Nagarkatta and Varsha BioSciences

- Test production has been carried out and marketed through the leading tea estates located in North Bengal and Upper Assam. 75-85 lakhs sales of tea pest related pesticides. Export license has also been obtained for Breuveria and registration in Kenya is being carried out.



12. Levim Lifetech Ltd

- Successful grant of US and European patent for process innovation.
- Primary endpoints successfully met in Phase-3 clinical trial with HbA1c reduction of 1.09% in 24-weeks of treatment. Reduction in body weight (-1.97 kg), glycaemic levels (fasting glucose -16 mg/dL and post prandial: -29 mg/dL) also seen. Non-inferiority to innovator liraglutide demonstrated. **The clinical data was published in Diabetes Research and Clinical Practice with an impact factor 8.1.**
- Secondly, Levim has co-developed indigenous sources for 70% of the manufacturing inputs, including for the pen injection device. The impact of this innovation supported by the funding from NBM, BIRAC translated into a highly cost-effective Liraglutide biosimilar. In India, Levim Launched its Liraglutide biosimilar at the Global Bio-India 2023.
- Marketed at a price of INR 1855 per PEN, ₹ 100 for a standard daily dose of 1.2 mg compared to INR 5374 per PEN of Innovator Victoza.
- Won the "Innovator Award" at Global Bio India 2023.



13. RAMJA GENOSENSOR PVT. LTD.

- Top 3 WinER grant award 2023.
- Top-6 WinER of Together 2023.
- Top-5 WinER of Bio Asia 2023 for 50000 rupees.
- First among the top-3 Women Entrepreneur award WinER 2023 in Global Bio-India.
- FICCI Excellence Award among the top5.
- USAID SAMRIDH grant winner 2024.
- Mompreneur startup India winner 2024 for 50 Lakhs rupees.



14. Intessence Solutions Pvt. Ltd

- Received pan India dental Implant supply order from Directorate of Dental Services (DGDS) Delhi, (Indian armed forces), for supply to about 50 centers in the country. Also, received follow on order from them and from many individual units across the country. The product is very well received amongst clinicians and colleges, with many repeat orders from them. The company is now well set to scale up commercially.
- Completion of Multi-centric study across 9 centers in the country, demonstrating success rates achieved by globally renowned companies in this segment.
- Recipient of "Most Disruptive Technology of the year Award" from Indian Dental Association – 2023.



15. SynerSense Pvt. Ltd.

SynerSense Product has been launched in two platforms:

1. BIRAC-DBT Govt. of India has organised the Global Bio-India (GBI) 2023, 5th December 2023 event "SynerSense Product Launch" Through WinER Award with TiE Delhi and BIRAC-DBT Govt. of India in BIRAC organised Global Bio-India 2023 focusing on 'Biotech Innovation' and 'Bio-manufacturing'.
2. The Pre-Vibrant Gujarat event, Biotechnology Hon'ble Gujarat CM Shri Bhupendra Patel launched - SynerSense Product on 11-Dec-2023 officially in The Pre-Vibrant Gujarat event, Biotechnology - The path of Innovation & Wellness for Viksit Bharat @ Science City, Ahmedabad.



16. UnivLabs Technologies Pvt Ltd

1. International companies prices for various combinations are in the range of INR 50 Lac to INR 1.2 Crores as quoted by them in government tenders in AIIMS , ESIC Chennai , ESIC Gulbarga and other places. UnivLabs offers its products in the range of INR 22 Lac to 52 lac.
2. BSCIC Certification of ISO 13485:2016 (Certificate no. BN19580/18902) and ISO 9001:2015 (Certificate no. BN19793/18901) received for design & development, manufacture, sales, distribution and service of endoscopy tower system & accessories.
3. Global Innovation & Intellectual Property Summit Awards, honored Univlabs with a Special Mention Certificate for Sustainability Tech Startups Excellence Awards 2024.



17. Lab Iconics Technologies LLP

- Trademark Certificate availed for Lab Iconics LIMS, Lab Iconics ELN, Lab Iconics ADBS. The project supported under NBM has generated employment for 46 people so far, and team is expanding by another 20 people in next 6 months.
- The LLP has sold 13 Units and generated revenue of ₹ 3.5 Cr. About 700 Scientists have access to Lab Iconics LIMS & ELN application and using the software for testing and release of pharmaceutical and biotechnology product and research activities.



18. Immuneel Therapeutics Pvt. Ltd

- Immuneel Therapeutics established a cGMP compliant system optimized, ready for clinical use and successfully completed a Phase-2 clinical trial. Data from Phase 2 clinical trial of varnimcabtagene autoleucel conducted in India has been presented in 18 peer-reviewed national and international meetings. Safety and efficacy data of varnimcabtagene autoleucel is comparable to the approved CAR-T cell therapy products by the US FDA and EMA.
- Varnimcabtagene autoleucel has been approved by CDSCO for commercial manufacturing in India for treatment of B cell Non-Hodgkin Lymphoma in patients greater than 18 years.



19. Gennova Bio-pharmaceuticals Limited

Publications

- Safety and immunogenicity of an omicron-specific monovalent, thermostable, intra-dermal, self-amplifying mRNA booster for COVID-19- Nature Medicine Volume 30, May 2024, Pages 1363-1372.
- Leveraging the immunoinformatics approach for designing the SARS-CoV-2 Omicron-specific antigenic cassette of mRNA vaccine- Vaccine Volume 42, 7 Mar 2024, Pages 1630-1647.
- Evaluation of self-amplifying mRNA platform for protein expression and genetic stability: Implication for mRNA therapies- Biochemical and Biophysical Research Communications Volume 680, 5 November 2023, Pages 108-118.

Awards:

- 2023- Asia- Pacific Vaccine Excellence Award at Vaccine World Asia Congress 2023, Singapore.

Partnering with CEPI

- The Coalition for Epidemic Preparedness Innovations (CEPI) selected Gennova as a partner to advance the development of our self-amplifying mRNA (saRNA) platform to develop vaccine candidates against unknown pathogenic threats, also referred to as Disease X.



20. Serum Institute of India Pvt. Ltd.

- SIIPL QHPV vaccine viz; "Cervavac" has been awarded the DBT-BIRAC Innovator Award for significant contribution in Innovative Research in the category of "Affordable Vaccine Development for India" at the Global Bio-India 2023 event held at Bharat Mandapam Pragati Maidan New Delhi between 4th to 6th Dec 2023.
- Department of Biotechnology has awarded SIIPLs CERVAVAC as a Scientific Milestone completion for India's First Quadrivalent HPV vaccine.

7. Outcome of all BIRAC activities

Affordable Products and Technologies developed through Investment schemes

BIRAC has an inherent system of grading the projects into 7 theme areas for project monitoring and promoting innovation in that sector. The Healthcare sector has been categorized into 4 thematic areas namely, Drugs (including drug delivery), Bio-therapeutics including Biosimilars and Regenerative Medicine, Vaccines, Devices and Diagnostics. The other theme areas for which BIRAC provides funding are Agriculture (including Aqua culture and Veterinary Sciences), Clean Energy & Environment (covering Secondary Agriculture) and Bioinformatics (including Artificial intelligence, Big Data Analysis, IoT's & software development).

BIRAC emphasizes that projects supported through its various funding schemes on conclusion yield the targeted outcome in the form of products, technology, IPR, etc. Towards this end, BIRAC screens proposals under various schemes for their Technological Readiness Level (TRL) on a scale of TRL 1 to TRL 9 and filters in those having the potential to reach higher TRLs through BIRAC support. Potential regulatory hurdles in the projects are already identified during the evaluation phase. Supported projects are regularly mentored and rigorously monitored. BIRAC assess the TRL progression of project through progress evaluation by Project Monitoring Committee (PMC) experts, either online or onsite, presentation of progress by project coordinators to the Technical Expert Committee (TEC) and online evaluation of milestone completion reports by the subject matter experts associated with a particular project.

There is always an effort on part of BIRAC to enable/assist the beneficiaries so that the product/process under development could be commercialized at the earliest. To this end, BIRAC has initiated a Product Commercialization Program Fund (PCP Fund) to address the challenges faced by innovators towards commercial launching of their product and market expansion. BIRAC also facilitates regulatory assistance through FIRST-HUB to accelerate the approval processes.

The initiatives undertaken by BIRAC have resulted in the successful completion of targeted milestones of many projects from different sectors, and the development of many early/late-stage technologies and affordable products. **During the year 2023-24, 80% of projects completed Early-stage validation (TRL-3 and above), and 63 projects (29: TRL-7; 16: TRL-8; 19: TRL-9) delivered products/technologies which are at late-stage validation, pre-commercial stage, market launched or commercialized.**

Products/Technologies ready to be launched/commercialized in FY 2023-24

Devices and Diagnostics	
<p>Salcit Technologies Private Limited</p> 	<ul style="list-style-type: none"> Swaasa AI platform as a screening tool and diagnostic aid in the assessment of respiratory diseases. It identifies patterns of the underlying respiratory condition and its severity. Swaasa® can identify underlying respiratory conditions by analyzing a 10-second (solicited) cough sound (cough as a biomarker) recording. Swaasa® is not an incremental innovation to any existing method for lung assessment. It is not like making portable and economical spirometers, digital stethoscopes etc. Instead, it is a disruptive innovation that needs only a connected device (mobile phone) to achieve the same results.
<p>Monitra Healthcare Pvt. Ltd.</p> 	<ul style="list-style-type: none"> Cardiovascular diseases (CVD) remain a significant global health concern, with fainting and palpitations presenting as challenging symptoms for diagnosis. Monitra Health addresses this gap with pbeat®, a comprehensive diagnostics platform consisting of a patented adhesive patch and sophisticated analytics platform. This solution facilitates real-time monitoring and accurate diagnosis of cardiac conditions, revolutionizing patient care. Conducted three pre-clinical studies and one clinical study, with results presented at the European Heart Rhythm Association. Obtained certifications such as ISO-13485 and CDSCO, with efforts underway for CE and 510(k) FDA certifications.
<p>Primary Healthtech Private Limited</p> 	<ul style="list-style-type: none"> Mobilab, developed by Primary Healthtech at IIT Guwahati, is a groundbreaking portable blood testing analyzer. This compact device can be easily transported to remote locations, providing instant and accurate digital reports within 5-10 minutes. Powered by AI/ML algorithms, Mobilab tests vital parameters crucial for diagnosing chronic diseases of the heart, liver, kidney, and blood. Mobilab provides a comprehensive, user-friendly solution that makes diagnosis accessible, affordable, and digitally connected for everyone.
<p>Sensivision Health Technologies Pvt. Ltd</p> 	<ul style="list-style-type: none"> Sensivision's REVIVE is the world's first device to offer Whole Body Cooling treatment along with Brain monitoring on the same device for Newborns impacted with this Birth Asphyxia complication called Hypoxic Ischemic Encephalopathy (HIE). REVIVE has completed all testing and regulatory certifications including Manufacturing License from CDSCO. Device has also completed 100 baby Clinical evaluation. Deployed at about 8 hospitals.

Devices and Diagnostics

Voxelgrids Innovations Private Limited



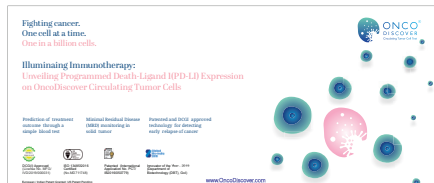
- The first MRI product Voxelgrids has developed and deployed is a compact, lightweight, full body 1.5 Tesla MRI scanner that is capable of being used in both stationary and mobile configurations. This product is designed to be deployed and operated under the most challenging installation conditions and still generate outstanding images for clinical diagnosis.

Althion Tech Innovations Pvt Ltd.



- Althion has developed and is manufacturing a novel ultra-pure water system for kidney dialysis. The product exceeds global standards (ISO 23500 Part3) for kidney dialysis water and does not require a softener module, saving water, electricity and preventing ground water pollution from the salt that is normally used to regenerate the softener module. They have also used our ARMS system to remotely monitor the plants.

Actorius Innovations and Research Private Limited



- The OncoDiscover® Liquid Biopsy Test is India's first indigenously developed, patented in-vitro diagnostic test to get DCG(I) approval (2019) for marketing in India.
- This test is a highly specific and sensitive test that can detect, capture and enumerate Circulating Tumor Cells (CTCs) in very low volume of blood.

Lab Iconics Technologies LLP



- Lab Iconics LIMS (Laboratory Information Management System), Electronic Lab Notebook (ELN) and Automated Data Backup System (ADBS) are designed to improve lab productivity and efficiency, enhancing effectiveness of biotechnology and pharmaceutical laboratory operations, maintaining a digital trail of samples, experiments, lab workflow and instruments and secure the data throughout the lifecycle.
- The product (LIMS-eLN) has been launched and the grantee has started receiving orders.

RAMJA GENOSENSOR PVT. LTD.



- How the Technology address AMR:** As per GRAM study (Conducted globally 204 countries in 471 million of subjects with >7000 sites, where they studied more than 100 bacterial species supported by WHO) published in LANCET 2022-reported evidence-based group of 6 bacteria are responsible for 3million AMR related death per Year which covers 90% of infection).
- Ramja also has those key 6 bacteria in our diagnostic tool to cover 90 % infection in one GO. So, it will help a physician to prescribe right antibiotic at right time. We also have CTX-M, KPC and NDM in our panel to address antimicrobial resistance.

Devices and Diagnostics

Intessence Solutions Pvt. Ltd

Intessence
Solutions Pvt. Ltd.



- Refirm dental implants are made to provide twin benefits of "Easy placement" and "Good stability". The high quality dental Implants having novel and superior features, along with the complete set of associated instruments and armamentarium are proudly designed and manufactured in India. Advanced features such as conical connection with platform switching, high strength neck design, and single connection platform for all prosthetics, are incorporated in the product. This offering is thus centred on winning dentist confidence and patient comfort.
- The clinical performance of the product evaluated through a multi-centric study across India, has demonstrated success levels achieved by global majors. The product is approved by CDSCO and the facility is ISO 13485 certified.)

Olivewear Pvt. Ltd.

savemom



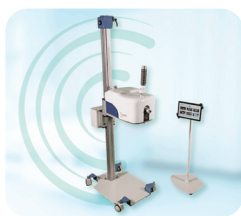
Allowear



Allotricorder

- SaveMom is an AioT-based virtual maternal care platform that provides pregnant women and children access to continuous monitoring and personalized care for the first 1000 days. The platform uses wearable devices and AI software to collect data on the woman's 8 vital parameters.
- **Allotricorder:** An IoT based kit that measures 8 vital parameters and securely sends the data over to the cloud for analytics.
- **AlloWear:** A smart wearable device that continuously tracks activity and sleep cycle reminds the patient to take medicines and do their scheduled check-ups.
- Tamil Nadu Health Minister Ma. Subramanian launched the application.

Rymo Technologies Pvt Ltd



- Mobi-L, leverages advanced robotics and virtual reality to transform physical rehabilitation by providing personalized, goal-based training. With over 80 units already deployed in clinics across India and an international distribution agreement with Fourier Intelligence in Malaysia, Mobi-L is revolutionizing rehabilitation, offering effective and accessible therapy solutions worldwide.

Embright Infotech



- **Auticare:** XR-AI based Assistive Technology Learning Platform for Autism Spectrum Disorder and special education.

Devices and Diagnostics

Onward Assist (Inventigen Technologies Pvt. Ltd.)



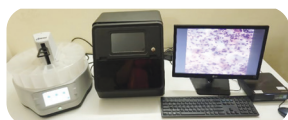
- Cancer diagnostics Tele-reporting network enabled by Digital microscope and AI analytics platform. Telepathy software enabled by digital microscope and analytics/ AI tools for H&E and IHCs.

Sunfox Technologies Pvt Ltd.



- **Spandan-** A 12 Lead portable ECG machine that offers heart monitoring and unlimited ECG tests at home, just with the help of a smartphone.

Alndra Systems



- CervAstra, a Computational Pathology based, affordable system for detection of Cervical Cancer. It detects Cervical cancer at an early stage and at point-of-sample-collection by automating the analysis of pap smears.

Yuvitel Technologies Pvt. Ltd.



- System and method for mobile healthcare kiosk to bridge out the health service barriers for the patients in the rural areas by bringing the diagnosis and treatment to the doorstep by the top specialist doctors in the country, thus removing the cost of travel, stay and improving the efficiency.
- Pilot studies were conducted with Static Kiosk-Madavada Government Samudaik Kendra Ujjain (Madhya Pradesh) & Mobile Kiosk – Rural areas of Near Madavada, enrolled 200+patients for each.

SynerSense Pvt. Ltd.

SynerSense®



- SynerSense's product - MoveAxeon is intended for Human Motion Performance Analysis, Walking and Running Pattern assessment for sports, health and wellness. MoveAxeon is a patented frugal innovation that provides a Portable and Wearable markerless system that Saves time, is Accurate and highly affordable for end users.

OmniBRx Biotechnologies Private Ltd.



- Development and Commercialisation of novel single-use bioreactor technology platform for production of Vaccines, Biologics and Stem cell therapies at large scale.
- This proprietary "CellBRx" single-use bioreactor technology is the first-of-its-kind bioreactor device with complete automation which makes it a most reliable platform for vaccine manufacturing. CellBRx® SUB's are developed upon the concept of Dynamic bed reactor technology, which ensures nutritional & gaseous homogeneity across the cell carrier bed resulting into ultra high-density cell culture.

Biosimilars and Stem Cells (including Regenerative Medicines)

Novalead Pharma Pvt Ltd.

NOVALEAD
PHARMA



- Galnobax (to be rebranded in India as DiulcusTM) is a topical gel product for the treatment of diabetic foot ulcers. Galnobax works with pleiotropic mechanism and is a novel treatment option for healing diabetic foot ulcers. The product is licensed to Ipca Laboratories Limited for commercialization in India.
- Completed Phase III and got CDSCO approval to go ahead for market authorization.

Levim Lifetech Ltd

LEVIM LIFETECH
SCIENCE DONE RIGHT



- Liraglutide, first approved in 2010, has been among the first successful "GLP-1 RA" drugs to supersede use of insulin and other drugs for the treatment of Type-2 Diabetes. Liraglutide has also shown additional benefits of weight loss in cases of obesity & long-term cardiovascular protective benefits apart from glycemic control.
- Levim has developed the biosimilar of Liraglutide injection after going through detailed physicochemical analytical characterization, preclinical studies, Phase-1 pharmacokinetics and Phase-3 efficacy & safety studies, supported by National Biopharma Mission received market authorization approval. The biosimilar has been launched under the trade name "Liraft" by Glenmark (marketing partner of Levim) in January 2024.

Drugs (including Drug Delivery)

M. J. Biopharm Pvt Ltd



- This project involved a Phase III Clinical Study of M. J. Biopharm's biosimilar Insulin Glargine 100IU/ml solution for injection. The study title is "A Prospective, Multi-center, Randomized, Open-label, Parallel-group, Active-controlled Phase III study to Compare the Efficacy, Safety and Immunogenicity of Insulin Glargine 100 units/ml injection of M.J. Biopharm Private Limited with Lantus".
- In India, a phase III clinical study is required for licensing of biosimilar products. The outcome of this project is the study was successfully completed and MJ has received manufacturing permission from CDSCO for Insulin Glargine.

Energy and Environment

QBO Technologies Pvt. Ltd.



A.

B.

Pictorial view of Biogas cookstove with PRB in operation.

- The Company has developed Biogas cookstoves with Porous Radiant Burner (PRB) and Porous Free Flame Burner (PFFB) suitable for all kinds of biogas digesters. The developed Energy-efficient and Environment- friendly Biogas cookstoves provide a fuel-saving of ~25% in submerged combustion mode (PRB) and ~15% (PFFB) in free flame mode.

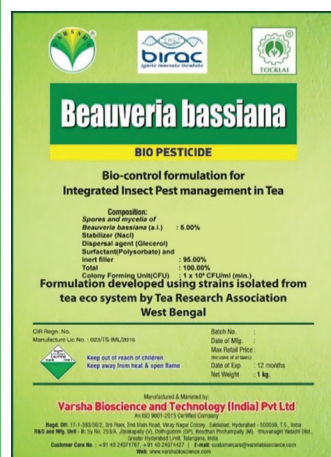
Vel Natural Fibers



- Innovative method to extract silk grade banana fiber.
- The banana silk fiber separator has been commercialized and 18 units have been sold so far.
- Innovative machine to make the valuable products from the remaining stem of the banana tree after harvesting the banana fruit viz. Banana Silk Grade Fiber, Banana Dietary Fiber, Banana Sap Liquid Fertilizer, Bio Visiting Card, Banana Bark Plates.

Agriculture

TRA-Nagarkatta and Varsha BioSciences



Agriculture

Zentron Labs Pvt. Ltd.



- There is an acute shortage of skilled labour to grade fruits during harvest season. Traders prefer to pay a low price to a harvest lot that has multiple grades that are mixed. Co-incidentally, in markets uniformity in size and such properties is an indicator of quality. Our high-speed systems help FPO's and farmers earn more, and keep customers satisfied – hence they enjoy a greater say during negotiations.
- Zentron have sold and done successful demonstration of the machine at industry level.

Veterinary Science and Aquaculture

ICAR-Indian Veterinary Research Institute and

M/s Genomix CARL Pvt. Ltd., Pulivendula



- Recombinant antigen-based ELISA kits developed for sero-diagnosis of important viral diseases like Newcastle disease, Infectious bursal disease and Infectious bronchitis of poultry would help the stake holders in precisely estimating the time of booster vaccinations to prolong the immune status of birds against these diseases.
- The developed kits would play a pivotal role in achieving the goal and would be a suitable alternative to the expensive imported kits that are in vogue in the country.
- The kits were transferred to M/s Genomix CARL Pvt. Ltd., Pulivendula and are now available in the market.

Vaccines

Tergene Biotech Pvt. Ltd. and Aurobindo Pharma Limited



- Development of an Affordable, Asia specific 15 valent Pneumococcal Polysaccharide – CRM197 Protein Conjugate Vaccine. The vaccine provides Active immunization against Pneumonia and Invasive Pneumococcal Disease caused by Streptococcus pneumoniae (15 serotypes). Phase III clinical trials of the vaccine successfully completed.
- The vaccine has received approval from the Government of India's CDSCO Subject expert committee for manufacturing and sale in India.

Vaccines

Biological E Limited



Biological E. Limited
Celebrating Life Every Day



- COVID SURAKSHA provided funding to Biological E which enabled development of fully indigenous COVID19 vaccine based on adjuvanted protein-sub unit platform during the pandemic.
- CORBEVAX selected for primary vaccination of children in the age group of 12-14 years and included in COWIN app pan India roll out began on 16th March ' 2022). CORBEVAX also added as heterologous "Precaution Dose" option in Cowin app. Pan India roll out started on 16th Aug' 2022 for adult population.
- CORBEVAX™ received WHO EUL on 15-January-2024.

Gennova Bio-pharmaceuticals Limited



- Two mRNA-based vaccines were developed and launched: GEMCOVAC-19, the nation's first mRNA-based COVID-19 vaccine (EUA on June 28, 2022), and GEMCOVAC-OM, an Omicron-specific booster (EUA on June 20, 2023). GEMCOVAC-19 is the world's first and only thermostable mRNA vaccine, stable at 2-8°C, eliminating the need for ultra-cold storage.
- BIRAC's technical and partial funding assistance enabled the rapid development of this platform technology, which is also the first approved self-amplifying mRNA vaccine globally.

Serum Institute of India Pvt. Ltd.



SERUM INSTITUTE OF INDIA PVT. LTD.
Cyrus Poonawalla Group



- CERVAVAC is a sterile suspension of HPV1 VLP antigens (6, 11, 16 & 18) adsorbed onto Aluminium hydroxide. HPV1 proteins are produced by separate fermentations in recombinant Hansenula polymorpha yeast and purified using a series of chromatography and Tangential flow filtration steps.
- Each VLP type is adsorbed onto Aluminium hydroxide adjuvant and subsequently blended into Quadrivalent HPV VLP vaccine. Quadrivalent HPV vaccine (CERVAVAC) developed by SIIPL is Indigenous, safe, efficacious and affordable.

Other Exemplary Products developed/under development through BIRAC Support that has completed late-stage validation

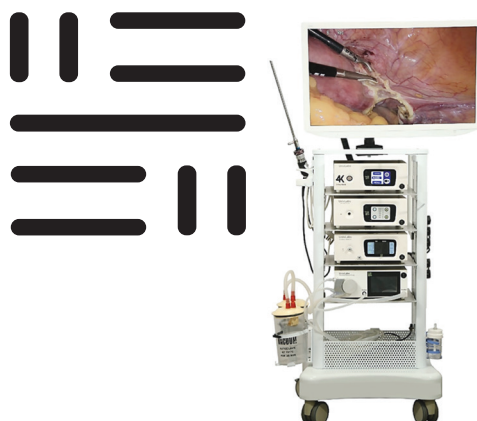
Devices and Diagnostics

Helyxon Healthcare Solutions Pvt Ltd



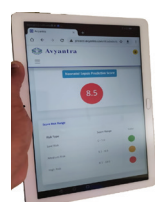
- EPICare: Comprehensive Remote Patient Management Platform, focusing Step down NICU. It aims to manage IMR & MMR, enabling the care delivery system to reach the last citizen proactively.
- Completed the pilot studies in a government hospital in Chennai, where vital signs of 80+ babies were monitored.

UnivLabs Technologies Pvt Ltd



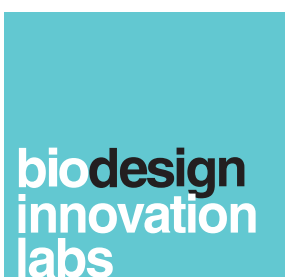
- Advanced endoscopy system developed by UnivLabs Technologies Private Limited has features such as multi-spectral CPU/GPU imaging instead of existing FPGA system – suitable for tier 2 and tier 3 hospitals at more affordable cost, reducing out of pocket expense to 1/3rd.

Avyantra Health Technologies Pvt Ltd



- PreSko (Predictive Scoring Application):** A machine learning & EHR Platform for Early Assessment of Neonatal Sepsis and Antibiotic Rationalization. PreSko is non-invasive and provides a rapid risk assessment of babies.
- Pilot studies for the platform “preSko” with 400 babies were carried out at Nilufer Hospital, Hyderabad.
- Part of an acceleration program for digital health startups of TIDE 2.0 and supported by MEITY, Government of India and Atal Innovation Incubation center.

Biodesign Innovation Labs



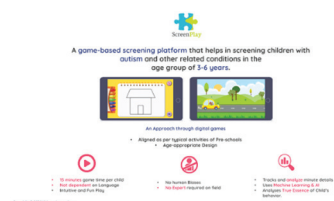
RespirAID: Portable mechanical ventilation device that provides volume control ventilation for patients in ER, Ambulance, and Postoperative care/Anesthesia. RespirAID stabilizes patients in absence of sophisticated ventilators, by being a means of efficient replacement of manual ventilation in ICUs and transportation.

Roundworks Technologies Pvt. Ltd.



- **Alveofit:** Integrated, indigenous, IoT enabled, affordable Respiratory Healthcare digital platform - required in Post COVID-19 situation to manage Asthma and COPD conditions to make lung health care delivery accessible by everyone.

Kidaura Innovations Pvt. Ltd.



- **ScreenPlay:** A digital game-based screening tool that identifies children who may have a potential risk of autism or any other condition in the age group of 3-6 years.

Arogyam Medisoft Solution



- HaemurEx is a lightweight, battery operated blood and urine analyser having ability to currently perform tests for 25 parameters. The device is connected to a health monitoring remote health monitoring, having modules for platform "Arogyam Health", that enables patient Electronic Health Record, E prescription, laboratory (with integrated devices) and pharmacy along with teleconsultation facility.

Giftoloxia Solutions Private Limited



- GazePaternBased Screening for Early identification of Dyslexia in Children. The main objective of early screening for learning disabilities was to identify and provide appropriate intervention and support to improve children's reading and writing.

Inovocare Healthsoft Solutions Pvt. Ltd.



- NIBRA-CS® (Non-Invasive Baro Reflex Assessment - Combined System) is a standalone, portable & affordable solution for Autonomic Neuro-Function testing, addressing the critical need for objective diagnosis of Autonomic Neuropathy at a Point-of-Care setting. This test is essential for the Diabetic and the Elderly.

Agriculture

Canectar Foods Pvt Ltd



- CaneBOT®, has built World's 1st Fresh Sugarcane Juice Robotic Vending Machine offering high-quality Sugarcane Juice in untouched and hygienic conditions.
- The patented solution ensures the efficient extraction of juice that retains nutrition and enhances the taste and customer experience. It is compact and fully autonomous machine, making it a perfect solution for making this healthy beverage accessible at convenient locations like offices, malls, multiple airports etc. thereby contributing towards farmers prosperity.

Nava Design and Innovation Pvt Ltd



- 'Saper' is the world's first fully automated coconut sap tapping device. 'Saper' is installed into each flower and taps the coconut inflorescence for up to 3 months without manual intervention, ensuring effortless sap collection and preservation.
- The sap is collected at the bottom of the tree delivered through tubing and can be preserved using either any approved preservatives such as Anti-Fermentation Solution (AFS) or Cold-Chain collection container. One device will eliminate upwards of 1000 tree climbs per year drastically reducing the risk of falls and injuries.

Energy and Environment (including secondary Agriculture)

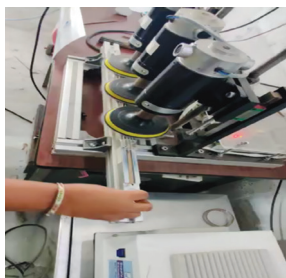
Fermentech GSV Private Limited



- Nisin is fermentation technology derived biological shelf life enhancing ingredient. This peptide finds applications in food processing and provide clean, green and natural labelling options for agro-food industries. GSV 234- a nisin ferment developed by Fermentech GSV is scaled up to pilot production volumes and down-stream processing steps involves membrane based technologies and vacuum processing.
- The technology involved scaling up of Nisin production at 500 L scale. Subsequently, downstream process development for the extraction and purification of the nisin was established.
- The application has been submitted to FSSAI for bio-ingredient product approval.

