Monto Mani

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Professor
Centre for Sustainable Technologies (formerly ASTRA), &
Centre for Product Design & Manufacturing
Indian Institute of Science, Bangalore – 560 012, INDIA

Academic Background:

Ph. D., (2003) Indian Institute of Technology Madras, India
***Dissertation*:** Assessing and Forecasting Sustainability of Human Settlements: An Integrated Model of an Urban Residential Community's Water Usage and Sanitation Practices

M. Tech., (1997) Indian Institute of Technology Madras, India
***Specialization*:** Civil Engineering (Building Technology and Construction Management)

B. Arch., (1995) BKPS College of Architecture, University of Pune, India
Dissertation: (Urban Design) Proposal for the Banks of the River Mutha: Onkareshwar Temple Front, Pune

Professional and Research Experience:

- June 2019 ~ till date, **Professor**, Centre for Sustainable Technologies, IISc
- May 2011 ~ June 2019, **Associate Professor**, Centre for Sustainable Technologies, IISc
- May 2008 ~ till date, **Associate Faculty**, Centre for Product Design & Manufacturing, IISc
- May 2005 ~ May 2011, **Assistant Professor**, Centre for Sustainable Technologies, IISc

Brief Overview of Academic Research

Monto's research deals with Sustainability science, an interdisciplinary domain, focusing both on its theoretical basis, and application in architecture (buildings) and design. His Sustainability and Design lab (SuDesi) comprises multi-disciplinary researchers working on diverse areas of sustainability dealing with buildings, renewables, product design and manufacturing. He is an Architect, with a master's degree in Civil Engineering and doctoral specialization in Sustainability, wherein he developed a systems-framework identifying societal attitude as a critical determinant of sustainability.

Monto's team was recently awarded the Lexus Design Award India 2019 for CleaneRAT – A smart and portable sewer maintenance and de-clogging robot. He was awarded Best Faculty of the Year 2018 (Innovations) at TechNext2018 an industry-academia event organized by the Computer Society of India (Mumbai Chapter) and IIT Bombay. He also received the Cambridge-Hamied Fellowship to further academic-collaboration in areas of Sustainable Manufacturing and Smart Buildings at the University of Cambridge. He is panel member of the Bureau of Indian Standards, National Building Code 2016 on Sustainability Considerations in Buildings. In 2014, he was a UNNC Visiting Researcher to the University of Nottingham, Ningbo, China Campus and a guest scientist at the University of Coburg, Germany. He has also been a BOYSCAST fellow at the School of Architecture and Planning, University of Auckland.

Monto has been involved in architecture, housing and sanitation projects integrating society (culture) and environment sensitive design features and participatory design. The sanitation design and approach for rehabilitating a tsunami affected island village in India has received recognition by the Suez Environment Foundation as one of the four best projects. He's part of a collaborative research team with TU Delft that received research grant from the NWO (The Netherlands) for research dealing with Technology and Design for the Bottom of the Pyramid. He is also part of a design-research team engaged in evolving a sustainability framework for manufacturing, funded by the Boeing Company USA. He is currently coordinating a Scientific Study on the Cauvery River basis specifically looking into biodiversity and sustainability.

In his ongoing research pertaining to design and technologies for sustainability, few notable initiatives include a dedicated lab for Building Integrated Photovoltaics (an industry collaboration with BHEL) and a Hot-Box for evaluating building-envelope design configurations for their climate-responsiveness. Both these facilities are amongst the few in the world. His postgraduate course Technology & Sustainability trains students in sustainability principles, appreciation and evaluation pertaining to technology and design. More than 130 individual projects on sustainability assessment have been supervised as part of the course. He has co-authored a book on Sustainability in Human Settlements, Co-edited three books and has extensive international journal and conference publications on diverse areas pertaining to sustainability. He is presently Associate Editor for Springer's Journal of the Institution of Engineers (India): Series A. He has been Guest Editor for a Special Section in *Current Science* on Design for Well-being published in 2015. More information on his lab is available at http://cst.iisc.ac.in/sudesi/

Professional Affiliations:

* Registered Architect, Council of Architecture, India
* Associate Member of the Institution of Engineers (AMIE), India
* Associate Member of the Indian Institute of Architects (AIIA)
* Member – Indian Society for Technical Education (ISTE)

Patents (Co-inventor):

- A low-embodied energy building integrated photovoltaic roof mounting mechanism (No. 262623, 29 Aug' 2014)
- An integrated sanitation system and a process for effective treatment of wastewater (No. 272306, 29 Mar' 2016)
- Double guarded hot-box (filed May 2011)
- Stove-mould assembly (filed Dec' 2011)
- Water purifier cum tester (filed Nov' 2014)
- A device, system and method for obstacle identification and removal (filed Aug' 2018)

Students Graduated:

PhD 4 *(completed)* + 7 *(ongoing)*; **MDes** Major Project: 5 *(completed)*; **MDES** *Mini Project: 3 (completed)*

Publications:

Books: 1; Edited Books: 4; International Journals: 40+; Chapters in Ed. Books: 25+; International Conferences & Articles: 45+

Salient Publications:

Books

1. **Mani, M.,** Ganesh, L.S. and Varghese, K., (2005), *Sustainability and Human Settlements*. Sage Publications, New Delhi, Thousand Oaks, London.

