



Sharmistha Banerjee

Summary

I am an industrial designer with an experience in working in collaborative innovation and sustainable product design. Currently, I am working as Assistant Professor at Department of Design, Indian Institute of Technology Guwahati. My area of PhD research was in the area of Design for Sustainability in the context of scale-appropriate agricultural equipment design. I did my bachelor in Industrial Design from IIT Guwahati and a master in Integrated Product Design from Technical University of Delft, Netherlands and PhD from IIT Guwahati.

I have co-founded the Sustainability and Social Innovation Lab at Department of Design, IIT Guwahati. The lab focusses on creating systems for sustainable human consumption and production through a complete revamp of the consumption structure with our design interventions. We are part of the global network on sustainability, the Learning and Education Network in Sustainability (LeNS) consisting of 150+ global universities. Currently a large part of our sustainable product-service development projects are in the domain of agriculture. At IIT Guwahati I teach courses like System Design for Sustainability, Usability Engineering, User Research Techniques, Product Detailing, Interaction Design, Design Management, Plastics and composites and Design Semantics. I have also developed a MooC course on System Design for Sustainability for the MHRD sponsored SWAYAM platform.

In the past few years, I have worked in India, Bangladesh and Netherlands with companies like Philips, Infosys, MIDCO, VU Medical University Amsterdam, Conpax Verpakking, Beat Belly, Botanische Tuin Delft, ACC Ltd, educational institutes like IIT Guwahati, MIT Institute of Design Pune, IDC, IIT Bombay and L'Ecole de Design (Indian Operations), Nantes-Atlantique, France and NGOs like International Development Enterprise Bangladesh.

Contact

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www.banerjeesharmistha.com

www.sustainability-and-social-innovation.com

Top Skills

Product Design

Design for Sustainability

Design Thinking

Education

Doctor of Philosophy (Ph.D.), 2021,
Sustainability-Orienting Design
Framework for Farm Machinery
Design, Indian Institute of Technology
Guwahati

MSc, Integrated Product Design
(2008 - 2010), Delft University of
Technology

**Bachelor of Design, Industrial
Design** (2002 - 2006), Indian Institute
of Technology, Guwahati

Experience

Indian Institute of Technology, Guwahati Assistant Professor

August 2013 - Present

Teaching UG & PG courses, research and development. Courses taken include - Introduction to Interaction Design, Usability Engineering, Plastics and Composites, Design Management, System Design for Sustainability, Applied Science for Design, User Research Methods, Design Analysis, Product Design, Design Management, Design seminar, and Product Detailing.

Co-Founder Sustainability and Social Innovation Lab, Department of Design, IIT Guwahati

May 2015 - Present

Design for Sustainability (DfS) is an emerging and significant domain.

It is also one of the prime needs of the hour considering the burden of human consumption and production. In order to create sustainable human consumption and production, a complete revamp of the consumption structure is needed. Design for Sustainability stands on the pillars of innovation. Through the Sustainability and Social Innovation Lab, the Department of Design at IIT Guwahati, aims to foray into this domain. The R&D at the lab focusses on three structural components: Knowledge Innovation, Product and Service Innovation, Social Innovation.

MIT Institute of Design Senior Lecturer

August 2012 - July 2013 (1 year) Pune

Conducting classes and mentoring projects for undergraduate & post-graduate students in the discipline of Industrial Design. The various subjects undertaken are Green Design, Ethnographic Research, Research Methods, Ergonomics, Packaging Design, Techno-aesthetic Detailing, Appropriate Economics, Simple Product Design and Science in Everyday Objects & Creative Intervention.

Shenoy Innovation Studio, IDC, IIT Bombay Design Consultant

October 2010 - August 2012 (1 year 11 months)

Working on a R&D project with ACC Ltd. to develop mass production possibilities for affordable and sustainable rural and semi-urban housing

MIDCO Ltd. Executive Design and Development

October 2006 - February 2007 (5 months)

My major responsibility involves design of FMCG plastic products. The work also involves thorough market research.

Infosys Technologies Ltd. Interface Designer

June 2006 - October 2006 (5 months)

The work involved designing the information architecture, navigation & interaction stereotypes, user experience and usability evaluation for web- based applications and products.

