

Seed Funding Global South 2022 – Project report

Fab lab for sustainable materials

- **Chair at TU Berlin:** Stability and Failure of Functionally Optimized Structures
- **Partner country/countries:** India
- **Partner institution (s):** L.D. College of Engineering in Ahmedabad, India
- **Addressed Sustainable Development Goals (SDGs):**



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SDG 4: Quality Education

SDG 5: Gender Equality

SDG 9: Industry, Innovation and Infrastructure

SDG 10: Reduced Inequalities

SDG 12: Responsible Consumption and Production

SDG 17: Partnerships for the Goals

TU Berlin's Chair for Stability and Failure of Functionally Optimized Structures and the partner, L.D College of Engineering in Ahmedabad, India, share the same focus areas:

- Creative and cooperative engineering labs (3D printing and fab labs)
- Sustainable materials (biopolymers) and recycled materials
- Applied mechanics
- Empowerment of women in STEM
- Digital mentoring/tutoring/ cooperation of Indian and German students
- Cooperative student projects targeting Sustainable Development Goals (SDGs); peer-to-peer teaching.

A visit to the Indian partner university helped the research chair at TU Berlin identify the expertise and the possibilities for cooperation. With this information, the partners aim to create exchange between German and Indian students in the form of peer-to-peer teaching, joint projects, using testing/processing facilities at both universities and thus, envisage cooperating in research and teaching.

It is envisaged to develop a content-related and social exchange platform online, which also serves to strengthen networking, exchange and self-efficacy. Open source solutions will add to the teaching and research exchange and offer maximum dissemination of the results.

Addressed SDGs

SDG4: Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

The expertise in subjects like additive manufacturing, renewable resources, biopolymers to name a few, will enable the sustainable learning of the materials/processes and skills for decent work and thinking more along the lines of SDG targeting projects.

SDG5: Gender Equality: Achieve gender equality and empower all women and girls

SDG 10: Reduced Inequalities: Reduce inequalities within and among countries

By linking the project to the ideals of the Women Development Cell, we expect the project to successfully contribute to a better recruitment of schoolgirls, female students and women for STEM programs.

SDG 9: Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG 12: Responsible Consumption and Production: Ensure sustainable consumption and production patterns

The onsite cooperative “Sustainable Materials Fab Lab” fosters innovation, thus enabling the participants to create their own technological tools for finding solutions to specific problems such as ensuring technical education, sustainable consumption and production patterns to name a few. Based on the ideas of collaboration, participation and decentralization, the World Bank recognizes the Fab Lab approach as a very efficient way to foster: STEM education; smart cities and waste management evolution; higher education institution commercialization; development in local industry and entrepreneurship.

SDG 17: Partnerships for the Goals: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

SDG 17 is addressed via the initiation of new collaborative projects with the Global South and with a focus on sustainability, capacity building, joint collaboration, development of research and teaching, knowledge creation and the integration of junior researchers.