Energy & Environment (Including Secondary Agriculture)

Evlogia Eco Care Private Limited



- Technology for manufacturing biodegradable and eco-friendly single-use cutlery like straws, lids, take-away container boxes, cups and spoons made from locally available agricultural waste.
- Prototypes developed for Washing process, holes making/roughening process, improvised rolling machines, glue application machine and sterilization with Ozone.
- Improvements will be made wherever necessary, and an integrated automation development has started. Design of the integrated industrial automation completed in March 2023, production and assembly test is ongoing.

Veterinary Science and Aquaculture

Aristogene Biosciences Private Limited



- Vibrioshield and ELIXIR are all-natural bacteriophage based formulations designed to combat Vibrio infections in shrimp culture. It's a carefully crafted cocktail of bacteriophages that have undergone rigorous testing for their ability to inhibit Vibrio bacteria.
- Aeroshield is a formulation containing **naturally occurring bacteriophages that target and kill Aeromonas in fishes** without harming beneficial bacteria or the environment. These products are Green natural alternatives to antibiotics and hence helps in the control of AMR.

SHC Shine Biotech Pvt. Ltd



- **eqaSMART-Rapid DNA Isolation Kit** enables needle-prick wholeblood sample collection from cattle, it's biosafe and user-friendly sample transport to veterinary diagnostic laboratory and rapid and nearly equipment-free DNA isolation. This DNA can be used for DNA-based molecular diagnostics and thereof facilitates targeted treatment of the disease.
- The product has potential to contribute in improving cattle health and hence minimizing economic losses due to certain cattle disease (Bovine leukaemia virus, Tick-borne hemoprotozoan diseases etc).

Drugs (including Drug Delivery)	
<p>Lupin Biotech</p> 	<ul style="list-style-type: none"> Lupin's Aflibercept would bring in an affordable quality treatment for patients with neovascular AMD and hence is extremely relevant to the Indian society. This would also support the make in India campaign for such complex molecules utilizing skills, knowledge and facilities existing in India. This would add a boost to the India's national Biopharma mission. Patient enrolment for Phase III clinical trial completed.
<p>Immuneel Therapeutics Pvt. Ltd</p>  	<ul style="list-style-type: none"> Varnimcabtogene autoleucel, IMN-003A (also ARI-0001) is a novel CD19 targeted Chimeric antigen receptor (CAR) T cell therapy targeting B cell malignancies. It involves using body's own immune system to treat cancer after genetic modification of lymphocytes. Immuneel licensed Varnimcabtogene autoleucel from Hospital Clinic Barcelona and is undergoing phase 2 testing in Europe. Phase II clinical trials have been completed in 24 patients.
<p>Jodas Expoin Pvt. Ltd.</p> 	<ul style="list-style-type: none"> Pertuzumab is an approved drug for the treatment of patients with HER2-positive metastatic Stage IV or locally recurrent breast cancer. Pertuzumab is a recombinant, humanized, IgG1-kappa monoclonal antibody (mAb) expressed in Chinese Hamster Ovary (CHO) cells which also targets HER2, but Pertuzumab binds to a different epitope (domain II) than Trastuzumab and prevents dimerisation of HER2 with other members of the HER family (HER1 or EGFR, HER3 and HER4). Jodas has developed the manufacturing process of recombinant Pertuzumab at 100 L scale and successfully completed the pre-clinical toxicity studies.
Vaccines	
<p>Zydu Lifesciences Pvt. Ltd.</p>   	<ul style="list-style-type: none"> ZyCoV-D vaccine is the world's first and India's indigenously developed DNA based vaccine for COVID-19 for administration in humans including Children and adults 12 years and above. ZyCoV-D is delivered by a needle free injector system known as PharmaJet®, which confers multiple advantages in terms of delivery of vaccine or in general for enhancing acceptance in children and adults who have fear of injections and thus enabling higher vaccination rates. Vaccine received emergency use licensure in India as a 3-dose regimen on 20th August 2021 and as a two dose regimen on 25th April 2022 for protection against COVID-19. Vaccine was also approved on 20th April 2023 as a heterologous booster dose against COVID-19 in India.

Analysis of BIRAC Support

1. Healthcare

1.1 Drugs (Including Drug delivery)

Drug discovery involves research, development and production of novel molecules, which are the keys that open disease lock. BIRAC supports high translational research proposals in 7 different thematic areas and Drug Discovery including Drug Delivery are one of the most important where innovators are looking for right keys for specific diseases or modifying an old key to fit a new lock.

BIRAC supports both small molecule, New chemical entities, repurposing of drugs and drug screening models whereas to increase bioavailability, therapeutic efficacy, reduce toxicity and increasing patient compliance new drug delivery methods are being supported. There have been recent advancements in drug delivery and have seen a variety of polymers being developed and utilized for nano-delivery systems.

BIRAC programs are well designed to support the products right from ideation stage and generation of proof of principle in BIG, establishing proof of concept and early validation in SBIRI and advance stage projects to scale up, clinical trial etc under late-stage validation under BIPP. It is generally observed that since high risk and time driven, industries are reluctant to contribute with their own funds. Therefore, BIRAC plays important role here by supporting them in a public private partnership mode which provides them some support to carry on with the innovative projects.

BIRAC has supported projects in complete grant mode for those special areas like AMR, new drug development, preclinical model development.

BIRAC has identified the gaps which states that maximum treatment therapies fail during translation of results from preclinical models to humans due to deficiency of robust preclinical models in country. Therefore, a special has been announced in 2023 on "Establishment of preclinical models for drug Discovery" with the objective to establish preclinical disease models (In-vitro/In-vivo) for screening new drugs, NCE, natural compounds.

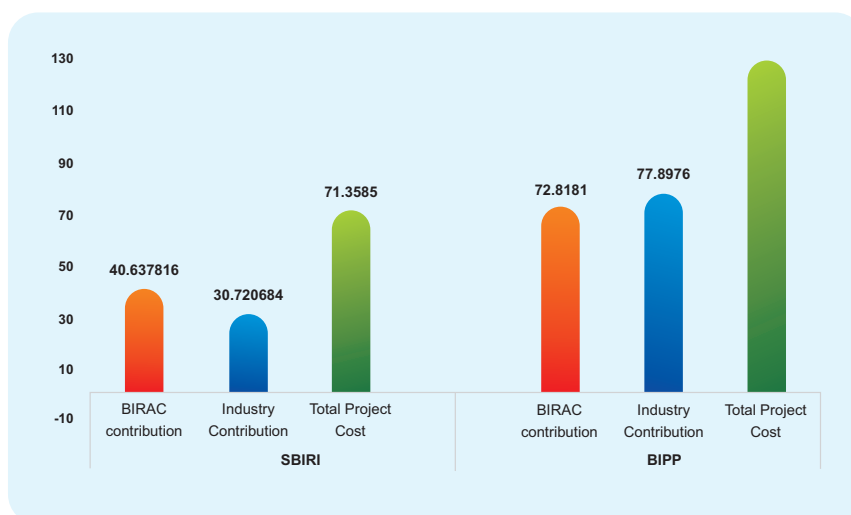
A single proposal under AMR mission which was focused to identify the new antibiotic/therapies for AMR was awarded for 3 years which got completed last year. The proposal focused on development of the lead compound PPEF, (dibenzimidazole) targeting topoisomerase IA from the library of dibenzimidazoles that have shown to inhibit selectively topoisomerase IA enzyme. The proposal aimed to undertake development of bio-enhanced and targeted drug delivery systems (DDS) of PPEF to enable translation of this new lead for clinical application. It was concluded that there was less correlation between Anthem and JNU results. PPEF and nano-formulation are giving same protection.

BIRAC has identified rare diseases as an important vertical and supported the proposals for Duchenne muscular dystrophy (DMD), Nieman pick disorder and retinitis pigmentosa. During the pandemic immense support has been provided for new drugs/drug repurposing/ in-vitro & in-vivo platforms for screening potential drugs. Based on the critical need to tackle AMR efforts have been undertaken by National Biopharma Mission for developing novel antibiotics, therapeutics, or any other novel approaches to combat Antimicrobial Resistance. A focused call was announced in 2023 and proposals have been shortlisted for funding and in process for funding.

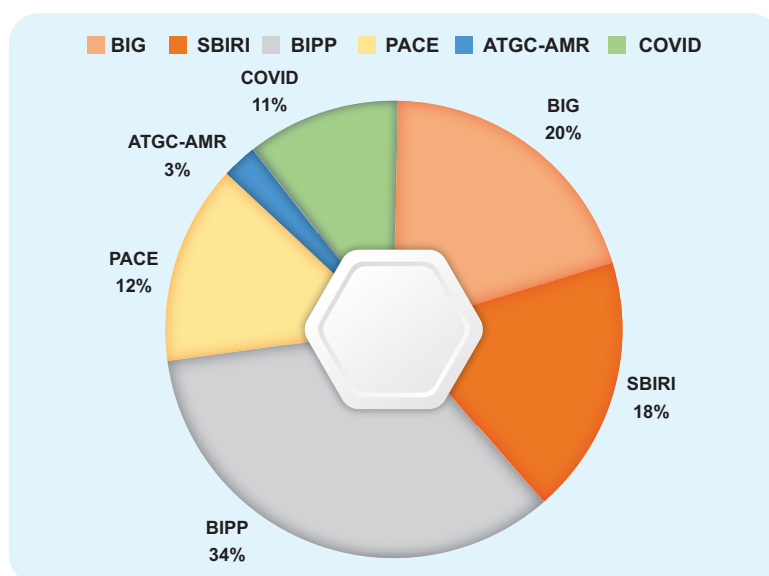
Few successful stories under this area are :-

- Clinical investigation of Galnobax gel for the treatment of diabetic foot ulcer has completed Phase III clinical trials and DCGI has provided market authorization approval in India in 2023.
- Novel multi drug resistant (MDR) active respiratory antibiotic against CABP was supported for Phase III human clinical trials "Nafithromycin" in India and the product has successfully completed the studies and data has been submitted to DCGI for marketing approval. Nafithromycin represents a first ever macrolide in 30 years which has successfully completed clinical development this year for the indication of community acquired bacterial pneumonia.

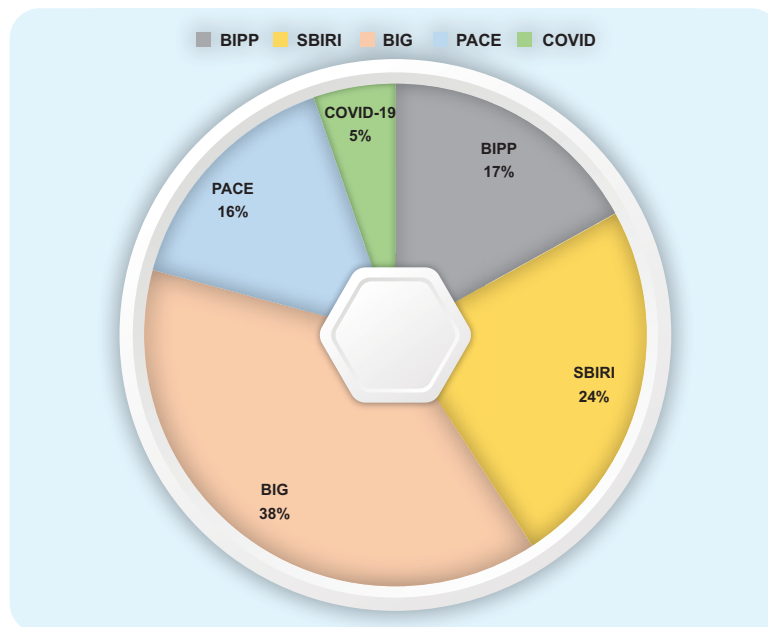
- A single innovator product includes generation of clinical grade exosomes being is being used by different start-ups and academic laboratory.
- Lead drug molecule (ORX-301) has been licensed outside India for treatment of Niemann-Pick Type C disorder with the potential to reach US\$125 million in royalties.
- Technology supported to generate stable transgenic systems with no off-target effects has been supported till pre-commercialized stage.
- Synthesis of drug glucuronides and their deuterium labelled analogs, and Clinical development of Novel CCK-A receptor antagonists for the treatment of colon cancer and pancreatic cancer.
- The commercialized products under Drug delivery include Silvoclean- sanitizer, silk fibroin based wound healing sheets/ powders and oral dissolvable thin films as an alternate to capsules and traditional tablets.
- Human iPSC-derived lung airway and alveolar epithelial cells on air liquid interface for modeling COVID-19 infection and its application in antiviral screening and vaccine development.
- BIRAC supported Phase II human trails for the use of Pegylated Interferon alpha-2b, 'Virafin' in treating moderate COVID-19 infection in adults has received Emergency Use Approval from DCGL.



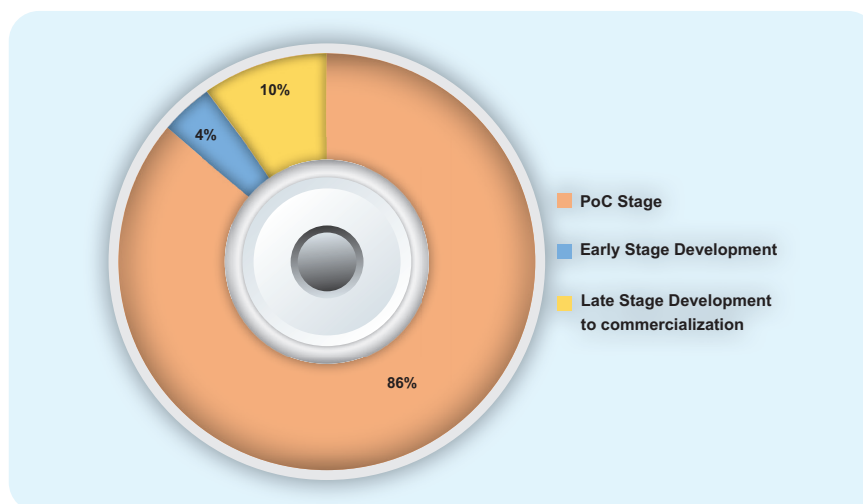
PPP Investment portfolio for BIPP and SBIRI



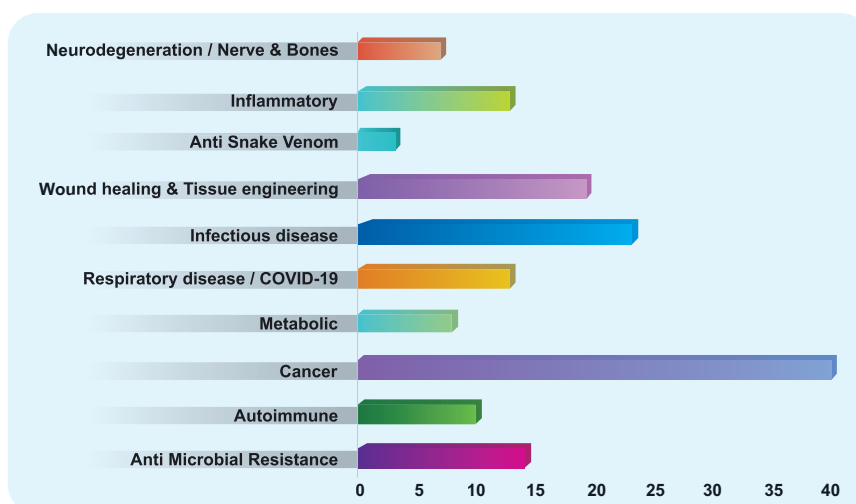
Total funds committed under various BIRAC programs



Number of Projects Supported



Stages of Development



Stages of Development

This is a challenging area where proposals are mostly focused on basic studies which involves in silico work and preliminary proof of concept. Handholding of important molecules and their development is important for taking the molecules ahead. India has good strength in some areas i.e., computer-assisted drug design, there are compound libraries with pharma companies and academia, and is further needed to utilize this expertise to accelerate drug development projects and bring competent people together where good participation from big industries is important as without them the drug discovery is difficult.

1.1.1 Industry – Academia Interaction on, ‘Artificial Intelligence (AI) in Drug Discovery’

BIRAC organized a discussion meeting with Industry-Academia participation on ‘Artificial Intelligence (AI) in Drug Discovery’ on 05.12.2023 during the Global Bio India Event at Bharat Mandapam, Pragati Maidan, New Delhi. The meeting focussed on strategizing the roadmap for AI in drug discovery in India. Dr. Vijay Chandru (Co-founder & Chairman, Strand Life Sciences) chaired the session and presented the importance of AI in Drug Discovery. Dr. Dhiraj Kumar (Chief Manager-Technical, BIRAC) welcomed all the committee members and discussed the purpose of the meeting. Dr. Aparna Sharma (Chief Manager-Technical, BIRAC) gave a brief overview of the BIRAC efforts in the area and the expectations from the discussion meeting.



Fig.: Discussion session between BIRAC officials and representatives from industry and academic institutes



Fig.: BIRAC officials with representatives from industry and academic institutes.

1.1.2. Four days hands-on training was organized on 3D cell culture

BIRAC supported a four days hands-on training was organized on 3D cell culture at ICT Mumbai from January 28 – February 3, 2024. 3D Cell Culture is one of the emerging and proliferating domains and the aim of the workshop was to encourage researchers and pharmaceutical/ toxicological industries for adopting various alternatives to animal models in preclinical research. The workshop was attended by 25 participants from Industry and academia. The workshop consisted of lectures and experiments on the operation and working of organ-on-chips, organoid development and 3D bioprinting. Dr. Shilpi Gupta from BIRAC also presented its role in fostering public-private partnerships for innovative product/technology development through its various schemes.

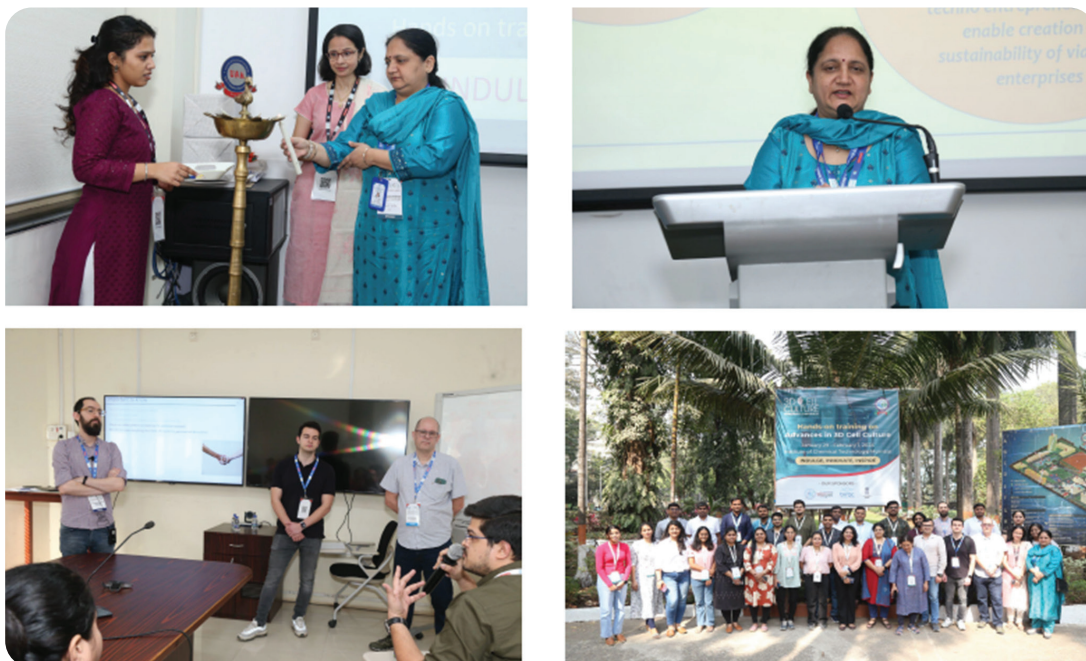


Fig. Dr. Shilpi Gupta presented the role of BIRAC in fostering public-private partnerships for innovative product/technology development through its various schemes.



Fig: Glimpses of 3DCC workshop 2024

1.2 Bio-pharmaceuticals

India's biosimilars are gaining a foothold in developed markets which offers an opportunity for the Biopharma sector to further expand its market share in developed economies. Indian bio-pharma companies have launched over 100 biosimilars in market. Bio-therapeutics sector includes the development and production of biologics, biosimilars, monoclonal antibodies, gene and immune therapies and becoming increasingly important in treatment of various chronic and complex diseases. Bio-therapeutics market is projected to reach \$479.7 billion by 2024 at a compound annual growth rate (CAGR) of 10.9%.

National biopharma mission has supported bio-therapeutics area largely and supported range of products for indications ranging from Diabetes. Cancer (including CAR-T therapy), Age related Macular Disease, Immune diseases, Rabies and COVID-19. The support further has been extended via an *"Follow-on Funding for Bio-therapeutics and related infrastructure"*.

The regenerative medicine sector in India has been gaining momentum due to several factors such as increasing healthcare expenditure, a rising geriatric population, a growing prevalence of chronic diseases, and a supportive regulatory environment. The emerging tools like 3D bioprinting, gene editing and therapies including Cell & gene therapies hold great promise for treating rare diseases such as Retinitis pigmentosa, β -thalassemia, rare neurodegenerative disorders etc. By 2027, the regenerative medicine market is forecast to be worth over \$22 billion. This will be led by cell therapies (\$10.8 billion), followed by gene-modified cell therapies (\$6.5 billion).

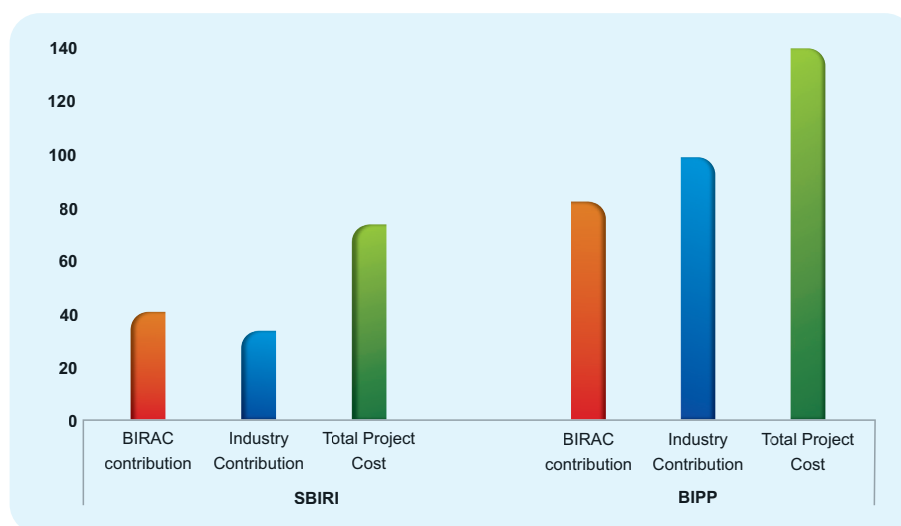
Cell and gene therapy (CGTs) in India are at nascent stage, continuous efforts have been made by the Government to support the research efforts in this domain area. India needs to establish and implement indigenous CGTs to make it affordable for the country as a whole. In anticipation, BIRAC is supporting construction of plasmids & vector development, GMP manufacturing facility for clinical trial material production and human clinical trials in this area. These studies target cancers such as B-cell acute lymphocytic leukemia, Multiple myeloma, Glioblastoma and Hepatocellular carcinomas. CAR-T cell therapy has been approved for trials for actalycabtagene autoleucel (actaly-cel, marketed as NexCAR19) for the treatment of cancer. The first-in-human phase-I clinical trial supported by DBT for gene therapy of Hemophilia A is underway.

To boost and enhance biopharmaceutical landscape, CDSCO has recently announced major changes to expedite approvals, maintain high quality standards and align more closely with international regulatory practices. This is the opportune moment in India towards development of advanced 3D culture and organ-on-chip models which is in line with the Government's initiative to limit animal models for research and BIRAC has announced a special call on developing preclinical models for drug discovery. The support is being provided to develop indigenous raw materials and product based on chemically defined serum free media & feed for high value Biosimilars manufacture has been demonstrated at 10 L scale for two biosimilars. The results indicated that both the molecules comply with the standard specifications with respect to Innovator molecules – Trastuzumab and Bevacizumab.

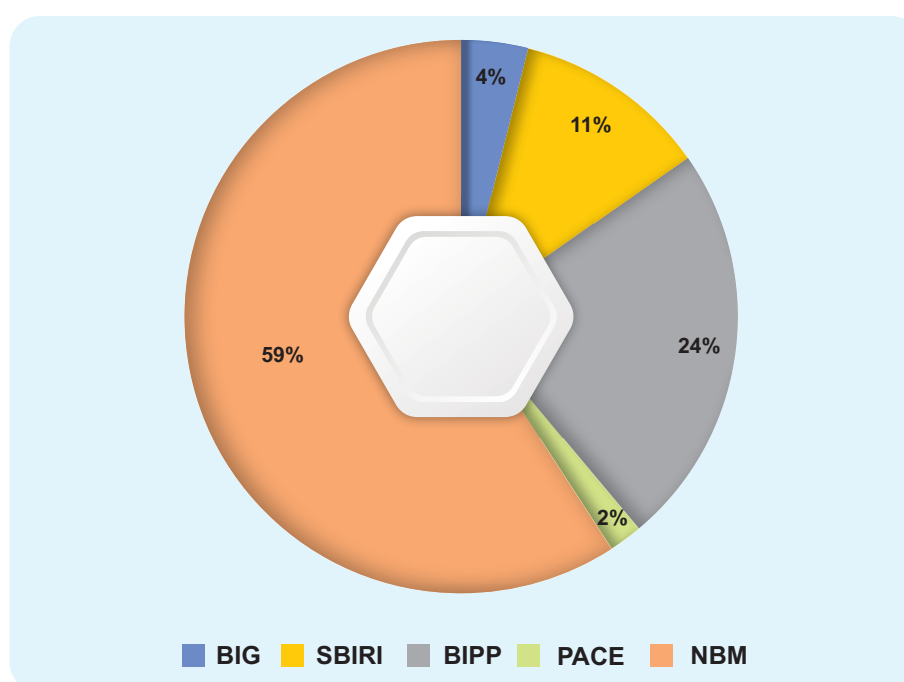
Few success stories under this thematic area are:-

- Market Authorization Approval is obtained for Biosimilar Liraglutide for Type-2 Diabetes. The product was launched under the brand name Lirafit in January 2024.
- Phase III human trials completed and manufacturing permission from CDSCO for Insulin Glargine is obtained in 2024.
- Phase III trials for CD19 CAR-T Cell Therapy IMN-003A in B Cell Malignancies is completed in 24 patients.
- Trypsin resistant PAN reactive trypsin antibodies & development of ready to use engineered cell lines for in vitro Insulin receptor phosphorylation bioassay to monitor Insulin drug potency.
- Foligraf for reproductive Technology is the first recombinant FSH product developed, manufactured and sold by an Indian Company.
- Rasburicase to control Hyperuricemia under trade name TULY is a recombinant Uricase to control hyperuricemia in cancer patients undergoing chemotherapy develop.

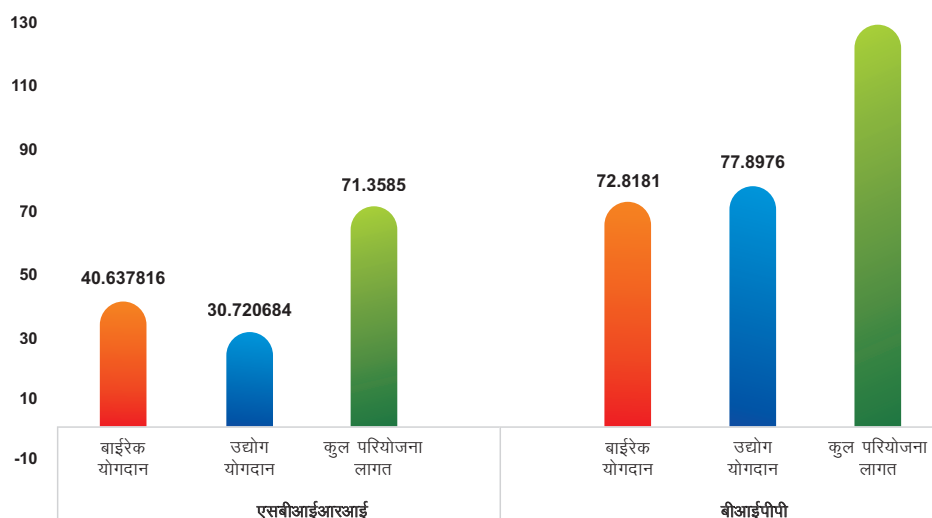
- Platform technology has demonstrated Purified Trastuzumab, directly from cell culture media using crystallization technology.
- Protein Labelling Technologies.
- India's first urology cell therapy product (UREGROW®), an FDA approved therapy for the treatment of urethral stricture, is commercialized.
- Lab Iconics LLP's Laboratory Information Management System (LIMS) has been successfully deployed at few organizations, with a revenue of ₹ 21,75,000 as on 31st March, 2024.
- Single Use Bioreactors by OmniBRx Biotechnologies supplied Bioreactors to academia and industry, generated revenue of 14.5 Cr.