Publications

Book Section/ Conference Proceedings/ Book Chapters

1. Vezzoli, C., Petruilaityte, A., **Banerjee, S.**, Upadhyay, P., & Punekar, R. M. (2021). Designing S.PSS and DE: New Horizons for Design. In C. Vezzoli, B. Garcia Parra, & C. Kohtala (Eds.), Designing Sustainability for All: The Design of Sustainable Product-Service Systems Applied to Distributed Economies (pp. 85-121). Cham: Springer International Publishing. doi:10.1007/978-3-030-66300-1_4.
2. Sehji, U., & **Banerjee, S.** (2021) 'Campaign Design to Nudge Men in Public Spaces in Order to Reduce the Crime Rate Against Women'. Singapore: Springer Singapore, pp. 339-349.
3. Munakala, S. M., Manda, C., & **Banerjee, S.** (2021) 'The Infinity Process: A Design Framework for Interdisciplinary Problem-Solving'. Singapore: Springer Singapore, pp. 419-428.
4. Hassan, M. N., & **Banerjee, S.** (2021) 'Mindmaps-Based Tool for Planning and Structuring Design Research Papers'. Singapore: Springer Singapore, pp. 587-593.
5. Garcia Parra, B., Kohtala, C., Marttila, T., dos Santos, A., Molina Mata, S., Zhong, F., Xia, N., Liu, X., Zhang, J., **Banerjee, S.**, Upadhyay, P., & Punekar, R. M. (2021). S.PSS and DE in Practice. In C. Vezzoli, B. Garcia Parra, & C. Kohtala (Eds.), Designing Sustainability for All: The Design of Sustainable Product-Service Systems Applied to Distributed Economies (pp. 123-142). Cham: Springer International Publishing. doi:10.1007/978-3-030-66300-1_5.
6. dos Santos, A., Vezzoli, C., Garcia Parra, B., Molina Mata, S., **Banerjee, S.**, Kohtala, C., et al. (2021). Distributed Economies. In C. Vezzoli, B. Garcia Parra, & C. Kohtala (Eds.), Designing Sustainability for All: The Design of Sustainable Product-Service Systems Applied to Distributed Economies (pp. 23-50). Cham: Springer International Publishing. doi:10.1007/978-3-030-66300-1_2.
7. Punekar, R. M., **Banerjee, S.**, & Upadhyay, P. (2020). Design for Sustainability—Collaborative Learning and Dissemination at IIT Guwahati, Assam. In T. Issa, T. Issa, T. B. Issa, & P. Isaias (Eds.), Sustainability Awareness and Green Information Technologies (pp. 479-494). Cham: Springer International Publishing. doi:10.1007/978-3-030-47975-6_20.
8. Majumdar, P., **Banerjee, S.**, Shah, P. M., Pundir, V. S., Chowdhury, A., Agarwal, S., et al. (2019). LaMPS - 'Designerly ways' for sustainable Distributed Economy. In M. Ambrosio, & C. Vezzoli (Eds.), Designing Sustainability for All - 3rd LeNS world distributed conference (pp. 245-250). Milano, Italy: Edizioni POLI.design. <http://www.lensconference3.org/images/program/VOLUME1.pdf>.
9. Majumdar, P., **Banerjee, S.**, Diehl, J.-C., & Van Engelen, J. M. L. (2019). Connected Us! How Social Motives Determine DIY Behaviorism in Rural Base of the Pyramid Communities. Research into Design for a Connected World (pp. 807-819). doi:10.1007/978-981-13-5974-3_70.
10. Majumdar, P., **Banerjee, S.**, Diehl, J.-C., & van Engelen, J. M. L. (2019). Motivation for Do-It-Yourself in Rural Base of the Pyramid Communities and the Changing Landscape. Research into Design for a Connected World (pp. 611-625). doi:10.1007/978-981-13-5977-4_52.

