



Prof. Subhasis Chaudhuri,
Director of IIT Bombay and
K. N. Bajaj Chair Professor,
Department of Electrical Engineering

Prof. Subhasis Chaudhuri is currently the Director of IIT Bombay and K.N. Bajaj Chair Professor, Department of Electrical Engineering. He did his B.Tech. in Electronics & Communication Engineering from IIT Kharagpur in 1985 and M.Sc. in Electrical Engineering from University of Calgary in 1987 and Ph.D. in Electrical Engineering in 1990 from University of California. He joined IIT Bombay as an Assistant Professor in the Department of Electrical Engineering in November 1990. He has held a number of important positions at IIT Bombay, such as, Chairman, Gymkhana (Cultural), Assoc. Warden; Convener, UGAPEC; Professor In-charge, IIT Bombay-Monash Research Academy; Head, Dept. of Electrical Engineering; Dean (International Relations) and Deputy Director (Academic & Infrastructure Affairs). He has received several major national awards recognizing his research excellence, which include the Shanti Swarup Bhatnagar Prize, Swarnajayanti Fellowship, J.C. Bose Fellowship, G.D. Birla Award and the NASI-Reliance Award among several others. Prof. Chaudhuri was conferred with the prestigious title "TUM Ambassador" by Technical University Munich (TUM), Germany.

More details about him can be found at
www.ee.iitb.ac.in/~sc.

IIT BOMBAY'S VISION IS TO BE AMONG THE BEST INSTITUTES IN THE WORLD AND CREATE SUBSTANTIVE SOCIAL AND ECONOMIC IMPACT

Corporate Social Focus, A National CSR Magazine is pleased to carry the interview of Prof. Subhasis Chaudhuri, Director of IIT Bombay and K.N. Bajaj Chair Professor, Department of Electrical Engineering.

Q1. Please give us an overview of the CSR activities undertaken at IIT Bombay? The various thematic areas under scope of work.

IIT Bombay has been at the forefront of innovative and solution-oriented research to solve pressing challenges of national and global importance. Our vision is to be among the best institutes in the world and create substantive social and economic impact. The Institute's world-class academic programs, and fundamental and applied research across the spectrum of science and engineering, have earned us the rightful status of an "Institution of Eminence". As IIT Bombay continues its journey of excellence, it plans to build world-class research in emerging areas, support deep-tech incubation, develop sustainable technologies, build strong partnerships with industry and apply technology innovations for social good. Partnerships with socially conscious corporates are designed to help us both achieve our goals. As India looks to strengthen its capabilities in developing indigenous technologies, IIT Bombay together with socially conscious corporates can play a leading role in the transition.

IITB UNDER THE SCHEDULE VII OF SECTION 135 OF THE COMPANIES ACT CAN RECEIVE CSR FUNDS. THE CSR ACTIVITIES UNDERTAKEN AT IIT BOMBAY INCLUDE:

- Conducting world-class research that can contribute to nation-building and solve challenges of national and global importance.
- Creating societal impact through innovative technology solutions. For example- COVID Genome sequencing, Cancer therapy at affordable cost, Flood Risk Management, teacher training, among others.
- Supporting the best and brightest minds in the country through scholarships and fellowships that can enable democratizing access to world-class education.
- Creating jobs through entrepreneurship.
- Developing frugal technologies to serve the bottom of the pyramid.

- Contributing to India's economic growth through research in key manufacturing technologies and utilizing the CSR funds to be more ambitious in our research goals.
- Attracting best-in-class faculty from across the globe by enhancing and contributing to research facilities and programs.
- Provide academic and living facilities at par with some of the best universities in the world by building world-class infrastructure.

Q2. CSF would like to know about the various fundraising initiatives for projects till now?

IIT Bombay has successfully implemented several unique fundraising initiatives in-line with its mission to leverage CSR for social good. One of these events was our annual Corporate Social Responsibility Conclave 2022- 'Tech for Sustainable Development,' held on July 6, which saw participation from some of the biggest names in the Indian corporate world. At the conclave, the Institute demonstrated the scope and scale of its research work which could be supported through CSR, which was extremely well received and appreciated by the attendees.

