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## Nurturing the Innovation Ecosystem



**birac**

*Ignite Innovate Incubate*

Biotechnology Industry Research Assistance Council  
(A Government of India Enterprise)



September 2015

No. 3 | Vol. 2

# chief editor's take



BIRAC is pleased to present the 7<sup>th</sup> edition of the BIRAC i3 Newsletter. The thrust of this edition is on “Nurturing the Innovation Ecosystem”. BIRAC in its last 3 years has made a concerted effort to strengthen and empower the innovation ecosystem for Start ups and Young Entrepreneurs. BIG grant has Ignited the Innovations Sparks and today we have more the 150 innovators supported under this program. 15 Bio-Incubators, 5 Innovation Clusters, 4 centres under the Social Innovation Immersion Program (SIIP), 15 BIRAC –SRISTI - GYTI Awards for Young Entrepreneurs and 100 Student Innovator Fellowships are today the strong pillars of the BIRAC Innovation Ecosystem.

BIRAC's efforts are to further strengthen this and create vibrant innovation hubs across the country. Our support for Early and Late stage Innovation Research for Affordable Product Development through SBIRI, BIPP, CRS schemes is a critical component of the value chain.

Entrepreneurship development, technical & business mentoring skill development are key components on which BIRAC is working closely with partner organizations. Our endeavour is to expand and scale up this ecosystem to be at par with the global best. ■

**Renu Swarup**

Managing Director, BIRAC &  
Senior Adviser/Scientist 'H', DBT, Govt. of India

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# Nurturing the Innovation Ecosystem



The innovation ecosystem is a set of interactions amongst a diverse array of players who collectively contribute to the societal change. These players include entrepreneurs and companies, academics and research scientists, funding organisations both public and private, service providers such as legal experts, designers, contract vendors.

Since its inception, BIRAC has focused on building and strengthening each element of the biotech innovation ecosystem. These biotech innovation ecosystems are emerging at various locations in India. They are at different stages of evolution and therefore need targeted support that is both contextual and relevant. There are common evolution paradigms across the biotech innovation hubs, however there are also unique innovation flavours in each of these emerging biotech hubs.

One of the intangible elements of building an innovation ecosystem is to weave a culture of innovation, integrate porosity within the system such that relevant information flows in all directions- a difficult but not

entirely impossible task in a milieu where working in silos has been the modus operandi in

several organisations. The success of the innovation ecosystem is also dependent on informal networks that increase chances of collaboration. BIRAC has been laying several networks and platforms, either on its own or through its partners, that provide opportunities to the Indian startups, SMEs, academia and funding agencies to interact and launch collaborative efforts for innovation.

BIRAC will continue its endeavour to catalyse change in the Indian biotech Innovation ecosystem through its support mechanisms such that they are dynamic, on par with the global best and that remain connected to other national and global innovation hubs. ■

**Prof. K. VijayRaghavan**

Chairman, BIRAC & Secretary, DBT, Govt. of India

# The Cambridge Phenomenon



David Gill  
Managing Director  
St John's  
Innovation Centre Ltd,  
Cambridge

**David Gill** is Managing Director of the St John's Innovation Centre Ltd in Cambridge. He previously set up and ran the Innovation & Technology Unit at HSBC Bank in London, before serving as an executive director of a venture fund focused on early-stage, technology-based investments.

Educated at Cambridge, David Gill qualified as a barrister before working in corporate finance for US and UK banks. A Sloan Fellow at the Stanford Graduate School of Business in California (2005), David is currently an Academic Collaborator at the University of Cambridge Institute for Manufacturing.

He shared his views and experience on various dimensions of the nurturing an innovation ecosystem.

**How has the Cambridge ecosystem evolved and what were the triggers for nucleation of Cambridge as a technology hub?**

The most surprising point about the Cambridge cluster is just how spontaneous it was. Few enterprises based on commercial exploitation of innovation existed before the 1970s, not least because constrictive planning rules prohibited building suitable premises in or around what was then a small, remote market town with a mediaeval core.

One of the key startups was Cambridge Consultants Ltd, founded in 1960 by recent graduates 'to put the brains of Cambridge at the disposal of British industry'. CCL was the pioneer of an unusual element in the Cambridge mix, namely the proliferation of specialist technology consultancies that help form a bridge between research and commercialization. In its early years, CCL had to play cat and mouse with the planners, who strenuously opposed new commercial development in the City. But CCL went on to create more than 20 companies, five of them listed on the London Stock Exchange.

A turning point was the opportunity of a crisis caused by the authorities' decision in 1965 to refuse IBM's request to move its European research HQ here. The ensuing furore triggered a major rethink, led by Sir Nevill Mott, the Cavendish Professor of Physics and Nobel laureate. Mott pointed out the huge potential for applying University know-how in an industrial context. The subsequent loosening of the planning regulations swiftly led to the creation of the Science Park in 1970.

**What according to you are the elements of the Cambridge ecosystem? How do these elements interact and talk to each other? What role does the university & colleges play in this ecosystem? What is the University policy on faculty-student entrepreneurship?**

The key elements reflect the spontaneity of development. Cambridge is really a cluster of clusters. Numerous sector specialisms benefit by being co-located in such a way that individual actors (researchers, founders, investors) bounce ideas off each other informally all the time and can use common services such as patent attorneys or recruitment agents. Sectors developed their own representative organisations in response to commercial needs, for instance One Nucleus for life sciences, Cambridge Wireless for mobile technologies or Cambridge Cleantech for low carbon and environmental services. Early dominance by IT or telecoms has been balanced more recently by growing numbers of life-science and engineering startups.

The role of the University is subtle. It is important to recognize that the mission of the University of Cambridge goes far beyond simply educating students or winning awards: it is "to *contribute to society* through the pursuit of education, learning, and research at the highest international levels of excellence". Its culture of aspiration, social impact, collegiate and inter-disciplinary cooperation permeates the wider ecosystem.

The University is not itself a major creator of new businesses, or *spin-outs*, investing in perhaps only 10 or 12 a year. But low numbers are more than compensated for by high quality.

Two statistics make the point: in 2014 seed funds managed by the University invested only £3.2M in a total of 11 spin-outs, and despite the apparent modesty of the investment, this was a record year; but University portfolio companies have raised £1.29 billion in follow-on funding over the past 20 years. The implication is clear: experienced professional investors recognize the exceptional potential of this limited portfolio of spin-outs.

Each year, far more *start-ups* associated with graduates – recent and no so recent - are formed, independent from the University. Hard numbers are heavily disputed but the order of magnitude can be estimated from the fact that in 1985 only 350 hi-tech firms were identified in the cluster compared with over 1,500 today. And churn rate is high: many more firms will have merged or fallen away over the past 30 years.

University policy is open and permissive by European standards. Put simply, provided faculty continue to meet research and teaching obligations, academics are free to become involved in startups. Moreover, numerous famous examples of entrepreneurial dons mean that academic entrepreneurship tends to be seen in a positive light: Professor Sir Richard Friend at the Cavendish Laboratory, Professor Andy Hopper (head of the Computer Laboratory), Professor Chris Lowe (head of the Institute of Biotechnology) are all splendidly serial startup offenders.

