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For more socially impactful projects and further details,
please visit us in <https://joyofgiving.alumni.iitm.ac.in/csr>.

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**Indian Institute of Technology Madras
Technology Conclave for Social Impact 2018**

IIT Madras – An Overview

The past academic year has been very rewarding for IITM. It has not only sustained the Number 1 ranking among Engineering Institutes in the National Institutional Ranking Framework(NIRF) for the third year running but has also been ranked second in overall performance among all Universities in India.

The vision statement of the Indian Institute of Technology, Madras as stated in the Strategic Plan 2014-2020 document is **“To be an academic institution in dynamic equilibrium with its social, ecological and economic environment, striving continuously for excellence in education, research and technological service to the nation.”** The same document talks about “providing technical expertise to individuals and organizations involved in socially relevant projects and creating industry linkages to attract CSR funding.”

India is the first country in the world to mandate Corporate Social Responsibility (CSR) by law. The Ministry of Corporate Affairs amended the Companies Act in 2013. Schedule VII of the Act also listed the kind of activities that would be eligible as CSR projects/programmes.

Some of the socially impactful projects from IIT Madras



- Since 2014 IITM has worked with industry on CSR in the following 5 ways
- Accepting contributions to the IIT Madras Incubation Cell.
 - Receiving funding for Socially Relevant Projects designed and implemented by our faculty and students.
 - Designing CSR programmes in collaboration with the industry and implementing the same.
 - Getting support for IITM Faculty and students with prizes, scholarships through annual contributions and endowments.
 - Creating naming opportunity contributions to build a corpus.

As on October 2018, close to 60 Companies are working with IITM and have deployed over Rs. 68 crores with commitments going into the next few financial years as well.

The projects being implemented and needing further support are in the following sectors

- 1) Agriculture and Farm Tech
- 2) Water Technology
- 3) Education and Entrepreneurship
- 4) Energy
- 5) Health
- 6) Environment
- 7) Heritage

Many of the projects have deep and sustained social impact on rural communities. Some of these projects are featured below.

1. International Center for Clean Drinking Water (ICCW)

(ICCW) led by Prof. T. Pradeep aims to be one of the best ecosystems of its kind in the world to ideate, nurture and translate disruptive technologies for sustainable clean water, with collective participation of the global community. This has resulted in delivering first rate science, leading to wealth and social good, simultaneously, in the process building water professionals of tomorrow. We have reached around 8.5 million people in terms of clean water technologies with over 100 patents in water and related areas. The Economic Benefits resulting from this has crossed Rs. 500 crores for the nation.



Benefits and Impacts:

- acts as an implementation arm of IIT Madras
- helps incubate new companies, enabling multiple technologies from different labs to be collaborated
- a place for our start-ups with a built-in R&D lab
- explore the scope of known technologies, due to the presence of a water-specific incubator
- work directly with various arms of IITM and Government bodies and can attract CSR funds as a force multiplier
- a platform to study Water Technology Policy, and bring diverse aspects under one umbrella

2. Environment – Water and Solid waste management:



Waste management is a major problem in India as well as in other developing countries. Hygiene and sanitation are very closely related to human health and well being. Hence, there is an urgent need to improve the hygiene and sanitation conditions through sustainable waste management practices. Though there is a misconception that waste is a problem, actually waste can be viewed as a resource. Through innovative and sustainable waste management one can

improve the hygiene and sanitation conditions, and reuse the recovered resources. IITM Faculty and students have implemented water management and solid waste management in villages of Tamil Nadu. These efforts are headed by Prof. Ligy Philip and Prof. B S Murty both of the Civil Engineering Department of IITM.

3. Functional and Affordable Assistive Devices

The vision of the **TTK Center for Rehabilitation Research and Device Development (R2D2)** is to transform the assistive device landscape for people with locomotor impairments. According to an ICRC Study in 2015, over 30 million people in India are affected by locomotor disability. However, fewer than 5% of them have access to appropriate assistive devices. Available solutions are limited and fall into two ends of a spectrum: low cost primitive technologies on the one end (which are typically rejected by users due to lack of functionality), and exorbitantly priced imported products on the other (which may not work effectively because of different lifestyles and environment). There is a huge, unmet need for quality, affordable products and a large number of people in the country could benefit from indigenously developed functional mobility solutions.