The conclave was based on themes that correspond to critical areas of research being pursued by IIT Bombay to develop actionable, cost-effective, sustainable, and scalable solutions that can solve pressing challenges of national and global importance. These include education, healthcare, rural development and agriculture, sustainability, skills and entrepreneurship, women empowerment, and social and policy development.

IIT Bombay has also set up a website that details the pioneering work that the institute does in each of the themes identified above. It is a user-friendly and informative platform, intended to help corporate donors identify areas and opportunities for collaboration and funding, in line with their CSR strategies. One can visit the website at this link:

<https://alumni.acr.iitb.ac.in/csr-conclave/index.html>

Q3: Please share some details on the various Technology Incubation projects hand held by IIT Bombay in various fields a brief with project approx. cost and the corporate support which were behind it along with the current state of projects.

About 23% of IIT Bombay's annual funding comes from the industry and corporate sector, in the form of project sponsorships, consultancy projects, royalty payments, and equipment use. Last year, around 355 Indian and international industries approached IIT Bombay for a partnership through collaborative R&D projects and consultancy services. Many of these discussions are ongoing and have resulted into several projects. While

project costs vary across disciplines, these range from INR 25 lakhs to INR 5 crores for one to three years. Multi-year, multi-thematic projects, also called grand challenges research projects, may need anywhere between INR 3 crore to INR 50 crores, over three to five years.

Some representative consultancy projects initiated during this year include:

- Artificial intelligence and machine learning (AI & ML) based models and approaches
- NMR Studies
- Power Drive Train for Heavy Vehicles
- National Smart Grid
- Development of Glycated Albumin and Hemoglobin A1C (HbA1C) panel
- Na-ion battery
- Charging systems for Electric Vehicles
- Air Dispersion Modeling Study of VOCs (Hazardous Air Pollutants)
- Proof checking of structural designs
- Air Quality Monitoring
- Bio-Polymers
- SCADA Controlling System in Solapur Smart City under Smart Cities Mission
- Structural audits

There are several research projects being pursued by IIT Bombay that have resulted in matured technologies and have immense potential to create societal impact. Strong support from corporates can result in the translation and commercialisation of these projects.

To learn more about such projects, please refer to this document:

<https://rnd.iitb.ac.in/sites/rnd.iitb.ac.in/files/brochures/2022-06/IBIS%20IIT%20Bombays%20Ideas%20and%20Innovations%20for%20Society%20June%202022.pdf>

Q4: With reference to Entrepreneurship initiatives, considering that IIT Bombay has been in the forefront from many years, How would IIT Bombay look at it in the current state, wherein the youth has been more focused into the Entrepreneurship programs with Technology Incubation as the support system

Over the years, IIT Bombay has set up an extensive support system for its students, alumni and faculty members who are looking for avenues to commercialise their innovations. Various Centres of Excellence (CoEs) and schools established at the Institute facilitate our mission to develop a robust entrepreneurial ecosystem on campus.

These include the Shailesh J. Mehta School of Management (SJMSOM), a management school that promotes interdisciplinary learning with the objective of transforming professionals with technological backgrounds to "Renaissance Leaders" of tomorrow; the Desai Sethi School of Entrepreneurship (DSSE), which

trains aspiring entrepreneurs through courses and structured mentoring programs at IIT Bombay, including IDEAS, an early-stage mentorship program as well as Society for Innovation and Entrepreneurship (SINE), India's leading incubator in an academic setting. The newly-established Research Park at IIT Bombay also encourages and supports product development and its commercialisation, in turn enhancing the entrepreneurship atmosphere at IIT Bombay. So far, over 1500 students have completed at least one course in the School of Entrepreneurship, nearly 50 teams have received early-stage mentorship and over 200 companies have been incubated. INR 4,547 Crores have been raised to date by these incubated companies. SINE has created over 800 entrepreneurs and generated employment for over 5,000 people. SINE was recognized as the best incubator in India in 2020 by the India Electronics and Semiconductors Association. Together, the entrepreneurship school, the early-stage mentoring program and the incubator make up a unique ecosystem that is unparalleled in the country. The ecosystem has helped retain some of the best talents in the country, helping the grand vision of creating new opportunities, jobs, products, and services at home.