While individual colleges do sponsor their own entrepreneurial associations, the real catalyst over the past dozen years or more has been University-based activity. Two key examples: Enterprise Tuesday, open weekly lectures by entrepreneurs and investors, organized by the Business School, providing an inspirational introduction to hundreds of novice innovators each year; and Cambridge University Entrepreneurs, the annual business plan competition run by students, several of whose winners have been venture-funded and taken up residence on the Science Park.

**Can you please throw some light on St. John's Innovation Centre (SJIC), Cambridge Science Park, Babraham Research Park and their focus?**

Perhaps because of the spontaneous evolution of the cluster, limited overlap and considerable complementarity are key features of how the numerous technology parks interact. The Science Park was first to be built, starting in 1970 as the vision of the then Senior Bursar of Trinity College, Dr (later Sir) John Bradfield. The site covers 62 hectares, with new buildings being put up to this day. Its main tenants are some 70 research-based companies large enough to need a front door of their own.

St John's innovation Centre opened its doors in 1987, following a study tour of US science parks undertaken by Dr Christopher

Johnson when he was Senior Bursar of St John's College. Nearly 30 years on, we have stayed true to the vision of providing a dynamic, supportive environment to high-potential, innovative firms in the Cambridge region. SJIC is large by incubator standards, with some 5,000M<sup>2</sup> of lettable space and nearly 90 companies on site.

Our sweet-spot is late-stage start-ups, mainly in ICT and physical sciences: by the time founders reach here they have usually worked out the product and business model and they move in to slog head-down winning customers and raising investment. Teams often move in with three members, move into larger units over a four-year period in SJIC and move out when they are 15 or 20 people.

Though a handful of biomedical firms are based at the Science Park and SJIC on the north side of town, the Babraham campus counterbalances us to the south with a clear focus on life sciences. The research institute, part of the University, is complemented by 18,600M<sup>2</sup> of commercial space and services to support commercialization.

**It is said that innovation is a contact sport and networks and mentors are catalysts for establishing a vibrant ecosystem? What can one learn from Cambridge about these aspects?**

Entrepreneurship is a praxis – like playing an instrument rather than studying musicology. Almost every day in term time a choice of events will be available, showcasing new ventures or offering lectures and training on different aspects of innovation, from technical issues such as patenting to more skills-based themes such as how to network. My advice is to immerse yourself at the outset, then work out which events are most relevant to your current needs and become much more selective. What matters is eventual outcomes – successful products – rather than simple outputs, such as numbers of events attended.

The extent to which successful entrepreneurs are prepared to give back by mentoring, formal and informal, is remarkable.

**“Our sweet-spot is late-stage start-ups, mainly in ICT and physical sciences: by the time founders reach here they have usually worked out the product and business model and they move in to slog head-down winning customers and raising investment.”**

Newcomers shouldn't be afraid to ask for help but need to manage their expectations: a really successful mentor will be in such demand I doubt she even has time to read her inbox each day (indeed, several I know regularly declare 'email bankruptcy', clearing out an entire inbox and starting again from zero): stay succinct, focused and courteous. Be open to advice. Many 'wantpreneurs' confuse tenacity with stubbornness.

Finally, try to play to the strengths of your ecosystem. Cambridge is not really a hub for consumer products or digital apps (B2C). Its strength is more in deep science or B2B: think of gene sequencing, monoclonal antibodies, semi-conductors or complex digital search. Elsewhere, the opposite may be true.

**Where do you see the future of the Cambridge ecosystem? How can it remain competitive vis-a-vis to other hubs such as Munich, Boston and San Francisco?**

Each cluster must understand its uniqueness rather than simply benchmark itself to perceived competitors (and one of the best pieces of advice to aspiring ecosystems is 'stop emulating Silicon Valley'). In the case of Cambridge, this means looking beyond the individual elements of the ecosystem, such as venture funds or laboratories (which are necessary but not sufficient conditions for success) to the fundamental differentiators. After many years of seeking to explain the Cambridge model to overseas visitors, I am increasingly convinced that its endogenous strengths are cultural as much as tangible. I would single out three linked factors: managing motivation, having superordinate goals and tolerating uncertainty.

By motivation, I mean that both academics and entrepreneurs in Cambridge generally have an internal locus of control. They believe they can control events and are largely self-motivating and self-managing. I have witnessed the incredulity of visiting academic administrators when our Vice Chancellor explains that the University does not set academics targets for publications or patents: instead, it recruits bright, ambitious people, provides a stimulating environment, then trusts them to figure out and deliver what really matters. This is 'theory y' people management – the assumption that people take pride in and responsibility for their work, which they consider part of life, solving problems imaginatively. I suspect many would-be ecosystem managers kill their own initiatives by using 'theory x' management styles: assuming people avoid or dislike work, bossing knowledge-workers about in an authoritarian and centralized way. Targets and constant evaluation destroy motivation and creativity.

By superordinate goals, I mean inspiring aims which transcend the immediate self-interest of individual actors. We have been incredibly lucky with our 'godfathers' in Cambridge, a succession of leaders (including the current University Chancellor, who used



Tolerance of risk or uncertainty is a particularly important trait for academic entrepreneurs to develop. It includes the ability to act on imperfect information – the position most entrepreneurs are in much of the time, and a complete contrast with the research mindset, where extensive data and analysis are rightly needed for decision-making.

to be Minister for Science) and entrepreneurs whose uncoordinated initiatives came together, guided by nothing more tangible than a benign vision of the good of the ecosystem. I see the current generation of successful entrepreneurs giving back time, energy, inspiration and investment just as much as their predecessors did.

Tolerance of risk or uncertainty is a particularly important trait for academic entrepreneurs to develop. It includes the ability to act on imperfect information – the position most entrepreneurs are in much of the time, and a complete contrast with the research mindset, where extensive data and analysis are rightly needed for decision-making. It also includes acceptance of failure. Start-ups have a very high casualty rate. A generation ago, few high-potential graduates would risk the reputational damage associated with a failed enterprise. In the past 20 years, thanks partly to the eventual success of serial entrepreneurs (who may have needed three or four attempts before hitting a 'home run') as role models, the honourable importance of honest failure is much better understood in the Cambridge ecosystem.

My final requirement for sustained achievement is a very different one. In recent years Cambridge has risked choking on its own success. Suitable commercial space for growing tech firms is ever harder to find, housing is reaching unattainable prices and most forms of transport are full to bursting. Challenges like these are much less amenable to the market-driven or bottom-up way of decision making that has characterised progress round Cambridge for the past 60 years. We need much more joined-up thinking – not grand designs but combining strategic management of grass-roots initiatives with a recognition by government that major investment in infrastructure is required for Cambridge to continue to produce extraordinary social and financial returns.