The mission of R2D2 is to use appropriate technology to develop functional assistive devices, and translate them to the market at affordable prices. R2D2 works on a collaborative model that involves academia, industry and end-users, supported by government and private funding, especially CSR funding. Of the 20 plus prototypes developed over the last decade, the following are close to commercialization. Additional CSR funding will help drive the development of more functional and affordable products to market and also enable access to these devices to anyone who needs them.



Neobolt

About: NeoBolt is a motor-powered clip-on which converts a wheelchair into a safe, roadworthy vehicle, with a range of 25kms per charge on any terrain. NeoBolt will empower wheelchair users to go out, explore the world, and become more employable with access to more opportunities.

Impact: 2 lac+ users per year could

benefit from this device

Status: Funding from TTK, IMPRINT India. Commercialization by R2D2 startup NeoMotion with additional funding required for production tooling and launch.



Standing Wheelchair

About: A manual wheelchair that also allows the occupant to raise from a sitting position to an upright one using their own muscle power. It provides increased functionality and psychological wellbeing, apart from medical and therapeutic benefits.

Impact: 2 lac+ users per year could benefit from this device

Status: Funding from Wellcome Trust, UK. Commercialization by industry partner Phoenix Medical Systems. Expected launch by Feb 2019.



IITM Knee

About: About 95% of amputees living in developing countries lack access to affordable prosthetic devices. IITM Knee is a polycentric knee for above-knee prosthesis users, which features improved stance phase stability, swing behavior and toe clearance to better tackle uneven terrain.

Impact: 2 lac+ users (incl. the armed forces) in India could benefit.

Status: Funding from SBMT (established under DRDO), user trials in progress at Mobility India. Commercialization expected in 2019. Additional funding required for further user testing, tooling and launch.

In addition to these products on the verge of making it to the market, an additional 15 or so devices are in various stages of early development and user testing. This would need dedicated funding for their commercialization. From our experience, in addition to the resources deployed at IITM, each product requires Rs. 3 to 4 crores for user-centric development, testing and commercialization over the 2-3 year period.

4. Off-grid Solar – Lighting up homes using “Inverterless” solar DC solution

-Power cuts are common in India. Although the demand-supply gap in power

has reduced, power-cuts in India are still frequent. A large number of homes are still off-grid and taking power lines to these homes can be very expensive. To address this problem, IITM has come up with an innovative DC solution referred to as Inverterless, where the power lines as well as appliances are DC. This highly efficient solution reduces the size of solar panel and battery required thus bringing down the system cost considerably. IITM proposes to power up 1 lac homes across India with this solution through a mixed financial model. Central subsidies and part payments from house owners would account for part of the total cost. Balance funds are proposed to be financed through funding from CSR, individual grants and alumni support



5. Innovative & Affordable health care - Healthcare Technology Innovation Centre (**HTIC**), a multi-disciplinary R&D Centre led by Dr. Mohan Shankar, is a joint initiative of IITM and Department of Biotechnology (DBT), Government of India. This brings together technologists, engineers, doctors and healthcare professionals, industry and Government to develop healthcare technologies for the country. The vision of HTIC is to develop technologies that create impact and drive innovation in healthcare, be a leader known for technical excellence and collaborative spirit.

6. Empowering through Education – National Programme on Technology Enhanced Learning (**NPTEL**), is a joint venture of the IITs and IISc, funded by the Ministry of Human Resource Development (MHRD) Government of India. It was launched in 2003, and is headed by Prof. Andrew Thangaraj. The primary objective is to provide high quality education accessible to anyone, anywhere, anytime through free online courses. NPTEL works with 2100+ colleges across India currently.