11. **Banerjee, S.**, Upadhyay, P., & Punekar, R. M. (2019). Contextualising sustainable Product-Service design methods for Distributed Economies of India. In M. Ambrosio, & C. Vezzoli (Eds.), *Designing Sustainability for All - 3rd LeNS world distributed conference* (pp. 270-275). Milano, Italy: Edizioni POLI.design. <http://www.lensconference3.org/images/program/VOLUME1.pdf>.
12. **Banerjee, S.**, Upadhyay, P., & Punekar, R. M. (2019). Teaching Design for Sustainability for Socioeconomic Ecosystems—Three Case Studies. *Research into Design for a Connected World* (pp. 935-946). doi:10.1007/978-981-13-5977-4_78.
13. **Banerjee, S.** (2019). PURA framework - A model for Distributed Economy for India. In M. Ambrosio, & C. Vezzoli (Eds.), *Designing Sustainability for All - 3rd LeNS world distributed conference* (pp. 265-269). Milano, Italy: Edizioni POLI.design. <http://www.lensconference3.org/images/program/VOLUME1.pdf>.
14. Jithin, K.C.T., Pallavi, Y., & **Banerjee, S.** (2017) 'Exploring Material Selection using Intangible and Sensorial Properties' 1st International Conference on Creativity and Cognition in Art and Design (ICCAD). 16-01-2017. Bangalore: Bloomsbury India, pp. 155-166. Available at: <http://www.bloomsbury.com/in/creativity-and-cognition-in-art-and-design-9789386349880/>.
15. Majumdar, P., Ji, S., & **Banerjee, S.** (2017). Consumer Preferences and Value Proposition Disconnect —Assam Rattan and Bamboo Furniture Industry. In A. Chakrabarti, & D. Chakrabarti (Eds.), *Research into Design for Communities, Volume 1* (pp. 665-677). Singapore: Springer Singapore. doi:10.1007/978-981-10-3518-0_58.
16. Majumdar, P., & **Banerjee, S.** (2017) 'Challenges to Sustainable Growth of the Micro-scale Kuhlila Craft Industry of India'. Guwahati: Springer Singapore, pp. 267-276.
17. Ji, S., **Banerjee, S.**, & Punekar, R. M. (2017) 'Assessment of GRIHA and LEED on the Parameters of Sustainable Design and Development of Buildings' ICoRD 2017. Guwahati, India: Springer Singapore, pp. 179-188.
18. Jamil, N., Vysak, A. S., Parihar, A., & **Banerjee, S.** (2017) 'Understanding the Hope Harbingers—ASHA, the Women Foot Soldiers of India's National Rural Health Mission'. Singapore: Springer Singapore, pp. 199-208.
19. Athavankar, A., **Banerjee, S.**, Chakravarthy, B. K., & Athavankar, U. (2013). Conflicts in the Idea of 'Assisted Self-Help' in Housing for the Indian Rural Poor. In A. Chakrabarti, & R. V. Prakash (Eds.), *ICoRD'13* (pp. 605-616). India: Springer India. doi:10.1007/978-81-322-1050-4_48.
20. **Banerjee, S.**, Goel, K. M., Chakrabarti, D., & Das, A. (2005) 'An approach to specify informal sitting in classroom' D. Chakrabarti, & A. Das *Humanizing Work and Work Environment (HWWE)*. Guwahati: Allied Publishers, pp. 144-148.

Journal Publications

21. **Banerjee, S.**, & Punekar, R. M. (2020). A sustainability-oriented design approach for agricultural machinery and its associated service ecosystem development (Article). *Journal of Cleaner Production*, 264. doi:<https://doi.org/10.1016/j.jclepro.2020.121642>.

Conference Papers

22. Munakala, S. M., Manda, C., & **Banerjee, S.** (2021). Tackling anger in children with hearing impairment. (Paper presented at the 'Designing for children' with focus on 'Play and Learn', Indian Institute of Technology (IIT) Bombay, Mumbai, India)
23. Tiwari, S., Neha, Mishra, U., & **Banerjee, S.** (2015). Education for sustainability- Cultural Diversity: Imparting Cultural knowledge through activity based-democratic participation. (Paper presented at the Suscon, IIM Shillong)
24. Singh, A., & **Banerjee, S.** (2015). 'Spill in my Gills' - A Board Game Design to Increase Oil Spill Awareness among School Children. (Paper presented at the Cumulus Mumbai 2015: In a planet of our own - a vision of sustainability with focus on water, Mumbai)
25. **Banerjee, S.** (2015). Case Study - Giving voice to the farmers, machine operators, local service providers and small scale manufacturers in designing scale-appropriate agro-machinery for rural Bangladesh. (Paper presented at the ICCIG3 2015, Ahmedabad)

PG Projects Guided

2019-20

1. Minakhi Das (184205012) - Design a smart assistive walker for Osteoporosis patients
2. Abhishek Kunjappan (184205001) - Redesigning a skull cutting device for forensic pathology

2016-17

1. Shyam Krishnan (154205008) - Aid for facilitating creative problem solving in Product design.
2. Uzair Iqbal (154205011) - Design Intervention for Improving School Education in Kashmir.