Easy to say, less easy to do: Cambridge must continue to play to its virtues of creativity and informality while addressing its vices of limited strategic thinking and creaking infrastructure. ■

## Igniting Indian technology innovation and entrepreneurship Aiming for the **Domino Effect**



Yupar **Myint**  
Director Ignite Programme  
University of Cambridge, UK

The ongoing collaboration between BIRAC (Biotechnology Industry Research Assistance Council) in India and the Centre for Entrepreneurial learning (CfEL) at Cambridge Judge Business School is stronger than ever before. This summer, five scientist entrepreneurs from India spent two weeks in Cambridge to prepare, advance and accelerate their innovations for commercial success with the support of the Cambridge entrepreneurial community.

The partnership with CfEL - through its inspirational Ignite programme for tech entrepreneurs and innovators - started in 2013. This year in 2015, a total of five BIRAC applicants were awarded a BIRAC Ignition Grant to attend the Ignite programme in Cambridge, UK. The successful applicants included Venkateswarlu Panchagnula, founder of Barefeet Analytics; Arumugam Muruganandam, founder of Affigenix Biosolutions; Aman Sharma founder of ExoCan Healthcare Technologies; Ashwin Lal, founder of Shilps Sciences; and Rajkumar Rajagopal, founder of Cellzyme Biotech India. Cellzyme Biotech, Affigenix Biosolutions and Shilps Sciences are fairly advanced businesses whereas Barefeet Analytics and ExoCan Healthcare Technologies are much earlier stage ventures. This year the quality of the ventures was strong. The delegate's enthusiasm and willingness to engage made them ideal to work with.

During the first week of Ignite, participants worked with industry mentors to clarify their business propositions, sharpen business plans, focus business strategies and prepare for a final pitch to a panel of experts. The delegates were immersed in an intense learning environment where over 180 experienced entrepreneurs and mentors contributed their knowledge and experience. They

gained access to Cambridge's entrepreneurial ecosystem enabling the building of skills and networks that could be advantageous for future business growth. Ignite attracts an international cohort and this year around 80 delegates attended with innovations and ventures from more than 10 countries. So delegates also learned from their peers and gained a global perspective.

The second week of the programme focused on understanding markets and customers. In addition, delegates met with established companies to learn from their experiences, discuss their own businesses and gain further understanding as to how to develop them. The eleven companies visited were Inivata, Antikor Biopharma, Sphere Fluidics, Fluidic Analytics, Intertek, Bactest, Chain Biotech, Celbius, Purolite, Abcam, Oncometrix, and the research organisation FERA in York.

Ignite provides a highly structured and focused learning experience that serves as a catalyst for science and technology entrepreneurs. Next year will be the 18<sup>th</sup> programme so there is a long track record of success. Our vision is to foster and strengthen strategic collaboration at national and international level and to channel entrepreneurial drive to early stage venture development. It is important to strengthen the ties with international partners like BIRAC in order to deliver our mission and make an impact.

We in Cambridge are fortunate enough to work with like-minded, highly collaborative colleagues from BIRAC such as Dr Renu Swarup, Dr Satya Prakash, and Mr. Ankur Gupta. I am very grateful for their committed and excellent support in making this partnership so fruitful and successful. ■

## Ignite 2015 Programme

# Connecting to the Global Networks

Five budding entrepreneurs attended a two week entrepreneurship program at the Judge Business School, Cambridge, UK. Supported by BIRAC and drawn from biotechnology/life science startups who are recipients of a BIG grant, they joined 80 scientists and entrepreneurs from from other countries in Asia, Africa and Europe. The program comprised of IGNITE – a one week training program on entrepreneurship followed

by a week devoted to visiting biotech companies in the Cambridge area.

Arumugam  
**Muruganandam**  
Affigenix Biosolutions  
Bangalore, India

It was a great experience to learn from one of best business school and apt place for networking opportunities during the two week stay in the Cambridge area. I am hopeful that we could put our mind together collaborate and come up with a discovered and made in India product and make India proud of our accomplishments.”

Rajkumar  
**Rajagopal**  
CellZyme Biotechnology  
Coimbatore, India

Ignite helped to hone my skills deepened my understanding and acquire the next level skills in a stimulating environment. A strong launch pad in Cambridge to showcase our innovation. Its impact would be best judged by the number of new initiatives, revenues and funding through new collaborations in the times to come.”

Ashwin  
**Lal**  
Shilps Sciences  
Bangalore, India

Great learning, great camaraderie with fellow national start-ups and also the start of some work relationships. Faith that BIRAC reposed in me is humbling, will endeavor to match the expectations. Sincere thanks also to the fellow delegates who were most helpful and made the term enjoyable and fruitful.”

Venkateswarlu  
**Panchangnula**  
Barefeet Analytics  
Pune, India

I came back enriched with all the interactions that I have had during the intensive two weeks at Cambridge UK. An eye opener on where we are as a society in supporting start up companies and nurturing start up eco systems in India. Challenges are significant and we have a long haul ahead.”

Aman **Sharma**  
ExoCan Healthcare  
Technologies  
Pune, India

All in all, the visit is extremely fruitful for me and I had the opportunity to see a more diverse field of Industry and Academia. I am grateful to BIRAC for supporting such a smooth trip to Cambridge IGNITE program. The pleasant weather and Huges Hall really made the journey memorable once for all.”





## BIRAC Roadshows

# Engaging New Stakeholders

**B**IRAC organised two workshops on BIO-ENTREPRENEURSHIP, GRANT-WRITING & INTELLECTUAL PROPERTY RIGHTS. Each of two days duration, the objective of the workshops was to bring stakeholders in selected regions upto speed about the bio-entrepreneurship opportunities created by the BIRAC for students, faculty members, SMEs and industries. Another objective was to create awareness about issues and processes associated with IPR management and protection.

The workshops achieved their objectives by adopting pedagogical approach comprising of a mix of lectures, hands on exercise and case studies. In addition, material in form of brochures was also provided to the participants. First day of the programme covered the BIRAC's role in creating the entrepreneurial ecosystem in the country followed by the skills required for writing a grant proposal. Second day focused on imparting the knowledge about securing, managing and exploiting the intellectual property rights in bioscience sector.

The 1st of two workshops was organised on 26-27 JUNE, 2015 at Kolkata in collaboration with University of Calcutta and West Bengal Biotech Development Corporation Ltd. and was attended by 45 participants. These included students and faculty members from the university as well as officers and technical professionals from different departments and industries of the region. Dr. Debdoot Sheet, CMD of SkinCurate Research, a BIRAC BIG Grantee, shared his entrepreneurial journey with the participants. During discussions, several PhD/Post-Doc students expressed their interest in applying under BIRAC's ongoing BIG call and Industry innovation Programme on Medical Electronics.

Second workshop was organised at Bhopal on 20-21 August, 2015 in collaboration with IISER, Bhopal. Attended by more than 100 participants drawn from academic, R&D and industrial organisation in and around Bhopal, Mr. K. V. Satya Murty, Registrar, IISER Bhopal, while offering a vote of thanks, highlighted efforts of IISER Bhopal in the relevant context. This included an incubation cell and facility to provide mentorship support at IISER Bhopal. ■



## Grand Challenges in Global Health

Making a Difference, **Globally**

**Started in 2003 by the Bill & Melinda Gates Foundation, the Grand Challenges in Global Health initiative seeks to promote and nurture innovation and research to solve various health problems plaguing the globe.**

In 2008, the Gates Foundation launched the Grand Challenges Explorations (GCE) grant programme, a US\$100 million program to encourage even bolder and less conventional solutions. Initial grants of US\$100,000 are awarded twice a year. Successful projects have the opportunity to receive a follow-on grant of up to US\$1 million. To date, more than 900 GCE grants have been awarded for innovative, early-stage projects in more than 50 countries.