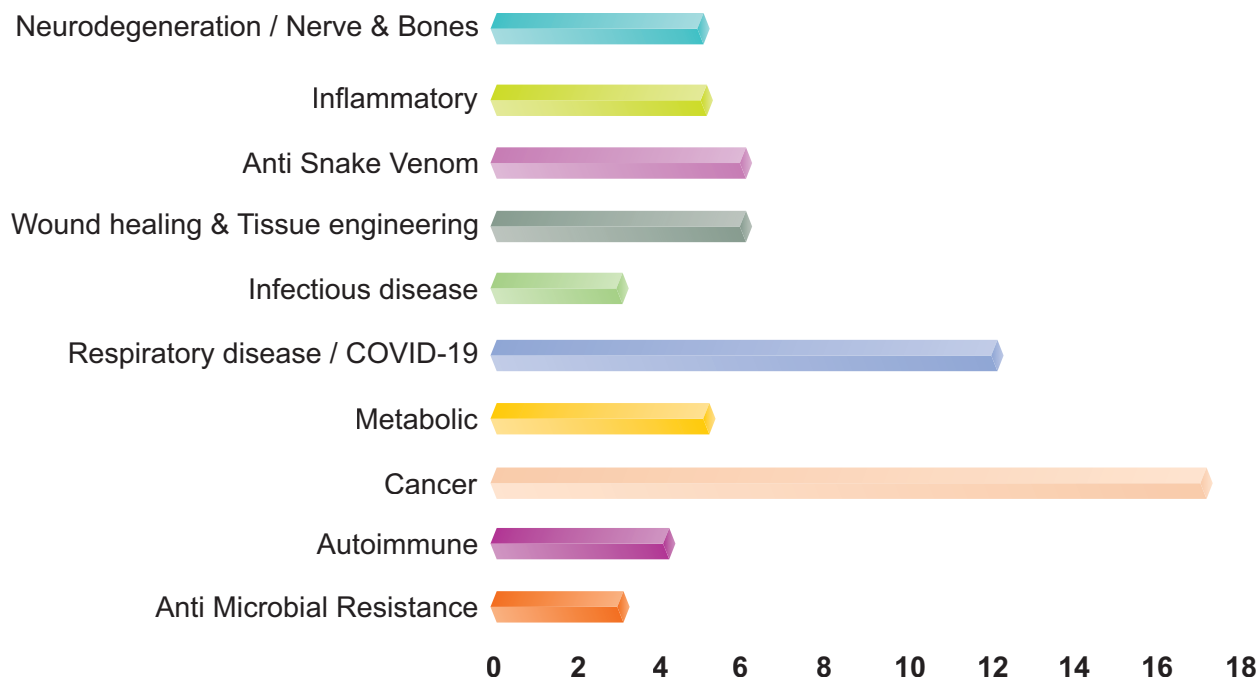
PPP Investment portfolio for BIPP and SBIRI (in ₹ Cr.)



Total funds committed under various BIRAC programmes



Total Funds Committed by BIRAC



Disease wise distribution of Supported Proposals

1.2.1. Biosimilar Workshop

ICT has organized one of the largest gatherings of Biopharmaceutical Researchers in India, "Biosimilar Workshop" which was held on 2nd and 3rd February 2023 in Goa. The theme was based on "Biopharmaceutical Product Development: Indulge, Innovate & Inspire" which covered wide range of topics, from cell line development, process development, biomanufacturing, regulatory science, clinical trials, and industry. The event has provided great platform and attracted professionals from biotech, biopharma, academia, and startups for two days of rigorous learning and networking opportunities to discover new prospects and good alliances. The event has emphasized on recent advances in biopharmaceutical product development- mRNA vaccine development, Biologics, Cell & Gene therapy, and Government funding towards promoting biopharma industry.

Dr. PKS Sarma (GM and Head-Technical, BIRAC) and Dr. Aparna Sharma (Sr. Manager- Technical) have participated in the event and took part in discussions. BIRAC was facilitated for valuable contribution and guidance in the field.



1.3 Vaccines

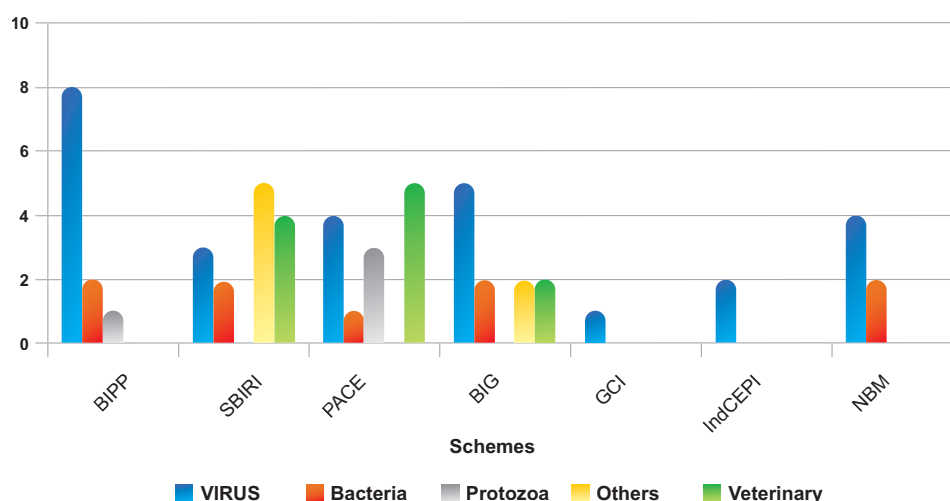
India's immunization programme, launched in 1985, is one of the largest health programmes of its kind in the world. The programme provides vaccination against eight life threatening diseases (diphtheria, whooping cough, Haemophilus influenzae type B (Hib) causing pneumonia and meningitis, tetanus, polio, tuberculosis, measles and hepatitis B) in the entire country. In addition, vaccination against Japanese Encephalitis (JE) is provided in the selected endemic districts/states of the country. Recently, rotavirus vaccine (RVV) has been introduced in the National Immunization program.

Evidence shows that unvaccinated and partially vaccinated children are most susceptible to childhood diseases and disability, and run a three to six times higher risk of death as compared with fully immunized children.

An effective vaccine, logistics and cold chain system is an essential prerequisite for successful running of an immunization programme. Vaccine development requires:

- High throughput research and development infrastructure,
- Scale-up facilities
- Policy driven decisions
- Government prioritization
- Investment and multi-sectoral partnerships.

By keeping the Government initiative in mind to improve full immunization coverage for children in India from 65% to at least 90%, BIRAC supported the innovations related with vaccine development for all eight life threatening diseases identified by the GOI. BIRAC supported 47 projects (excluding vaccines for Covid-19) for vaccine development through its various schemes. These 47 projects cover all type of causative organisms and both for human and animals.



Indication of vaccines projects supported by BIRAC

Out of the 47 supported vaccine projects, three vaccines (Vaccines for Rota virus, JE and Flu) and 3 technologies are commercialized. Two vaccines (HPV and Pneumococcal vaccine) got market authorization from DCGI. Rota virus vaccine (Rotavac) is in national Immunization program. Five products are ready for commercialization and many are in Pipeline.

Regarding the logistics and cold chain management systems also BIRAC has supported projects. One technology is successfully in the market and vaccine industries are using the technology.

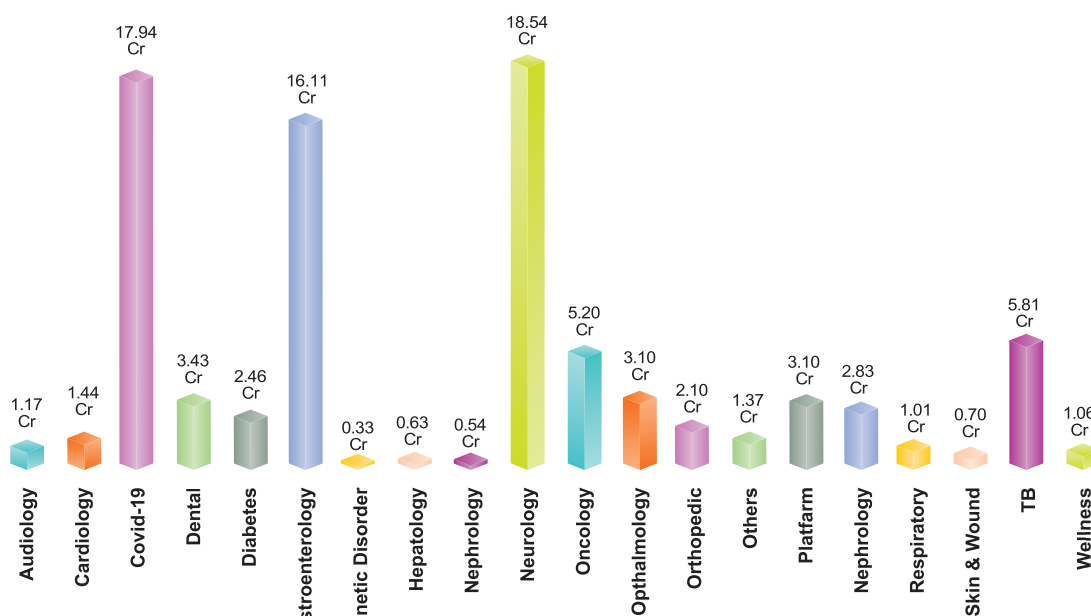
Further in rapid response to Covid-19 problem, BIRAC launched focused programs for vaccine development right from the early days of the Covid-19 pandemic through Covid Consortium and supported 14 projects for vaccine development and their related activities. Out of 14 projects supported under Covid consortium, 08 were for the development of vaccines using different platforms and 6 were for the assays and different activities required for the development of Covid vaccine. Further to bring affordable and accessible COVID-19 Vaccine, at the earliest, DBT launched a National Mission i.e., Mission Covid Suraksha (MCS) with BIRAC as an Implementing agency. The goal of the Mission is to accelerate the development of at least 5-6 COVID-19 vaccine candidates and ensure that some of these are brought closer to licensure and introduction in the market for consideration of regulatory authorities and introduction in public health systems. With the help of MCS support 04 vaccines with different platform technologies got EUA from CDSCO.

1.4 Devices and Diagnostics (including Bioinformatics)

By the end of 2023, the global market for medical devices is anticipated to reach \$600 billion. Global Data predicts that the Indian medical device industry would expand at a compound annual growth rate (CAGR) of 7.9% through 2030. It also reveals that India, a country that depends significantly on imports, was one of the top three markets in the Asia-Pacific in 2021–2022 (Source: Global data).

The government is promoting the Med-Tech sector through a number of key programmes. The Medical Devices Policy, 2023 is a recent development that will support the medical device manufacturing sector and create an environment that enables the production of devices in India. Additionally, this would entice foreign investment via PPP and private channels. Additionally, the Production Linked Incentive (PLI) Scheme was established to incentivize the manufacturers. A scheme to facilitate the funding of projects for shared facilities in medical device parks was also announced in 2020. These industrial parks are anticipated to grow into major centers for the production of medical equipment, complete with testing, training, and research capabilities. Additionally, the National Pharmaceutical Pricing Authority (NPPA) has increased its pricing surveillance of crucial medical devices and planning to take actions to limit retail price margins.

BIRAC has already invested more than INR 650 Crore in the country's Med-Tech sector, leading to the commercialization of 120+ items and 202+ IP/Patents. In addition to providing financial help, BIRAC is bolstering India's infrastructure by connecting a network of more than 75 BioNEST incubators. In addition, the National Biopharma Mission is establishing prototyping/tinkering labs, non-clinical testing labs, ISO 13485 compliance facilities, diagnostic assembly lines, EMI/EMC, and electrical safety testing centers. These facilities are available to start-ups and innovators funded by BIRAC at reduced costs.



According to the BIRAC's medtech sector's portfolio, the neurology indication has attracted the most investments. SaMDs and virtual reality-based systems are becoming popular, and reflects the transition of Indian healthcare system towards digitisation. Wearable technology, genomic medicine, and medical robotics will see significant breakthroughs in the near future. We have seen a lot of traction from start-ups in these fields at BIRAC. The analysis also highlighted that many projects are completed as compared to the ongoing projects reflecting the ecosystem maturity.

Some of the recommendations to promote the sector include, development of innovative solutions targeting specific needs of remote parts of India. High Industry Investments in PPP mode (Public private partnership) to translate research to economic benefits. Global harmonization of regulatory standards and implementation of quality standards to promote access to world class devices.

2. Agriculture (including Veterinary and Aquaculture)

Global demand and investment growth in agriculture have impacted trends in agriculture and agritech. Some of the major development areas propelling the adoption of technology in the global agriculture sector are farm management software, supply chain technologies, quality management, and traceability.

India's economy is commonly referred to as an agrarian one, and the agricultural sector is one of the most important and crucial to the country's development. It is a market-driven sector that employs a sizable portion of the nation's workforce. The agriculture ecosystem has changed in the last several years, moving from its traditional function to that of a modern industry with the emergence of new start-ups and altering business and revenue models. The new businesses are innovating the farming ecology by establishing avenues that allow farmers to choose market and sell their produce at better prices.

In line with both national and international goals, BIRAC has been providing support for technology-driven agricultural research projects in fields such as biocontrol, transgenics and genome editing, marker assisted selection, UV/drones, diagnostics, nanobiotechnology, biocontrol, tissue culture, AI/Machine Learning/IoT/Sensors/robotics/remote sensing, and others (Smart Warehouses, Cold Storages, Silk Worm related, Mechatronics, Post-Harvest, Tea Related, grain storage)

Some of the key technologies supported under the area are : GMO Identification Kit, Mating disruption products, Mustard variety Double low having low Erucic acid and Low Glucosinolate content, Seaweed for the development of a biological product, Commercial orchid breeding and production of clones of elite hybrids, Decision Support System (DSS) for providing information over farms in real-time and Software and hardware for preventive protection against pest. Some of the start ups have been funded for development of post-harvest technologies like early spoilage detection, of fruit and vegetables, AI powered automated gradation equipment, IoT protocol and smart-contract based blockchain technology for quality tea production and systematic supply-chain traceability. Some interesting innovations supported under livestock and aquaculture include Biometric identification of livestock through phone, AI based precision livestock farming, Nano Re-circulatory Aquaculture System, Smart interconnected sensors for high yield aquaculture etc

- Dr. PKS Sarma (GM & Head-Technical, BIRAC) was invited as a Chief Guest for the inaugural function of the 7-Day Workshop on **"Advances in Plant Metabolic Engineering"** on March 11, 2024 at Central University of Punjab, Bathinda.



Fig. Dr. PKS Sarma (GM & Head-Technical, BIRAC) addressing the inaugural function of the 7-Day Workshop on "Advances in Plant Metabolic Engineering".

- **MEGHA Start-Up Expo at NEHU (Tura Campus, Meghalaya)**

'MEGHA Start-Up Expo' was organized by BIRAC's BioNEST Bio-incubator facility, NEHU in collaboration with PRIME Startup Meghalaya, and BRTC KIIT – TBI, Odisha during 3-5 October 2023 at NEHU, Tura Campus, Meghalaya. The event was also supported by NABARD, West Garo Hills and District Administration, West Garo Hills District.

The Chief Guest for the event was Shri Rakkam A. Sangma, Hon'ble Education Minister, Government of Meghalaya, and the Guest of Honour of the event was Dr. PKS Sarma, GM & Head, Technical Department, BIRAC, New Delhi. The expo was a platform for Start-Ups, Agripreneurs, Rural Entrepreneurs, Innovators, and Industries to showcase their Farm Produce, Processed Creations, Advanced Technologies, and Services. More than just an expo, it's a catalyst for connections, a marketplace for possibilities, and a stage where brilliance takes center stage.



Fig: Inauguration of the event by the dignitaries



Fig. Address by the Guest of Honour-Dr. PKS Sarma (Head-Technical, BIRAC) and interaction between the dignitaries and the start-ups from Meghalaya.

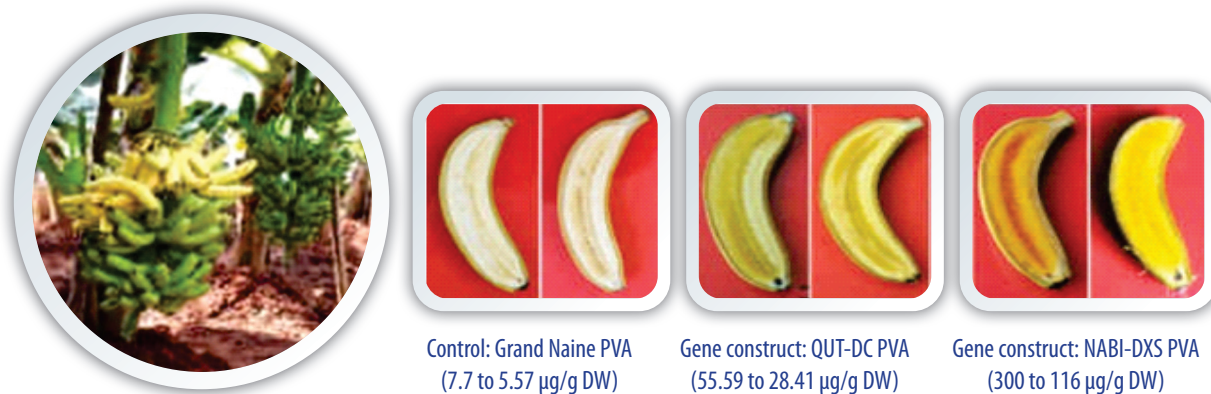
BIRAC-QUT, Australia- Bio-fortification & Disease resistance in Banana

BIRAC has supported a technology development and transfer program of bio-fortified and disease resistance banana from Queensland University of Technology (QUT), Australia being translated by the 5 identified Indian Research Institutes.

In the initial phase, transgenic banana plants with enhanced level of Provitamin A and Iron, and resistant to Focs and BBTv were developed using various gene constructs provided by QUT to the Indian partners. Subsequently, these transgenic plants were transferred to greenhouses/net houses for detailed evaluation.

The 2nd phase of the project started during 2020-21 under which promising transgenic banana events having high PVA and iron (higher than the control) content in ripe-fruit- pulp were identified and are being evaluated through event selection trials.

For BBTV resistance, agronomy and yield analysis data along with proper molecular data with control plants is being generated.



BIRAC and USAID supported wheat project

On account of increase in population, deteriorating soil quality, continuously and unsustainably sinking water table coupled with the proportion of the population below the poverty line, food security in the Indo-Gangetic plains has become a major challenge.

To address some of these challenges BIRAC along with USAID has supported a project whose overall objective is to develop high-yielding, heat-tolerant wheat cultivars for the Indo-Gangetic Plains. Under this project, heat-tolerant varieties are being developed by building upon the available resources and breeding materials by utilizing information from model systems and currently available modern breeding, genetic, genomic, physiological and biochemical tools.

In this study, genes/QTLs controlling heat tolerance are being identified, mapped and tagged; improved insight into physiological, genetic, biochemical, and molecular bases of the trait obtained, and a system will be put in place to utilize the new information in cultivar development.

BIRAC – IKP Grand Challenges in Agri-technology Translation for Boosting Farmers' Income

BIRAC in partnership with IKP Knowledge Park has conducted a Grand Challenge in "Agri-technology Translation to Boost Farmers' Income" with the mandate to identify 'ready to deploy' and 'scalable innovations' in agriculture that will help in increasing the incomes of farming households.

A series of innovative technologies, practices, products, services, business model and/or integrated solutions that have been piloted at a small scale in India have been identified, funded and monitored for field testing and pre-commercialization over a period of 30 months through a 2-stage process in this program. The focus of the Challenge is to demonstrate increased incomes through deployment of selected technologies. Ten start-ups were funded successfully to demonstrate their technologies in the test beds. Five of the most promising ones are being taken forward for the next round of funding.

Veterinary Sciences and Aquaculture

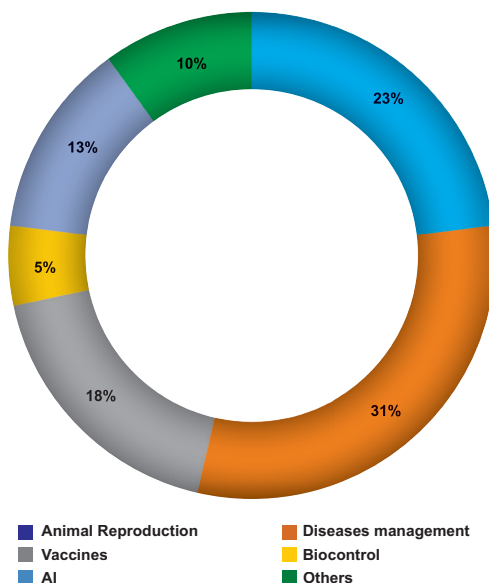
India is the largest animal husbandry in the world with the largest livestock population to support the livelihoods of more than 2/3rd of the rural population. Sustainable animal production and health are important as healthy animals are closely related to healthy people and a healthy environment. To meet the growing demand for animal products and exploit the sector maximally, concerted efforts are needed. Major Challenges with Livestock development are the burden of animal diseases, Fertility issues with imported breeding stock, accommodating a large number of nonproductive animals at the cost of productive animals, and Scarcity of quality feed and fodder.

BIRAC continues its support to enhance livestock production and productivity through biotechnology-based interventions to encourage more proposals related to animal reproduction; increase in per-animal productivity, animal nutrition, and animal health. BIRAC has been supporting applied research in frontier areas of livestock and animal biotechnology from its inception.

The major emphasis of the programs is on livestock production & productivity and improving animal health through different biotechnological interventions.

This shall ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders.

Vaccines and treatment for Parvo virus infections in canines, vaccines for Paratuberculosis, and vaccines for MAREK diseases of poultry are some of the important products from this sector. With the help of BIRAC support diagnostics for various diseases of veterinary have been developed and are already commercialized.



Research areas supported by BIRAC under veterinary sciences

Aquaculture and Marine biotechnology are important sectors in India with a coastline of 7,517 km and widespread freshwater resources, it employs millions of people and contributes to the food security of the country. India is the second largest producer of fish in the world. The Global Fish food consumption is a major source of protein and other nutrients. The growing population demands the immediate expansion of the fisheries sector in a sustainable manner. The fisheries sector is currently facing a number of challenges such as overexploitation of available resources, germplasm degradation, climate change and diseases. Therefore, it is important to find solutions for these challenges.

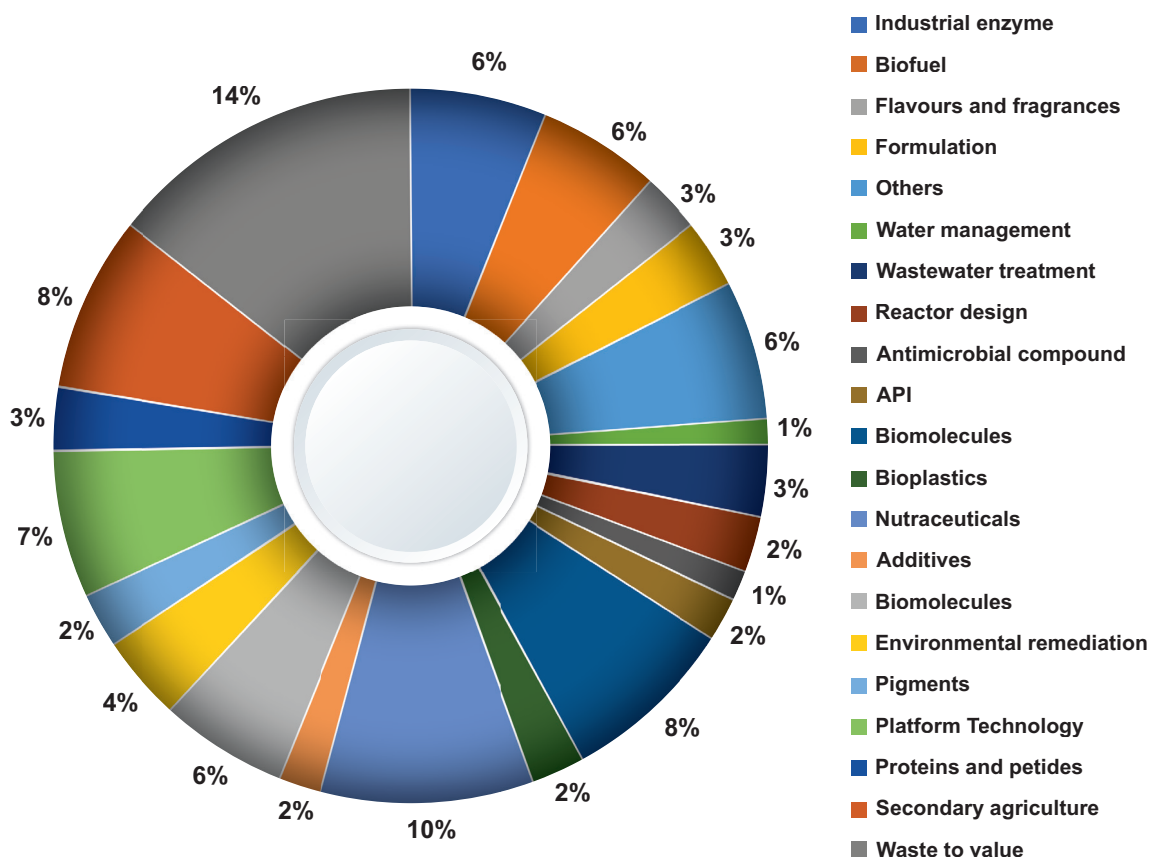
BIRAC identified Aquaculture and Marine Biotechnology as thrust areas to support R&D towards the development of useful products and processes from fresh water and marine resources. BIRAC has supported various projects in this sector from its challenge call on National Mission for Protein Supplements focussing on Aquaculture Development through an Integrated approach and Aquaponics through Biotechnology interventions.

As a new initiative, BIRAC is working to promote the development of fish and seaweed-based nutraceuticals, marine and marine-derived products for the betterment of human health in the aquaculture and marine biotech area.

3. Energy and Environment (including secondary Agriculture)

Clean energy and environment contribute to promoting clean energy, sustainability, and environmental innovation. The area also includes Secondary Agriculture sector which focuses on adding value to primary agriculture produce by increasing the value of the agriculture commodities and value addition by processing the agriculture residue to feed and fuel. The projects that are supported under the thematic focus on significantly reducing pollution, reducing greenhouse gas emissions and adding value to primary agricultural products.

BIRAC, since its inception has been trying to promote this sector by providing funding, mentoring and training. Total investment under this area amounts to ₹ 518 crores wherein BIRAC has contributed ₹ 290 crores for supporting 356 innovative projects. These projects engaged 240 company/start-ups, 67 entrepreneurs and 69 academic institutes. The major areas supported are biomolecules, waste management, water treatment, biofuels, formulations for food and feed, flavour and fragrant substances.



Area wise project distribution

Technologies that could reach late-stage validation/commercialization:

- **QBO Technologies Pvt. Ltd. Morbi, Gujarat:** Design, Development and Testing of Energy Efficient and Environment Friendly Biogas cook-stove with Porous Radiant Burner. The product costs around ₹1800 (INR). 25 units have been sold so far. Project completed under SoCH Innovation Challenge.
- **Vel Natural Fibers:** Developed an Innovative method to extract silk grade banana fiber. The banana silk fiber separator has been commercialized and 18 units have been sold so far.
- **Evlogia Eco Care Private Limited:** Developed technology for manufacturing biodegradable and eco-friendly single-use cutleries like straws, lids, take away container boxes, cups and spoons made from agricultural waste available locally in abundant. Prototypes developed for Washing process, holes making/roughening process, improvised rolling machines, glue application machine and sterilization with Ozone. These prototypes are being tested in the production environment
- **Fermentech GSV Private Limited:** Pre-pilot food grade bio-processing of nisin done with minimal process vesseling, integrated thermal energy routing, non-power intensive de-watering and regulatory filing for commercial applications. Scale up has been completed and the company has applied for regulatory filing of the product.

For the development of specific niches within this thematic, BIRAC has also been promoting programs on synthetic biology, guar gum, waste to energy. Time and again niche area meetings are conducted to find newer areas which could be developed and promoted.

3.1 Industry – Academia Interaction on, ‘Valorization of Industrial Lignin and Biomass Derivatives’

BIRAC organized a discussion meeting with Industry-Academia participation on, ‘Valorization of Industrial Lignin and Biomass Derivatives’, on 05.12.2023 during the Global Bio India Event at Bharat Mandapam, Pragati Maidan,

New Delhi. National and international representatives from industry and academic institutes attended the meeting. The meeting commenced with a welcome address and overview of BIRAC by Dr. Shilpi Gupta (Deputy General Manager– Technical, BIRAC). The purpose of the meeting was elaborated by Dr. Sujit Das (Officer- Technical, BIRAC), followed by opening remarks by Dr. Y.B. Ramakrishna (Former Chairman - Working group on Biofuels, MOP&NG). The meeting was conducted to identify specific tasks required for strengthening the biological routes of lignin and biomass valorization and translational efforts in the country for process development.



Fig.: Discussion session between BIRAC officials and representatives from industry and academic institutes.



Fig.: BIRAC officials with representatives from industry and academic institutes.

3.2. Webinar series on, 'Biomanufacturing of Probiotics and Fermented Foods: a step towards Health Status and social well-being'

A two-day webinar series on, 'Biomanufacturing of Probiotics and Fermented Foods: a step towards Health Status and social well-being', was organized from 18th-19th January 2024 and 08-09 February 2024, as a part of the Industry/Academia mentoring of BIRAC in collaboration with the Dept. of Dairy Microbiology, SMC College of Dairy Science, Kamdhenu University, Anand, Gujarat. The webinar series featured speakers from academia and industries from various parts of India. The webinar was also streamed live through YouTube. More than 200 participants (startups, entrepreneurs, MSMEs, faculties/scientists, PhDs/postdocs) attended the 2-day webinar series. Dr. Shilpi Gupta and Dr. Sujit Das from BIRAC elaborated on the purpose and the expected outcomes of the webinar series.