Sponsored & Consultancy Projects

1. The International Learning Network of networks on Sustainability

Funding Agency: Erasmus + through Politecnico di Milano

Coordinating Organisation: Politecnico di Milano

Partner Organisation: Technische Universiteit Delft, Universidade Federal Do Parana, Universidade Federal De Pernambuco, Universidad Del Valle De Mexico Sc, Indian Institute Of Technology Guwahati, Tsinghua University, Hunan University, Cape Peninsula University Of Technology, Stellenbosch University, Universidad Autonoma Metropolitana, Brunel University London, Aalto-Korkeakoulusaatio, Ujwal Trust.

Duration: October 2015 - October 2018

Members at IIT Guwahati: Ravi Mokashi Punekar, Pankaj Upadhyay, Sharmistha Banerjee

2. Design of Scale-appropriate Machinery for Ginger and Turmeric Post-harvest On-field Processing

Funding Agency: Design Innovation Center Setup by MHRD at Department of Design, IIT Guwahati

Duration: December 2015 - December 2017

Members at IIT Guwahati: Pankaj Upadhyay, Sharmistha Banerjee, Sachin Kore

3. Design and performance evaluation of solar tunnel dryer for high value agricultural products of NE region

Funding Agency: Design Innovation Center Setup by MHRD at Department of Design, IIT Guwahati

Duration: 2016 - 2017

Principle Investigator: Er. Manas Jyoti Barooah, Dept. of Agricultural Engineering

Co-investigator: Sharmistha Banerjee

4. Design and Development of a Hand Operated Assam Lemon Fruit Harvester

Funding Agency: Design Innovation Center Setup by MHRD at Department of Design, IIT Guwahati

Duration: 2016 - 2017

Principle Investigator: Dr. Pankaj Baruah, Dept. of Agricultural Engineering

Co-investigator: Sharmistha Banerjee

5. Design of a scale-appropriate agricultural machinery for rural Bangladesh

Funding Agency: International Development Enterprise - Bangladesh

Duration: March 2014 to July 2014

Members: Sharmistha Banerjee

Conferences/ Workshops/ Seminars/ Training Programs/ Short-term Courses

1. Workshop on “Design thinking for sustainable product design” for AICTE - ISTE Sponsored One Week - Online Induction/ Refresher Programme on “Design Thinking to Augment 21st Century Skills” scheduled at RV College of Engineering on 10/12/2021.
2. Keynote address on “Sustainable technologies for post COVID world”, in the Northeast Green Summit 2021, organized by National Institute of Technology Silchar on 17/ 11/ 2021.
3. Keynote lecture for AICTE ATAL online FDP on “Design thinking for sustainable product design” scheduled at Sree Vidyanikethan Engineering College, Tirupati on 16/09/2021.
4. Guest lecture on “Sustainability”, scheduled at SPA Bhopal on 02/03/2021.
5. Workshop on “Life Cycle Assessment of building materials” for Phase II AICTE sponsored short term training program on “Conservation of Energy and Environment through Sustainable Engineering” scheduled at Mepco Schlenk Engineering College, Sivakasi on 04/02/2021.
6. Workshop on “Life Cycle Assessment of building materials” for Phase I AICTE sponsored short term training program on “Conservation of Energy and Environment through Sustainable Engineering” scheduled at Mepco Schlenk Engineering College, Sivakasi on 07/01/2021.
7. Workshop on "Design thinking for sustainable product design” for FDP on “Design thinking” scheduled at Oriental Institute of Science and Technology (OIST), Bhopal on 09/09/2020.
8. Lecture on “Ergonomics and the Social Dimensions of Design for Sustainability” at TEQIP - Ergonomics In Design And Engineering Education, IIT Guwahati, 11/01/2020.
9. Panelist in the session on "Pedagogy, Industry & Social responsibility” at symposium on “THINK IN - Sustainable Design & Humanism - A road map from Industry 4.0 to Society 5.0”, organized by National Institute of Design Madhya Pradesh (NIDMP), 19/12/2019.
10. Workshop on “Design for Sustainability” at Avantika University, Ujjain, 9 - 14th September 2019.
11. Workshop on “Cognitive Skills, Design Thinking and Critical Thinking” at St. Mary’s College, Shillong, 24th June 2019.
12. Co-organized the LeNS World Distributed Conference titled, “Designing Sustainability for All” in Bangalore from 3-5th April 2019.
13. GCRF Ocean Plastics India Workshop, IISc Bangalore, 28-29 March 2018.
14. Lecture on “Sustainable Product-Service System Design” at Reflux 2018, IIT Guwahati, 18th March 2018.
15. 2 Week Course on “System Design for Sustainability” with global faculty and schools from different parts of India under LeNS, conducted at IIT Guwahati from 12 - 23 Feb 2018.
16. Intermediate Meeting of the LeNSin Project, Curitiba, Brazil from 3-5 October 2017.
17. Pilot course on Sustainable Product Service System Design applied to Distributed Economics at Srishti School of Art, Design and Technology Bangalore with the international LeNS team. The students explored the concepts of S.PSS and DE at Channaptna, a town in Karnataka, India famous for its lacquered wooden toys. 13-25th Feb 2017.