Edited books

1. Venkatarama Reddy, B.V., **Mani, M.**, and Walker, P. (eds), 2019, *Earthen Dwellings and Structures: Current Status in their Adoption*. Springer Nature, Singapore.
2. **Mani, M.,** and Kandachar, P., (eds), 2015, *Design for Sustainable Well-being and Empowerment: Selected Papers*. IISc Press and TU Delft.
3. Rao, S., **Mani, M.** and Ravindranath, N. H. (eds), 2008, *Advances in Water Quality & Management*. Research Publishing, Singapore.

Elsevier's Encyclopedia of Sustainable Technologies:

1. Praseeda, K.I., Venkatarama Reddy, B.V., **Mani, M.,** (2017). Life-Cycle Energy Assessment in Buildings: Framework, Approaches, and Case Studies. In Abraham, M.A., (Ed.), *Encyclopedia of Sustainable Technologies*. Elsevier, pp. 113-136.
2. Aaditya, G., **Mani, M.,** (2017). Integration of Photovoltaics in Buildings. In Abraham, M.A., (Ed.), *Encyclopedia of Sustainable Technologies*. Elsevier, pp. 259–273. doi.org/10.1016/B978-0-12-409548-9.10201-5.
3. Aysha, S., **Mani, M.** (2017). Adaptation of Buildings to Climate Change. In Abraham, M.A., (Ed.), *Encyclopedia of Sustainable Technologies*. Elsevier, pp. 331–349. doi.org/10.1016/B978-0-12-409548-9.10202-7.

International refereed journals (salient few)

1. Balaji, N.C., **Mani, M.,** and Venkatarama Reddy, B.V. (2019): Dynamic thermal performance of conventional and alternative building wall envelopes. *Journal of Building Engineering*, 21, 373–395.
2. Roshan R. Rao, **Mani, M.,** and Ramamurthy, P.C. (2018) An updated review on factors and their inter-linked influences on photovoltaic system performance. *Heliyon,* 4 (2018) doi: 10.1016/j.heliyon.2018. e00815
3. Praseeda, K.I., Venkatarama Reddy, B.V., **Mani, M.,** (2017): Embodied and operational energy of rural dwellings in India. *International Journal of Sustainable Energy*, Taylor & Francis, 37(3), 249-267. DOI:
4. Kumar, M., and **Mani, M.** (2017): *A methodological basis to assess and compare manufacturing processes for design decisions*. In Chakrabarti, A., and Chakrabarti, D. (Eds): Research into Design for Communities – Volume 2, Smart Innovation, Systems and Technologies 66, *Springer Nature Singapore*, 301-311, DOI 10.1007/978-981-10-3521-0_26.
5. Kumar, T., and **Mani, M.** (2017): *Life Cycle Assessment (LCA) to assess Energy Neutrality in Occupancy Sensors*. In Chakrabarti, A., and Chakrabarti, D. (Eds): Research into Design for Communities – Volume 2, Smart Innovation, Systems and Technologies 66, *Springer Nature Singapore*, 105-116, DOI 10.1007/978-981-10-3521-0_9.
6. Kumari, M. C., Chakrabarti, A., and **Mani, M**. (2016): *A spatio-temporal product lifecycle network representation*. In Harik, R., Rivest, L., Bernard, A., Eynard, B., and Bouras, A., (Eds): Product Lifecycle Management for Digital Transformation of Industries. PLM 2016. IFIP Advances in Information and Communication Technology, Vol. 492, *Springer*, Cham, 606-617.
7. Aaditya, G., and **Mani, M.,** (2016), BIPV: A real-time building performance study for a roof integrated facility. *International Journal of Sustainable Energy, Taylor & Francis*, http://dx.doi.org/10.1080/14786451.2016.1261864
8. Rama Murthy, S., and **Mani, M.,** (2013), Discerning Rejection of Technology. *SAGE Open,* **3**(2).
9. **Mani, M.** and Venkatarama Reddy, B. V., (2012), Sustainability in Human Settlements: Imminent Material and Energy Challenges for Buildings in India. Journal of the Indian Institute of Science, **92**(1) pp. 145-162.