### Grand Challenges India

In March 2013, the Department of Biotechnology (DBT) of India, its Public Sector Enterprise, Biotechnology Industry Research Assistance Council (BIRAC), and the Bill & Melinda Gates Foundation launched Grand Challenges India. The partnership was signed to collaborate and co-fund projects with the aim to foster health innovation and research in India. Under the Memorandum of Understanding (MoU) signed by DBT and the Gates Foundation, the DBT and the Gates Foundation will invest up to US\$25 million each, over 5 years to promote innovations in vaccines, drugs, agricultural products, and interventions related to malnutrition, family and child health and BIRAC will work as the program management unit.

### Initiatives under Grand Challenges India Achieving Healthy Growth through Agriculture and Nutrition

India has the largest number of malnourished children with one-third of the world's malnourished children living in India. Keeping this in mind, the first initiative under GCI was launched in March 2013. The initiative aims to reduce the high incidence of low-birth weight and early stunting and wasting among infants in India by focusing on the linkage between agriculture, nutrition and health. Five proposals were selected which focused on achieving development of innovative interventions that integrate agriculture practices with nutrition outcomes. The

projects are underway.

### Reinvent the Toilet Challenge

Only 31 per cent of India's population use improved sanitation. The linkage between poor sanitation practices and disease occurrence is well established and ensuring access to improved sanitation to all sections of society is of paramount importance.

The second initiative under GCI was launched in October 2013 which encouraged grantees to drive research and development of low cost, eco-friendly and efficient 'next generation toilets'. A combined investment of US \$2 million from DBT and the Gates Foundation was pledged towards the initiative. Six proposals were selected for funding.

In March 2014, the Department of Biotechnology and the Gates Foundation co-hosted a 'Reinvent the Toilet' fair in New Delhi to stimulate discussion and encourage partnerships to provide safe and affordable sanitation to the millions who lack it. The event was attended by over 700 researchers from 45 countries and toilet prototypes – affordable for the poor; toilets that are not connected to water, sewer, electricity; and toilets that reuse the waste as fertilizer- were on display at the two-day event.

### All Children Thriving

Launched in October 2014, the third GCI grant programme invited proposals focusing on developing new measurement tools and novel approaches to ensure that all children not only survive but are on the path to live a productive and healthy life. The initiative 'All Children Thriving' aimed to fund seed grants at US\$250,000 for two years and full grants at US\$1 million for two years. The recently concluded Technical Advisory Group meeting selected 7 proposals under the 'All Children Thriving' grant programme. In the following section we showcase a projects under the 'Achieving Healthy Growth through Agriculture and Nutrition' grant programme. ■

projects under the ‘Achieving Healthy Growth through Agriculture and Nutrition’ grant programme.

## Reducing zinc malnutrition in rural women and children

**Amity University**  
New Delhi

Zinc plays an integral role in the immune system. A deficiency in zinc can lead to an increase in the incidence and severity of diseases, especially diarrhea. Zinc deficiency is widespread in India with 26% of Indians deficient in zinc. The grantee project involved improving the zinc nutritional status of food crops through soil and foliar application of zinc rich fertilizer.

Significant knowledge was shared through field visits, on-site trials and personal interactions with farmers about agronomic crop bio-fortification. The project has created awareness among farmers about the use of zinc fertilizers in low zinc soils to get better yields and also enhance zinc content in crops. A high nutritional value of the crops may translate to higher incomes for the farmers apart from the nutritional benefit to the community.

## Combining agriculture, nutrition and health for inclusive development of women

**eKutir**  
Odisha

Veggie Lite is a direct farm-to-food distribution enterprise to connect farmers and consumers using a technologically coordinated, price optimized and low wastage value chain. The project will test the feasibility and effectiveness of the Veggie Lite model in Odisha by making available the fresh produce of women small-holder farmers to low-income rural and urban consumers.

Under the project, five rural and nine urban Veggie Lite centers have been established. The ultimate aim of the project is to set up a self-sustainable entrepreneurial model that would increase the availability of affordable fruits and vegetables while improving the diet quality in rural households and low-income households.

## Community level implementation of domestic Solar Conduction Dryer

**Science for Society**  
Maharashtra

The program aims to introduce Solar Conduction Dryer (SCD), a solar powered food dehydrator that reduces moisture content in agro-animal produce so that women farmers and rural women can preserve seasonal produce up to 1 year.

The project has developed a system of value chain partners in rural centres of Maharashtra to create awareness, train and equip 200 small-holder women farmers to dehydrate locally available low cost seasonal food and use these products in making daily cooking recipes to improve feeding practices and overcome malnutrition. After assessing the viability and success of such a model, it can be expanded and scaled up across the country.

## Community Driven, Digital Technology Enabled, Agriculture and Nutrition Intervention

**Digital Green**  
Odisha

The project is being implemented (in two blocks of Keonjhar district of Odisha) by a consortium led by Digital Green and aims to promote knowledge and positive behavior change in nutrition.

Rural communities are shown short 10-12 minute videos, which are mediated by a facilitator typically an agricultural or health extension worker. The current project involves a randomized control trial where intervention villages will be exposed to the nutrition videos by Digital Green combined with an intervention to strengthen capacities of ‘Self-Help Groups’ to promote nutrition knowledge and awareness in their communities. In control villages, the rural communities will be exposed only to nutrition Digital Green videos.

The rural communities will receive the interventions up to the end of 2015 and an end-line survey will be conducted in January 2016 to assess the effectiveness of the programme.

## Designing on-farm participatory models of integrated farming system

**Annamalai University**  
Tamil Nadu

“We truly feel empowered because of this opportunity. The system acts like an ATM for us. If there is a draught or severe rain, we at least have the livestock and fish to sell,” a woman small-holder farmer expressed her satisfaction and relief about the initiative underway in Cuddalore district, Tamil Nadu.

The integrated farming system in place in Cuddalore aims to enhance diet diversity, nutritional and health status of wetland women farmers, through integrated farming of rice, fish and

poultry; and integrated goat, millet/vegetable and apiculture farming system. Knowledge about the integrated farming systems was imparted to the 150 small women holder farmers in the villages of Sathamangalam, Sakkangudi and Orathur, in Cuddalore District. Such a system is eco-friendly, does not require external assistance and is self-sustained. This approach would reduce the input cost while increasing the yield for small and marginal women farmers and can be replicated on a larger scale.

## Biotechnology Ignition Grant Conclave

# Thinking **BIG**

BIRAC believes that the “bio-innovation capital” of the nation would come from novel ideas which have a commercialisation potential and that evolve out from start-ups or academic spin-offs. BIRAC’s strategy is therefore to support the numerous exciting ideas which have an unmet need for funding and mentorship. This strategy is fulfilled through a grant funding scheme called Biotechnology Ignition Grant (BIG) which is available to scientist entrepreneurs from research institutes, academia and start ups.