18. Seminar on Sustainable Product Service System Design under the aegis of LeNSin (The International Learning Network of networks on Sustainability (<http://www.lens-international.org>)) is an EU-supported (ERASMUS+) with Srishti School of Art, Design and Technology, Bengaluru, 10 - 11th November 2016.
19. Invited as Resource Person for design workshop at Assam Agricultural University, Jorhat, under DIC project, 26-27 October 2016.
20. Lecture on "Design for Sustainability" at TEQIP-II program on "Product Development and Value Engineering" organised by Lukhdhirji Engineering College, More, Gujarat, 16th June 2015.
21. Lecture on "Design and Sustainability" at TEQIP program on "Creative Learning Methods in Technical Education Design" organised by Department of Design, IIT Guwahati, 11th Nov to 15th Nov, 2014.
22. Invited for a case study presentation of the novel technique based on "electric field induced cancer drug extraction" at CII – NID Design Summit 2010.

Important Seminar/ Conference Attended

Sl. No	Conferences / Seminar	Title Of Paper/Invited Talk or Chairing Session if any	Year
1	Northeast Green Summit 2021	Keynote - Sustainable technologies for post COVID world	2021
2	THINK IN - Sustainable Design & Humanism - A road map from Industry 4.0 to Society 5.0 organized by National Institute of Design Madhya Pradesh (NIDMP)	Panelist - Pedagogy, Industry & Social responsibility	2019
3	7th International Conference on Research into Design - ICoRD 2019 organized by IISc Bangalore	Motivation for Do-It-Yourself in Rural Base of the Pyramid Communities and the Changing Landscape	2019
4	7th International Conference on Research into Design - ICoRD 2019 organized by IISc Bangalore	Teaching Design for Sustainability for Socio-economic ecosystems - Three Case Studies	2019
5	Festival of Innovation organised by National Innovation Foundation at the Rashtrapati Bhawan	Roundtable on Innovations in Public Service Delivery	2017

Sl. No	Conferences / Seminar	Title Of Paper/Invited Talk or Chairing Session if any	Year
6	6th International Conference on Research into Design - ICoRD 2017 organized by IISc Bangalore, hosted by IIT Guwahati	Consumer Preferences & Value Proposition Disconnect - Assam Rattan and Bamboo Furniture Industry	2017
7	6th International Conference on Research into Design - ICoRD 2017 organized by IISc Bangalore, hosted by IIT Guwahati	Challenges to Sustainable Growth of the Micro-Scale Kuhila Craft Industry of India	2017
8	Third International Conference on Creativity and Innovations at (for/from/with) Grassroots - ICCIG3, organised by Indian Institute of Management, Ahmedabad	Giving voice to the farmers, machine operators, local service providers and small scale manufacturers in designing scale-appropriate agro-machinery for Rural Bangladesh: A Case study	2015

Awards & Scholarships

1. Scholarship under the Huygens Scholarship Program (HSP) for pursuing Masters at TU Delft.
2. 1st prize in the Interaction/ Graphic design category of the Kyocera Wireless Design Competition 2006, a national level design competition.
3. Institute Silver Medal (given to departmental toppers) at IIT Guwahati.
4. Merit Scholarship, IIT Guwahati, for the academic year 2002- 2003 and 2004-2005 for being the departmental topper of the academic year.
5. "Best Student" award in school, 2001.
6. National Scholarship Scheme Merit Certificate from Director of Education, Govt. of N.C.T of Delhi Certification for being among top 0.5% students in Social Science in Xth CBSE Exam.