



# Shinjini Paul Choudhury

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Scopus 57226675480

## Background

Shinjini possesses over 6+ years of research experience in the domains of biogas recovery, industrial waste/biomass utilization, and municipal solid waste management (MSWM). Her diverse skill set equips her to lead, influence, and strategically execute projects while engaging with diverse stakeholders and community members, drawing from her background in research and advocacy. She also developed effective interpersonal and relationship building skills. Having published in reputed international publications, she has proficiency in technical report review and composition.

## Education

- **PhD (Doctor of Philosophy) in Environmental Engineering**, 2018-2023  
*Indian Institute of Technology Guwahati, Assam, India*
- **M.Tech (Masters of Technology) in Rural Technology** (9.5 CPI), 2016-2018  
*Indian Institute of Technology Guwahati, Assam, India*
- **B. E. (Bachelor of Engineering) in Civil Engineering** (81.4%), 2011-2015  
*Assam Engineering College, Assam, India*
- Senior Secondary (10+2), CBSE (88.6%), 2008-2010
- Secondary (10<sup>th</sup>), CBSE (90.8%), 2008

## Positions of responsibility

- Organizing member and host for 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> International conferences on Waste Management (Recycle-2018, 2020, 2023) on behalf of Waste Management Research Group and Association of Civil Engineers, IIT Guwahati, Assam, India
- Sponsorship Team Head for Recycle 2020 and Recycle 2023, International conferences on Waste Management, IIT Guwahati, Assam, India.

## Areas of interest

- Biogas/Biomethane
- Biomass/sludge utilization
- Solid waste management
- Biological Treatment
- Wastewater treatment

## Awards/Fellowships

- **Best Paper Award (Feb 2024)**- During International Conference on Waste Recycling and Environmental Technology (WRET 2024), Babasaheb Bhimrao Ambedkar University, Lucknow, India
- **Excellence Grant**- Awarded a grant of INR 1,00,000.00 by Govt. of Assam, India for securing above 80% during Bachelor of Engineering (B.E.).
- **MHRD scholarship**- Awarded with GATE Scholarship 2016-2023 (M.Tech and PhD)
- **NEC Fellowship**- Awarded North Eastern Council (NEC) Fellowship 2012-2015 (B.E.)

## Languages

- English, Hindi, Bengali and Assamese

## Skills

- Data collection
- Analysis and interpretation
- Technical proficiency
- Communication and collaboration
- Capacity building

## Work Experience

— <b>Assistant Professor</b> at Department of Civil Engineering, RSET, RGU	<i>June 2024- Present</i>
— <b>Project Assistant</b> at <i>Indian Institute of Technology Guwahati</i>	<i>Feb 2024- May 2024</i>
<ul style="list-style-type: none"><li>• <b>Project:</b> Geopolymerization of fine fraction obtained from biomining of legacy waste from old MSW dumpsite, funded by Department of Science &amp; Technology (DST), Government of India</li></ul>	
— <b>Teaching Assistant</b> at <i>Indian Institute of Technology Guwahati</i>	<i>Aug 2016- July 2023</i>
<ul style="list-style-type: none"><li>• Project supervision, mentorship, training (students, researchers, industrial collaborators), laboratory proficiency in water, wastewater and solid waste management (UG and PG), and instrumentation.</li></ul>	
— <b>Teaching Assistant</b> for National Programme on Technology Enhanced Learning- Massive Open Online Course (NPTEL-MOOCs) on Municipal Solid Waste Management	<i>July-Dec 2020</i>
<ul style="list-style-type: none"><li>• Built technical proficiency by planning and designing a course framework on MSWM for 1500+ candidates within India.</li><li>• Adaptability to latest trends, policies, rules and regulations related to MSWM.</li><li>• Capacity building.</li></ul>	

## Research Experience

— <b>Doctoral Thesis Project: Anaerobic Digestion of Petroleum Refinery Sludge: Effect of Pretreatment and Co-digestion</b>	<i>Aug 2018- Aug 2023</i>
<ul style="list-style-type: none"><li>• Conducted lab-scale <b>feasibility studies</b> for <b>harnessing the potential of biogas</b> from petroleum refinery waste.</li><li>• Data collection, analysis, and interpretation to optimize process efficiency.</li><li>• Optimized different biogas enhancement techniques (pretreatment and co-digestion) for <b>biogas recovery augmentation</b>.</li><li>• Operated upscaled batch reactors for evaluating removal of hydrocarbon content, emulsions, and bioconversion of toxic pollutants through <b>digestate evaluation</b>.</li><li>• <b>Fabrication and operation</b> of a <b>lab-scale anaerobic reactor</b> (20 L capacity) in semi-continuous mode for optimization of organic loading rates, and investigation of biomethane characteristics.</li></ul>	
— <b>Master's Thesis Project: Effect of Fertilizers (Chemical, Biological, Compost) on Heavy Metal Availability in Different Agricultural Soils</b>	<i>Aug 2016- June 2018</i>
<ul style="list-style-type: none"><li>• Designed a laboratory-scale setup to conduct a periodic <b>bioavailability, leachability</b> and <b>chemical speciation assessment</b> of different heavy metals in soils after different fertilizer applications.</li><li>• Investigated the effects of compost application in soils over chemical fertilizers for heavy metal mobility, and performed a feasibility study.</li></ul>	