**B**IRAC, in partnership with FITT, IIT-Delhi - organised a one and a half day technical programme, 1st BIG Conclave on 26-27 May, 2015. The event started with a welcome note by Dr. Anil Wali, MD FITT, IIT Delhi. The conclave was inaugurated by Prof. K. VijayRaghavan, Secretary, Department of Biotechnology, GOI & Chairman, BIRAC who encouraged the young to overcome regulatory, infrastructure and most importantly intellectual hurdle while emphasising the importance of networking and communication among stakeholders across disciplines. He stressed upon the need for Indian entrepreneurs to partner and collaborate beyond national boundaries.

In her welcome address, Dr. Renu Swarup, Senior Adviser, Scientist H, Department of Biotechnology, GOI & MD, BIRAC recounted the process of networking, sharing of experiences and feedback that resulted in formation of BIG scheme. Dr. Swarup

also presented key points from Start-up Ecosystem Report of IT sector which compares the IT start-up ecosystems of Bangalore with Silicon Valley, Singapore and Tel-Aviv.

The first talk “**Sprinting the Entrepreneurial Marathon: A Reflection**” wherein Dr. V. S. Chauhan, Former Director, ICGEB presented his views on the journey of Biotech start-ups in India. He emphasized the importance of a good idea and indicated that funding is always available for a good idea. Dr. Chauhan also motivated the audience to tread the difficult paths as these paths are worthy of treading. Dr. Chauhan highlighted the long gestation period involved in innovation and provided the example for Malaria vaccine which took 21 years to come to the clinical trial stage. Another important aspect emphasised by Dr. Chauhan was the need of good quality and strong scientific voice for the scientific community that conveys the importance of science to the common public through media. He



cited the example of HPV vaccine and said such ideas need to be supported and backed up as they are the need of the country.

The first panel discussion **“Navigating the Maze : Smart turns, roundabouts & straight lines talk on regulatory issues”** was moderated by Dr. Anil Wali. In the session Dr. Anurag S Rathore, IIT Delhi and Mr. Karthik Venkatraman, UL Standards presented insights on the regulatory aspects of biopharmaceuticals and medical technology respectively.

The second panel discussion **“What do investors look for & how to look for investors? Solutions to the riddle”** was moderated by Dr. Premnath Venugopalan, NCL-Ventue Center, Pune. Mr. S. Nandakumar, perfint, Mr. Pradeep Jai Singh, Healthstart, Dr. Ritu Verma, Ankur Capital and Mr. Sushanto Mitra, Lead Angels were the participants. The panel advised young entrepreneurs to consider funding from government bodies such as BIRAC as a stepping stone to increase their credibility with other investors. The panelists noted that all investors have their concerns that need to be addressed by giving a robust understanding of the technology and product. It is hence helpful to have person with business understanding as part of the entrepreneurial team. The panel gave the BIG grantees a perspective on different routes to secure follow – on funding from angel investors and early stage accelerators. The panel suggested the entrepreneurs to aim for solving a big problem with simplified solutions and in order to avoid the proverbial “scientist’s delight – user’s disaster”.

One of main attractions of event was presentations by BIG innovators who discussed their experiences and the path they traversed to take their ideas forward including fund mobilisation. The presentation a comprehensive overview of the journey of the individuals and organisations from idea to successful innovations.

Another session **“Exploring other funding opportunities”** moderated by Dr. Deepanwita Chattopadhyay, Chairperson & CEO IKP Knowledge Park. She provided an overview of alternative funding opportunities to budding entrepreneurs. Dr. Shrishendu Mukherjee encouraged entrepreneurs to approach funding agencies with maximal possible information about the project and also information about their competitors in the market. Dr. Nafees Meah , RCUK and Dr. Shailja Gupta, DBT also had the same views and suggestion and also described about few upcoming calls for entrepreneurship. Dr. Nafees Meah described RCUK’s focus areas. Dr. Gupta elaborated industry oriented funding collaboration of Department of Biotechnology with France, Finland and Spain with emphasis on upcoming call for proposal for DBT- Spain funding.

The evening lecture by Prof G. Padmanaban motivated the new entrepreneurs to innovate in a need based manner aiming at the Indian social context. Dr. Padmanaban emphasised on relevance of biotechnology for agriculture in India and also highlighted the importance of food and nutrition security and promise of genetically modified crops. He also noted that even though 67% of Indians depend on agriculture but very few biotechnology projects are agriculture related which is quite skewed in relation to the need of country.

The second day started with a plenary talk by Shri Ajai Chowdhry, Founder HCL. Shri. Chowdhry described his journey from garage start-ups to \$6.5 billion global enterprise and the challenges encountered along with the strategies undertaken to overcome the challenges. Talking about various “types” of innovation he described innovation only as a “temporary monopoly” and the resultant need of continue innovating to maintain primacy. Describing his journey as an entrepreneur Shri Chowdhry exhorted entrepreneurs to dream big, not to follow the conventional ways and have an early and strong go-to market strategy.

The next session titled **Strategizing Through Protective Armour** was focussed on IP & associated issues with lectures delivered by Dr. Malathi Laxmikumaran, Laxmikumaran & Sridharan Attorneys; and Dr. Premnath Venugopalan, NCL-Venture Center, Pune. Dr. Malathi emphasised that India should be filing much more patents than it is filing today and compared the difference in the scale of patent with that of IBM and Huawei. She highlighted that India’s full potential has not been realised yet. Dr. Laxmikumaran also highlighted the importance of Biodiversity Act, 2002. Dr. Premnath emphasised on the importance IP portfolio, for young entrepreneurs to use IP as defensive and offensive tool for growth of their company.

The following mentors talk **“Navigating the entrepreneurship journey: Strategies for scale”** involved speakers such as Dr. Ajith V Kamath, Pfizer; Mr. P. R. Ganapathy, Villgro Innovations and Ms. Padmja Ruparel, Indian Angel Network. Dr. Ganapathy suggested the entrepreneur to train the employees from the very beginning for smooth processes in the organisation. He emphasized the need of reactive and fast thinking which is process driven. The panel described the scaling of start-ups and guided the young entrepreneurs for early on team building and training. The know-hows of acquiring follow-up funding were also described. ■

## Biotech Ecosystem in and around Bangalore View from the **Technology Hub**



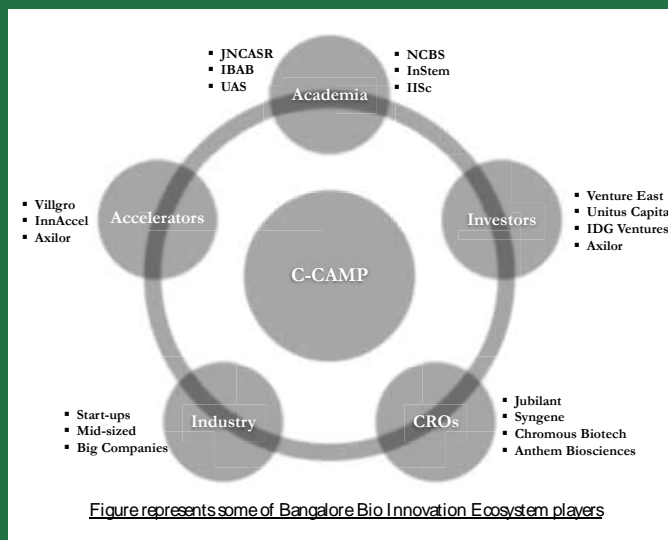
**Taslimarif Saiyed**  
Director  
Centre for Cellular and Molecular  
Platforms, NCBS-TIFR

A well-developed ecosystem is required for taking scientific ideas from the lab to the market. This is more so in the biotech sector, where the path to commercialization is quite complex starting from validation of the science behind the idea before even exploring commercialization avenues, regulatory hurdles and different go-to-market strategies. Various nuances of development and commercialization of biotech

products are, at times, not anticipated by the entrepreneur and become a challenge making it essential to support these start-ups in technical as well as non-technical aspects.

