Rajib Sinha

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Date of birth: December 06, 1983 — Narail, Bangladesh
Nationality: Bangladeshi. Gender: Male

Education

May 2016 (expected)	PhD in Industrial Ecology, KTH Royal Institute of Technology, Stockholm, Sweden
2015	Licentiate of Engineering in Industrial Ecology, KTH Royal Institute of Technology, Stockholm, Sweden
2009	MSc in Sustainable Technology, KTH Royal Institute of Technology, Stockholm, Sweden
2006	BSc in Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

Research Interest

I am interested in understanding the complexity and dynamics of societal metabolism to identify the drivers of environmental pressures to take proactive actions to an improved management. My interests cover sustainable production consumption, material efficiency and circular economy, rebound effects and unintended consequences of purposive actions, implications of life cycle thinking and systems thinking in practice. My research specifically focused on the modeling aspects of industrial ecology, e.g., MFA/SFA, LCA, Input-Output analysis, system dynamics, agent based modeling.

Experience

2012-present	PhD candidate at Industrial Ecology, KTH, Sweden. I am also responsible for teaching and administrative tasks (20%).
2009-2012	Research and teaching assistant, and administrative works at Industrial Ecology, KTH, Sweden
2006-2007	Structural Design Engineer at Confidence Steel Ltd., Dhaka, Bangladesh

Teaching

2009-present	Teaching assistant of Master level courses: Applied Environmental System Analysis I and II, Applied Industrial Ecology, Environmental Modelling: Introduction with Application Examples, and Research Methodology and Theory of Science at *Industrial Ecology, KTH, Sweden*
2013-2014	Supervised two master thesis students at *Industrial Ecology, KTH, Sweden*
2010	Teaching assistant of a PhD level course entitled Sustainability Challenges for the Nordic Forest Industries at *Industrial Ecology, Sweden*

Computer skills and competence

Programming	C/C++, Java, Matlab, Mathmetica7
Environmental Modeling	GaBi, SimaPro, AnyLogic, Vensim, Simile, LEAP, OSEMOSYS, PHREEQCI, QWASI, M3 (Multivariate Mixing and Mass-balance)
Statistics	SPSS (PASWStatistics18), The Unscrambler 9.8
Engineering	AutoCAD, GIS (ArcView), SAP, ETABS, GRAPS, MStower, Stadpro
Miscellaneous	LaTeX, Microsoft Office/Visio, iWork, Aperture, Pixelmator, OmniGraffle, Adobe Photoshop/ Lightroom/ InDesign /FlashPro/Illustrator/Dreamweaver

Language skills

Bengali	Mother tongue
English	Advanced in listening, reading, writing and speaking
Hindi	Advanced in listening, moderate in speaking, reading and writing
Swedish	Moderate in listening, reading, writing and speaking; completed higher intermediate level (B2) of Swedish for KTH employees

Grants, honors & awards

2015	ISWA (International Solid Waste Association) Publication Award 2015 as a co-author
2014 & 2015	Styffes stiftelse (The Styffe Foundation) scholarship
2014	Knut and Alice Wallenberg Foundation (young scientists)
2012-2014	KTH local study grant
2009-2010	KTH research scholarship
2001-2006	Bangladesh Government Technical Scholarship from BUET, Dhaka, Bangladesh
1998-2006	Scholarship from the Ministry of Education, Government of Bangladesh– Awarded for the recognition of excellence in the public examinations. Received for Secondary School Certificate and Higher Secondary Certificate

Publications & research

Journal articles

2015	Frostell, B., Sinha, R., Assefa, G. & Olsson, L-E., 2015. Modeling both direct and indirect environmental load of purchase decisions: A web-based tool addressing household metabolism. *Environmental modelling and software*, 71, 138-147.
2015	Laurenti, R., Sinha, R., Singh, J., & Frostell, B., 2015. Some pervasive challenges to sustainability by design of electronic products–a conceptual discussion. *Journal of Cleaner Production*.
2015	Laurenti, R., Sinha, R., Singh, J., & Frostell, B. (2015). Towards Addressing Unintended Environmental Consequences: A Planning Framework. *Sustainable Development*.
2015	Laurenti, R., Singh, J., Sinha, R., Potting, J., & Frostell, B., 2015. Unintended Environmental Consequences of Improvement Actions: A Qualitative Analysis of Systems' Structure and Behavior. *Systems Research and Behavioral Science*. DOI: 10.1002/sres.2330.
2015	Zhou, G., Singh, J., Wu, J., Sinha, R., Laurenti, R., & Frostell, B., 2015. Evaluating low-carbon city initiatives from the DPSIR framework perspective. *Habitat International*, 50, 289-299.
2014	Singh, J., Laurenti, R., Sinha, R. & Frostell, B., 2014. Progress and challenges to the global waste management system. *Waste Management & Research*, 32(9), 800-812.

2010 Cui, Q., Brandt, N., Sinha, R., & Malmström, M. E., 2010. Copper content in lake sediments as a tracer of urban emissions: Evaluation through a source-transport-storage model. *Science of the Total Environment*, 408(13), 2714-2725.

Manuscripts

2015 Sinha, R., Laurenti, R., Singh, J., Malmström, M. E., & Frostell, B., 2015. Identifying ways of closing the metal flow loop in the global mobile phone product system: a system dynamics modeling approach. (submitted).