## Journal Publications

- **Paul Choudhury, S.**, Haq, I., Kalamdhad, A.S., 2023. Unleashing Synergistic Potential of Microbially Enhanced Anaerobic Co-Digestion of Petroleum Refinery Biosludge and Yard Waste: Impact of Nutrient Balance and Microbial Diversity. *Journal of Hazardous Materials*. p. 132361. <https://doi.org/10.1016/j.jhazmat.2023.132361> (*Q1 Journal, I.F. = 13.6*)
- **Paul Choudhury, S.**, Panda, S., Haq, I., Kalamdhad, A.S., 2022. Microbial pretreatment using *Kosakonia oryziphila* IH3 to enhance biogas production and hydrocarbon depletion from petroleum refinery sludge. *Renewable Energy*. 194, 1192-1203. <https://doi.org/10.1016/j.renene.2022.05.167>. (*Q1 Journal, I.F. = 9.0*)
- **Paul Choudhury, S.**, Panda, S., Haq, I., Kalamdhad, A.S., 2022. Enhanced methane production and hydrocarbon removal from petroleum refinery sludge after *Pseudomonas putida* pretreatment and process scale-up. *Bioresource Technology*. 343, p.126127. <https://doi.org/10.1016/j.biortech.2021.126127>. (*Q1 Journal, I.F. = 11.2*)
- **Paul Choudhury, S.**, Dalasingh, B., Haq, I., Kalamdhad, A. S., 2021. Methane production and toxicity evaluation of petroleum refinery biosludge through optimization of different modes of heat. *Process Safety and Environmental Protection*. 154, 236-248. <https://doi.org/10.1016/j.psep.2021.08.019>. (*Q1 Journal, I.F. = 6.9*)
- **Paul Choudhury, S.**, Kalamdhad, A. S., 2021. Optimization of electrokinetic pretreatment for enhanced methane production and toxicity reduction from petroleum refinery sludge. *Journal of Environmental Management*. 298, 113469. <https://doi.org/10.1016/j.jenvman.2021.113469>. (*Q1 Journal, I.F. = 8.0*)
- Saha, B., Sathyan, A., Mazumder, P., **Paul Choudhury, S.**, Kalamdhad, A.S., Khwairakpam, M. and Mishra, U., 2018. Biochemical methane potential (BMP) test for *Ageratum conyzoides* to optimize ideal food to microorganism (F/M) ratio. *Journal of Environmental Chemical Engineering*, 6(4), 5135-5140. <https://doi.org/10.1016/j.jece.2018.07.036> (*Q1 Journal, I.F. = 7.4*)

## Book Chapter

- **Paul Choudhury, S.**, Saha, B., Kalamdhad, A., 2020. Use of Petroleum Refinery Sludge for the Production of Biogas as an Alternative Energy Source: A Review. *Advanced Organic Waste Management: Sustainable Practices and Approaches*. 277-297. Elsevier. <https://doi.org/10.1016/B978-0-323-85792-5.00021-6>

## Conferences/Faculty Development Programme/TEQUIP

<p>— <b>International Conference on Waste Recycling and Environmental Technology, Babasaheb Bhimrao Ambedkar University, Lucknow, India</b> <i>Feb 2024</i></p> <p>Title: Optimization of electrokinetically assisted anaerobic co-digestion of petroleum refinery sludge with yard waste</p>
<p>— <b>International Conference on Waste Management (RECYCLE 2023), Indian Institute of Technology, Guwahati, India</b> <i>May 2023</i></p> <p>Title: Biogas Production from Petroleum Refinery Sludge in Anaerobic Biphased Baffled Reactor (ABBR): A Semi-Continuous Study</p>
<p>— <b>North East Research Conclave Sustainable Science and Technology (NEERC), Indian Institute of Technology, Guwahati, India</b> <i>May 2022</i></p> <p>Title: Microbial Pretreatment using <i>Pseudomonas putida</i> for Biogas Augmentation and Hydrocarbon Degradation from Activated Refinery Sludge</p>
<p>— <b>International Conference on Waste Management (RECYCLE 2020), Indian Institute of Technology, Guwahati, India</b> <i>Feb 2020</i></p> <p>Title: Biological Pretreatment of Petroleum Refinery Sludge for Enhanced Biogas Production</p>
<p>— <b>TEQUIP-III Short-term Course on Challenges and Opportunities in Solid and Liquid Waste Management, Indian Institute of Technology Guwahati, Assam</b> <i>2<sup>nd</sup> – 6<sup>th</sup> Oct 2020</i></p>
<p>— <b>Faculty Development Programme (FDP) on Municipal Solid Waste Management during COVID-19 Pandemic, Anurag University, Telangana</b> <i>28<sup>th</sup> – 30<sup>th</sup> May 2020</i></p>

## Key Courses

- Solid Waste Management
- Physico-chemical Processes in Environmental Engineering
- Biological Process in Environmental Engineering
- Principles of Water Quality and Environmental Impact Assessment
- Water Supply and Sanitation
- Methodology for field research, field work and communication

## Professional activities

<p>— Reviewer of Journal of Hazardous Materials (HAZMAT), Elsevier.</p>
<p>— Reviewer of Biomass Conversion and Biorefinery (BCAB), Springer.</p>

## References

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