**Ingredients of a comprehensive ecosystem:** When we talk about nurturing and mentoring innovations, incubation along with funding are the first most vital parts. Incubators are prime examples of the environment/ecosystem in which mentorship and collaboration is encouraged to accelerate ideas from conceptualization to reality. Incubators if situated in academic institutes not only provide mentoring but also become a hub for critical networking opportunities with academic groups as well as other companies and also accelerators who are keen on taking their technologies forward, which contribute immensely

Bangalore has undoubtedly become a leading hub for biotech innovation in the country with a strong academic and industry presence along with Incubators, Accelerators and Investors in the city. This has prompted a majority of budding innovative start-ups to choose Bangalore as the base for their ventures.



to start-up success. This kind of an environment which is thriving with innovative science and enterprise becomes a focal point for investors to come to, where there is a ready pool of technology opportunities that are de-risked to quiet an extent owing to the very environment in which they are being nurtured.

**Innovation Ecosystem in Bangalore and Nearby:** Bangalore has undoubtedly become one of the leading hubs for biotech innovation in the country with a strong academic as well as industry presence with established biotech companies and contract research organizations along with Incubators, Accelerators and Investors in the city. This has indeed led a majority of budding innovative start-ups to choose Bangalore to set-up their ventures in. C-CAMP itself has emerged, in the last few years, as a thriving hub for innovation and a vibrant ecosystem, with premier academic organizations like NCBS, InStem right there on campus and its strong relations with other centres of scientific excellence like IISc, JNCASR, UAS-GKVK, RRI, IBAB, IIM-B, NSRCEL. There are also up and coming incubators in the city like IKP-EDEN, an extension of the well established IKP Knowledge Park in Hyderabad which is focused on engineering and prototype development (biggest maker space in country) and the IBAB incubator which is also

Contd. on Pg. 17

## Biotech/Biomed Innovation Ecosystem in Western India

# Leader's Advantage



**Premnath Venugopalan**  
Director  
Venture Center, Pune

**W**estern India is the industrial and financial powerhouse of India. In biotechnology too, western India is the leader. As per the BioSpectrum ABLE Survey 2014, western India accounted for 43.3% of biotech revenues. Top biotech firms from western India included, Serum Institute of India, Reliance Life Sciences, Bharat Serums and Vaccines, GSK, Haffkine

Biopharmaceuticals etc. The region also included top agrobiotech firms such as Ajeet Seeds and Mahyco, top industrial biotech company Praj and leading diagnostics companies like Span Diagnostics. The region is also home to several medical devices and diagnostics companies. Maharashtra was the top biotech state of the country and companies from this state accounted for 38.2% of revenue. Of the top 6-biotech cities, 3 (Pune, Mumbai and Ahmedabad) were from western India. Not surprisingly, the top research and academic clusters in western India are in Pune, Mumbai and Ahmedabad; smaller clusters exist in Vadodara, Nagpur and Goa.

And in this biotech industry landscape, Pune holds a special place. In the 2014 survey, Pune was the home to the largest biotech company and largest biopharma company in India, namely, Serum Institute of India Ltd and the largest industrial biotech company in India, namely, Praj Industries. Pune has also the privilege of being home to several R&D institutions with strength in biotech/biomed/ medical studies including National Chemical Laboratory (CSIR), National Institute of Virology (ICMR), National AIDS Research Institute (ICMR), National Centre for Cell Sciences (DBT), Agharkar Research Institute (DST), various departments in Pune University, IISER – Pune, Armed Forces Medical College, BJ Medical College, BAIF Development Research Foundation, National Research Centre for Grapes (ICAR), Directorate of Onion and Garlic Research (ICAR), Vasantdada Sugar Institute etc. Pune is also home to multiple business incubators - Venture

Center, S&T Park of Pune University, MITCON Incubator etc.

Of the incubators in Pune, Venture Center has the greatest focus on biotech/biomed startups and is now home to 24 resident incubatee startups in the biotech/biomed space – which is probably the single largest concentrated cluster of innovative biotech/biomed startups in the country. The Venture Center innovation ecosystem is not only distinguished by the quantity and quality of startups but also close vicinity to R&D organizations – their people, facilities and networks, as well as a community that is probably second only to Bangalore in nurturing innovators and entrepreneurs. Besides the incubators in Pune, science entrepreneurship flourishes in incubators at IIT-Bombay (SINE), IIM-Ahmedabad (CIIE) and upcoming bioincubators at Savli near Vadodara and PERD at Ahmedabad.

With such a rich landscape of academia, research, startups and industry, western India in general and Pune in particular are poised to provide leadership in thought and action for the Indian biotech/ biomed industry. The fact that states in western India have nurtured biotech/biomed technology, innovation, entrepreneurship and industry with relatively lower support from the state governments (unlike the states in Southern India) indicates a latent potential that is yet to be exploited. If Bangalore promises to be India's Silicon Valley, Pune has all the makings to be the Route 128, Massachusetts! ■



Of the top 6-biotech cities, 3 (Pune, Mumbai and Ahmedabad) were from western India. Not surprisingly, the top research and academic clusters in western India are in Pune, Mumbai and Ahmedabad; smaller clusters exist in Vadodara, Nagpur and Goa.”

## Hyderabad Life Sciences Innovation Ecosystem Many Nuances, **One Goal**



**Deepanwita Chattopadhyay**  
Chairman & CEO,  
IKP Knowledge Park

Understanding innovation ecosystems helps national and local governments frame enabling policies for innovation led entrepreneurship and growth. IKP Knowledge Park (IKP) has partnered with BIRAC to set up the BIRAC Regional Innovation Centre (BRIC) at IKP. Innovation activities often develop around a region, city or a cluster and one of the mandates of BRIC is to map the four life sciences clusters in Southern

India around Hyderabad, Bangalore, Chennai and Trivandrum.