Fig.: Two-day webinar series conducted on 18th-19th January 2024 ('Biomanufacturing of Probiotics and Fermented Foods: a step towards Health Status and social well-being')



Two-day webinar series conducted on 08-09 February 2024 ('Biomanufacturing of Probiotics and Fermented Foods: a step towards Health Status and social well-being')

3.4. Bioindustry lectures



Fig. Dr. Shilpi Gupta (DGM-Technical, BIRAC) was invited to deliver a lecture as a part of the course entitled "Bioindustry lectures" at IIT Hyderabad on 21.03.2024.

3.5. 11th International Conference on, “Fermented Foods, Health Status, and Social Well-being”

The 11th International Conference on Fermented Foods, Health Status, and Social Well-being was held on 21-22nd November 2023 at North-Eastern Hill University (NEHU), Shillong, Meghalaya State, India & Swedish South Asian Network on Fermented Foods (SASNET-FF), Anand (Gujarat). The theme was probiotics, food products, and human health. Gut microbiota are key players in the health and disease condition of the host. During the conference, it was extensively discussed understanding the role of probiotic and fermented foods in maintaining health status and social well-being. A representative from BIRAC, Dr. Chandra Madhavi (Chief Manager, PMU-BMGF), attended the conference as a speaker in one of the sessions.



Fig.: Dr. Chandra Madhavi (Chief Manager, PMU-BMGF, BIRAC) addressing the various funding opportunities for start-ups, entrepreneurs, young researchers, and academicians.



Fig.: The conference was formally inaugurated by Prof. Tej Pratap, Former VC of Govind Ballabh Pant University of Agriculture and Technology, Pantnagar; Dr. P.S. Shukla, VC, NEHU, Shillong; Prof. Baboo M. Nair, Professor Emeritus, Lund University, Sweden; Prof. SR Joshi, Registrar & Head, Dept. of Biotechnology & Bioinformatics, NEHU; Prof. JB Prajapati, Coordinator, SASNET-FF, Anand, Gujarat and Dr. B.K. Mishra, Head and Associate Prof., Dept. of RDAP, NEHU.

3.6. Food and energy through biological manufacturing

BIRAC organized a discussion meeting with Industry-Academia participation on, 'Food and energy through biological manufacturing', on 05.12.2023 during the Global Bio India Event at Bharat Mandapam, Pragati Maidan, New Delhi. National and international representatives from industry and academic institutes attended the meeting. The session started with a keynote address by Dr. V. Prakash, Ex-Director, CFTRI. The panel had representation from research, academia, advocacy and corporate. It was interesting to learn from the varied experience of the panellists. The meeting aimed in supporting start-ups on their path to commercial viability in India would assist to boost industry awareness, establish critical mass, and provide insights that can be applied to other new applications. The identified key ingredients may be used by the industries for various food fortification programmes to strengthen the smart protein sector.



5. Fostering High Performance Biomanufacturing

The Department of Biotechnology (DBT) envisages bringing together Scientific and Technological advancement to enable Circular-Bioeconomy by advancing 'High-Performance Biomanufacturing' initiative in the country. This integrated programme is proposed towards achieving a major goal of the BioE3 Policy (i.e. Biotechnology for Economy, Environment and Employment) for green, clean, and prosperous India, being developed by the Department. This is aligned with 'Lifestyle for the Environment (LiFE)' launched by the Hon'ble PM on 20th October, 2022 to propel mitigation of global climate change by incorporating green and friendly environmental solutions in every aspect of life. Union Budget 2023-2024, the Government of India has laid emphasis on Green Growth as one of its seven major verticals, with an aim to reduce the carbon intensity of the economy and provide for large-scale green job opportunities.

Biomanufacturing offers great potential by being amenable to innovation, energy efficient, and causing reduced pollution. The backbone of this initiative comprises advanced tools of biotechnology including synthetic biology, genome editing, microbial bioresources, metabolic engineering, etc. It has the potential to provide an alternative to traditional petrochemical-based manufacturing through the manufacture of biogenic products such as food additives, bio-pharmaceuticals, biogenic dyes, bulk chemicals, animal feed products, flavours/fragrances, biomaterials, Agri-bioprocess, etc. using sugar-based microbial fermentation and other sustainable biomass/waste resource-based manufacturing methods.

Initiatives taken under Bio-manufacturing:

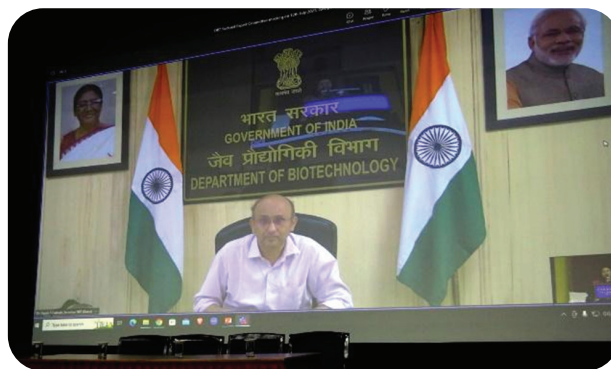
I. Consultation meeting for Bio-manufacturing of Sustainable Biofuels (Integrated biorefinery) and expanding the scope of National Policy on Biofuels

The Consultation meeting for Bio-manufacturing of Sustainable Biofuels (Integrated biorefinery) and expanding the scope of the National Policy on Biofuels was held on 26th April 2023 at CSIR Science Centre, Lodhi Road New Delhi, under the Chairpersonship of Prof. Jayant Modak, IISc, Bangalore and Prof. V.G. Gaikar, ICT, Bombay. The meeting discussed the efforts being made by the DBT/BIRAC to take forward the Biomanufacturing initiative. The role of the biofuel/biorefinery industry to contribute to achieving the economic and climate-relevant national targets by high-performance manufacturing of sustainable fuels, chemicals and materials was also discussed.



II. Brainstorming Session on Biomanufacturing of Specialty Chemicals and Biopolymers

The Brainstorming session on Biomanufacturing of Specialty Chemicals, Active Pharmaceutical Ingredients (APIs) and Biopolymers was held on 12th July, 2023 at CSIR-IICT, Hyderabad and was attended by various academicians and industry representatives working in these areas. Dr. Rajesh S. Gokhale, Secretary, DBT and Chairman BIRAC addressed the gathering virtually and informed the audience that, DBT/BIRAC is laying the focus to drive the Biomanufacturing initiative in the PPP mode, wherein academia as well industry will come together with government push to realize the final placing of India as a global Biomanufacturing hub. During the meeting, the speakers presented the current scenario, regulatory issues, existing strength and opportunities, gaps and challenges for R&D and scale-up, establishing PPP mechanism and inter-ministerial collaborations specifically for the sector of Specialty Chemicals and Biopolymers.



III. Smart Proteins-Sectorial Expert Committee on Biomanufacturing

The first meeting of the “Smart Proteins-Sectorial Expert Committee on Biomanufacturing” was organised on 12th August 2023 at the Institute of Chemical Technology (ICT), Mumbai. The main focus of the meeting was to address the challenges the smart protein space such as financing and building pilot, demo, and commercial scale manufacturing, through dedicated smart protein (food) industrial setups or contract manufacturing providers; support at the R & D level and fostering innovation & start up ecosystem. The committee comprised of people from government, academia and Industry.



IV. Sectoral Expert Committee Meeting on Biomanufacturing Subsector: Functional Foods.

A meeting on “Sectoral Expert Committee Meeting on Biomanufacturing subsector: Functional Foods” was held on the 21st of August 2023 at CSIR-IITR, Lucknow. The meeting was chaired by Dr. V. Baskaran (CFTRI, Mysore). The meeting commenced with a welcome address by Dr. Bhaskar Narayan (Director, CSIR-IITR) followed by the purpose of the Meeting by Dr. Alka Sharma, Senior Advisor, DBT. Dr Rajesh S. Gokhale, Secretary, DBT and Chairman BIRAC addressed the gathering virtually and informed the audience that, DBT/BIRAC is laying the focus to drive the Biomanufacturing initiative in the PPP mode. Presentations on challenges and necessary facilitation required in the area were detailed by Expert Members during the meeting session ahead.



A few of the challenges highlighted by the team were utilization of the products, safety & toxicity, sustainability & transparency, and sourcing ingredients that deliver the health claims. It was further suggested for the inclusion of clinical studies (Phase I, II, and III) with ethical issues; SWOT analysis and proposals may look into 4Rs (Revive, Recycle, Reuse, and Recovery); supporting TRL 4 and above levels further aligning with existing national missions.

V. 1st National Consultation for Establishment of Bio-AI Hubs

The first national consultation meeting for establishment of Bio-AI Hubs under the Biomanufacturing initiative of Department of Biotechnology (DBT) was held on 15th September, 2023, at Indian Institute of Technology Guwahati (IITG), through hybrid mode. The meeting was attended by academia and industry stakeholders for deliberation on evolving an implementation strategy for establishment of Bio-AI Hubs in India.

The speaker presentations were followed by a round table interaction on the potential priorities for this area, wherein all the participants, both online and offline, shared their views on the role of fostering AI for biotechnology and biomanufacturing solutions.



VI. Biomanufacturing and Bio-foundry: BioE3 policy

Bio-manufacturing Hubs consisting of sophisticated instrumentations, technology platforms such as data acquisition and analysis capabilities along with artificial intelligence (AI) and machine learning (ML), omics and biomaterial libraries translate knowledge into scaled up applications, and wide spread socio-economic impact.

Considering the above, the call for establishing bio-manufacturing hubs was announced on 19th September 2023 to invite Expression of Interest (Eoi). Under the call a brief concept note was invited under the following categories to create bio foundries: a) Using existing facilities b) Augmenting existing facilities and c) Setting up new facilities

The call was closed on 10th October 2023 and 100 entries were received (including 4 entries which were received later due to technical glitch encountered while submitting the proposal)

Two consultative workshops were held on 22nd December 2023 and 25th January 2024 at New Delhi with the applicants for the proposals received under different Categories to discuss the expectations and modalities of the programme.

After the meetings, the applicants have been asked to submit a detailed proposal (open call) which later would be shortlisted by a pre-constituted committee. The call was announced on 23rd February 2024 and will close on 24th July 2024.





VII. Sectorial working Group meeting on Biomanufacturing sub-sector: “Biofuels and Carbon Capture”

A meeting on Biofuels and Carbon Capture was held on 18th August, 2023 at ICGEB. The meeting was attended by eminent scientists from industry and academia and deliberated on short term, long term and policy interventions required for promoting carbon capture in India.



VIII. 1st Meeting of Precision Bio-therapeutics - mRNA Therapy - Sub-sectorial Expert Committee on Biomanufacturing

The 1st Meeting of Precision Bio-therapeutics - mRNA Therapy - Sub-sectorial Expert Committee on Biomanufacturing was held on 25th Aug 2023, chaired by Prof. Udaykumar Ranga, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, and co-Chaired by Prof. Raghavan Varadarajan, Indian Institute of Science, Bengaluru. Key recommendations included the following for short term goals:

5 Existing PoCs to pre-clinical formulations; 3 Pre-clinical formulations to clinical trial phase I/II; Indigenous microfluidic devices for mRNA formulations; Bio-informatics tools for mRNA vaccines & therapeutics; Skill development in mRNA Bio-informatics and fluid dynamics; Regulatory changes for mRNA vaccine and therapeutics.

Technology Upgradation

The technical group along with experts takes the responsibility of continuously monitoring and mentoring the supported projects to meet their objectives. The technical group assigns nodal officers for each thematic area (to have an overall understanding of projects from that theme) and technical officers for each project (to closely monitor the progress of the project). Further, they take responsibility for achieving the goals of their respective projects. This close monitoring and mentoring have resulted in the development of several processes, technologies, commercialization of products/technologies (TRL-8 & 9), technology maturation of projects to Technology Readiness Level-7 (TRL-7), and filing of IPRs. The table below provides information on the products/technologies at validation, pre-commercialization, and commercialization stage and IP filed through BIRAC funding during 2023-2024.

Sr. No.	Category	Number
1	Products commercialized (TRL-9)	16
2	Process/technologies at Pre-commercialization stage (TRL-8)	18
3	Number of projects completed late-stage validation (TRL-7)	29
4	IP filed	65

Significant Events from Technical Department (FY 2023-24)

- A selection committee meeting for evaluation of proposals under focused call on, 'Establishment of Preclinical Models for Drug Discovery' in physical mode was organized on 18th and 19th September 2023 at ICGEB (New Delhi) where 43 proposals were evaluated based on applicant presentation.
- 'MEGHA Start-Up Expo' was organized by BIRAC's BioNEST Bio-incubator facility, NEHU in collaboration with PRIME Startup Meghalaya, and BRTC KIIT – TBI, Odisha during 3-5 October 2023 at NEHU, Tura Campus, Meghalaya. The event was also supported by NABARD, West Garo Hills and District Administration, West Garo Hills District.
- The Chief Guest for the event was Shri Rakkam A. Sangma, Hon'ble Education Minister, Government of Meghalaya, and the Guest of Honour of the event was Dr. PKS Sarma, GM & Head, Technical Department, BIRAC, New Delhi.
- The expo was a platform for Start-Ups, Agripreneurs, Rural Entrepreneurs, Innovators, and Industries to showcase their Farm Produce, Processed Creations, Advanced Technologies, and Services. More than just an expo, it's a catalyst for connections, a marketplace for possibilities, and a stage where brilliance takes center stage.
- A two-day webinar series on, 'Biomanufacturing of Probiotics and Fermented Foods: a step towards Health Status and social well-being', was organized from 18th-19th January 2024, as a part of the Industry/Academia mentoring of BIRAC in collaboration with the Dept. of Dairy Microbiology, SMC College of Dairy Science, Kamdhenu University, Anand, Gujarat. The webinar series featured speakers from academia and industries from various parts of India. The webinar was also streamed live through YouTube. More than 200 participants (startups, entrepreneurs, MSMEs, faculties/scientists, PhDs/postdocs) attended the 2-day webinar series. Biotechnology Industry Research Assistance Council (BIRAC) also presented its role in fostering public-private partnerships for innovative product/technology development through its various schemes.
- A consultative workshop with the applicants who submitted their EOI for "to Enable Access to Infrastructure and Resources [Bio foundries] for Bio-manufacturing" was held with DBT and BIRAC officials on 25.01.2024 at IHC, New Delhi. The meeting was held to discuss the expectations and modalities of the programme which has been initiated by DBT-BIRAC for fostering high-performance biomanufacturing. Applicants who had submitted the EOI for the set up of new facilities were called for the workshop. 41 applicants attended the workshop.

- BIRAC organized a Niche area meeting with Industry-Academia interaction on 'Artificial Intelligence (AI) in Drug Discovery' on 05.12.2023 during the Global Bio India Event at Bharat Mandapam, Pragati Maidan, New Delhi. The meeting focussed on strategizing the roadmap for AI in drug discovery in India.
- BIRAC organized a Niche area meeting with Industry-Academia interaction on, 'Valorization of Industrial Lignin and Biomass Derivatives', on 05.12.2023 during the Global Bio India Event at Bharat Mandapam, Pragati Maidan, New Delhi. The meeting was attended by national and international representatives from industry and academic institutes. The meeting was conducted to identify specific tasks required for strengthening the biological routes of lignin and biomass valorization and translational efforts in the country for process development.
- A consultative workshop with the applicants who submitted their EOI for "to Enable Access to Infrastructure and Resources [Bio foundries] for Bio-manufacturing" was held with DBT and BIRAC officials on 22.12.2023 at IHC, New Delhi. The meeting was held to discuss the expectations and modalities of the programme which has been initiated by DBT-BIRAC for fostering high-performance biomanufacturing. Applicants who had submitted the EOI for the augmentation of existing facilities were called for the workshop. 27 stakeholders attended the workshop.
- BIRAC supported a four days hands-on training was organized on 3D cell culture at ICT Mumbai from January 28 – February 3, 2024. 3D Cell Culture is one of the emerging and proliferating domains and the aim of the workshop was to encourage researchers and pharmaceutical/ toxicological industries for adopting various alternatives to animal models in preclinical research. The workshop was attended by 25 participants from Industry and academia. The workshop consisted of lectures and experiments on the operation and working of organ-on-chips, organoid development and 3D bioprinting. Dr. Shilpi Gupta from BIRAC also presented its role in fostering public-private partnerships for innovative product/technology development through its various schemes.
- National Arogya Fair was organized by Shri Puraan Chandra Gupta Smarak Trust with the support of the Ministry of Ayush from February 1, 2024 to February 4, 2024 at Jawahar Lal Nehru Stadium, New Delhi. Dr. Dhiraj Kumar from BIRAC participated in a panel discussion on Startups and Innovations in Ayush sector. He provided insights into how BIRAC could collaborate with Ayush startups and contribute to the growth of the traditional medicine sector and assist Ayush startups in gaining market access and commercializing their products or services
- A two-day webinar series on, 'Biomanufacturing of Probiotics and Fermented Foods: a step towards Health Status and social well-being', was organized from 08-09 February 2024, as a part of the Industry/Academia mentoring of BIRAC in collaboration with the Dept. of Dairy Microbiology, SMC College of Dairy Science, Kamdhenu University, Anand, Gujarat. The webinar series featured speakers from academia and industries from various parts of India. The webinar was also streamed live through YouTube. More than 150 participants (startups, entrepreneurs, MSMEs, faculties/scientists, PhDs/postdocs) attended the 2-day webinar series. Dr. Shilpi Gupta from BIRAC also presented its role in fostering public-private partnerships for innovative product/technology development through its various schemes. Dr. Sujit Das from BIRAC elaborated on the purpose and the expected outcomes of the webinar series. He also oversaw the session by responding to queries and engaging with the webinar attendees.
- Call for proposal was floated on 23.02.2024 by BIRAC on, "मूलांकुर Bio-Enabler: Biomanufacturing Hubs Enabling Access to Infrastructure and Resources [Bio foundries] for Bio-manufacturing". The proposals are envisaged in the Public Private Partnership (PPP) mode with financial co-sharing to develop integrated infrastructure (bio-foundries) including automation, workflows, processes, scale-up facilities, and related resources for access by start-ups and research communities engaged in biomanufacturing.
- 7-Day Workshop on "Advances in Plant Metabolic Engineering" held on March 11, 2024 at Central University of Punjab, Bathinda. Dr. PKS Sarma (General Manager & Head-Technical, BIRAC) was invited as the Chief Guest for the inaugural function.
- Dr. Shilpi Gupta (DGM-Technical, BIRAC) delivered lecture on the BIRAC Sensitization Workshop on "Bio-Entrepreneurship and Intellectual Property challenges in the field of Biotech, Medical Devices & Diagnostics" at PSG STEP: BioNEST, Coimbatore (held on 13.03.2024).
- Dr. Shilpi Gupta (DGM-Technical, BIRAC) was invited to deliver a lecture as a part of the course entitled "Bioindustry lectures" at IIT Hyderabad on 21.03.2024.

Supporting Services

Legal

The Legal Cell of BIRAC provides a wide array of advisory and support services including drafting, reviewing, executing and modifying contracts, agreements, MOU and internal policies and ensuring that they are in compliance with all the statutory and legal requirements.

The services of the Legal Cell also includes providing legal guidance for the on-going and new funding programs, providing legal protection and risk management advice to management, managing the legal due diligence process pertaining to the various funding schemes, advising the management on the modalities of national and international co-funding initiatives facilitating technology acquisition, implementation of mission programmes schemes National Biopharma Mission, and Covid Suraksha mission promoting alternative dispute resolution etc. Legal Cell Reviews and advise management on legal implications of internal policies and procedures and also prompt processing of Legal Notices issued or received by BIRAC with respect of Statutory Compliance Violances etc.

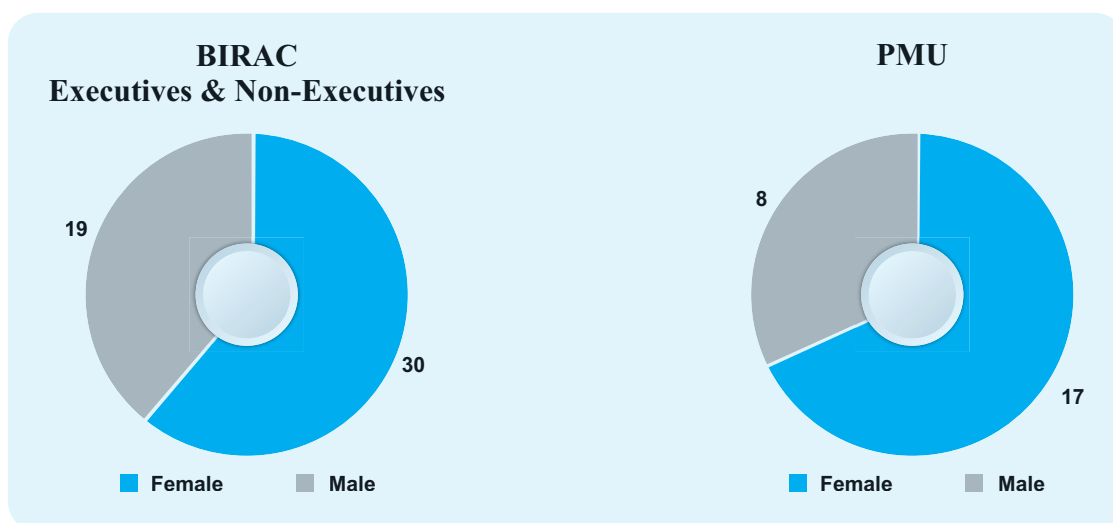
Human Resources & Administration

In an organization, Human Resources and Administration is the department in charge of all employees and employee-related operations. The HR & Administration Division in BIRAC is a key function focused on maximising the potential of the Human resources of the organisation to attain organizational goals in an effective and efficient manner. The HR Strategy of BIRAC is aligned to the concept of transforming culture and envisages powerful interventions in the areas of workforce planning, HR analytics, Employee Engagement, Capacity Building and Skill Development. In line of that, the primary responsibility of HR & Administration Dept. is to manage, assist & deal with all employee related matters including such functions beginning from manpower planning to budgeting, policy administration, recruitment, benefits administration, contract management, new employee orientation, training and development, personnel records retention, salary administration, tenders & procurements, compliances, wage management, inventory, manpower planning, logistics etc.

The dedicated and resilient workforce of BIRAC continued to perform their duties despite frequent challenges. Cordial relations were maintained across the Company. The Company provides comprehensive welfare facilities to its employees to take care of their health, efficiency, economic betterment, etc., and to enable them to give their best at the workplace. The Company supports participative culture in the management of the enterprise and has adopted a consultative approach with collectives, establishing a harmonious relationship for Organisational peace, thereby leading to higher productivity.

The total strength of employees as on March 31, 2024 was 74 [Seventy-four] including Executives & Non-Executives and Project Management Units (PMUs) of which 47 [Forty-Seven] were women employees.

Employee Strength (in nos.)



The department has put concerted efforts in talent management and succession planning practices, strong performance management and training initiatives to ensure that it consistently develops inspiring, strong and credible leadership. HR Department reviews the performance of employees in a systematic way and takes it as a developmental tool for all round development of the employee and the organization.

Learning and development programs are designed for the employees to upgrade their skills both in their domain areas and the soft skills. These programs have played a key role to upgrade the workforce to adopt new technologies, systems and practices and make the workforce ready to face the future challenges. BIRAC is focussed on enhancing skill development of its employees by organizing in-house trainings and identifying domain specific training in reputed training Institutes. In 2023-24, more than 230 man-days training has been imparted to BIRAC Employees including domain specific trainings and soft skill trainings.

Human Resource & Administration Department in BIRAC strives on implementing employee engagement activities through which employees feels a strong emotional and personal connection to their workplace which in turn reduces staff turnover, improve productivity and efficiency. National events such as Swachhata Pakhwada, Hindi Pakhwada, Yoga Day, Constitution Day, Women's Day etc. are also observed in BIRAC with fervour and zeal.

1. Swachhata Pakhwada

BIRAC observed Swachhata Pakhwada from 1st May to 15th May 2023. On this occasion, Dr. Rajesh S Gokhale, Secretary-DBT and Chairman-BIRAC and Dr. Alka Sharma, Senior Adviser-DBT and Managing Director - BIRAC participated with all BIRAC employees.

Swachhata pledge was administered by Dr. Alka Sharma, Managing Director in Hindi and by Dr. Subhra R. Chakrabarti, Director (Operations) in English along with BIRAC employees with the key message among other things to devote 100 hours in a year as 'Shramadaan' to ensure cleanliness of the work area & surroundings. The message and the objectives of 'Swachh Bharat Mission' were shared among all the employees.

In order to contain spread of COVID-19 at workplace, routine cleaning and disinfection of office premises especially high-touch surfaces are being carried out in timely manner in BIRAC.

Safeguarding the health of employees is BIRAC's top priority, therefore, sanitization of the entire office premises is being carried out on weekly basis.

BIRAC has also educated its workforce by issuing Circulars in line with Government Guidelines and regularly communicated with its employees.

Also, the process for a paperless office has been initiated by implementation of E-Office platform in BIRAC, which shall not only reduce carbon footprints by limiting the printouts and photocopies but it's significant for contributing to a sustainable society.

In addition to this, coverage of activities was uploaded on Twitter handle of BIRAC.



← Tweet



DBT-BIRAC
@BIRAC_2012

@BIRAC_2012 observed #SwachhtaDiwas today. #BIRAC officials engaged themselves in cleanliness drive.

Managing Director, BIRAC @dralkasharma25 participated in this initiative along with all the employees.

@DBTIndia @swachhbharat



3:10 pm · 13 May 2023 · 595 Views

2. International Yoga Day

International Yoga Day is observed every year on June 21 to raise awareness about this ancient practice and to celebrate the physical and spiritual prowess that yoga has brought to the world. Yoga is a physical, mental and spiritual practice. It plays an important role in relaxing the mind and body and boosting people's immune system. Besides improving employee health, such Yoga also help employees to become more satisfied and motivated in their work and personal lives.



Biotechnology Industry Research Assistance Council (BIRAC) celebrated the 9th edition of the International Day of Yoga on 21st June 2023. The theme for this year was “Yoga for Vasudhaiva Kutumbakam”. The Domestic tagline for IDY 2023 was “Har Aangan Yog” being propagated to bring Yoga to every household at the grass root level.

Yoga Day Programme was organised at Lodhi Garden, New Delhi. Officials from BIRAC and DBT gathered early in the morning and practiced guided yoga with enthusiasm along-with Secretary DBT & Chairman BIRAC and Managing Director BIRAC.

The Programme had two sessions. In first session, the Yoga Instructor guided officials through a series of yogasans and enriched the employees with the value and benefits of this ancient and modern practice. During the second session, there was a lecture on Four Noble Truth and Eightfold path of Buddha. This session helped officials naturally improve their ability to stay focused on the present moment without distraction and addressing the root cause of burnout and stress, thus improving productivity and motivation.



3. Independence Day

Biotechnology Industry Research Assistance council (BIRAC) celebrated India's Independence Day on 15th August 2023 with great enthusiasm and patriotic fervour.

To commensurate the eve, few competitions like slogan writing, essay writing & poster making were organized. All employees participated with great enthusiasm in this event.





4. Hindi Pakhwada

हिंदी दिवस 14 सितंबर को बड़े गर्व और हर्षोल्लास के साथ मनाया जाता है क्योंकि 14 सितंबर, 1949 को हिंदी को हमारे देश की राजभाषा के रूप में अपनाया गया था।

इस वर्ष बाइरैक ने 15 सितंबर 2023 से 29 सितंबर, 2023 तक हिंदी पखवाड़ा मनाया। हिंदी माह के दौरान राजभाषा हिंदी के प्रयोग को बढ़ावा देने के लिए निम्नलिखित प्रतियोगिताओं/गतिविधियों का ऑनलाइन आयोजन किया गया :

1. हिंदी निबंध प्रतियोगिता
2. ऑनलाइन नारा लेखन प्रतियोगिता
3. ऑनलाइन कविता लेखन प्रतियोगिता
4. प्रत्येक विभाग द्वारा हिंदी में लिखी गई अधिकतम ई-मेल संचार और टिप्पणियाँ
5. राजभाषा कार्यान्वयन समिति-बाइरैक की त्रैमासिक बैठक

29 सितंबर, 2023 को पखवाड़े का समापन समारोह आयोजित किया गया। इस कार्यक्रम में सभी पदाधिकारियों ने अति उत्साह के साथ भाग लिया।





5. Workshop on Prevention of Sexual Harassment at the workplace [POSH]

As per the provisions of "Sexual Harassment of women at work place (Prevention, Prohibition and Redressal) Act, 2013", BIRAC organises workshops and awareness programmes at regular intervals for sensitising officials

In-house Workshop on Prevention of Sexual Harassment at Workplace has been organised on 20th February 2024.

The workshop equipped officials with necessary skills to combat sexual harassment faced in their daily working life and create a stress-free work environment conducive for higher performance. It also helped to understand the legal framework for addressing sexual harassment at the workplace.