NPTL online certification is one of the largest Massive Open Online Courses (MOOC) program in India today and the statistics are indicative of its impact. Number of total courses created: 1400+; Number of website views: 700 million+; Number of enrollments for certification courses: 3.5 million+; Number of certification courses offered between 2014-2017: 514 (ongoing: 226). CSR funds are utilized to provide 50% fee waiver to the students from economically weaker sections who wish to write the examination to gain a certificate. Over 1 lac certificates have been issued. This has helped many students in improving their employability.

7. Students Innovation, leading to breakthrough solutions -

Carbon Zero Challenge (CZC) headed by Prof. Indumathi Nambi to trigger novel ideas from students towards developing carbon neutral systems to serve major sectors which are plagued by energy and environmental challenges.



The thematic areas are; Agriculture, Industries, Transportation systems, Urban Areas & Cities, and Water & Waste management. Highly innovative themes have emerged out of the first edition of the competition. Successful teams have an opportunity to take their ideas to market through incubation ecosystem

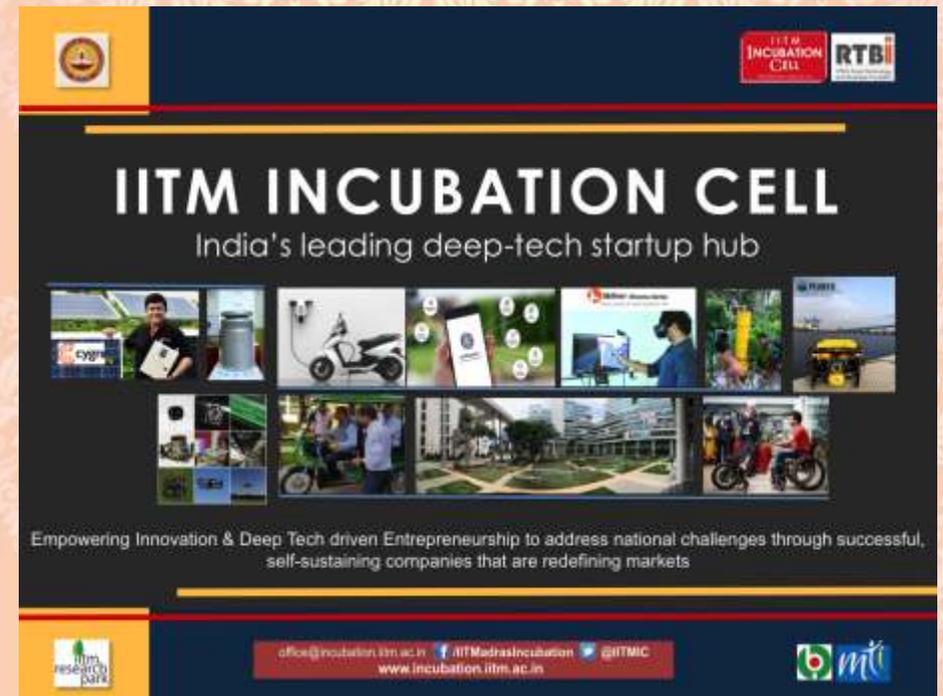
The competition is in its 2nd edition and has been supported with CSR funds. Sustained competition over the next few years can lead to great ideas to reach its objectives.



8. IITM's Incubation Eco system

- **IITM Incubation Cell** provides '**concept to scale-up**' support to technology & knowledge-based startups through a holistic ecosystem
- **Rural Technology Business Incubator** uses business incubation as a strategy and methodology for rural and social development through capacity building, income generation and services

Together they have incubated over 160+ companies with a very high success rate due to the ecosystem depicted below



9. Industrial Consultancy and Sponsored Research (ICSR) - Bringing valuable ideas to market - IITM has been at the forefront of India's technology revolution, leading with innovations in the fields of Engineering, Information & Communications Technologies. IITM has developed a strong and sustainable relationship with the industry. The integrated institutional support for this relationship is evidenced by IITM's pioneering Centre for ICSR, dedicated to nurturing and facilitating industrial interactions.

MAJOR CORPORATES ENGAGED WITH CSR :