Hyderabad's emergence as a pharmaceutical industry base can be traced to Biological E, a private biopharma company, and the state run Indian Drugs and Pharmaceuticals Limited (IDPL) plant in the city. The "Indian Patents Act" of 1970 opened a new frontier of entrepreneurship and encouraged young research managers like Dr. K. Anji Reddy who quit his job at IDPL in 1974 to start a generic pharma company called Uniloids, and later Standard Organics and Cheminor. In 1984 Dr. Reddy finally launched his research based pharma company, Dr. Reddy's Laboratories (DRL) that, along with some others pharma companies, converted Hyderabad into a pharma innovation hub by spawning hundreds of ventures along the entire value chain. Research institutes like

the CSIR-IICT provided chemistry research support and talent. Dr. K. I. Varaprasad Reddy, an electrical engineer by training, set an innovation milestone when he established Shantha Biotechnics in 1993 to indigenously produce affordable Hepatitis B vaccine by setting up an R&D unit at the Osmania University and later at the CSIR-CCMB till his independent facility was operational. Around the year 2000, the proactive State Government introduced a number of new initiatives, including announcing the Andhra Pradesh State Biotech Policy, with thrust in biopharma, vaccines and ag-biotech, forming the APIDC Venture Capital Fund and setting up the Genome Valley with the IKP Knowledge Park and the S.P. Biotech Park. This paved the way in transforming the pharma manufacturing hub into a leading life science innovation cluster in the country. The distribution of various stakeholders, including three Universities, 16 R&D institutions with departments /centres focusing on life sciences, 41 hospitals with R&D units, 5 Associations and 5 life science focussed incubators and science parks indicates a matured ecosystem.

Similar fascinating events, initiatives and institutions are associated with the development of the Bangalore, Chennai and Trivandrum clusters. IISc and NCBS, for example, made Bangalore a more invention-led biotech ecosystem. In addition, the vibrant electronics, software and high-tech ecosystem and the venture capital industry make Bangalore most suitable as a hardware and medical technology hub. IKP's 20,000 sft makerspace, prototyping facility and incubator in Koramangala is the latest addition to this growing ecosystem.

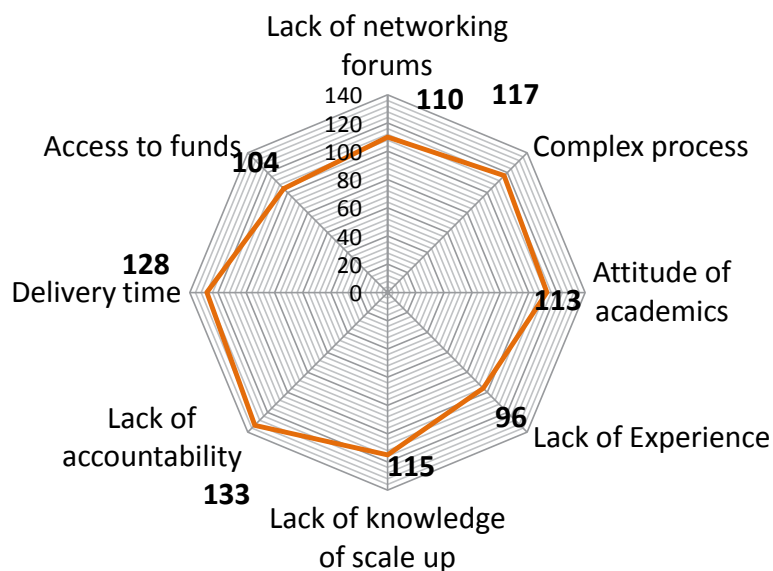
The question is, are these ecosystems vibrant and creative enough? How can BIRAC leverage these ecosystems to generate more impactful innovations and help take them to the market.

A survey of 20 Hyderabad based innovative companies (with 50% start-ups less than 5 yrs old and 30% between 5 to 10 yrs) was conducted last year. When asked about the nature of collaborations with research institutions, it was largely limited to contract research, consultancy or use of facilities. The six most prominent challenges in collaborating were "Lack of accountability", "Delivery time", "Lack of knowledge of scale up", "Complex process", "Attitude of academics" and "Lack of networking forums". Access to funds and lack of experience were not considered as major challenges to collaboration.

The distribution of various stakeholders, including three Universities, 16 R&D institutions with departments /centres focusing on life sciences, 41 hospitals with R&D units, 5 Associations and 5 life science focussed incubators and science parks indicates a matured ecosystem.



### Challenges in collaboration



The respondents provided the following suggestions to improve the funding process:

- Fund incremental innovation/import substitution for national priority
- Engage with private investors; more early stage risk capital needed to fund operations and not just projects
- Need faster turnaround time; issuing something like Grant credit cards that can be debited
- Increase grant size
- Feedback on rejected proposals for improving proposal

We are in the process of conducting interviews/surveys in Bangalore and Chennai and the responses on “challenges to collaboration with academia” and “improving the funding process” seem to align with the above, despite the regional variations in the ecosystems. It is also well known that scientists and faculty from academic institutions do not find the industry problems stimulating enough. Networking forums as proposed could be a meeting ground, and more engagement of academia in startups seems to be a welcome solution. ■

### Biotech Ecosystem in and around Bangalore View from the Technology Hub

*Contd. from Pg. 14*

situated strategically with IBAB and CHG (Centre for Human Genetics) in the vicinity.

In North Karnataka and in Chennai, there are other organizations, that add significant value to the Bangalore ecosystem. These include CFTRI, UAS-Dharwad and IIT-Madras. The IIT-Madras Bio-incubator, IIT-Madras Research Park has a number of innovative biotech companies incubating while Healthcare Technology Innovation Centre is focused on developing healthcare technologies. Chennai also has Jubilee Park, TANUVAS etc.

Other than its associated start-ups, C-CAMP is in close proximity to the thriving biotech industry in the city with companies like Biocon, Strand Life Sciences, Advinus Therapeutics, Jubilant Life Sciences, Connexios Life Sciences, Aurigene Discoveries,

Strides Arcolab, Anthem Biosciences, Kemwell Biopharma, Ecron Accunova and many more. Start-ups at C-CAMP leverage these connections with established biotech companies and CRO’s. Other than the thriving entrepreneurship environment co-location with NCBS/inSTEM in the Bangalore Bio-cluster is a unique strength of C-CAMP as it provides an environment that fosters interactions between scientists and other experts on a day-to-day basis. C-CAMP has also forged relations with accelerators like Villgro, InnAccel and Axilor and investors like Unitus Seed Funds, IDG Ventures, Axilor etc to take the start-up technologies forward and help them with further funding.

C-CAMP is on its way to being a ‘one-stop-hub’ for budding entrepreneurs/start-ups to setup their ventures by providing all the necessary assistance and nurturing that is required with an aim of increasing their chances of success. ■

## Biotechnology Ventures

## Beating the Capital Lag

The expectations that the Indian biotechnology sector shall grow to US \$100 billion by 2025 does not appear to be un-achievable given the pace with which this sector has been surging ahead in recent times. The growth is primarily on account of a facile business environment getting created following the liberalization of economic environment in the country. Though the now mature IT industry has had a head start, the biotechnology industry is now fast catching up – not to mention the regulatory challenges that it has to surmount compared to the IT sector which has predominantly been a service play free of such demands. Besides, the IT industry got a huge leg up because of several entrepreneurs leveraging both the cost arbitrage and other business opportunities available in the field. The biotechnology industry on the other hand has largely been driven by the legacy biopharmaceutical and seed companies. The emergence of recent Govt. enabled support architecture both for enabling innovations and start-ups has provided the much needed fuel to fire the imagination of biotechnology entrepreneurs. Provision of state assistance is critical to the success of biotechnology start-up eco system as biotechnology is a risky and high stakes field involving a lot of experimentation with entrepreneurs working on new ideas and usually seeking large sums of money just to start without knowing the final outcome!

