

## BIOTECHNOLOGY PARKS AND INCUBATORS IN INDIA

The Government of India and State Governments are making efforts to promote biotechnology activities in the country by setting up biotechnology parks, incubators as well as pilot projects through public private partnership. The Department of biotechnology (DBT) of Government of India has supported the following biotechnology parks and incubation centres located in different States for the promotion of biotech start-up companies and the promotion of public private partnerships.

The following biotech parks and incubation centres have been supported by the Government of India and are fully operational:

### **Lucknow Biotechnology Park, Uttar Pradesh**

The Biotechnology Park, Lucknow, has been set up jointly by the Department of Biotechnology of Govt. of India & Department of Science and Technology, Government of Uttar Pradesh. The Park is a futuristic state of the art facility for biotechnology-led enterprises.

- It is the only functional Biotechnology Park in North India, serving the State of Uttar Pradesh to bring biotechnology as the way of cultivating crops, living a healthy life and enriching the skills for boosting biotech industry.
- The park has changed the paradigm of transferring biotechnology advancements from laboratory to field and made humble contribution in initiating biotechnology related policy changes in the state.
- The Park has Department of Scientific and Industrial Research (DSIR) of the Government of India recognition and is registered under National Science and Technology Entrepreneurship Development Board (NSTEDB), New Delhi that accords approval for exemption of Service Tax to Park and its incubatees. The Incubators – I & II of Biotech Park are ISO 14001:2015 certified and offer state of the art facilities to startups for incubation and development of innovation led, high growth and knowledge based bio-business and infrastructure facilities for setting biotech industries.
- There are 18 common facilities and 27 instrumentation facilities. 27 incubatees graduated and 11 are presently housed from Bio-Pharma, Agri-biotech and health area (diagnostics, herbal cosmetics & nutraceutical).

- The Biotech Park facilities include accredited analytical & quality assurance laboratory, molecular & microbiology laboratories; certified plant tissue culture unit, biopesticides & biofertilizers units and GLP compliant solvent extraction pilot plant with downstream process facility.
- The Park has attracted investment of more than INR 300 million through its 36 incubatee companies and is a showcase of innovation industries and a model of active collaboration between industries, research institutes and academia.

### **Biotechnology Incubation Centre, Genome Valley, Hyderabad, Andhra Pradesh**

The Park has been established by Indian Institute of Chemical Technology of Council of Scientific and Industrial Research (CSIR-IICT) and Govt. of Andhra Pradesh (now Govt. of Telangana) with support from Department of Biotechnology. A Biotech Incubation Centre has been set up at Alexandria Knowledge Park, Genome Valley, Hyderabad. The Park started operations from 2009.

- World class facilities have been created for use by entrepreneurs on use and pay basis. There are 12 labs of 350 sq. ft each which are given out to companies. Business centre approach is being used in this Park and 9 companies are operating, and 74 scientists are working there.
- DBT has provided support for current good manufacturing practices (cGMP) compliance for pilot plant facilities, required for quality manufacturing and for minimizing contamination. The biotechnology incubator facility would have research laboratories, knowledge based service centres and utility generation facilities. It is mainly designed for development and scale up of bio processes and technologies.
- The incubator has 14 pilot plants and 8 analytical facilities and 9 common facilities. 6 incubatees were graduated out of 11. One of the incubates (Tergene Biotech) established proof of concept of Pneumococcal vaccine and awarded Best Innovator by the Government.

- An Advanced Analytical and Characterization Resource (AACR) facility has been established in July 2016.

### **Biotechnology Core Instrumentation Facility (BTCIF) at TIDCO Centre for Life Sciences (TICEL), Chennai**

The Tamil Nadu Government, established TICEL – I and II in 8 Lakh sq.ft., a state-of-the-art Wet Lab Infrastructure in 5 acres in Chennai. TICEL offers Lab Modules conforming to BSL-II, to various companies on 3 years/ 10 years term for R&D / CRD activities. The lab infrastructure being offered by TICEL includes A/C, Compressed Air, Vacuum, RO Water, Power Back-up, ETP / STP, etc. TICEL has offered Lab Space to more than 30 International / National companies.

- TICEL has established BTCIF, jointly with Department of Biotechnology (DBT), Government of India, in 21,000 sq.ft. at First Floor of TICEL – II for providing Analytical, Technical and Scientific Support with High-end equipment towards performing Research / Analysis by Industries/ Entrepreneurs for commercialization.
- BTCIF layout contains facility with ISO 7 clean rooms for Purification, Microbiology, Molecular Biology, Tissue Culture and all labs conforming to ISO 8. Clean rooms are equipped with dynamic pass boxes for sterile material transfer. The labs are designed for uni-flow direction separation of clean and dirty corridors suitable for microbial process with dedicated AHUs for clean room zones. The facility includes Microbial Fermentation & Downstream Processing Zone with Microbiology and Molecular Biology / labs. It also includes Analytical wing and Tissue Culture Zone for Cell Cultures with independent wash rooms.
- TICEL has installed Fomenters (5, 40, 100 L), Continuous High Throughput Centrifuge, High Pressure Homogenizer, TFF Systems, Chromatography System, etc. as Pilot Scale equipment and Genetic Analyzer, Flow Cytometer, MALDI TOF / TOF, Real Time PCR, etc. as Analytical equipment. Gel Electrophoresis System, Thermal Cycler, Refrigerated Centrifuge, Incubators, Autoclaves, etc. as basic equipment and utility equipment are available.
- TICEL is offering the equipment for utilization by Companies / Scientists / Entrepreneurs on non-exclusive basis for their scientific activities / process & product development / sample analysis. The consumables and chemicals / reagents for the op-

eration of the equipment are being sourced by the clients as per their specifications and requirements. The charges for utilizing equipment will be collected from the clients. TICEL clients and external Companies / Scientists are using the equipment at BTCIF for their scientific activities.