IIT Bombay has always encouraged its students to become job creators and has introduced deferred placements for students who wish to be entrepreneurs. The deferred placements provide flexibility to students and increase their risk-taking abilities. It encourages faculty members to take sabbatical on industry and invites industry personnels to serve as Professors of Practice (PoP). In addition, the Institute is actively looking to set up a facility to support lab-to-market translation of its research, and extend support to all its deep-tech, high-risk research projects.

Q5. Trauma centres are important in tribal areas where the roads conditions are bad. Still there are several tribal states where the road conditions are going from bad to worse and contribute to major mishaps taking lives of people if these people are well taken care of at these trauma. Centres the lives of 5-6% can be saved but they need to be established in remote areas of the country. Our aims should be to save life of people staying in areas where no facilities exist. Difficult terrain are there where still giving the must trauma facilities are must. tribal areas needs focus and attention. Any research work is in progress by your esteemed organization?

IIT Bombay has developed several technologies that can be easily adopted at remote locations due to their affordable prices, portability, and ease of operation. The Institute has a strong and efficient ecosystem in healthcare and the biomedical space as a result of the pioneering research being conducted by its Centres of Excellence (CoEs) and healthcare departments. These include the Koita Centre for Digital Health (KCDH), the Department of Biosciences and Bioengineering (BSBE), and the Biomedical Engineering and Technology Innovation Centre (BETIC), among others. Some of the notable innovations by the above-mentioned

entities which can be useful for trauma centres include:

- reBreather: Breathing device that reuses exhaled oxygen to enhance the lifetime of oxygen cylinders
- Vi-SWAAS: ICU ventilator
- CPAP Helmet: Ventilator for mildly distressed patients

One of the key issues in providing urgent trauma care centres in tribal areas is to plan the location of sites to house them by analyzing the local population distribution and road connectivity. IIT Bombay has been collaborating with Indian Railways in planning their service network and such an expertise can be of immense value while planning the trauma care network.

Q6: Going forward, How would IIT Bombay envisage the future scenario of CSR and Technology Incubation happening across the Country (including the expertise and think tank availability across the peer sector and other IITs across the Nation)

The growth in vibrant economies of the world has been fuelled by innovation, disruptive technology, and product development, which find their roots in state-of-the-art research facilities and high-quality education provided by academic institutions. Such institutions are the strategic assets of a nation, contributing to both national prosperity and national security. Successful institutions have strong links with local communities and industry and contribute to the city, region, and nation's development and growth. Technology's immense power to transform lives has been widely recognised.

Honourable PM of India in one of his Convocation speeches said, "This era, this 21st century, is completely technology-driven. In this decade also, technology is going to dominate in different fields. Life without technology would now be incomplete." (Dec 2021). Therefore, enabling an ecosystem for innovation and entrepreneurship is crucial for progressive educational institutes and CSR can play an instrumental role in this endeavour. While we know 'how' to solve a problem, we also need to understand 'what' the problem is. Hence, CSR and Foundations can collaborate with IIT Bombay to bring ground-level problems to the fore, develop innovative technology solutions, and facilitate a progressive dialogue with community.

Several companies have realised the important role of research in various activities and are therefore increasingly contributing to the research space. With the rising importance of making India 'atmanirbhar,' it is now more important than ever for companies to deploy their CSR policies to make the nation self-sufficient. CSR can therefore ensure the translation of deep-tech and highly impactful technologies that can benefit society. CSR grants can help in enhancing the risk-taking abilities of deep tech start-ups dealing with high-risk (monetary-wise) technologies.