6. Vigilance Awareness & National Unity Day

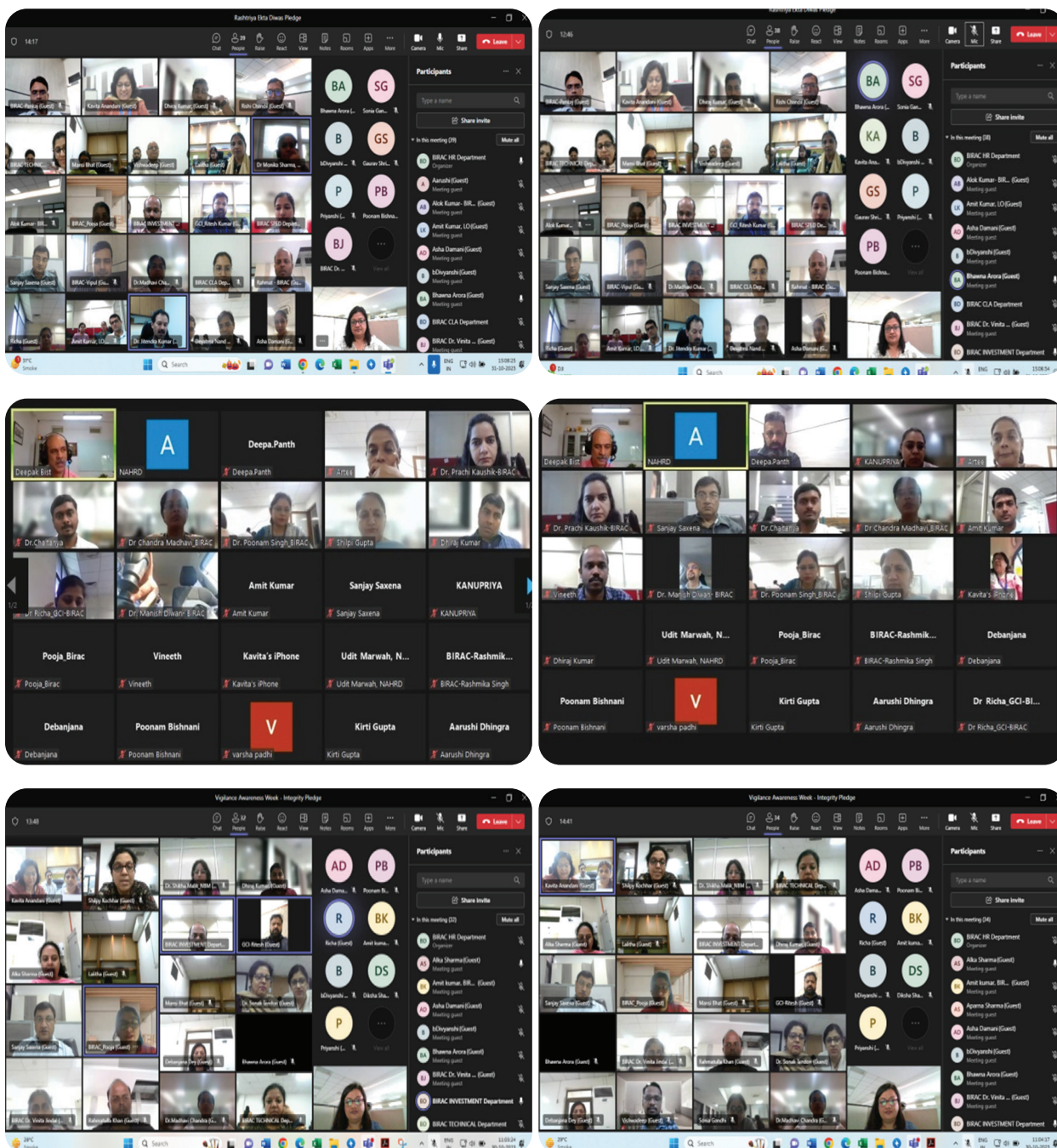
The “Vigilance Awareness Week-2023” was observed during 30th October to 05th November 2023 with the theme “Say no to corruption, commit to the Nation”. The observance of “Vigilance Awareness Week -2023” commenced with taking of an Integrity Pledge on 30th October, 2023.

A group training program on “Preventive Vigilance/Vigilance Awareness” was also organised in BIRAC to understand the Significance of Vigilance in an organization, Cyber Hygiene and security, Preventive Vigilance in Procurement etc.

Public Interest Disclosure and Protection of Informers (PIDPI) posters were also displayed at prominent locations in the Office.

The Birth Anniversary of Sardar Vallabhbhai Patel is observed as “Rashtriya Ekta Diwas” (National Unity Day) on 31st October, every year. This is an occasion to foster and reinforce our commitment to strengthen the unity, integrity and security of the nation. BIRAC observed Rashtriya Ekta Diwas wherein a Pledge was taken by all employees of BIRAC on 31st October 2023.





7. Women's Day

International Women's Day (IWD) is celebrated globally on 8th March each year to celebrate the achievements of women. The day also marks a call to action for accelerating gender parity. The campaign theme for International Women's Day 2024 is Inspire Inclusion.

This year International Women's Day at BIRAC was planned to be observed by edifying women of slums about the importance of health, hygiene & nutrition and distributing a small pack of educatory items to the women of slum to support their girl child education.

Pursuant to this activity, a small get together was organized wherein the thoughts and experience of the day's activity was shared by the cohort of women went for the activity. The activities were executed successfully and all officials participated in the event with great enthusiasm.

The event was concluded with the remarks of Dr. Jitendra Kumar, Managing Director BIRAC.



8. Hindi workshop and other programs

In the beginning of the new year 2024, a special interest has been seen in the BIRAC organization towards the official language Hindi. BIRAC got the membership of NARAKAS (Nagar Rajbhasha Karyanvayan Samiti) for the first time. In the first meeting of NARAKAS, Dr. Jitendra Kumar Managing Director BIRAC was honoured and also a statement was given by Dr. Jitendra Kumar on the promotion and dissemination of the official language.



Apart from promoting the use of the official language in BIRAC and increasing the use of Hindi, various types of programs and activities are being organized by the Official Language Implementation Committee, BIRAC in the office with the aim of increasing the inclination towards Hindi among the officers and employees.

Weekly thought writing program was started in the month of January, in which most of the office personnel gave their valuable cooperation.

The 'Book Club' program has also been started from the month of February, in which a reading of any Literature and its review is presented by an employee. Through this book club program, literature of top writers of Hindi like Premchand, Harishankar Parsai, Mohan Rakesh and Usha Priyamvada were read in the months of February and March. Awards were also given by Dr. Jitendra Kumar Managing Director BIRAC to the officers and employees who performed best in these activities.

A workshop related to official language was organized in the last week of March. The topic of this workshop was – 'Sangh Ki Rajbhasha aur Karyalayi Hindi'. In this workshop a special Lecture was presented by Professor Puranchand Tandon. Professor Puranchand Tandon ji was honoured by Dr. Jitendra Kumar Managing Director BIRAC by presenting him a small memento. In this workshop, officers and employees of BIRAC participated enthusiastically and increased their knowledge related to the official language.

With regular communication and sustained efforts HR and Admin Department is ensuring that employees are aligned on achieving BIRAC's strategic mission, while keeping employees engaged and motivated. It strongly believes in fostering a culture of trust and mutual respect in all its employees and seeks to ensure that BIRAC's core values and principles are understood by all.



Report on --- Corporate Governance



Report on Corporate Governance

1. BIRAC PHILOSOPHY ON GUIDELINES ON CORPORATE GOVERNANCE

Corporate Governance refers to a set of systems, principles and processes by which a company is governed. They provide the guidelines as to how a company can be directed or be controlled such that it can fulfill its goals and objectives in a manner that adds to the value of the company and is also beneficial for all the stakeholders in the long term. Stakeholders in this case would include everyone ranging from the board of directors, management, shareholders to customers, employees and society. BIRAC is committed to sound principles of Corporate Governance with respect to all its policies, practices and procedures. The Company's policies clearly reflect its values of transparency, professionalism and accountability. BIRAC consistently strives to uphold these values so as to generate long term economic value to all the stakeholders.

2. BOARD OF DIRECTORS

The Board of Directors currently consists of 5 (Five) Directors viz. an Executive Chairman, an Executive Managing Director, One Functional Director, a Government Nominee Director and a Non-Official Independent Director.

Five Board meetings of the Company were held on the following dates: 17th July, 2023, 4th September, 2023, 27th September, 2023, 22nd January, 2024, 21st March, 2024.

The details of the Directors and the Board meetings attended are as follows till 31st March, 2024:

Name of the Director	Category	Directorships in other Companies	Member/ Chairman of Committees in other companies		Board Meetings Attended (Nos.)	Attendance at last AGM
			Member	Chairman		
Dr. Rajesh S. Gokhale	Chairman (Executive)	Nil	Nil	Nil	5	Yes
Dr. Jitendra Kumar	Managing Director (Executive)	2	Nil	Nil	5	Yes
*Dr. Subhra Ranjan Chakrabarti	Director (Operations)	Nil	Nil	Nil	2	No
CA. Nidhi Shrivastava	Director (Finance)	Nil	Nil	Nil	5	Yes
Shri Vishvajit Sahay	Government Nominee Director	1	Nil	Nil	5	Yes
Dr. Penna Krishna Prasanthi	Non-Official Independent Director	Nil	Nil	Nil	5	Yes

**Dr. Subhra Ranjan Chakrabarti has resigned from the post of Director (Operations) and was relieved w.e.f 24th December, 2023.*

None of the Directors are members of more than 10 Committees and/or act as Chairman of more than 5 Committees as prescribed under the Guidelines on Corporate Governance for Central Public Sector Enterprises (CPSEs) issued by the Department of Public Enterprises (DPE).

There are no pecuniary relationships or transactions of the non-executive directors of the Company.

3. AUDIT COMMITTEE

During the year 2023-24, BIRAC did not have an Audit Committee. As mandated by DPE Corporate Governance Guidelines the Audit Committee should have minimum three Directors with two thirds of them being Independent Directors and Chairman being an Independent Director. The term of four Independent Directors ended on 15th March, 2020 and only one Non-official Independent Director was appointed by Board on 27th March, 2023. Three of the four sanctioned positions still remain vacant from 15th March, 2020. BIRAC is not in a position to form an Audit Committee as per DPE Guidelines. In absence of adequate number of Non official Directors the role of Audit Committee is being discharged by the Internal Audit Committee to recommend financial matters and approval is by Board of Directors.

4. REMUNERATION COMMITTEE

During the year 2023-24, BIRAC did not have a Remuneration Committee. As mandated by DPE Corporate Governance Guidelines the Remuneration Committee should have minimum three Directors all of them should be part-time Directors (Nominee Directors or Independent Directors). One Non-Official Director has been appointed in March 2023. Three positions still vacant from 15th March, 2020. BIRAC is not in a position to form a Remuneration Committee as per DPE Guidelines. However, the Board has approved the formation of an Internal Remuneration Committee with the only appointed Non official Director to Chair the Committee.

5. BOARD PROCEDURE

The meetings of the Board are generally held at the Company's registered office at New Delhi. The Company complies with the statutory requirements for holding board meetings. Apart from the statutory matters requiring Board's approval, all major decisions including key financial ratios, actual operations, feedback reports and minutes of meetings are regularly placed before the Board.

6. SHAREHOLDER INFORMATION AS ON 31st MARCH 2024

Category Code	Category of shareholders	Total number of shares	Total value of shares (in ₹)	Total shareholding as a percentage of total number of shares
Shareholding of Promoter and promoter category	President of India	9000	90,00,000	90
	Dr. Rajesh S. Gokhale (held on behalf of the President of India)	900	9,00,000	9
	Dr. Jitendra Kumar (held on behalf of the President of India)	100	1,00,000	1
	GRAND TOTAL	10000	1,00,00,000	100

7. GENERAL BODY MEETINGS

The details of general body meetings are as follows:

Period ended on	Venue	Date	Time
31.03.2022	1 st Floor, MTNL Building, 9, CGO Complex, Lodhi Road, Delhi-110003	24.11.2022	02:00 p.m.
31.03.2023	Department of Biotechnology, 2, CGO Complex, 7 th Floor, Lodhi Road, New Delhi-110003	27.09.2023	03.20 p.m.
31.03.2024	5 th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi-110020	27.09.2024	04.30 p.m.

8. TRAINING OF BOARD MEMBERS

BIRAC gives opportunity to all its Board members (Functional, Government Nominee and Independent) in line with requirement of DPE Guidelines and mandate of company to attend Director's training programmes organized by DPE and other reputed institutions. The training programmes aim at providing current developments in the field of Companies Act, Corporate Governance and model code of Business ethics as applicable to the Company and a platform to share the knowledge, skills and experience gained to and by the Directors. The Director's Training Policy has approved by the Board Directors is placed at BIRAC website at https://www.birac.nic.in/desc_new.php?id=294.

9. DISCLOSURES (AS PER DPE GUIDELINES)

- a) The Company has not entered into any material, financial or commercial transaction with the Directors or the management or their relatives in which they are either directly or through their relatives interested as directors and/or partners.
- b) The Company has complied with applicable rules and regulations and no penalties or strictures were imposed on the Company by any statutory authority during the last two years.
- c) The Company has complied with the applicable provisions of the guidelines of Corporate Governance.
- d) Department of Public Enterprises vide its OM dated 29.07.2010, directed that all CPSEs will submit annual compliance report within 30 days from the end of the preceding financial year to the concerned ministry which consolidate the same for all CPSEs under its administrative control and forward it to the DPE by 30th June every year. BIRAC has submit an annual compliance report on implementation of policies and guidelines issued by DPE by 30th April, 2024 for financial year 2023-24. In compliance of the directives of DPE, BIRAC submitted its compliance report to the Department of Biotechnology for onward transmission to DPE.
- e) No item of expenditure was debited in the books of accounts which was not for the purpose of the organisation.
- f) No expenses of a personal nature of the Members of the Board of Directors were incurred out of the funds of the Company.
- g) BIRAC has got Excellent Rating in Corporate Governance for FY 2021-22. DPE has to announce the Corporate Governance for FY 2022-23 & FY 2023-24 which is still awaited.

10. MEANS OF COMMUNICATION

Members/shareholders are apprised about the performance of the Company at each Annual General Meeting. The Company is an unlisted, private limited Section 8 Company and therefore, the need to communicate its quarterly or half-yearly results does not arise.

11. COMPLIANCE CERTIFICATE

In terms of Clause 8.2 of the DPE Guidelines on Corporate Governance, a certificate from a practicing Company Secretary, M/s Agarwal S. & Associates, Company Secretaries, New Delhi confirming the compliance of the provisions of Corporate Governance forms a part of the report on Corporate Governance.

12. REMUNERATION OF DIRECTORS

The total remuneration paid to Functional Directors as on 31st March, 2024:

Name of Functional the Director	Basic Pay (in ₹)	DA (in ₹)	HRA (in ₹)	Prerequisites (in ₹)	Total 1 st April, 2023-31 st March, 2024 (in ₹)
Dr. Jitendra Kumar	1768200	693924	477414	537060	3476598
CA. Nidhi Shrivastava	1992432	774288	537957	95047	3399724

13. CODE OF CONDUCT

BIRAC is committed to conduct business in accordance with the highest standards of business ethics and compliance with the applicable laws, rules and regulations. A Code of Business Conduct and Ethics in accordance with the DPE Guidelines has been laid down for all Board members and senior management.

All the members of the Board and senior management personnel have affirmed compliance with the same for the financial year 2023-24. The Code of Business Conduct and Ethics has also been put up on the website of the Company (www.birac.nic.in)

DECLARATION AS REQUIRED UNDER THE DPE GUIDELINES ON CORPORATE GOVERNANCE

"All the members of the Board and Senior Management Personnel have affirmed compliance of the Code of Business Conduct & Ethics for Board Members and Senior Management for the financial year ended on 31st March 2024".

For and on behalf of Board

Sd/-

Dr. Jitendra Kumar

(Managing Director)

DIN: 07017109

Date : 27th September, 2024

Place : New Delhi

Sd/-

Dr. Rajesh S. Gokhale

Chairman

DIN: 03121276

ANNUAL REPORT ON CSR ACTIVITIES

1. Brief outline on CSR Policy of the Company:

Biotechnology Industry Research Assistance Council (BIRAC) is a not-for-profit Section 8, Schedule B, Central Public Sector Enterprise, set up by Department of Biotechnology (DBT), Government of India.

The Board of BIRAC at its 45th Board Meeting held on 24th February 2021 approved the Corporate Social Responsibility Policy (CSR Policy). The CSR Policy of the BIRAC was formulated in line with the provisions of the Companies Act, 2013 read with the Companies (Corporate Social Responsibility) Rules, 2014 and 'DPE Guidelines'.

Vision and Mission Statement for CSR Policy:

Vision Statement: BIRAC, through its CSR initiatives, will continue to enhance value creation in the society and in the community in which it operates, through its services, conduct & initiatives, so as to promote sustained growth for the society and community, in fulfilment of its role as a Socially Responsible CPSE.

Mission Statement: In line with the Companies Act, 2013 and DPE guidelines this policy aims at developing Company specific social responsibility strategies in long, medium and short term period with built in mechanism for implementation and monitoring towards creating a Societal impact.

2. Composition of CSR Committee: As per Companies (Amendment) Act, 2020 (applicable w.e.f. 22nd January, 2021), if the amount to be spent by a company does not exceed fifty lakh rupees, the requirement for constitution of the CSR Committee shall not be applicable and the functions of such Committee provided under Section 135 shall be discharged by the Board of Directors of the company.

Further Amendment in Rule 3 of Companies (Corporate Social Responsibility Policy) Rules, 2014 (applicable w.e.f. 20th September, 2022) mentioned that if a company having any amount in its Unspent Corporate Social Responsibility Account as per sub-section (6) of section 135 shall constitute a CSR Committee and comply with the provisions contained in sub-sections (2) to (6) of the said section.

Hence, as per the above-mentioned provisions, BIRAC does not have any unspent Corporate Social Responsibility amount. As per Board directions BIRAC has formed CSR Internal Committee. The Composition of the Committee is as follows:

- 1) Managing Director as Chairman;
- 2) Director (Operations): Member;
- 3) Director (Finance): Member;
- 4) Company Secretary: Member.
- 5) All Heads of BIRAC Divisions and Mission Director of Project Management Unit. All Division Heads as Members of the Internal CSR Committee.

All division Heads from Project Management Units, Strategic Partnership Group & Technical Group be co-opted to be part of the Internal CSR Committee for evaluation of Proposals which are received in BIRAC for preliminary evaluation.

Hence, the Board in its 59th Board Meeting held on 27th September, 2023 has approved the budgetary allocation of ₹ 16,51,706/- being 2% of the net surplus/profit made during three immediately preceding financial years for CSR activities. During financial year 2023-24, the Board of Directors authorised the Managing Director to examine the proposals as Chairman of the CSR Internal Committee. Further, the CSR Internal Committee members deliberated and approved that the CSR Fund for the Financial Year 2023-24 of ₹ 16,51,706/- (Rupees Sixteen Lakh Fifty One Thousand Seven Hundred and Six only) be deployed to Swachh Bharat Kosh which is one of the listed activities specified in Schedule VII (i) of Companies Act, 2013.

3. Web-link where Composition of CSR Internal committee, CSR Policy and CSR projects approved by the board are disclosed on the website of the company: www.birac.nic.in.
4. Details of Impact assessment of CSR projects carried out in pursuance of sub-rule (3) of rule 8 of the Companies (Corporate Social responsibility Policy) Rules, 2014, if applicable (attach the report): **Not Applicable**
5. Details of the amount available for set off in pursuance of sub-rule (3) of rule 7 of the Companies (Corporate Social responsibility Policy) Rules, 2014 and amount required for set off for the financial year, if any: **Not Applicable**

Sl. No.	Financial Year	Amount available for set-off from preceding financial years (in ₹)	Amount required to be set-off for the financial year, if any (in ₹)
Not Applicable			

6. Average net profit of the company as per section 135(5) : ₹ 8,25, 85,312/-
7. (a) Two percent of average net profit of the company as per section 135(5) : ₹ 16,51,706/-
 - (b) Surplus arising out of the CSR projects or programmes or activities of the previous financial years: **Not Applicable**
 - (c) Amount required to be set off for the financial year, if any : Not Applicable
 - (d) Total CSR obligation for the financial year (7a+7b-7c) : ₹ 16,51,706/-
8. (a) CSR amount spent or unspent for the financial year:

Total Amount Spent for the Financial Year (in ₹)	Amount Unspent (in ₹)				
	Total Amount transferred to Unspent CSR Account as per section 135(6)		Amount transferred to any fund specified under Schedule VII as per second proviso to section 135(5)		
	Amount	Date of transfer	Name of the Fund	Amount	Date of transfer
₹ 16,51,706/-	NIL				

- (b) Details of CSR amount spent against ongoing projects for the financial year

(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	(11)	
Sl. No	Name of the Project	Item from the list of activities in Schedule VII to the Act	Local area (Yes/ No)	Location of the project		Project duration	Amount allocated for the project (in ₹)	Amount spent in the current financial Year (in ₹)	Amount transferred to Unspent CSR Account for the project as per Section 135(6) (in ₹)	Mode of Implemen- tation Direct (Yes/ No)	Mode of Implementation- Through Implementing Agency	
				State	District						Name	CSR Regi- stration number
Not Applicable												

(c) Details of CSR amount spent against other than ongoing projects for the financial year:

(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	
Sl. No	Name of the Project	Item from the list of activities in Schedule VII to the Act	Local area (Yes/No)	Location of the project		Amount allocated for the project (in ₹)	Mode of Implementation Direct (Yes/No)	Mode of Implementation Through Implementing Agency	
				State	District			Name	CSR Registration number
1.	Contribution to Swachh Bharat Kosh	Item (i)	No	All India	All India	16,51,706	Yes	Swachh Bharat Kosh	NA
					Total	16,51,706			

(d) Amount spent in Administrative Overheads : Nil

(e) Amount spent on Impact Assessment, if applicable : Nil

(f) Total amount spent for the Financial Year (8b+8c+8d+8e) : ₹ 16,51,706/-

(g) Excess amount for set off, if any : Nil

Sl. No.	Particular	Amount (in ₹)
(i)	Two percent of average net profit of the company as per section 135(5)	16,51,706/-
(ii)	Total amount spent for the Financial Year	16,51,706/-
(iii)	Excess amount spent for the financial year [(ii)-(i)]	Nil
(iv)	Surplus arising out of the CSR projects or programmes or activities of the previous financial years, if any	Nil
(v)	Amount available for set off in succeeding financial years [(iii)-(iv)]	Nil

9. (a) Details of Unspent CSR amount for the preceding three financial years:

Sl. No.	Preceding Financial Year	Amount transferred to Unspent CSR Account under section 135 (6) (in ₹)	Amount spent in the reporting Financial Year (in ₹)	Amount transferred to any fund specified under Schedule VII as per section 135(6), if any	Amount remaining to be spent in succeeding financial years (in ₹)
Not Applicable					

(b) Details of CSR amount spent in the financial year for ongoing projects of the preceding financial year(s):

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sl. No	Project ID.	Name of the Project	Financial Year in which the project was commenced	Project duration	Total amount allocated for the project (in ₹)	Amount spent on the project in the reporting Financial Year (in ₹)	Cumulative amount spent at the end of reporting Financial Year. (in ₹)	Status of the project- Completed / Ongoing
Not Applicable								

- 10.** In case of creation or acquisition of capital asset, furnish the details relating to the asset so created or acquired through CSR spent in the financial year (asset-wise details): **Not Applicable**
- (a) Date of creation or acquisition of the capital asset(s): **Not Applicable**
 - (b) Amount of CSR spent for creation or acquisition of capital asset: **Not Applicable**
 - (c) Details of the entity or public authority or beneficiary under whose name such capital asset is registered, their address etc.: **Not Applicable**
 - (d) Provide details of the capital asset(s) created or acquired (including complete address and location of the capital asset): **Not Applicable**
- 11.** Specify the reason(s), if the company has failed to spend two per cent of the average net profit as per section 135(5): **Not Applicable**

For and on behalf of Board

Sd/-

Dr. Jitendra Kumar

(Managing Director)

DIN: 07017109

Date : 27th September, 2024

Place : New Delhi

Sd/-

Dr. Rajesh S. Gokhale

Chairman

DIN: 03121276

CERTIFICATE OF COMPLIANCE OF CORPORATE GOVERNANCE AS PER THE GUIDELINES OF DEPARTMENT OF PUBLIC ENTERPRISES (DPE) BY A COMPANY SECRETARY IN WHOLE TIME PRACTICE

The Members,

BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL

5th Floor, NSIC Business Park, NSIC Bhawan,
Okhla Industrial Estate, New Delhi – 110020

We have examined the compliance of the conditions of Corporate Governance by Biotechnology Industry Research Assistance Council, (BIRAC) a Section 8 Not for Profit Private Limited Company and a CPSE under the Department of Biotechnology, Government of India (hereinafter referred as 'the Company') for the year ended on 31st March, 2024 as stipulated under the Guidelines of Corporate Governance for Central Public Sector Enterprises (CPSES) issued by Department of Public Enterprises (DPE) vide its order dated 14th May, 2010.

The compliance of Conditions of Corporate Governance is the responsibility of Management. Our examination was limited to procedures and implementation thereof, adopted by the Company for ensuring the compliance of the conditions of corporate governance as stipulated in above mentioned guidelines. It is neither an audit nor an expression of opinion on the financial statements of the Company.

In our opinion and to the best of our information and according to the explanations given to us, we hereby certify that the Company has complied with the conditions of corporate governance as stipulated in the above mentioned Guidelines for the period under review subject to the following:

1. Composition of Board of Directors

As per para 3.1.4 of the DPE Guidelines on Corporate Governance, the number of Non-Official Independent Directors on the board of Directors of the company should be at least one-third of the total Board Members. As on 31st March, 2024 the Board of the Company comprises of total five directors, with only one Non-Official Independent Director. Presently company has three vacant positions of Non-Official Independent Directors on the board. The Company being a Government Company, the constitution and composition of the Board including appointment and/or removal of Managing Director/ Directors/ Independent Directors is managed and controlled by the Central Government. The Company has again raised the matter relating to appointment of Independent Directors to concerned Administrative Ministry.

2. Re-constitution of DPE mandated Committees

During the year 2023-24, BIRAC did not have an Audit Committee and Remuneration Committee as mandated by DPE Corporate Governance Guidelines due to non-appointment of sufficient number of Non official Independent Directors. BIRAC being a Government Company has neither the power nor control over the appointment of Directors.

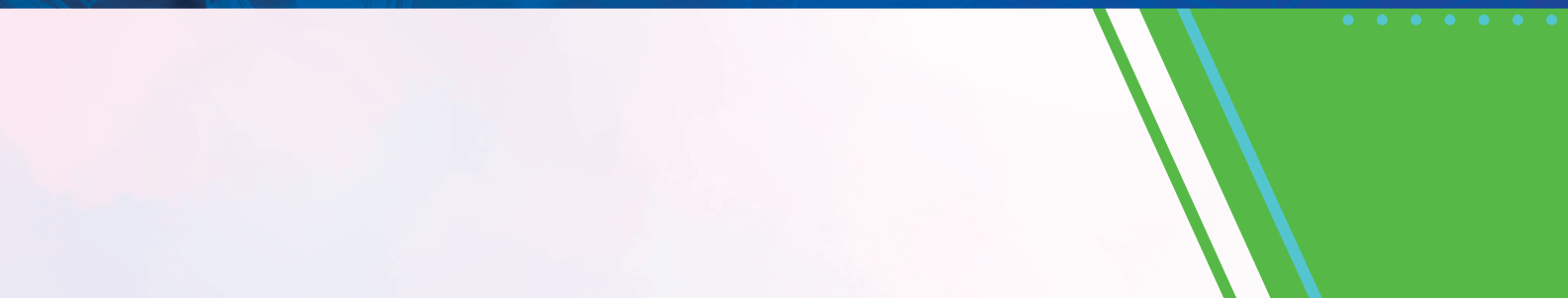
We further state that such compliance is neither an assurance to the future viability of the Company nor of the efficiency or effectiveness with which the Management has conducted the affairs of the Company.

For **Agarwal S. & Associates,**
Company Secretaries,
Peer Review Certificate No. 2725/2022
Sd/-
(CS Sachin Agarwal)
Partner
FCS: 5774
COP: 5910
UDIN: F005774F001015301

Date: 21.08.2024
Place: New Delhi



Auditors' Report & _____ _____ Annual Accounts



Gupta Garg & Agrawal

Chartered Accountant

REVISED INDEPENDENT AUDITORS' REPORT**To the Members of****Biotechnology Industry Research Assistance Council
Report on the Standalone Financial Statements****Opinion**

We have audited the accompanying standalone financial statements of **Biotechnology Industry Research Assistance Council** which comprise the Balance Sheet as at March 31, 2024, the Statement of Income and Expenditure, the Cash Flow Statement and notes to accounts for the year then ended, and a summary of significant accounting policies and other explanatory information.

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid standalone financial statements give the information required by the Act in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India including the Accounting Standards, of the state of affairs of the Company as at 31st March, 2024, and its Surplus of Income over Expenditure and its cash flows for the year ended on that date.

Basis of Opinion

We conducted our audit in accordance with the Standards on Auditing (SAs) specified under section 143(10) of the Companies Act, 2013. Our responsibilities under those Standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Company in accordance with the Code of Ethics issued by the Institute of Chartered Accountants of India together with the ethical requirements that are relevant to our audit of the financial statements under the provisions of the Companies Act, 2013 and the Rules thereunder, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Management's Responsibility for the Standalone Financial Statements

The Company's Board of Directors is responsible for the matters stated in section 134(5) of the Companies

Act, 2013 ("the Act") with respect to the preparation of these standalone financial statements that give a true and fair view of the financial position and financial performance and cash flow of the Company in accordance with the accounting principles generally accepted in India, including the Accounting Standards prescribed under section 133 of the Act.

This responsibility also includes maintenance of adequate accounting records in accordance with the provisions of the Act for safeguarding of the assets of the Company and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the standalone financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the entity's financial reporting process.

Auditors' Responsibility

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with SAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant

ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Other Matter

Biotechnology Industry Research Assistance Council being a government company, therefore clause related to provision of Section 164(2) of the Act regarding disqualification of the Directors is not applicable. Inadvertently, this clause has been reported, due to this, the report dated 01.07.2024 has been modified stating that to the extent of clause 3(e) of the "Report on Other Legal and Regulatory Requirements".