### **The Golden Jubilee Biotech Park for Women, Siruseri, Kanchipuram District, Tamilnadu**

The Park was established by Government of Tamilnadu at Siruseri, Kanchipuram District with support from DBT and is fully functional since 2001. It was registered as a Society under the Tamil Nadu Society's Registration Act 1975. It is a joint project of the Government of Tamil Nadu and DBT.

The Park has a lab facility for providing quality testing and training programs for providing hands-on experience and to generate revenue streams for the Park. It is an entrepreneurial facility for women Scientists aided with managerial skills and capable of making small-scale investment, to independently take up the functioning of the lab.

- At present the park is fully occupied. 80% comprises of 1st generation entrepreneurs. All entrepreneurs are women. In all there are 150 workers which includes 50-60% of women both skilled/unskilled.
- The production units that have been set up are for herbal cosmetics, bio-pesticides, bio-fertilizers, spice fortified with herbs, and essential oil, ready to eat snacks etc.

### **Guwahati Technology Incubation Centre (GBPIC) at Biotech Park, Assam**

The project of setting up of Guwahati Biotech Park Technology Incubation Centre has been sanctioned by the DBT, Government of India.

- Government of Assam (GoA) has recently allotted a land measuring 17 acres to Guwahati Biotech Park in proximity to Indian Institute of Technology (IIT) Guwahati for setting up of GBPIC. Another 7.5 acres of land near the allotted land has been identified and likely to be allotted soon to GBP.
- Existing building of IITG has been renovated to make it suitable for housing the sophisticated instruments (purchased with the funding from GBPIC project). Facilities include 8 Modular Laboratories, Specialized & Support Facilities. The progress of the park is regularly

monitored by GBPIC Management Committee and Technical Advisory Committee.

- 9 incubatees are currently associated and 6 are graduated. The Incubator has 94 common facilities.

### **Bangalore Biotech Park, Karnataka**

The project was sanctioned in 2005 for a period of 3 years.

- Civil Construction (Nirmithi Kendra) is 80% (appx.) complete with 25 Incubation suites ranging from 200 sq.ft to 700 sq.ft. Also includes Common Instrumentation facility, Mammalian and Plant tissue culture, Dark room/Cold room/Utilities, Animal house/Chemical store, Cafeteria/Meeting rooms/Conference rooms etc.
- Process has started for separate Entity (section 25 Co) to be formed. To operationalize within 6 months' time. Project Management Committee (PMC) and Technical Advisory and Resource group formed (TARG).
- Services include plug-and-play, infrastructure lab space and common equipments, high end equipments and facilities, mentorship, funding, networking, branding, legal, finance and accounting.
- Role in Cluster Development
  - Facilitate Bio Helix Park Development by attracting big and medium sized companies
  - Linkages with Public R&D and academic Institutions- IBAB, CHG
  - Advocacy and policy research
  - Creation of value networks
- The centre has 21 common instrumentation facilities. Also have 18 resident incubatees and 3 incubatees graduated.

### **KRIBS BioNest, Kochi, Kerala (previously called KINFRA Biotech Park)**

The proposal for setting up of a Biotechnology Incubator at Kerala Biotechnology Park was sanctioned in March 2005 for a period of 3 years.

- Civil works of the Biotechnology Incubation Centre have been completed. Building infrastructure has been constructed to house various facilities such as Analytical lab, Bio-processing and Molecular facilities. This includes clean room standards ISO 7 and 8 labs for various purposes. A total space of more than 10,000 sq. feet is available for rental to incubatees.

Besides these spaces, there is provision for setting up a central instrumentation facility, medicinal plant extraction facility, micro propagation facility and fermentation facility. 20 acres land is available for lease to industries.