The northern part of the country is dotted with a few large pharmaceutical and agri-based companies but, only a few industrial units that can truly be called biotechnology firms. There are however, several start-up ventures that are coming up. The support of Govt.'s Department of Biotechnology (DBT), Technology Development Board (TDB), Department of Scientific and Industrial Research (DSIR) and emergence of organizations like BIRAC on the horizon has created a facilitative ecosystem for nurturing new age ventures. The situation with regard to the biotechnology start-ups has seen much improvement. Interestingly, the Delhi-NCR region is amongst the best known research hubs in the country. It can boast of top notch universities and research institutes having a very strong focus on bio- and life-sciences, bioengineering and agricultural technologies. JNU, Delhi University, IIT Delhi,

ICGEB, IARI, NII, AIIMS, RCB etc. collectively form a very strong biotechnology knowledge base. Then there are four Technology Business Incubators in Delhi NCR that can support wet lab operations. Yet, ironically, NCR has seen the evolution of comparatively lesser number of impactful biotechnology ventures. This, however, does not reflect on the quality and size of research output and technology transfer

from this region. To realize the full potential of knowledge transfer from Delhi-NCR there ought to be much bigger share of innovation projects, IP licensing and research spin-offs from here. Fortunately, the supportive external environment is already showing some positive signs. For instance, in the initial six calls under the Biotechnology Ignition Grant (BIG) scheme of BIRAC, there have been 94 applications from Delhi NCR out of the 224 applications received at FITT. The national Bio-design program too is contributing to the techno-entrepreneurial culture. Fortuitously, organizations like FITT, BIRAC, BCIL etc. are actively strengthening the industry academia collaboration, research translation and technology transfer platforms in the country, and this, in turn, should increase the number of research spin-offs, particularly in the region extending from Chandigarh to Delhi NCR.

The support ecosystem in the northern zone is being further strengthened through biotechnology clusters like at Faridabad but, there is a need for more sensitization at the local level and a good policy push to trigger a techno-entrepreneurial wave from Delhi NCR. Interestingly, even the private universities are displaying the entrepreneurial mood. The Delhi NCR region ought to make the most of the current buzz with liberal support forthcoming from the Government or else it can become a capital drag on a promising growth story. ■



**Anil Wali**  
MD, FITT, IIT Delhi

## Encouraging Start-Ups in Tier Two Cities

# Many Eggs, Many Baskets

**L**ife Sciences start up culture needs to be cultivated not only in metro big city hubs like Bangalore, Pune, Hyderabad but also in places like Chandigarh, Bhubaneswar, Dharwad, Mysore, Dehradun, Tirupati, Durgapur, etc. Each biotech start up has its own dynamics and need, which cannot be generalized. More focus must be given on the technological interventions that can be introduced based on local area conditions. However, upon establishment of a successful enterprise such local grown company might gain global importance.

Biotechnology is different from IT start ups where the infrastructure costs are only related to Computer and software investments but in Biotech starts up there is a need of an ecosystem with high technology clustered equipment facilities. Also, the broad spectrum of areas under biotechnology makes it difficult for a funding agency or a Govt body to understand the investments required. Say for example, bioinformatics related research would need the same infrastructure costs as the IT industry. Biopharma and related areas would require capital investments on a different scale. Biomedical areas would require investments of the electronics industry. This sheer

multi-disciplinary nature of work requires a relook at how investment policies or methodologies work.

For a biotechnology startup boom, investing in quality manpower that would be industry ready is a must. The new Governments' skilled India policy must have biotechnology as a thrust area. Even though Biotech Park has started in some states, however due to lack of inclusive development policy,

such parks are facing serious issues. I feel that necessary support infrastructure should be there in a Biotech park which perfectly match with the bio-cluster exists there. These start-ups should have easy access to product development and validation facility centre. Also, recognizing biotechnology research as a priority sector lending in banking parlance would provide access to the markets, which would in turn help startups raise money. The recent announcements of SEBI in regard to listing of biotechnology companies is welcoming, however, we believe it would take some time for the industry to get accustomed.

TBIRAC has taken a number of initiatives to create the necessary infrastructure and quality manpower. It is thus definitely a growing trend and I can see that very soon the Biotech start ups in India will take the lead.

Of late, there is an increasing trend of multi-disciplinary startups. Graduates from other fields like IT, engineering or management are starting Biotech or health care startups, slowly filling in the voids that cannot be achieved individually. In nutshell, the culture of biotechnology start up establishment has taken a momentum and currently with the right policy and rules of Government, I am sure India will be one of the top leaders of Bio economy. I see that things are happening and let us work hard to make it happen "even better". ■



**Mrutyunjay Suar**  
CEO  
KIIT Bioincubator





**3** Announces  
**3<sup>rd</sup> Call of**  
**Spارش**  
*Touching a billion lives*

**Social Innovation programme for products:  
Affordable & Relevant to Societal Health  
on**

**Innovative Technology Solutions for  
Waste to Value**

Addressing the Millennium Development Goal 7, BIRAC will provide support to Innovators, Start ups, SMEs and Indian companies individually or in partnership / consortia mode through SPARSH

*SPARSH aims to*

- Fund biotech innovations with social goals
- Create a pool of innovators ● Provide a platform to share best practices ● Encourage synergistic partnerships

Challenge is open for promoting novel and cost-effective interventions/ technologies for conversion of solid waste to energy and re-usables thereby contributing to the sustainable management and cleaner, greener and viable ways to process waste.

**FOCUS AREAS**

- Treatment of faecal sludge and municipal solid waste
- Biological or thermo chemical routes for generation of clean energy and resource recovery
- Safe disposal of waste collected from non-sewered toilets
- Safe re-use of treated waste-by products

The call is also open for **Social Innovation Immersion Program (SIIP)** to support young Innovators / Entrepreneurs through partners (academic technology centres technology incubators and related organisations)

SIIP intends to create a pool of "Social Innovators" who could identify needs & gaps within communities and then help in bridging those gaps either through an innovative product development or services.

**We seek only online 'Expression of Interest' from stakeholders on or before  
30th September 2015**

***The SPARSH Solicitation document is available at [www.birac.nic.in](http://www.birac.nic.in)***

For further information please contact

**Sonia Gandhi, Project Manager - Investments, BIRAC at [sparsh.birac@nic.in](mailto:sparsh.birac@nic.in)**

**FORTHCOMING CALL FOR PROPOSALS**

**SBIRI : 15 Oct 2015 - 30 Nov 2015**

For Details: Visit - <http://birac.nic.in/>

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