2015 Sinha, R., Lennartsson, M., & Frostell, B., 2015. Approaches to Environmental Footprint Assessment of Building Structures: A comparative study. (manuscript)

2015 Sinha, R., Laurenti, R., Singh, J., & Frostell, B., 2015. Element Flow Analysis (EFA) for complex systems modeling. (manuscript)

2014 Laurenti, R., Aid, G., Singh, J., Sinha, R. & Frostell, B., 2014. Diverse stakeholder perspectives of selected environmental systems analysis tools in environmental decision-making. (Manuscript)

Conferences

2015 Sinha, R., Laurenti, R., Singh, J. & Frostell, B., 2015. Closing the material flow loop based on the criticality of material used in mobile phones. *8th Biennial Conference of the International Society for Industrial Ecology*, University of Surrey Guildford, U.K.. (Abstract for a poster presentation is accepted and the conference will be held during June 7-10, 2015)

2014 Sinha, R., Laurenti, R., Singh, J. & Frostell, B., 2014. A driver-oriented approach for proactive resource management: metal flows in the global mobile phone product system. *Gordon Research Conference on Industrial Ecology*, Lucca, Italy. (Poster)

2014 Sinha, R., Laurenti, R., Singh, J. & Frostell, B., 2014. System dynamics approach in the global mobile phone product system to identify drivers for creating a circular economy. *Conference on Going Green – CARE INNOVATION 2014*, Vienna, Austria. (Poster)

2014 Sinha, R., Laurenti, R., Singh, J. & Frostell, B., 2014. System dynamics approach for investigating a circular economy in the global mobile phone product system. *The 2nd International Conference on ICT for Sustainability (ICT4S 2014)*, Stockholm, Sweden. (Poster).

2013 Sinha, R., Olsson, L-E., Shanahan, H., Wåhlander, H., & Frostell, B., 2013. EcoRunner: A web-based environmental feedback tool to promote sustainable consumption. *7th International Conference of the International Society for Industrial Ecology*, S Korea. (poster)

Thesis

2014 Sinha, R., 2014. Industrial Ecology approaches to improve metal management: Three modeling experiments. *Licentiate thesis at Industrial Ecology, KTH, Stockholm, Sweden*.

2009 Sinha, R., 2009. Modeling source and copper fate in lake Råcksta Träsk, Stockholm: Sediment copper contents as indicator of urban metal emission. *Master thesis at Industrial Ecology, KTH, Stockholm, Sweden*.

2006 Sinha, R., 2006. Analysis of steel-concrete composite bridges with special reference to shear connector. *Undergraduate thesis at Dept. of Civil Engineering, BUET, Dhaka, Bangladesh*.

Other reports

2012 Frostell, B., Assefa, G., Olsson, L-E., Shanahan, H., Sinha, R., & Wåhlander, H., 2012. EcoRunner – Tool Description and Operations Manual. *Report at Division of Industrial*

Ecology, ITM School, Royal Institute of Technology, Stockholm, Sweden.

Projects

2014-2015 Environmental Load Profile (ELP) of Building construction at *collaboration of Industrial Ecology, KTH, Sweden and the City of Stockholm*. My role was to investigate and evaluate whether the ELP of building structures can be used or developed to be used as a simple standard model for calculating the environmental footprint of building structures. A comparison between the ELP, GaBi and SimaPro.

2013-2014 Closing the material flow loop- An inspiring project to 6 PhD students from different disciplines and universities in Sweden funded by the *KTH-Sustainability*. In this collaborative project, we deepened the analysis of the drivers of synchronised growth for collection systems to the production from multidisciplinary perspectives.

2011-2012 Modeling of Smart Energy Systems for cities at *Industrial Ecology, KTH, Sweden*. This project focuses on modeling of decentralized energy system for future cities and to evaluate how the system can respond to different optimization criteria like Economy, Renewables, GHG emissions, Low Carbon, resilience etc. My role was to model the system. An agent based modeling approach was adopted for modeling and optimization.

2010-2011 Household metabolism at *Industrial Ecology, KTH, Sweden*. Modeling the indirect environmental load of household purchase decisions and using the results to explore options for reductions and systems effects.

2009-2010 Modeling the effects of mixing and spreading on biodegradable BTEX in groundwater and Reactive Transport Modeling for radionuclide migration at *collaboration of Land and Water Resource and Industrial Ecology at KTH, Sweden*.

References

PhD supervisor — Dr. Björn M Frostell, Professor, Div. of Industrial Ecology, SEED, KTH Royal Institute of Technology, Teknikringen 34 SE-10044, Stockholm, Sweden. Email: frostell@kth.se, Phone: +4687906137, Fax: +467905034

MSc & PhD supervisor — Dr. Maria E. Malmström, Associate Professor, Div. of Industrial Ecology, SEED, KTH Royal Institute of Technology, Teknikringen 34 SE-10044, Stockholm, Sweden. Email: malmstro@kth.se, Tel: +4687908745, Fax: +4687905034

Project supervisor — Dr. Vladimir Cvetkovic, Professor, Div. of Water Resources Engineering, SEED, KTH Royal Institute of Technology, SE-10044 Stockholm, Sweden. Email. vdc@kth.se, Tel: +4687906290, Fax: +4687908689

BSc supervisor — Dr. A.F.M. Saiful Amin, Associate professor, Dept. of Civil Engineering, Bangladesh University of Engineering and Technology, (BUET), Email: samin@ce.buet.ac.bd; amin@bdcom.com, Phone: +88028616833 Extn. 7944, Fax: +88029665639

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