Report on Other Legal and Regulatory Requirements

1. As required by the Companies (Auditor's Report) Order, 2020 ("the Order") issued by the Central Government of India in terms of sub-section (11) of section 143 of the Companies Act 2013, in our opinion the said order is not applicable to the company since it is a company registered under section 8.
2. As required by Section 143 (5) of the Act, we have considered the directions & sub-directions issued by the Comptroller & Auditor General of India. We give our report in the attached **Annexure "A"**.
3. As required by section 143(3) of the Act, we report that:
 - (a) We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;
 - (b) In our opinion, proper books of account as required by law have been kept by the Company so far as it appears from our examination of those books.
 - (c) The Balance Sheet, the Statement of Income and Expenditure and the Cash Flow Statement dealt with by this Report are in agreement with the books of account.
 - (d) In our opinion, the aforesaid standalone financial statements comply with the Accounting Standards prescribed under Section 133 of the Act.
 - (e) In terms of Notification No. G.S.R. 463(E) dated 05th June 2015 issued by the Ministry of Corporate Affairs, provision of Section

164(2) of the Act regarding disqualification of the Directors, are not applicable as it is a government Company.

- (f) With respect to adequacy of the internal financial controls over financial reporting of the company and the operating effectiveness of such controls, refer to our separate report in **Annexure "B"**;
- (g) With respect to the other matters to be included in the Auditor's Report in accordance with Rule 11 of the Companies (Audit and Auditors) Rules, 2014, in our opinion and to the best of our information and according to the explanations given to us:
 - i) The Company does not have any pending litigations which would impact its financial position.
 - ii) The Company did not have any long-term contracts including derivative contracts for which there were any material foreseeable losses.
 - iii) There were no amounts which were required to be transferred to the Investor Education and Protection Fund by the Company.
 - iv) (a) The Management has represented that, to the best of it's knowledge and belief, other than as disclosed in the notes to the accounts, no funds have been advanced or loaned or invested (either from borrowed funds or share premium or any other sources or kind of funds) by the company to or in any other person(s) or entity(ies), including foreign entities ("Intermediaries"), with the understanding, whether recorded in writing or otherwise, that the Intermediary shall, whether, directly or indirectly lend or invest in other persons or entities identified in any manner whatsoever by or on behalf of the company ("Ultimate Beneficiaries") or provide any guarantee, security or the like on behalf of the Ultimate Beneficiaries
 - (b) The Management has represented that, to the best of it's knowledge

and belief, other than as disclosed in the notes to the accounts, no funds have been received by the company from any person(s) or entity(ies), including foreign entities ("Funding Parties"), with the understanding, whether recorded in writing or otherwise, that the company shall, whether, directly or indirectly, lend or invest in other persons or entities identified in any manner whatsoever by or on behalf of the Funding Party ("Ultimate Beneficiaries") or provide any guarantee, security or the like on behalf of the Ultimate Beneficiaries.

- (c) Nothing has come to our notice that has caused us to believe that the representations under sub-clause (a) and (b) contain any material mis-statement.
- v) No dividend has been declared or paid by the company during the year.
- vi) Based on our examination which included test checks. The company has used accounting software for maintaining its books of accounts which has a feature of recording audit trail (edit log) facility and the same has operated throughout the year for all relevant transactions recorded in the software. Further during the course of our audit we did not come across any instance of audit trail feature being tempered with.

**For GUPTA GARG & AGRAWAL
CHARTERED ACCOUNTANTS
Firm Registration No. 505762C**

**(AMIT KUMAR JAIN)
PARTNER
Membership No. 509349
UDIN: 24509349BKCQEE2060
Place: Delhi
Date : 30.07.2024**

ANNEXURE "A"**Gupta Garg & Agrawal**

Chartered Accountant

ANNEXURE "A" TO THE REVISED INDEPENDENT AUDITORS' REPORT

Audit Report of Biotechnology Industry Research Assistance Council for the period 01.04.2023 to 31.03.2024 pursuant to Directions/Sub-Directions under section 143(5) of the Companies Act 2013

Directions for the year 2023-24

1. **Whether the company has system in place to process all the accounting transactions through IT system? If yes, the implications of processing of accounting transactions outside IT system on the integrity of the accounts along with the financial implications, if any, may be stated.**

As informed to us, all accounting transaction is processed through company owned IT System.

2. **Whether there is any restructuring of an existing loan or cases of waiver/write off of debts/loans/ interest etc. made by a lender to the company due to the company's inability to repay the loan? If yes, the financial impact may be stated. Whether such cases are properly accounted for? (In case, lender is a government company, then this direction is also applicable for statutory auditor of Lender Company).**

There is no such case of restructuring of an existing loan or cases of waiver/write off of debts/loans/interest etc. by any lender to the company or by the company to any borrower.

3. **Whether funds (grants/subsidy etc.) received/receivable for specific schemes from Central/State government or its agencies were properly accounted for/ utilized as per its term and conditions? List the cases of deviation.**

Yes, funds received/ receivable for specific schemes from central/state agencies have been properly accounted for/ utilized as per its terms and conditions.

For GUPTA GARG & AGRAWAL
CHARTERED ACCOUNTANTS
Firm Registration No. 505762C

(AMIT KUMAR JAIN)
PARTNER
Membership No. 509349
UDIN: 24509349BKCQEE2060
Place: Delhi
Date : 30.07.2024

Gupta Garg & Agrawal

Chartered Accountant

ANNEXURE "B" TO THE REVISED INDEPENDENT AUDITORS' REPORT**Report on the Internal Financial Controls under Clause (i) of Sub-section 3 of Section 143 of the Companies Act, 2013 ("the Act")**

We have audited the internal financial controls over financial reporting of **Biotechnology Industry Research Assistance Council** ("the Company") as of March 31, 2024 in conjunction with our audit of the standalone financial statements of the Company for the year ended on that date.

Management's Responsibility for Internal Financial Controls

The Company's management is responsible for establishing and maintaining internal financial controls based on internal control over financial reporting criteria established by the Company considering the essential components of internal control stated in the Guidance Note on Audit of Internal Financial Controls over Financial Reporting issued by the Institute of Chartered Accountants of India (ICAI). These responsibilities include the design, implementation and maintenance of adequate internal financial controls that were operating effectively for ensuring the orderly and efficient conduct of its business, including adherence to company's policies, the safeguarding of its assets, the prevention and detection of frauds and errors, the accuracy and completeness of the accounting records, and the timely preparation of reliable financial information, as required under the Companies Act, 2013.

Auditors' Responsibility

Our responsibility is to express an opinion on the Company's internal financial controls over financial reporting based on our audit. We conducted our audit in accordance with the Guidance Note on Audit of Internal Financial Controls Over Financial Reporting (the "Guidance Note") and the Standards on Auditing, issued by ICAI and deemed to be prescribed under section 143(10) of the Companies Act, 2013, to the extent applicable to an audit of internal financial controls, both applicable to an audit of Internal Financial Controls and, both issued by the Institute of Chartered Accountants of India. Those Standards and the Guidance Note require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether adequate internal financial controls over financial reporting was established and maintained and if such controls operated effectively in all material respects.

Our audit involves performing procedures to obtain audit evidence about the adequacy of the internal financial controls system over financial reporting and their operating effectiveness. Our audit of internal financial controls over financial reporting included obtaining an understanding of internal financial controls over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the standalone financial statements, whether due to fraud or error.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on the Company's internal financial controls system over financial reporting.

Meaning of Internal Financial Controls over Financial Reporting

A company's internal financial control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of standalone financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal financial control over financial reporting includes those policies and procedures that

1. pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company;
2. provide reasonable assurance that transactions are recorded as necessary to permit preparation of standalone financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorisations of management and directors of the company; and
3. provide reasonable assurance regarding prevention or timely detection of unauthorised acquisition, use, or disposition of the company's assets that could have a material effect on the standalone financial statements.

Inherent Limitations of Internal Financial Controls over Financial Reporting

Because of the inherent limitations of internal financial controls over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may occur and not be detected. Also, projections of any evaluation of the internal financial controls over financial reporting to future periods are subject to the risk that the internal financial control over financial reporting may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Opinion

In our opinion, the Company has, in all material respects, an adequate internal financial controls system over financial reporting and such internal financial controls over financial reporting were operating effectively as at March 31, 2024, based on the internal control over financial reporting criteria established by the Company considering the essential components of internal control stated in the Guidance Note on Audit of Internal Financial Controls Over Financial Reporting issued by the Institute of Chartered Accountants of India.

For GUPTA GARG & AGRAWAL
CHARTERED ACCOUNTANTS
Firm Registration No. 505762C

(AMIT KUMAR JAIN)
PARTNER
Membership No. 509349
UDIN: 24509349BKCQEE2060
Place: Delhi
Date : 30.07.2024

Biotechnology Industry Research Assistance Council

BALANCE SHEET AS AT 31st March 2024

CIN U73100DL2012NPL233152

(₹ in lakh)

Particulars	Note No.	As at 31.03.2024	As at 31.03.2023
I EQUITY AND LIABILITIES			
(1) Shareholder's Funds			
(a) Share Capital	1	100.00	100.00
(b) Reserves and Surplus	2	14,082.34	13,816.98
(2) Non Current Liabilities			
(a) Other Long Term Liabilities	3	10,630.01	9,031.68
(b) Long Term Provisions	4	74.71	40.90
(3) Current Liabilities			
(a) Trade Payables	5a	242.91	96.56
(b) Other Current Liabilities	5b	29,154.04	24,131.77
(c) Short Term Provisions	5c	92.10	77.81
TOTAL		54,376.11	47,295.70
II ASSETS			
(1) Non-Current Assets			
(a) Property, Plant and Equipment and Intangible Assets			
(i) Property, Plant and Equipment	6	339.57	119.50
(ii) Intangible Assets	6	27.86	47.87
(b) Non-Current Investments	7	9,827.90	7,727.71
(c) Long-Term Loans and Advances	8	1,013.24	1,358.73
(d) Other Non Current Assets	9	182.43	182.43
(2) Current Assets			
(a) Cash and Cash Equivalents	10	41,828.66	35,342.30
(b) Short Term Loan & Advances	11	434.23	1,358.30
(c) Other Current Assets	12	722.22	1,158.86
TOTAL		54,376.11	47,295.70
Significant Accounting Policies and Notes to the Financial Statements.	19 & 20		

The Notes referred to above form of integral part of Financial Statements.

Auditors Report

As per our report of even date attached

For Gupta Garg & Agrawal

Chartered Accountants

Firm Reg.No. 505762C

For and on behalf of Board of Directors

Sd/-

CA. Amit Kumar Jain

(Partner)

Membership No.509349

Sd/-

Kavita Anandani

Company Secretary

Sd/-

CA. Nidhi Shrivastava

Director Finance

DIN 09436809

Sd/-

Dr. Jitendra Kumar

Managing Director

DIN 07017109

Place : New Delhi

Date : 1st July 2024

Biotechnology Industry Research Assistance Council

STATEMENT OF INCOME & EXPENDITURE FOR THE YEAR ENDED 31st MARCH 2024

CIN U73100DL2012NPL233152

(₹ in lakh)

Particulars	Note No.	For the Year ended 31.03.2024	For the Year ended 31.03.2023
(1) INCOME			
Grants Received as Utilized	13	14,814.58	18,526.62
Extra-Mural Grants Received as Utilized	16A-H	25,554.33	35,370.75
Other Income	14	813.36	987.86
Total Income		41,182.27	54,885.24
(2) EXPENDITURE			
Programme Expenditure	15	13,111.50	16,656.61
Extra-Mural Programme Expenditure	16A-H	25,554.33	35,370.75
Employee Benefit Expenses	17	971.83	977.98
Depreciation & Amortization Expenses	6	116.50	82.09
Other Expenses	18	1,234.53	876.24
CSR Expenditure	20.16	16.52	15.78
Total Expenses		41,005.21	53,979.46
(3) Surplus of Income over Expenditure before exceptional and extraordinary items and Tax		177.06	905.78
Add/ (Less): Prior Period Income/(Expenditure) (net)		-	-
(4) Surplus of income over expenditure before extraordinary items		177.06	905.78
Add/(Less): Extraordinary Items		-	-
(5) Surplus before tax		177.06	905.78
Less: Current Tax		-	-
Surplus Carried Forward to Reserve & Surplus A/c		177.06	905.78
Earnings per equity share:			
(1) Basic		0.02	0.09
(2) Diluted		0.02	0.09
Significant Accounting Policies and Notes to the Financial Statements.	19 & 20		

The Notes referred to above form of integral part of Financial Statements.

Auditors Report

As per our report of even date attached

For Gupta Garg & Agrawal

Chartered Accountants

Firm Reg.No. 505762C

For and on behalf of Board of Directors

Sd/-

CA. Amit Kumar Jain
(Partner)
Membership No.509349

Sd/-

Kavita Anandani
Company Secretary

Sd/-

CA. Nidhi Shrivastava
Director Finance
DIN 09436809

Sd/-

Dr. Jitendra Kumar
Managing Director
DIN 07017109

Place : New Delhi
Date : 1st July 2024

Biotechnology Industry Research Assistance Council

Cash Flow Statement for the Year Ended 31st March 2024

CIN U73100DL2012NPL233152

(₹ in lakh)

Particulars		For the Year ended 31.03.2024	For the Year ended 31.03.2023
Cash Flow from Operating Activities:			
Net Surplus as per Income & Expenditure Account		177.06	905.77
Adjustments for :			
Depreciation		116.50	82.09
Management Expenses		(11.65)	(11.65)
Foreign Exchange Fluctuation		0.17	0.18
Interest Income		(224.41)	(765.11)
Operating Profit before Working Capital changes		57.67	211.28
Increase/(Decrease) in Provisions & Payables		1,351.39	728.91
Increase/(Decrease) in Grant Utilisation		4,110.68	(50,621.90)
Increase/(Decrease) In Capital Reserve/Deferred Income		200.06	10.11
Fund Utilisation Towards PPP Activities (Net)		1,486.56	829.87
Provision for Sub-Standard & Doubtful Assets		-	-
(Increase)/ Decrease in Other Current Assets		(1,651.90)	(1,719.73)
(Increase)/Decrease in Advances PPP Activities (Net)		1,024.03	1,292.05
Cash Generated from / (used in) Operations		6,578.49	(49,269.41)
Income Tax Refund / (Paid)		-	-
Net Cash from (Used in) Operating Activities	(A)	6,578.50	(49,269.41)
Cash Flow From/ (Used In) Investing Activities:			
Purchase of Fixed Assets		(316.56)	(145.12)
Net Cash from/(Used in) Investing Activities	(B)	(316.56)	(145.12)
Cash Flow From/ (Used In) Financing Activities:			
Interest Income		224.41	765.11
Net Cash from/(Used in) Financing Activities	(C)	224.41	765.11
Net Increase in Cash and Cash Equivalents	D=(A+B+C)	6,486.36	(48,649.42)
Cash and Cash Equivalent at beginning of the year	(E)	35,342.30	83,991.72
Closing Cash and Cash Equivalent (Refer Note 20.15)	F=(D+E)	41,828.66	35,342.30

Auditors Report

As per our report of even date attached

For Gupta Garg & Agrawal

Chartered Accountants

Firm Reg.No. 505762C

For and on behalf of Board of Directors

Sd/-

CA. Amit Kumar Jain

(Partner)

Membership No.509349

Sd/-

Kavita Anandani

Company Secretary

Sd/-

CA. Nidhi Shrivastava

Director Finance

DIN 09436809

Sd/-

Dr. Jitendra Kumar

Managing Director

DIN 07017109

Place : New Delhi

Date : 1st July 2024

2. Reserves and Surplus

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
I. Other Reserve		
Funds Utilised for Loans under PPP Activities after 31/03/2014	1,607.91	1,976.32
Less: Provision for Sub-Standard & Doubtful Assets (Refer Note 20.3)	(518.07)	(318.86)
Post BIRAC Realised	8,332.09	7,909.71
Add: Interest on post BIRAC realised	460.54	227.00
(B)	9,882.47	9,794.17
II. General Reserve		
Surplus		
Opening Balance	4,022.81	3,117.04
Appropriation :		
Add: Transfer from Statement of Income & Expenditure	177.06	905.77
(C)	4,199.87	4,022.81
TOTAL (A+B+C)	14,082.34	13,816.98

3. Other Long Term Liabilities

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
(a) Other Long Term Liabilities		
Pre-BIRAC Unrealised Portfolio		
Pre-BIRAC Unrealised Portfolio	5,820.33	6,475.95
Less: Provision for Sub-Standard & Doubtful Assets (Refer Note 20.3)	5,462.69	5,416.38
(A)	357.64	1,059.57
ACE Funding (Refer Note 20.18) (B)	9,827.90	7,727.71
(b) Deferred Government Grant #		
Opening Balance		
Deferred Government Grant Transferred from Capital Reserve (Refer Note 19.2.4A)	167.37	234.29
Add: Capital Expenditure during the Period	316.56	15.17
Less: Depreciation on Fixed Assets during the Period	(116.50)	(82.09)
(C)	367.43	167.37
Earmarked Funds for Security Deposits (D)	77.03	77.03
TOTAL (A+B+C+D)	10,630.01	9,031.68

Refer Note 19.2.4A

(₹ in lakh)

*Liability towards Gratuity has been netted off against value of Plan Assets of ₹ 143.70 Lakh

5a. Trade Payables

(₹ in lakh)

Trade Payable Ageing Schedule (₹ in lakh)

5b. Other Current Liabilities

(₹ in lakh)

191

5b. Other Current Liabilities contd...

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Other Payables		
Pre-BIRAC Realised Portfolio	8,753.36	8,097.73
Less : Refunded to DBT	-	-
Add : Interest on Pre BIRAC Realised	466.43	227.48
(B)	9,219.79	8,325.21
Statutory Liabilities	(C)	7.54
CSR Fund ##	(D)	101.05
Total (A+B+C+D)	29,154.04	24,131.77

Unutilised Grant under DBT-BMGF-WT PMU is to be utilised over a period of programs.

CSR funds received during the Financial Year from following entities

(₹ in lakh)

Particulars	Stryker Global Technology Center Private Limited	Stryker India Private Limited
Opening Balance as on 1 st April 2023	80.63	20.42
Add: Interest earned during the year	2.01	0.51
Add: Fund received during the Financial Year	-	-
Less: Fund Utilized during the Financial Year	74.99	19.00
Closing Balance as on 31 st March 2024	7.65	1.93

5c. Short Term Provisions

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
For Employee Benefits		
Provision for Performance related pay (PRP)	70.94	70.94
Provision for Leave Encashment	21.16	6.87
	92.10	77.81

6. Schedule of Fixed Assets

(₹ in lakh)

Particulars	Gross Block				Depreciation				Net Block	
	As at	Addition	Sales/ Adjustments	As at	As at	For the Period	Adjustments	As at	WDV as at	WDV as at
	1-Apr-2023	2023-24	2023-24	31-Mar-24	1-Apr-2023	2023-24	2023-24	31-Mar-24	31-Mar-24	31-Mar-23
Tangible Assets										
Furniture & Fixtures	311.95	309.38	-	621.33	256.47	54.67	-	311.13	310.20	55.49
Office Equipment	14.34	3.61	-	17.95	9.09	3.44	-	12.52	5.43	5.25
Computers	169.43	0.94	-	170.38	110.67	35.76	-	146.43	23.95	58.76
Total Tangible Assets	495.73	313.93	-	809.66	376.22	93.86	-	470.09	339.57	119.50
Intangible Assets	85.00	2.63	-	87.62	37.13	22.63	-	59.76	27.86	47.87
Total Intangible Assets	85.00	2.63	-	87.62	37.13	22.63	-	59.76	27.86	47.87
Total	580.72	316.56	-	897.28	413.36	116.50	-	529.85	367.43	167.37
Previous Year Figures	435.61	145.12	-	580.72	331.27	82.09	-	413.36	167	104.34

7. Non-Current Investments

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Others (held on behalf of DBT)		
AcE Funding (Refer Note 20.18)	9,827.90	7,727.71
	9,827.90	7,727.71

8. Long Term Loans & Advances

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Long Term Loans and Advances (Secured against Bank Guarantee/ Hypothecation / Personal Guarantee) *		
Loans Portfolio (Including Interest on Loan Accounts PPP Activities)		
Secured Considered Good	1,029.53	1,583.08
Unsecured Considered Good	Nil	Nil
Doubtful	6,398.72	6,869.20
	7,428.25	8,452.27
Less: Current maturities of Long Term Loans & advances reflected under Current assets	434.23	1,358.30
Less: Provision for Doubtful Assets (Refer Note 20.3)	5,898.45	5,613.91
Less: Provision for Sub-Standard Assets (Refer Note 20.3)	82.32	121.33
	1,013.24	1,358.73
TOTAL	1,013.24	1,358.73

* Refer 20.3 (Securities available are on historical value)

9. Other Non Current Assets

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Security Deposit		
Security Deposit to MTNL	105.40	105.40
Security Deposit to NSIC	77.03	77.03
Total	182.43	182.43

10. Cash & Cash Equivalents

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Cash in Hand	0.25	0.15
Balances with Banks: (Refer Note 20.15)		
In Current Accounts	0.20	0.20
In Saving Accounts	26,791.66	22,341.96
In Fixed Deposits	15,036.55	13,000.00
TOTAL	41,828.66	35,342.30

11. Short Term Loans and Advances

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Current maturities of Long Term Loans and Advances:(*) (Secured against Bank Guarantee/Hypothecation/ Personal Guarantee)	434.23	1,358.30
TOTAL	434.23	1,358.30

* Refer 20.3

12. Other Current Assets

(₹ in lakh)

Particulars	As at 31.03.2024	As at 31.03.2023
Accrued Interest-FD & Saving Account (PPP, DBT / WT)	70.03	52.00
Tax Credit	508.66	551.43
Prepaid Expenses	27.95	56.46
Other Recoverable	57.30	94.38
Unutilised Grant (BIRAC)	-	53.53
Unutilised Grant (Bio-toilets in schools from North East Region)	1.66	1.66
Unutilised Grant (SSC - NTBN)	25.55	25.55
Unutilised Grant (Ind CEPI)	2.48	77.85
Unutilised Grant (Make in India Facilitation Cell)	4.40	-
Biotech Expo	24.19	246.00
TOTAL	722.22	1,158.86

13. Income

(₹ in lakh)

Grants Received as Utilized	For the year ended 31.03.2024	For the year ended 31.03.2023
PPP Activities	10,146.05	15,132.70
BIRAC Activities	4,668.53	3,393.92
TOTAL	14,814.58	18,526.62

14. Other Income

(₹ in lakh)

Particulars	For the year ended 31.03.2024	For the year ended 31.03.2023
Royalty	10.24	39.34
Management Fee - BMGF	11.65	11.65
Interest Received - Bank Accounts	578.65	765.11
Additional Interest	32.31	26.49
Other Receipts	64.01	63.18
Amortised Deferred Government Grant	116.50	82.09
TOTAL	813.36	987.86

15. Programme Expenditure

(₹ in lakh)

Particulars	For the year ended 31.03.2024	For the year ended 31.03.2023
Grants Disbursed		
PPP Activities	10,373.85	14,907.38
BIRAC Activities	2,445.69	1,523.91
Programme Expenditure		
PPP Activities (<i>Operational expenditure on Advertisement, Meeting and PMC</i>)	291.96	225.32
Total	13,111.50	16,656.61

16A. Programme Management Unit DBT & BMGF

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Programme Expenditure (GCI)		1,872.15	2,434.48
Operational Expenditure		363.01	340.18
Operational Non Recurring Expenditure		-	-
	(A)	2,235.16	2,774.66
Less:			
Programme Funds from DBT (GCI)		749.95	453.28
Programme Funds from BMGF (GCI)		1,052.81	1,921.66
Programme Funds from US AID (GCI)		-	-
Programme Funds from WT		33.28	59.54
Programme Funds from WT Sanger (GCI)		-	-
Programme Funds Innovation Challenge (GCI)		36.11	-
	(B)	1,872.15	2,434.48
Less:			
Operational Fund from DBT		-	13.31
Operational Non Recurring Fund from DBT		-	-
Operational Fund from BMGF		363.01	326.87
Operational Non Recurring Fund from BMGF		-	-
Operational Recurring Fund from WT		-	-
	(C)	363.01	340.18
(Refer to Note : 20.13.3)	(A-B-C)	-	(0.00)

16B. Extra-Mural Programme - Make In India

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Programme Expenditure	(A)	43.02	36.94
Operational Expenditure		15.76	3.12
		58.78	40.05
Less:			
Programme Funds from Make in India	(B)	43.02	36.94
		43.02	36.94
Less:			
Operational Fund from Make in India	(C)	15.76	3.12
		15.76	3.12
(Refer to Note : 20.13.5)	(A-B-C)	-	-

16C. Extra-Mural Programme - National Biopharma Mission (Innovate in India)

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Programme Expenditure	(A)	8,289.18	13,990.83
Operational Expenditure		712.81	597.82
		9,001.99	14,588.65
Less:			
Programme Funds from National Biopharma Mission (I3)	(B)	8,289.18	13,990.83
		8,289.18	13,990.83
Less:			
Operational Fund from National Biopharma Mission (I3)	(C)	712.81	597.82
		712.81	597.82
(Refer to Note : 20.13.7)	(A-B-C)	-	-

16D. Extra-Mural Programme - AcE Fund

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Operational Expenditure	(A)	5.72	11.65
		5.72	11.65
Less:			
Operational Fund from AcE Fund	(B)	5.72	11.65
		5.72	11.65
(Refer to Note : 20.13.8)	(A-B)	-	-

16E. Extra-Mural Programme - DBT-BIRAC-SSC(NTBN)

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Operational Expenditure	(A)	-	41.23
		-	41.23
Less:			
Operational Fund from DBT-BIRAC-SSC(NTBN)	(B)	-	41.23
		-	41.23
(Refer to Note : 20.13.9)	(A-B)	-	-

16F. Ind CEPI

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Programme Expenditure	(A)	427.75	-
Operational Expenditure		33.43	107.21
		461.18	107.21
Less:			
Programme Funds from Ind-Cepi	(B)	427.75	-
		427.75	-
Less:			
Operational Fund from Ind-Cepi	(C)	33.43	107.21
		33.43	107.21
(Refer to Note : 20.13.10)	(A-B-C)	-	-

16G. Covid Suraksha

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Programme Expenditure	(A)	13,690.05	17,214.98
Operational Expenditure		7.46	42.93
		13,697.51	17,257.92
Less:			
Programme Funds from National Biopharma Mission (I3)	(B)	13,690.05	17,214.98
		13,690.05	17,214.98
Less:			
Operational Fund from National Biopharma Mission (I3)	(C)	7.46	42.93
		7.46	42.93
(Refer to Note : 20.13.12)	(A-B-C)	(0.00)	(0.00)

16H. Amrit Grand Challenge JanCare program

(₹ in lakh)

Particulars		For the year ended 31.03.2024	For the year ended 31.03.2023
Programme Expenditure		87.04	549.38
Operational Expenditure		6.95	-
	(A)	93.99	549.38
Less:			
Programme Funds from National Biopharma Mission (I3)		87.04	549.38
	(B)	87.04	549.38
Less:			
Operational Fund from National Biopharma Mission (I3)		6.95	-
	(C)	6.95	-
(Refer to Note : 20.13.13)	(A-B-C)	-	-

17. Employees' Benefit Expenses

(₹ in lakh)

Particulars	For the year ended 31.03.2024	For the year ended 31.03.2023
Salary & Allowances to Staff	874.05	865.50
Employer's Contribution to Provident Fund & Other Funds	97.78	112.48
TOTAL	971.83	977.98

18. Other Expenses

(₹ in lakh)

Particulars	For the year ended 31.03.2024	For the year ended 31.03.2023
(A) Rent	651.00	472.69
(B) Advertisement & Publication	20.07	11.28
(C) Journal & Subscription	1.60	1.55
(D) Meetings:		
Meetings & Conferences	35.30	21.88
Sitting Fees & TA and DA	0.69	0.57
(E) Office and Administration Expenditure:		
Travel	81.40	58.30
Office Expenses	348.97	231.38
AMC Computer	2.20	1.91
Legal & Professional	1.80	5.52
Postage & Telephone Expenses	4.99	5.49
Power & Electricity	27.63	24.20
Printing & Stationery	1.08	4.23
Internet Expenses	20.24	17.07
(F) Training Expenses	7.66	7.13
(G) Consultancy Fee	27.61	10.73
(H) Statutory Audit Fees	2.12	2.12
(I) Foreign Exchange Fluctuation	0.17	0.18
TOTAL	1,234.53	876.24

19. Significant Accounting Policies

1. Corporate Information

Biotechnology Industry Research Assistance Council (BIRAC) "the Company" is a Section - 8 "Not-for-Profit Company" under the provisions of the Companies Act, 2013 having CIN U73100DL2012NPL233152. BIRAC is also registered under Section - 12A of the Income Tax Act, 1961. The Company is engaged in nurturing, promoting and mentoring Research and Development in Biotech Sector.

2. Basis of Preparation of Financial Statements

The Financial Statements of the Company are prepared in accordance with Generally Accepted Accounting Principles in India (Indian GAAP). These are in compliance, in all material respects, with the Accounting Standards notified under the Companies (Accounting Standards) Amendment Rules, 2016, (as amended) and the relevant provisions of the Companies Act, 2013. The Financial Statements are prepared on accrual basis and under the historical cost convention.

Preparation of Financial Statement requires the Management to make estimates and assumptions in regard to the reported amount of assets, liabilities, expenses and income of the reporting period. The estimates used in preparation of the Financial Statement are prudent and reasonable. The difference between the actual results and estimates, if any, are recognised in the reporting period in which the results are known and / or materialised.