- Under the BioNest there are three major divisions: Analytical, Molecular and Bio-processing. Each division is under scientific mentorship by an experienced scientist from RGCB and a post doctoral scientist is in charge of each of these facilities. They are assisted by 5 technical personnel at various levels and 2 administrative personnel. Two staff members with business administration qualifications are involved in marketing the facility.
- The Biotech Park functions on the model of mentorship and nurture by trained scientific personnel. All interested applicants are encouraged to make a detailed presentation in front of an experienced, friendly technical committee which consists of technical personnel from pharmaceutical and biotechnology industry as well as scientific and administrative personnel.
- The KRIBS BioNest functions on the model of revenue generated based on rental receipts and equipment usage charges. But this amount is insufficient to fund the ongoing activities in the Centre. Earlier, KINFRA had charged a small rental of INR 8 to 13 a square feet and actual for utilities with a small amount for common facilities. KRIBS BioNest increased the rental to an amount of INR 40 per square feet, but this has been greatly resisted by the companies approaching us for space.
- BIONEST is a facility (a) to accelerate the commercialization of new technologies based on life and medical sciences (b) to nurture emerging ventures and (c) to assist new enterprises to forge appropriate link with other biotech companies, academia and government. It aims to provide a viable mechanism for licensing new technologies to upcoming biotech companies, to start new local ventures and to achieve early state value enhancement of the technology with minimum financial inputs. The deliverables of BioNest are technology packages, new product portfolios, techno economic feasibility and project reports for new products, process/product patents, prototypes of new equipment and rich management experience. BioNest will serve as a platform for creation of new jobs in technology development and scale-up.
- The progress of the BioNest facility has been reviewed recently by DBT in March, 2017 and based on the visit report of the committee, the project is likely to be extended till 2019 to fulfil the objectives of the project.

### Punjab Biotechnology Incubator, Mohali, Punjab

Punjab Biotechnology Incubator (PBTI) was established jointly by Department of Biotechnology (DBT), Govt. of India (GoI) and Department of Science, Technology and Environment, Govt. of Punjab (GoP) on 70:30 sharing basis in the year 2005. PBTI, the first Biotechnology Incubator funded in Punjab, started its operations as a registered society. The State-of-the-art analytical facilities were made operational in 2007 from transit premises in SAS Nagar (Mohali). The project was initially sanctioned for a period of three (03) years which was extended for another two (02) years till March, 2010. Thereafter, Govt. of Punjab is providing financial support and has allocated 1 acre land to PBTI in Knowledge City, Sector 81, SAS Nagar (Mohali) in 2014 to build up its own infrastructure. In Knowledge city, PBTI is a part of Agri-Food Biotechnology cluster with National Agri-Food Biotechnology Institute (NABI), Center of Innovative and Applied Bioprocessing (CIAB) and Biotechnology Park as the sister components. The other National level institutes located in the Knowledge City include Indian Institute of Science Education and Research (IISER), Institute of Nano Science and Technology (INST) and Indian School of Business (ISB).

Starting its operations from mere 3500 sq.ft. area in 2007, with continuous efforts of its dedicated team of scientists, the incubator could expand 4-folds. In own building expansion of existing activities & setting up of new facilities is planned in an area of approx 60,000 sq.ft. The upcoming set-up includes the provision for plug & play kind of incubation area for entrepreneurs/start-ups; in addition to analytical facilities, trainings infrastructure & contractual research facilities.

Over the period of time, PBTI, due to its credibility in Food & Environment sectors could attract funding from different Ministries of Govt. of India for strengthening of its facilities

from time to time. PBTI took the lead in the country by setting up independent Honey Authenticity testing facilities, as a part of comprehensive Analytical facilities for Agri-Food & Environment sectors under one roof. Looking at the biotechnological strengths of PBTI Ministry of Agriculture and Farmers Welfare, GoI Notified it as National Referral Laboratory (NRL) for LMO/GMO detection under Seeds Act PBTI's world class facilities in transit premises include the following services for Agri-Food & Environment sectors.

- Analytical Services
- Contractual Research Services
- Capacity Building Services
- Project Management Consultancy/Advisory Services

At present, more than 1200 users including Multinational Companies, State Cooperatives, Govt. organizations, Entrepreneurs, Exporters and Marketers from Agri, Food, and Environment biotechnology sector are using the services of PBTI. Hands on trainings are being conducted for International as well as National participants in collaboration with concerned Ministries. PBTI has executed various consultancy projects including technical, advisory and research consultancy projects in Agri, food & Environment sectors. PBTI has also started providing services to Pharma sector.

The location of PBTI in Mohali with excellent rail, road and air connectivity with other parts of the country has made it the choicest destination for Stakeholders in Northern region of India to meet their analytical & Research requirements. With the construction of its own building which is likely to start shortly, PBTI shall be able to provide its services in more efficient & comprehensive manner.

For more information, access: <http://www.dbtindia.nic.in/schemes-2/biotechnology-parksincubators-in-india/> ■

### WHO list of essential diagnostic tests

The World Health Organization (WHO) has published its first Essential Diagnostics List, a catalogue of the tests needed to diagnose the most common conditions as well as a number of global priority diseases. The list concentrates on *in vitro* tests - i.e. tests of human specimens like blood and urine. It contains 113 products: 58 tests are listed for detection and diagnosis of a wide range of common conditions, providing an essential package that can form the basis for screening and management of patients. The remaining 55 tests are designed for the detection, diagnosis and monitoring of "priority" diseases such as HIV, tuberculosis, malaria, hepatitis B and C, human papillomavirus and syphilis.

For more information, access:

[https://www.who.int/medical\\_devices/diagnostics/WHO\\_EDL\\_2018.pdf](https://www.who.int/medical_devices/diagnostics/WHO_EDL_2018.pdf)