2.1 Revenue Recognition

- i) Interest:
 - a) Interest on loan granted is recognised on a time proportion basis taking into account the amount outstanding and applicable rate of interest. Interest Accrued, not yet realisable during the year on loans under various schemes are shown under other Reserves. Additional interest on the delayed payment is recognised on receipt basis.
 - b) Interest against time deposits with banks are accounted on accrual basis.
- ii) Royalty is recognised on accrual basis on acknowledgment of amount due by the beneficiary.
- iii) Management Fee is recognised on accrual basis in accordance with the terms of the relevant agreement.

2.2 Grants-in-Aid

Income by way of grants-in-aid has been recognised under Matching Principle of Accounting. All expenditure incurred out of the grants-in-aid, comprising of grants disbursed and other programmatic expenditure are matched with equal amount of income and adjusted against the grants-in-aid. Unspent balance of Grants-in-aid are carried forward as liability to be utilised in subsequent years.

The application of funds for disbursement of loans under different schemes is shown as Loans and Advances under Non-Current Assets. Loans disbursed during the year under different scheme are shown under other reserves as per Matching Principle of Accounting.

2.3 Expenditure

All expenses are accounted for on accrual basis.

Funds released as grants-in-aid are treated as expenditure in the Income & Expenditure Account. Further, amount unutilised as per the Utilisation Certificates received on completion of the projects are accounted as Income.

2.4 Reserve & Surplus

- a) Grant-in-aid used for acquiring depreciable assets set up as Deferred Government Grant and recognised in the Statement of Income & Expenditure on a systematic basis over the useful life of the asset.
- b) DBT portfolio taken in account by BIRAC from BCIL as on 31.3.2014 vide DBT transfer Order dated 25th September 2012 and approved by Board dated 17th December 2013 was classified as Other Reserves. Consequent to the direction by DBT vide Order dated 8.11.2017, the pre BIRAC Realised Portfolio is to be refunded back to DBT. In accordance to the Order, outstanding unrealised portfolio has been transferred from Other Reserves to Non-Current Liabilities and pre-BIRAC Realised Portfolio has been transferred from Other Reserves to Current Liabilities. Funds utilized for Loans subsequent to the date of take over along with accrued interest (not yet realisable) during the financial year is continued to be held as Other Reserves.

Provision for any substandard / doubtful / Bad debt that may arise on non-recovery from any borrower would be adjusted against the taken over amount first. Any write-off which is not covered by the amount taken over would be subsequently adjusted against Fund utilized subsequent to the date of take over held under "Other Reserves".

2.4A Deferred Government Grant

Grant-in-aid used for acquiring depreciable assets set up as Deferred Government Grant and recognised in the Statement of Income & Expenditure on a systematic basis over the useful life of the asset.

2.5 Fixed Assets

Fixed Assets are stated at cost, net of accumulated depreciation and accumulated impairment losses, if any. Gains or losses arising from disposal of fixed assets are measured as the difference between the net disposal proceeds and the carrying amount of the assets disposed of.

2.6 Depreciation and Amortization

Depreciation on assets is provided on useful life basis on written down value method as prescribed under Schedule II to the Companies Act, 2013.

Depreciation on fixed assets added/disposed of during the year/period is provided on pro-rata basis with reference to the date of addition/disposal.

2.7 Intangible Assets

Intangible assets acquired are measured separately at cost. Intangible assets are carried at cost less accumulated amortization and accumulated impairment losses, if any. Internally, generated intangible assets are not capitalized and expensed off in the Statement of Income and Expenditure in the year in which the expenditure is incurred.

Intangible assets are amortized over a period of five years as per Accounting Standard - 26 as no useful life provided in Schedule II to the Companies Act, 2013.

2.8 Investments

Current investments are carried at lower of cost and quoted/fair value, computed category-wise. Long-term investments are stated at cost. Provision for diminution in the value of long-term investments is made only if such a decline is other than temporary.

2.9 Foreign Exchange Transactions/Translation

Foreign currency transactions and balances: Foreign Currency Transfer is made as per the approved Government guidelines. For any contribution being received from foreign entities, the necessary approval is obtained under the Foreign Contribution (Regulation) Act, 2010.

- (i) **Initial Recognition:** Foreign currency transactions are recorded in the reporting currency by applying the exchange rate between the reporting currency and the foreign currency at the date of the transaction.
- (ii) **Conversion:** Foreign Currency monetary items are retranslated using the exchange rate prevailing at the reporting date.
- (iii) **Exchange Difference:** Exchange differences arising on long-term foreign currency monetary items related to acquisition of a fixed asset are capitalized and depreciated over the remaining useful life of the asset. The exchange differences on other foreign currency monetary items are accumulated in 'Foreign Currency Monetary Item Translation Difference Account' and amortized over the remaining life of the concerned monetary item.

All other exchange differences are recognized as income or as expenses in the period in which they arise.

2.10 Employees' Benefits

- a) All the employees of the Company are on contractual basis. Provision of Employer's contribution is made as per the provisions of Employees Provident Fund Act, 1952.
- b) The Company makes annual contributions under the Employees Gratuity scheme to a fund administered by Trustees covering all eligible employees. The plan provides for lump sum payments

to employees whose right to receive gratuity had vested at the time of resignation, retirement, death while in employment or on termination of employment of an amount equivalent to 15 days salary for each completed year of service or part thereof in excess of six months. Vesting occurs upon completion of five years of service except in case of death.

The plan assets are maintained with SBI Life Insurance Company Ltd. Employee Gratuity Scheme. The details of Investments maintained by SBI Life Insurance Company Ltd are not made available and have therefore not been disclosed.

- c) Company's liability towards employee benefits such as leave encashment is provided on the basis of actuarial valuation.

2.11 Operating Leases

Lease payments for assets taken on operating lease are recognised as an expense in the Statement of Income & Expenditure as per terms of lease agreement.

2.12 Provisions & Contingent Liabilities

- a) Funds sanctioned and yet to be released till the reporting period due to timing difference of milestone are not taken as liability, these are accounted as expenses on actual release of payment.
- b) Provisioning on substandard Asset has been provided as per the approved classification of asset based on recoverability.
- c) A provision is recognized when the company has present obligations as a result of past event. It is probable that an outflow of resources embodying economic benefits will be required to settle the obligations and reliable estimate can be made of amount of the obligation. Provisions are not discounted at their present value and are determined based on the best estimate required to settle the obligation at the reporting date. These estimates are reviewed at each reporting date and adjusted to reflect the current best estimates.

2.13 Earning Per Share

The company is a section - 8 "Not for Profit Company". It does not generate any income/ revenue from its activities. It does not distribute any dividend to its shareholders. However, for the compliance of AS -20 the company has computed EPS as under:

- a) Basic earnings per share are calculated by dividing the net income or loss for the period attributable to equity shareholders by weighted average number of equities shares outstanding during the period.
- b) For the purpose of calculating diluted earnings per share, the net profit or loss for the period attributable to equity shareholders and the weighted average number of shares outstanding during the period are adjusted for the effects of all diluting potential equity shares.

2.14.1 Corporate Social Responsibility (CSR) on BIRAC:

The Ministry of Corporate Affairs (MCA) vide notification dated 27th February 2014 has notified the enforceability of Section 135 of Companies Act, 2013 (i.e. provision for CSR) and Companies (Corporate Social Responsibility Policy) Rules, 2014 with effect from 01.04.2014.

Section 135 of the Companies Act 2013 provides the threshold limit for applicability of the CSR to a Company:

- (a) Net worth of ₹ 500 Crore (Rupees Five Hundred Crore) or more;
Or
- (b) Turnover of ₹ 1,000 Crore (Rupees One Thousand Crore) or more;
Or
- (c) Net profit of ₹ 5 Crore (Rupees Five Crore) or more.

"Net profit" shall not include such sums as may be prescribed and shall be calculated in accordance with the provisions of Section 198 of Companies Act.

Year of Applicability of CSR on BIRAC : F.Y. 2019-20 (Triggered year)

Reason : BIRAC has achieved the surplus of ₹ 7.95 Crore during the Financial Year 2019-20.

As BIRAC falls under clause (c), provisions of CSR is applicable from financial year 2020-21.

20. Notes to Accounts for the year ended 31st March 2024

- 20.1** Biotechnology Industry Research Assistance Council (BIRAC) receives funds from Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India by way of grant-in-aid for its operation.
- 20.2** The disbursement were made in tranches as per the milestones determined for the activities. Contingent liability on account of sanctioned grants but not disbursed due to the timing difference of milestone based payments are not accounted.

During the current reporting period BIRAC disbursed the following amounts under different Schemes.

(₹ in lakh)

Particulars	Disbursement For the year ended 31.03.2024	Disbursement For the year ended 31.03.2023
PPP Activities		
Biotechnology Industry Partnership Programme (BIPP)	1,376.70	949.72
Small Business Innovation Research Initiatives (SBIRI)	573.44	622.43
Bio- Incubators support Scheme (BISS)	1,114.55	2446.36
Biotech Ignition Grant (BIG)	4,388.67	6523.33
University Innovation Cluster (UIC)	610.93	138.22
Translation Accelerator (TA)	276.08	189.61
Contract Research Scheme (CRS)	466.22	741.97
Social Innovation programme for Products: Affordable & Relevant to Societal Health (SPARSH)	646.79	613.23
Seed Funding for Incubators	100.00	539.08
Product Commercialization Unit (PCU)	393.10	363.25
SITARE		200.00
Mission Program on Anti Microbial Resistance (AMR)		112.99
Innovation Clean technologies	24.24	86.56
Covid_(A) Fast Track		
Covid_(B) Research Consortium	0.17	55.21
Covid_(C) Therapeutics	49.75	208.40
LEAP Fund	317.10	900.00
Amrit Grand Challenge JanCare program	36.11	
Grant Disbursed Grand Challenges		217.01
Total	10,373.85	14907.38
BIRAC Activities		
Partnership Program	1,957.41	1029.12
Capacity Building & Awareness	82.21	43.78
Technology Transfer / Acquisition	225.17	148.84
IP Services	95.90	71.73
Entrepreneurial Development / Regional Centres	85.00	230.45
Total	2,445.69	1523.91

- 20.3** Loan and installment due from borrowers shown under Long term Loans & Advances and other Current Assets respectively are secured wholly or partly by way of bank Guarantee/Hypothecation of asset/personal guarantee.

BIRAC has classified the loan assets based on aging of overdue under standard asset, standard asset – Rescheduled, sub-standard asset, and doubtful assets as under:

Class of Assets	Description	Aging of overdue	% of Provisioning
Standard Asset	Loan accounts not rescheduled and not classified as substandard or doubtful.	Upto 365 days	NIL
Standard Asset - Rescheduled	Loan accounts which, on account of reschedulement, are not classified as substandard or doubtful assets.	Upto 365 days	NIL
Substandard Asset	Loan accounts, other than Standard Asset-Rescheduled, in which payment of installment is due for more than one year (365 days).	More than 365 days-999 days	upto 25%
Doubtful Asset	Loan accounts classified as doubtful, in which payment of installment is due for 1000 days and above	Above 999 days -1999 days	25% (cumulative 50%)
		Above 1999 days	50% (cumulative 100%)

- 20.3(a)** On Classification of an asset from standard to sub-standard or doubtful, interest has been derecognised and requisite provisioning are made for the substandard asset and Doubtful assets. The details of standard, standard- rescheduled, substandard and doubtful assets and the provisions are done on annual basis.

(₹ in lakh)

Particulars		As on 31.03.2024	As on 31.3.2023
Standard Asset	A	854.26	1,212.15
Standard Asset – Rescheduled	B	175.27	370.93
Sub Standard Assets	C	329.27	485.31
Doubtful Assets	D	6,069.45	6,383.89
Total Assets	E (A+B+C+D)	7,428.25	8,452.27
Provision on Substandard Assets	F	82.32	121.33
Provision on Doubtful Assets	G	5,898.44	5,613.91
Total Provision	H(F+G)	5,980.76	5,735.24
Interest derecognised during the FY	I	112.62	121.56

20. Notes to Accounts for the period ended 31st March 2024.

20.3 b-I

Movement of Loans

(₹ in lakh)

S. No.	Particular	Opening Balance as on 01.04.2024	Transfer to Standard Assets Reschedule during the year	Transfer from Standard Assets Reschedule during the year	Transfer from Standard Assets to Sub Standard during the year	Transfer from Standard Assets to Doubtful during the year	Transfer from Sub-Standard during the year	Disbursement during the year	Interest Recognised During the year	Recovery during the FY 2023-24	Number of parties of closed Accounts	Closing balance as on 31.03.2024	No. of Parties	Remark for Reschedule with name of approval authority and its impact
		A	B	C	D	E	F	G	H	U	H	K=A+B+C-D-E+F+G-H		
	Standard Assets	1,212.15	-	-	-	-	49.14	-	19.13	426.15	-	854.26	-	1 nos. of Loan account has been transferred from Substandard.
1		A	B	C	D	E	F	G	H	I	J	K=A+B+C-D-E+F+G-H		
	Numbers of Parties	25	0	0	0	0	1	0	0	0	9	17	17	

20.3 b-II

(₹ in lakh)

S. No.	Particular	Opening Balance as on 01.04.2024	Increase in Standard Assets Reschedule as transfer from Standard Asset	Decrease in Standard Assets Reschedule as transfer to Standard Asset	Increase in Standard Assets Reschedule as transfer From Sub Standard Asset	Disbursement during the year	Interest Recognised During the year	Recovery during the FY 2023-24	Number of parties of closed Accounts	Closing balance as on 31.03.2024	No. of Parties	Remark for Reschedule with name of approval authority and its impact
		A	B	C	D	E	F	G	H	I=A+B-C+D+E+F-G		
	Standard Assets reschedule	370.93	-	-	-	-	5.76	201.43	-	175.27	-	
2		A	B	C	D	E	F	G	H	I=A+B-C+D+E+F-G		
	Numbers of Parties	3	0	0	0	0	0	0	1	2	2	

20.3 b-III

(₹ in lakh)

S. No.	Particular	Opening Balance as on 01.04.2024	Increase in Sub Standard as transfer from Standard Asset Reschedule/ Standard Assets	Decrease in Sub Standard as transfer to Standard loan Reschedule	Decrease in Sub Standard as transfer to Doubtful Assets	Decrease in Sub Standard as transfer to Substandard Assets	Disbursement during the year	Interest Recognised During the year	Recovery during the FY 2023-24	Number of parties of closed Accounts	Closing balance as on 31.03.2024	No. of Parties	Provisions on Substandard Assets	Net Closing Balance as on 31.03.2024 (after provisions)	Remark for Reschedule with name of approval authority and its impact
		A	B	C	D	E	F	G	H	I	J=A+B-C-D-E+F+G-H		K	L=H-K	
	Sub Standard Assets	485.31	-	-	-	49.14	-	0.01	106.91	-	329.27	-	82.32	246.95	1 nos. of Loan account has been transferred to Standard
3		A	B	C	D	E	F	G	H	I	J=A+B-C-D-E+F+G-H				
	Numbers of Parties	6	0	0	0	1	0	0	0	0	5	-	5		

20.3 b-IV

(₹ in lakh)

S. No.	Particular	Opening Balance as on 01.04.2024	Increase in Sub Standard as transfer from Standard Asset Reschedule/ Standard Assets	Decrease in Sub Standard as transfer to Standard loan Reschedule	Decrease in Sub Standard as transfer to Doubtful Assets	Decrease in Sub Standard as transfer to Sub Standard Assets	Disbursement during the year	Interest Recognised During the year	Recovery during the FY 2023-24	Number of parties of closed Accounts	Closing balance as on 31.03.2024	No. of Parties	Provisions on Sub Standard Assets	Net Closing Balance as on 31.03.2024 (after provisions)	Remark for Reschedule with name of approval authority and its impact
		A	B	C	D	E	F	G	H	I	J=A+B-C-D-E+F+G-H		K	L=J-K	
	Doubtful Assets	6,383.89	-	-	-	-	29.07	343.51	-	-	6,069.45	-	5,898.44	171.01	
4		A	B		C	D	E	F	G	H	I=A+B+C-D+E+F-G-H				
	Numbers of Parties	44	0	0	0	0	0	0	0	0	44	44	-	44	

Gross Total Value as per Balance sheet (I+II+III+IV)

7,428.25

68

5,980.76

1,447.49

20.4 Age Wise Overdue Position

(₹ in lakh)

Particulars		As on 31.03.2024	As on 31.3.2023
Upto one year	(A)	-	-
More than one year accumulated	(B)	6,138.77	6,403.66
	Total (A+B)	6,138.77	6,403.66

20.5 Suit Filed Accounts:**20.5.1 Suits filed by the company:**

(₹ in lakh)

Particulars	As on 31.03.2024		As on 31.3.2023	
	Number of accounts	Total Amount*	Number of accounts	Total Amount
Suit filed accounts	14	6,273.73	2	1,098.34

* The Suit filed account as above are classified and necessary provisions are made.

20.5.2 Suits filed against the company:

Particulars	As on 31.03.2024		As on 31.3.2023	
	Number of accounts	Total Amount	Number of accounts	Total Amount
Suit filed accounts	2	Nil	2	Nil
	1	3.31	-	-

20.6 Programme Management Unit – DBT and BMGF

Department of Biotechnology (DBT) and Bill Melinda Gates Foundation (BMGF) have signed an MOU for supporting priority areas of research. BIRAC has been entrusted the responsibility to be the “Technical Management Unit”. In this regard, BIRAC established a Programme Management Unit to administer programmes, of affordable product development in the area of Health Care and Agriculture. **Refer Note 20.13.3**

20.7 BIRAC – Extra Mural Programme

- MeitY(IIPME):** Industry innovation programme on Medical electronics has been initiated by BIRAC in collaboration with Ministry of Electronics and Information Technology, Government of India. **Refer Note 20.13.4**
- Make in India Facilitation Cell:** BIRAC has established a programme management unit for Biotechnology Industry Facilitation – Make in India Cell to channelize investment in India. **Refer Note 20.13.5**
- Bio-toilets in schools from North East Region:** BIRAC is undertaking a programme on Bio toilets in schools from North East Region for benchtop demonstration of anaerobic digester for bio-gas generation and its utilization. **Refer Note 20.13.6**
- National BioPharma Mission (I3) :** The program named Innovate in India (I3) is an industry-academia collaborative mission of Department of Biotechnology (DBT) in collaboration with World Bank for accelerating discovery research to early development of Bio-pharmaceuticals and to be implemented by Biotechnology Industry Research Assistance Council (BIRAC). **Refer Note 20.13.7**

- (e) **AcE Fund:** BIRAC is implementing the Biotechnology Innovation Fund - AcE Fund initiated by Department of Biotechnology, Govt of India for providing risk capital to Biotech start-ups for product development cycle and growth phase. **Refer Note 20.13.8**
- (f) **SSC(NTBN):** BIRAC is undertaking a programme on Setting up of secretarial for scientific sub-committee (SSC-NTBN) under the national Technical Board on Nutrition (NTBN). **Refer Note 20.13.9**
- (g) **IndCEPI:** BIRAC is undertaking a programme on Setting up of Epidemic preparedness through rapid vaccine development : support of Indian Vaccine development aligned with the global initiative of the Coalition for Epidemic preparedness Innovative (CEPI). **Refer Note 20.13.10**
- (h) **GBI:** Global Bio India, A mega Biotech event was organised by DBT along with BIRAC , New Delhi. BIRAC implemented the event through Make in India (MII) cell at BIRAC with others partners. The event witnessed a participation of 2500+ participants from Academia, Industry, Start-ups Investors National & International fraternity. **Refer Note 17.13.11**
- (i) **Mission COVID SURAKSHA:** The Indian COVID 19 Vaccine Development Mission “**COVID SURAKSHA**”. Accelerating pre-clinical & clinical development and licensure of COVID-19 vaccine candidates that are currently in clinical stages or ready to enter clinical stage of development. Establishing clinical trial sites. Immunoassay laboratories, central labs and suitable facilities for animal studies, production facilities and other testing facilities to support COVID-19 vaccine development. Supporting development of common harmonized protocols, trainings data management systems, regulatory submissions, internal and external quality management systems and accreditations, to accelerate clinical development and licensure of COVID-19 vaccine candidates that have targets identified. Supporting capabilities for process development, cell line development and manufacturing of GMP batches for animal toxicology studies and clinical trials. Ensuring all vaccines being introduced through the Mission have preferred characteristics applicable for India. **Refer Note 20.13.12**
- (j) **Amrit Grand Challenge JanCare program:** Grand innovation Challenge Program aimed to identify and support start-ups developing Telemedicine, Artificial Intelligence, Digital Health, Big data solutions. **Refer Note 20.13.13**

20.8 Prior Period Adjustment

The prior period items are accounted in accordance with Accounting Standard - 5.

The previous year figures are reclassified and regrouped in accordance with the requirements applicable in the current financial year.

20.9 Related Party Disclosure

The provisions of Accounting Standard-18 are not applicable as there is no transaction between a reporting enterprise and its related parties.

Name of Related Party	Transaction during the year with related Party	Remuneration (in Lakhs)
Dr. Jitendra Kumar, Managing Director	Nil	34.77
CA. Nidhi Shrivastava, Director Finance	Nil	34.00

20.10 Provision for Tax

No Provision for Income Tax has been made in the current reporting period since the company has been registered as a charitable entity u/s 12A of Income Tax Act, 1961 vide order No. 2974 dated 12th May, 2014.

20.11 Foreign Exchange Transactions

During the current reporting period the following income/expenditure has been incurred.

- A. Income:** Grant received in foreign exchange to the extent utilised ₹ 1449.12/- Lakh (Previous Year ₹ 2308.7/- Lakh)

B. Expenditure:

(₹ in lakh)

S. No.	Particulars	As on 31.03.2024	As on 31.3.2023
(i)	Technology Transfer	23.83	26.94
(ii)	Books, Journal and Database Subscriptions	-	-
(iii)	Entrepreneurship Development	-	-
(iv)	Advertisement/Publicity/Publication	-	-
(v)	Foreign Travel and Meetings	1.47	3.47

C. CIF Value of import is Nil for the current reporting period.**20.12 Details of Fund available and Utilised**

(₹ in lakh)

S. No.	Particulars	Fund Available	Fund Utilised	Limit Expired/ Transferred	Balance
1	BIRAC	5,353.05	4,985.09	154.07	213.89
2	PPP Activities	10,146.05	10,146.05	-	-
3	PMU - DBT/BMGF:				
	(i) Operational	1,927.35	363.01	-	1,564.34
	BMGF	1,927.30	363.01		1,564.29
	DBT Operational	-	-		-
	DBT - Non Recurring	-	-	-	-
	WT Operational	0.05	-	-	0.05
	(ii) Projects	16,212.66	1,883.78	636.00	13,692.89
	BMGF	14,464.90	1,052.83		13,412.07
	DBT	1,434.15	761.56	636.00	36.60
	USAID	155.62	-		155.62
	GCI Innovation Challenge	50.00	36.11		13.89
	WT Projects	38.17	33.28		4.89
	WT SANGER Projects	69.83	-		69.83
	Total	18,140.01	2,246.79	636.00	15,257.23
4	MeitY(IIPME)	71.29	-	-	71.29
5	Make in India Facilitation Cell	55.83	60.23	-	(4.40)
6	Bio-toilets in schools from NER	(1.66)	-		(1.66)
7	National BioPharma Mission (I3)	12,468.25	9,151.25	2,139.54	1,177.46
8	AcE Fund	5,408.74	2,105.91	1,668.71	1,634.12
9	SSC(NTBN)	(25.55)	-	-	(25.55)
10	IndCEPI	2,169.54	461.47	1,710.55	(2.48)
11	GBI	50.80	0.81	-	49.99
12	Covid Suraksha	23,741.57	14,262.01	8,033.44	1,446.13
13	Amrit Grand Challenge JanCare program	159.91	100.33	-	59.58

20.13 Supplementary Schedule on Scheme Balances as on 31.03.2024

20.13.1 PPP Activities Funds

(₹ in lakh)

	Particulars		As on 31.03.2024	As on 31.3.2023
	Opening Balance		294.58	12.72
Add:	Funds received from DBT		9,702.15	14,500.00
Add:	Interest Income		-	-
Add:	Recoveries from unspent grant		149.32	1,074.17
			10,146.05	15,586.88
Less:	Amount disbursed during the year :			
	Grants Disbursed	10,373.85		14,907.38
	Loans Disbursed	-		-
	Programme Expenses	291.96		225.32
	Interest Refund to DBT	-	10,665.81	159.60
			(519.76)	294.58
Add :	Surplus Redeployed towards Expenses		519.76	-
	Unutilised Balance Carried Forward		-	294.58

20.13.2 BIRAC Funds

(₹ in lakh)

	Particulars		As on 31.03.2024	As on 31.3.2023
	Opening Balance		(53.53)	158.77
Add:	Received from DBT		5,200.00	4,000.00
Add:	Interest Income		-	-
Add:	Recoveries from unspent grant		206.58	46.03
			5,353.05	4,204.80
Less:	Amount disbursed for Grants			
	Partnership Programmes	1,957.41		1,029.12
	Technology Transfer & Acquisition	225.17		148.84
	Intellectual Property	95.90		71.73
	Entrepreneurial Development	85.00		230.45
	Capacity Building & Awareness	82.21		43.78
		-	2,445.69	-
			2,907.36	2,680.89
Less:	Utilisation towards:			
	Manpower Expenses	971.83		977.98
	Non-Recurring Expenses	316.56		92.27
	Recurring Expenses	1,251.01		892.02
	Interest Refunded	-	2,539.40	31.51
			367.96	687.11
Less:	Limit Expired		154.07	740.64
	Unutilised Balance Carried Forward		213.89	(53.53)

20.13.3 BMGF PMU

(₹ in lakh)

	Particulars		As on 31.03.2024	As on 31.3.2023
	Opening Balance			
	Operations Fund	1,794.30		1,851.92
	Project Fund	11,164.07	12,958.37	11,112.08
Add:	Received From BMGF - Project	2,598.46		1,959.02
	Received From BMGF - Operations	-		638.49
	Received From DBT - Project	1,422.55		86.71
	Received From DBT - Operations	76.01		-
	Received From WT SANGER	-		-
	Received From WT Projects	126.70		-
	Received From WT - Operations	-	4,223.71	0.61
Less:	Interest Refunded		11.61	50.54
Add:	Bank Interest & Unspent Grant	-	957.93	578.30
			18,128.41	16,176.58
Less:	Project Disbursement			
	GCI: GSED	26.31		104.67
	GCI: ACT			360.15
	GCI: IKP			
	GCI: IDIA			57.91
	GCI: HPV	551.25		507.97
	GCI: AMR	5.43		14.43
	GCI: Ki Data Challenge	9.26		42.89
	GCI: Sentinels	3.31		1.90
	GCI: MSSFR			45.03
	GCI: Selenium	173.73		167.66
	GCI: GIPA	11.56		177.95
	GCI: Covid 19	22.27		327.43
	GCI: WT Sanger			-
	GCI: MOMI	350.38		155.03
	GCI: Non-Hormonal Contraceptive	307.52		94.42
	GCI: Innovation Challenge	36.11		-
	GCI: Med Tech	138.71		168.66
	GCI: RTTC	29.70		39.34
	GCI: NTD	184.41		0.90
	GCI: MOMI IDES-2021_N-Link	22.22		29.59
	GCI: WLGH Meeting			17.02
	GCI: Sero Surveillance			21.54
	GCI: Amrit Grand Challenge			100.00
			1,872.17	
Less:	Activities Expenditure			
	KSTIP (KnIT	4.27		6.50
	Communication Support	-	4.27	-

	Particulars		As on 31.03.2024	As on 31.3.2023
Less:	Operational Expenditure			
	Manpower Expense	178.17		148.63
	Meeting Expenses	53.80		45.91
	Expenses for Space	89.95		126.93
	Administrative Expenses	25.16		0.56
	Equipment Expenses	-		-
	Wellcome Trust- Manpower	-		-
	Management Expenses	11.65	358.73	11.65
Less:	Limit Expired		539.67	443.55
	Limit Transferred		96.33	-
	Balance Fund			
	BMGF - Projects	13,412.07		10,596.47
	DBT - Projects	36.60		11.60
	USAID - Projects	155.62		151.53
	BMGF - Operations	1,564.29		2,280.26
	DBT - Operations	-		(76.01)
	WT SANGER	69.83		67.99
	GCI Innovation Challenge	13.89		15.00
	WT Projects	4.89		(88.53)
	WT- Operation	0.05	15,257.23	0.05
			15,257.24	12,958.37

20.13.4 MeitY(IIPME)

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	59.96	39.53
	Received during the period	-	-
		59.96	39.53
Add:	Bank Interest	-	1.07
	Recoveries from unspent grant	11.33	19.36
		71.29	59.96
Less :	Programme Expenditure*	-	-
	Operational Expenditure	-	-
		71.29	59.96
Add:	Fund Redeployed towards Expenses from BIRAC	-	-
	Unutilised Balance Carried Forward	71.29	59.96

*The programme expenditure includes loan disbursed amounting to ₹ NIL (PY NIL) having total outstanding Amount of ₹ 10.11 lacs including accrued interest (PY ₹ 21.08 lacs)

20.13.5 Make in India Facilitation Cell

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	1.45	96.61
	Received during the period	-	-
		1.45	96.61
Add:	Limit Reassigned	54.38	
Add:	Bank Interest		1.45
		55.83	98.06
Less :	Operational Expenditure	58.78	40.05
	Interest Refund to DBT	1.45	2.18
	Limit Expired	-	54.38
	Unutilised Balance Carried Forward	(4.40)	1.45

20.13.6 Bio-toilets in schools from North East Region

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	(1.66)	3.81
	Received during the period	-	-
		(1.66)	3.81
Add:	Bank Interest	-	-
		(1.66)	3.81
Less :	Programme Expenditure	-	-
	Interest Refund to DBT	-	5.47
	Unutilised Balance Carried Forward	(1.66)	(1.66)

20.13.7 National Biopharma Mission (Innovate in India)

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	238.54	12,834.48
	Received during the period	-	13,000.00
	Limit reassigned	11,272.85	-
		11,511.39	25,834.48
Add:	Recoveries from unspent grant	956.86	400.90
	Bank Interest	-	149.26
		12,468.25	26,384.65
Less :	Programme Expenditure	8,289.18	13,990.83
	Operational Expenditure	712.81	597.82
	Interest Refund to DBT	149.26	284.61
	Limit Expired	2,139.54	11,272.85
	Unutilised Balance Carried Forward	1,177.46	238.54

20.13.8 AcE Fund

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	1,206.25	4,805.68
	Limit reassigned	3,569.18	-
		4,775.44	4,805.68
Add:	Bank Interest and other receipts	633.30	1,206.25
		5,408.74	6,011.93
Less :	AcE Funding	2,100.19	1,224.84
	Operational Expenditure	5.72	11.65
	Limit Transferred to PPP	1,668.71	-
	Limit Expired	-	3,569.18
	Unutilised Balance Carried Forward	1,634.12	1,206.25

20.13.9 SSC(NTBN)

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	(25.55)	15.74
	Received during the period	-	-
		(25.55)	15.74
Add:	Bank Interest	-	0.06
		(25.55)	15.80
Less :	Operational Expenditure	-	41.23
	Interest Refund to DBT	-	0.12
	Unutilised Balance Carried Forward	(25.55)	(25.55)

20.13.10 Ind CEPI

(₹ in lakh)

	Particulars	As on 31.03.2024	As on 31.3.2023
	Opening Balance	(77.85)	57.19
	Received during the period	2,247.39	-
		2,169.54	57.19
Add:	Bank Interest	-	0.29
		2,169.54	57.48
Less :	Programme Expenditure	427.75	-
Less :	Operational Expenditure	33.43	107.21
Less :	Interest Refund to DBT	0.29	28.12
Less :	Limit Transferred to PPP and National Biopharma	1,400.00	-
Less :	Limit Expired	310.55	-
	Unutilised Balance Carried Forward	(2.48)	(77.85)

(₹ in lakh)

20.13.12 Covid Suraksha

(₹ in lakh)

20.13.13 Amrit Grand Challenge JanCare program

(₹ in lakh)

217

20.14 Disclosures required under Section 22 of Micro, Small and Medium Enterprises (MSME) Development Act, 2006

(₹ in lakh)

S. No.	Particulars	AS ON 31.03.2024	AS ON 31.03.2023
(i)	Principal amount remaining unpaid to MSME suppliers as at the end of the reporting period.	34.73	27.70
(ii)	Interest due thereon remaining unpaid to MSME suppliers as at the end of the reporting period.	-	-
(iii)	The amount of interest paid along with the amounts of the payment made to the supplier beyond the appointed day.	-	-
(iv)	The amount of interest due and payable for the period.	-	-
(v)	The amount of interest accrued and remaining unpaid at the end of the reporting period.	-	-
(vi)	The amount of further interest due and payable even in the succeeding year, until such date when the interest dues as above are actually paid.	-	-
	Total	34.73	27.70

The above information regarding dues to MSME has been determined to the extent such parties have been identified on the basis of information submitted.

20.15 Details of Balances with Banks

(₹ in lakh)

Particulars	AS ON 31.03.2024	AS ON 31.03.2023
Current Accounts		
Union Bank of India (DBT-BMGF PMU)	0.20	0.20
Saving Accounts		
Union Bank of India (BIRAC/Make In India/Bio-Toilets/MeitY)	24,836.42	16,487.98
HDFC Bank (BIRAC)	9.70	1.23
State Bank of India (PPP Activities/AcE,NBM)	196.49	4,375.55
State Bank of India (DBT-NBM PMU)	790.76	702.95
State Bank of India (DBT-BMGF PMU)	958.29	757.46
ICICI Bank (ZBSA)	-	16.79
RBI TSA Account	-	-
	26,791.66	22,341.96
Fixed Deposits		
- Maturity less than 90 days	15,036.55	13,000.00
	15,036.55	13,000.00

Cash and Cash Equivalents include deposits maintained by the Company with banks, which can be withdrawn by the Company at any point of time without prior notice or penalty on the principal in accordance of the terms & conditions of the creation of the deposits.

20.16.1 Disclosure of Corporate Social Responsibility

- a - Gross amount required to be spent by the company during the year - ₹ 16.52/- Lacs
- b - Amount approved by the Board to be spent during the year - ₹ 16.52/- Lacs

c - Amount Spent during the year on:

(₹ in Lakh)

S. No	Particulars	Paid	Yet to be paid	Total
1	Swachh Bharat Kosh	16.52	-	16.52

d - The amount of shortfall at the end of the year out of the amount required to be spent by the Company during the year: **Nil**e - The amount of shortfall at the end of the year out of the amount required to be spent by the Company during the year: **Nil**f - The total of previous years' shortfall amounts : **Nil**g - The reason for above shortfalls by way of a note: **NA**h - The nature of CSR activities undertaken by the Company : CSR amount contributed to **Swachh Bharat Kosh as per schedule VII of Companies Act, 2013**i - the shortfall amount (i.e. unspent amount), in respect of other than ongoing projects, transferred to a Fund specified in Schedule VII to the Act, as per section 135(5) of the Act : **NA**j - the shortfall amount (i.e. unspent amount), pursuant to any ongoing project, transferred to special account as per section 135(6) of the Act. : **NA****20.16.2 Disclosure on receipt of CSR Contribution**

BIRAC being a Section - 8 company, the Board in its 40th Board Meeting held on 12th February, 2020 has approved for accepting CSR fund for furthering the mandate of BIRAC for setting up Incubation centres and innovation network in the country.

BIRAC has registered itself as an implementing agency under the Companies Act, 2013 and Rules made thereunder vide filling the Form CSR-1 to the Ministry of Corporate Affairs (MCA). The CSR registration number is CSR00025388.

BIRAC received CSR funds of ₹ Nil from 'Stryker Global Technology Center Private Limited' for ongoing project.

BIRAC received CSR funds of ₹ Nil from 'Stryker India Private Limited' for ongoing project.

CSR funds received during the financial year as below

(₹ in Lakh)

Particulars	Stryker Global Technology Center Private Limited	Stryker India Private Limited
Opening Balance as on 1 st April 2023	80.63	20.42
Add: Interest earned during the year	2.01	0.51
Add: Fund received during the Year	0.00	0.00
Less: Fund Utilized during the Year	74.99	19.00
Closing Balance as on 31 st March 2024	7.65	1.93

20.17 Disclosure pursuant to Accounting Standard (AS) 15 Revised "Employee Benefits":**20.17.1 Disclosure on Gratuity**

I Assumptions as at

Particulars	Financial Year	
	2023-24	2022-23
Interest / Discount Rate	6.97%	7.14%
Rate of increase in compensation	3.00%	3.00%
Rate of return (expected) on plan assets	6.97%	7.14%
Employee Attrition Rate(Past Service (PS))	OPS: 0 to 42 : 15%	OPS: 0 to 42 : 15%
	-	-
Expected average remaining service	5.00	5.05

II Changes in present value of obligations (₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Defined Benefit Obligation at the beginning	160.42	149.54
Add :- Current Service Cost	10.48	8.54
Add :- Interest Cost	29.09	32.08
Add :- Prior Service Cost – Vested benefit	-	-
Add :- Prior Service Cost – Non Vested benefit	-	-
Add :- Curtailments	-	-
Less :- Benefits Paid directly by the Company	-	-
Less :- Benefits Paid from Fund	(15.76)	(9.00)
Add/Less :- Net transfer in/(out) (including the effect of any business combinations/divestitures)	-	-
Add/Less :- Actuarial Loss / (Gain) on Obligation	17.30	(20.74)
Defined Benefit Obligation at the end	201.53	160.42

III Changes in fair value of plan assets (₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Opening balance of the fair value of the plan assets	149.34	129.65
Add: Adjustment to Opening balance	0.39	-
Add: Expected Return on plan assets	10.12	8.37
Add: Contributions by Employer	-	19.89
Add: Contributions by Employer	-	-
Add: Assets Distributed on Settlements	-	-
Add: Assets Acquired on acquisition/(Distributed on Divestiture)	-	-
Add: Exchange Difference on Foreign Plans	-	-
Add/(less): Actuarial gains/(losses)	(0.39)	0.43
Less: Benefits Paid	(15.76)	(9.00)
Closing balance of the plan assets	143.70	149.34

(₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Opening balance of the fair value of the plan assets	149.34	129.65
Add: Adjustment to Opening balance	0.39	-
Add: Actual Return on plan assets	9.73	8.80
Add: Contributions by Employer	-	19.89
Add: Contributions by Employer	-	-
Add: Assets Distributed on Settlements	-	-
Add: Assets Acquired on acquisition/(Distributed on Divestiture)	-	-
Add: Exchange Difference on Foreign Plans	-	-
Add/(less): Actuarial gains/(losses)	-	-
Less: Benefits Paid	(15.76)	(9.00)
Fair value of the plan assets at the end	143.70	149.34
Funded Status (including unrecognised past service cost)	(57.82)	(11.09)
Excess of Actual over estimated return on Plan Assets	(0.39)	0.43

(₹ in lakh)

Particulars	Financial Year	
	2023-24	2022-23
(Gain)/Loss on obligation due to change in Assumption	1.28	(6.18)
Experience (Gain)/ Loss on obligation	16.02	(14.56)
Actuarial Gain/(Loss) on plan assets	(0.39)	0.43

(₹ in lakh)

Particulars	Financial Year	
	2023-24	2022-23
Actuarial Gain/(Loss) for the period (Obligation)	(17.30)	20.74
Actuarial Gain/(Loss) for the period (Plan Assets)	(0.39)	0.43
Total Gain/(Loss) for the period	(17.69)	21.17
Actuarial Gain/(Loss) recognized for the period	(17.69)	21.17
Unrecognized Actuarial Gain/(Loss) at end of period	-	-

VII Past Service Cost Recognised

(₹ in lakh)

Particulars	1-APR 23	to	31-Mar-24
Past Service Cost- (non vested benefits)	-		-
Past Service Cost -(vested benefits)	-		-
Average remaining future service till vesting of the benefit	-		-
Recognised Past service Cost- non vested benefits	-		-
Recognised Past service Cost- vested benefits	-		-
Unrecognised Past Service Cost- non vested benefits	-		-

VIII Amounts to be recognized in the balance sheet and statement of Income & Expenditure

(₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Present Value of Obligations at end of period	201.53	160.43
Fair Value of Plan Assets at end of period	143.70	149.34
Funded Status	(57.82)	(11.09)
Unrecognized Actuarial Gain/(Loss)	-	-
Unrecognised Past Service Cost- non vested benefits	-	-
Net Asset/(Liability) recognized in the balance sheet	(57.82)	(11.09)

IX Expense recognized in the statement of Income & Expenditure

(₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Current Service Cost	29.09	32.09
Interest Cost on Obligation	10.47	8.54
Past Service Cost	-	-
Expected return on Plan Assets	(10.12)	(8.38)
Amortization of Prior service cost	-	-
Net actuarial (Gain)/Loss to be recognised	17.69	(21.17)
Transfer In/Out	-	-
Curtailment (Gain)/Loss recognized	-	-
Settlement (Gain)/Loss recognised	-	-
Expense recognised in Income & Expenditure	47.13	11.08

X Movements in the Liability recognized in Balance Sheet

(₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Opening Net Liability	11.08	19.89
Adjustment to opening balance	(0.39)	-
Expenses as above	47.13	11.08
Expected return on Plan Assets	-	-
Transfer in Liability	-	-
Transfer in Fund	-	-
Transfer out Liability	-	-
Transfer out Fund	-	-
Benefits Paid By The Company	-	-
Contribution paid	-	(19.89)
Closing Net Liability	57.82	11.08

XI Schedule III of The Companies Act 2013

(₹ in lakh)

Particulars	Financial Year	
	AS ON 31.03.24	AS ON 31.03.23
Current Liability	46.07	27.48
Non-Current Liability	155.45	132.94

XII Projected Service Cost 31 Mar 2025
34.17
XIII Asset Information

(₹ in lakh)

Particulars	AS ON 31.03.24	
	Total Amount	Target Allocation %
Cash and Cash Equivalents Gratuity Fund (SBI Life Insurance)	1,43,70,745.00	100.00%
Debt Security - Government Bond	-	-
Equity Securities - Corporate debt securities	-	-
Other Insurance contracts	-	-
Property	-	-
Total Itemized Assets	1,43,70,745.00	100.00%

XIV Effects of changes in assumptions

Discount Rate : The discount rate has decreased from 7.14% to 6.97% and hence there is an increase in liability leading to actuarial loss due to change in discount rate.

Salary Escalation Rate : The salary escalation rate has remain unchanged and hence there is no change in liability resulting in no actuarial gain or loss due to change in salary escalation rate.

20.17.2 Disclosure on Leave Encashment

I Assets / Liabilities

(₹ in lakh)

Particulars	31 st March, 2024	31 st March, 2023
Present value of obligation	48.73	36.68
Fair value of plan assets	-	-
Net assets / (liability) recognized in balance sheet as provision	(48.73)	(36.68)

II Summary of membership data

(₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Number of employees	49	47
b)	Total Monthly Salary for leave encashment (Lakhs)	51.90	42.87
c)	Total Monthly Salary for leave availment (Lakhs)	103.81	85.74
d)	Average Past Service (Years)	6.78	6.00
e)	Average Age (Years)	58.94	39.28
f)	Average remaining working life (Years)	1.06	1.76
g)	Leave balance considered on valuation date	1,333	1,137

III Actuarial Assumptions :

(₹ in lakh)

i)	Retirement Age (Years)	60/Contract Period	60/Contract Period
ii)	Mortality rate inclusive of Provision for disability	IALM (2012 - 14)	IALM (2012 - 14)
iii)	Ages	Withdrawal Rate (%)	Withdrawal Rate (%)
	Up to 30 Years	5.00	5.00
	From 31 to 44 years	5.00	5.00
	Above 44 years	5.00	5.00
iv)	Leaves		
	Leave Availment Rate	5%	5%
	Leave Lapse rate while in service	Nil	Nil
	Leave Lapse rate on exit	Nil	Nil
	Leave encashment Rate while in service	Nil	Nil

IV Change in benefit obligation

(₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Present value of obligation as at the beginning of the period	36.68	41.71
b)	Acquisition adjustment	--	--
c)	Interest cost	2.58	2.37
d)	Past service cost	0	0
e)	Current service cost	8.73	7.15
f)	Curtailement cost/(Credit)	--	--
g)	Settlement cost/(Credit)	--	--
h)	Benefits paid	-5.26	-7.83
i)	Actuarial (gain)/loss on obligation	6.00	-6.72
j)	Present value of obligation as at the end of period	48.73	36.68

V The amounts to be recognized in balance sheet and related analysis

(₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Present value of obligation as at the end of the period	48.73	36.68
b)	Fair value of plan assets as at the end of the period	--	--
c)	Funded status / Difference	-48.73	-36.68
d)	Excess of actual over estimated	--	--
e)	Unrecognized actuarial (gains) / losses	--	--
f)	Net asset / (liability) recognized in balance sheet	-48.73	-36.68

VI Expense recognized in the statement of Income & Expenditure

(₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Current service cost	8.72	7.15
b)	Past service cost	0	0
c)	Interest cost	2.59	2.36
d)	Expected return on plan assets	--	--
e)	Curtailement cost / (Credit)	--	--
f)	Settlement cost / (credit)	--	--
g)	Net actuarial (gain) / loss recognized in the period	6.00	-6.72
h)	Expenses recognized in the statement of Income & Expenditure	17.31	2.79

VII Reconciliation statement of expense in the statement of profit and loss (₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Present value of obligation as at the end of period	48.73	36.68
b)	Present value of obligation as at the beginning of the period	36.68	41.71
c)	Benefits paid	5.26	7.83
d)	Actual return on plan assets	--	--
e)	Acquisition adjustment	--	--
f)	Expenses recognized in the statement of Income & Expenditure	17.31	2.80

VIII Amounts for the current period (₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Present value of obligation as at the end of period	48.73	36.68
b)	Fair value of plan assets at the end of the period	--	--
c)	Surplus / (Deficit)	-48.73	-36.68
d)	Experience adjustment on plan Liabilities (loss) / gain	-5.99	5.91
e)	Experience adjustment on plan Assets (loss) / gain	--	--

IX Movement in the liability recognized in the balance sheet (₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Opening liability	36.68	41.71
b)	Expenses as above	17.31	2.80
c)	Benefits paid	-5.26	-7.83
d)	Actual return on plan assets	--	--
e)	Acquisition adjustment	--	--
f)	Closing liability	48.73	36.68

X Bifurcation of PBO at the end of year as per schedule III to the companies Act, 2013

(₹ in lakh)

	Particulars	31 st March, 2024	31 st March, 2023
a)	Current liability	21.16	6.87
b)	Non-Current liability	27.57	29.81
c)	Total PBO at the end of year	48.73	36.68

20.18 Other Non-Current Investment

(₹ in lakh)

S. No.	Particulars	Financial Year Ending	
		As on 31 st March 2024	As on 31 st March 2023
1	Other Non-Current Investment (unquoted)		
a)	GVFL Start-up Fund	751.94	657.21
b)	IAN Fund	1,756.64	1,786.96
c)	Stakeboat Capital Fund	248.04	236.27
d)	Bharat Innovation Fund	1,894.25	1,359.13
e)	Kitven Fund - 3	400.00	320.96
f)	Ankur Fund II	943.28	901.93
g)	Endiya Partners Trust	1,308.29	1,074.65
h)	RVCF India Growth Fund	423.53	435.33
i)	Somerset Indus Healthcare India Fund	846.17	585.62
j)	Nabentures Fund I-Investment	569.30	369.66
k)	Alkemi Venture Fund II- Scheme I	104.60	-
l)	Stakeboat Capital Fund - IIA	204.59	-
m)	Ideaspring Capital Future Now II	377.26	
		9,827.89	7,727.71

Note:

1. BIRAC is implementing the Biotechnology Innovation Fund - AcE Fund initiated by Department of Biotechnology, Govt of India for providing risk capital to Biotech start-ups for product development cycle and growth phase.
2. The value of the investments are stated at cost . Provision for diminution in the value of long-term investments is made only if such a decline is other than temporary.
3. BIRAC undertakes Management and operation of AcE fund in the area of Biotechnology and life sciences and holds all investments made out of the AcE Fund in a fiduciary capacity for DBT.

20.19 Contingent liability

- a) Liabilities for Suits filed against company is Nil
- b) Capital Contribution with respect to AcE fund draw down request as per the agreement is yet to be received amounting to ₹ 41.22 crore.

20.20 The previous year's figures are reclassified and regrouped in accordance with the requirements applicable in the current financial year to make items comparable.

20.21 Relationship with MCA struck off Companies

(₹ in lakh)

Name of The struck off Companies	Nature of Transaction with struck off companies	Loan outstanding	Relationship with struck off companies, if any, to be disclosed
Usha Biotech Limited	Other outstanding balances (nature to be specified such as Loan Portfolio, Grants Disbursed etc.)	6.66	Borrower
Erkadi Medical Systems Pvt Limited	Other outstanding balances (nature to be specified such as Loan Portfolio, Grants Disbursed etc.)	31.41	Borrower

20.22 Ratio Analysis

S. No.	Particulars	Numerator	Denominator	Current Period	Previous Period	% Variance	Reason for Variance
1	Current Ratio (no. of times)	Total Current Assets	Total Current Liabilities	1.46	1.56	-6.84%	Depicts decrease fund position
2	Debt - Equity Ratio	Total Debt (Long term borrowings + Short term borrowings (including current maturities of long term borrowings))	Equity	NA	NA	NA	NA
3	Debt Service Coverage Ratio (no. of times)	EBITDA	(Finance costs + Short term borrowings (including Current maturities of long term borrowings))	NA	NA	NA	NA
4	Return on Equity Ratio (%)	Net Income (PAT)	Shareholder's Equity	1.25%	9.13%	-86.32%	depicts decrease in relation to Equity
5	Inventory Turnover Ratio (no. of times)	Cost of Goods Sold	Average Inventory	NA	NA	NA	NA
6	Trade Receivables Turnover Ratio (no. of times)	Net Credit Sales	Average Accounts Receivable	NA	NA	NA	NA
7	Trade Payables Turnover Ratio (no. of times)	Net Credit Purchases	Average Accounts Payable	NA	NA	NA	NA
8	Net Capital Turnover Ratio (no. of times)	Total Sales	Shareholder's Equity	2.85	5.45	-47.75%	Grant Utilisation
9	Net Profit Ratio (%)	Net Profit	Net Sales	0.44%	1.68%	-73.83%	Decrease in profit
10	Return on Capital Employed (%)	EBIT	Capital Employed	1.25%	9.13%	-86.32%	Depicts decrease in relation to Equity
11	Return on investment (%)*	Net Profit	Cost of Investment	NA	NA	NA	NA

* BIRAC undertakes Management and operation of AcE fund in the area of Biotechnology and life sciences and holds all investments made out of the AcE Fund in a

fiduciary capacity for DBT. Income if any generated it will be ploughed back to fund and hence ratio has not been calculated.

20.23 List of Abbreviations used in Financial Statements:

S. No.	Abbreviation	Description
1	BIRAC	Biotechnology Industry Research Assistance Council
2	AcE Fund	Accelerating Entrepreneurs
3	ACT	All Children Thriving
4	AgNu	Agriculture-Nutrition Projects
5	AMR	Antimicrobial Resistance
6	BCIL	Biotech Consortium India Limited
7	BIG	Biotechnology Ignition Grant
8	BIPP	Biotechnology Industry Partnership Programme
9	BISS	Bio Incubator Support Scheme
10	BMGF	Bill Melinda Gates Foundation
11	CRS	Contract Research Scheme
12	DBT	Department of Biotechnology, Ministry of Science & Technology, Government of India
13	ETA	Early Translational Accelerator
14	FD	Fixed Deposit
15	GCI	Grand Challenges India
16	HBGDKi	Healthy Birth Growth Development Knowledge Integration
17	NSIC	National Small Industries Corporation
18	IDIA	Immunization Data for Innovating Action
19	IIPME	Industry Innovation Programme on Medical Electronics
20	IMPRINT	Improving Growth in Infant Trail
21	IP	Intellectual Property
22	Ki	Knowledge Integration Data Challenge Programme
23	KSTIP(KnIT)	Knowledge Integration and Translation Platform (Knowledge Integration)
24	MeitY	Ministry of Electronics and Information Technology
25	Misc.	Miscellaneous
26	MTNL	Mahanagar Telephone Nigam Limited
27	NBM (I3)	National Biopharma Mission (Innovate in India)
28	PMC	Projects Monitoring committee
29	PMU	Programme Management Unit
30	PPP Activities	Public-Private Partnership Activities (Earlier termed as Industry and Manufacturing (I&M) Sector.)
31	RTTC	Reinvent the Toilet Challenge
32	SBI	State Bank of India
33	SBIRI	Small Business Innovation Research Initiative

S. No.	Abbreviation	Description
34	SPARSH	Social Innovation programme for Products: Affordable & Relevant to Societal Health
35	SSC-NTBN	Secretariat for Scientific sub-committee under the National Technical Board on Nutrition.
36	TA & DA	Travel Allowance & Diem Allowance
37	UIC	University Innovation Cluster
38	WT	Wellcome Trust
39	IndCEPI	Coalition for Epidemic preparedness Innovative
40	GBI	Global Bio India
41	MSME	Ministry of Micro, Small and Medium Enterprises
42	TSA	Treasury Single Account
43	ZBSA	Zero Balance Sub Agency Account

Auditors Report

As per our report of even date attached

For Gupta Garg & Agrawal

Chartered Accountants

Firm Reg.No. 505762C

Sd/-

CA. Amit Kumar Jain

(Partner)

Membership No.509349

Place : New Delhi

Date : 1st July 2024

Sd/-

Kavita Anandani

Company Secretary

For and on behalf of Board of Directors

Sd/-

CA. Nidhi Shrivastava

Director Finance

DIN 09436809

Sd/-

Dr. Jitendra Kumar

Managing Director

DIN 07017109

COMMENTS OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA UNDER SECTION 143(6)(b) OF THE COMPANIES ACT, 2013 ON THE FINANCIAL STATEMENTS OF BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL FOR THE YEAR ENDED 31 MARCH 2024.

The preparation of financial statements of Biotechnology Industry Research Assistance Council (BIRAC) for the year ended 31st March 2024 in accordance with the financial reporting framework prescribed under the Companies Act, 2013 (Act) is the responsibility of the management of the company. The statutory auditor/auditors appointed by the Comptroller and Auditor General of India under section 139 (5) of the Act is/are responsible for expressing opinion on the financial statements under section 143 of the Act based on independent audit in accordance with the standards on auditing prescribed under section 143(10) of the Act. This is stated to have been done by them vide their Revised Audit Report dated 30th July 2024 which supersedes their earlier Audit Report dated 1st July 2024.

I, on behalf of the Comptroller and Auditor General of India, have conducted a supplementary audit of the financial statements of Biotechnology Industry Research Assistance Council (BIRAC) for the year ended 31st March 2024 under section 143(6)(a) of the Act. This supplementary audit has been carried out independently without access to the working papers of the statutory auditors and is limited primarily to inquiries of the statutory auditors and company personnel and a selective examination of some of the accounting records.

In view of the revision made in the statutory auditor's report, to give effect to some of my audit observations raised during supplementary audit, I have no further comments to offer upon or supplement to the statutory auditors' report under section 143(6)(b) of the Act

For and on the behalf of the
Comptroller & Auditor General of India

Sd/-
(Gurveen Sidhu)
Director General of Audit Central Expenditure
(Environment & Scientific Departments)

Place: New Delhi

Date: 09.08.2024

Biotechnology Industry Research Assistance Council

CIN U73100DL2012NPL233152

Regd Office: 5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020

Website: www.birac.nic.in Email: birac.dbt@nic.in Tel: +91-11-29878000 Fax: +91-11-29878111

ATTENDANCE SLIP

Name of the member/Proxy (In Block Letters)	
Name of the member/Proxy:	
Folio No. :	
No. of Shares Held :	

I Certify that I am member/Proxy for the member of the company.

I hereby record my presence at the 12th Annual General Meeting of the Company held on 27th September, 2024 at 4:30 p.m. at Biotechnology Industry Research Assistance Council (BIRAC), 5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020.

Member's/Proxy's Signature

Biotechnology Industry Research Assistance Council

CIN U73100DL2012NPL233152

Regd Office: 5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020

Website: www.birac.nic.in Email: birac.dbt@nic.in Tel: +91-11-29878000 Fax: +91-11-29878111

FORM NO. MGT-11 (PROXY FORM)

[Pursuant to Section 105(6) of the Companies Act, 2013 and Rule 19(3) of the Companies (Management and Administration) Rules, 2014]

Name of the Member(s):	
Registered Address:	
E-mail ID:	
Folio No.	

I / We, being the holder (s) of..... shares of the above named Company, hereby appoint:

1. Name:.....Address:.....

E-mail ID:..... Signature:.....

as my / our proxy to attend and vote (on a poll) for me on my/our behalf at the 12th Annual General Meeting of the Company held on 27th September, 2024 at Biotechnology Industry Research Assistance Council (BIRAC), 5th Floor, NSIC Business Park, NSIC Bhawan, Okhla Industrial Estate, New Delhi – 110020 and at any adjournment thereof in respect of such resolutions as are indicated below:

Sr. No.	Resolutions	For	Against
1.	To receive, consider and adopt the Audited Financial Statement of the Company as on March 31 st 2024 together with the Reports of the Directors and Auditor thereon and comments of the Comptroller & Auditor General of India in terms of Section 143(6)(b) of the Companies Act, 2013		
2.	To fix the remuneration of the Statutory Auditor for the financial year 2024-25, in terms of provisions of Section 139(5) read with Section 142 of the Companies Act, 2013		

Signed this day of 2024

Signature of Shareholder (s)

Signature of Proxy holder(s)

Affix

Revenue

Stamp

NOTES:

- MEMBERS ENTITLED TO ATTEND AND VOTE MAY APPOINT ONE OR MORE PROXIES TO ATTEND AND VOTE INSTEAD OF THEMSELVES. PROXIES TO BE VALID MUST BE RECEIVED AT THE REGISTERED OFFICE OF THE COMPANY NOT LESS THAN FORTY-EIGHT HOURS BEFORE THE APPOINTED TIME OF THE MEETING.
- ONLY BONAFIDE MEMBERS OF THE COMPANY WHOSE NAMES APPEAR IN THE REGISTER OF MEMBERS IN POSSESSION OF VALID ATTENDANCE SLIPS DULY FILED AND SIGNED WILL BE PERMITTED TO ATTEND THE MEETING. THE COMPANY RESERVES ITS RIGHT TO TAKE ALL STEPS AS MAY BE DEEMED NECESSARY TO RESTRICT NON-MEMBERS FROM ATTENDING THE MEETING

NOTES

[illegible]

[illegible]

NOTES

[illegible]



Biotechnology Industry Research Assistance Council (BIRAC)

(A Government of India Enterprise)
5th Floor, NSIC Business Park, NSIC Bhawan,
Okhla Industrial Estate, New Delhi-110020

CIN No. U73100DL2012NPL233152
birac.dbt@nic.in, Website : www.birac.nic.in

 @BIRAC_2012  [linkedin.com/in/dbt-birac-bba322232](https://www.linkedin.com/in/dbt-birac-bba322232)