

Environmental Science and Engineering Department

Annual Report 2018-2019

Introduction and an Overview of the Centre

The Centre for Environmental Science and Engineering (CESE) was established in 1985, and recently in February 2019 got the department status. The department has a core group of 14 faculty members with multi-disciplinary background and diversifying research interests. Apart from this, the professionals from consultancies and government organizations come for delivering the lectures time to time. The department is expanding teaching and research activities and has started a dual degree M.Sc. – PhD programme since July 2010, in addition to already existing M.Tech and PhD programmes. In addition to these three programmes, the department is running a minor in Environmental Science and Engineering for undergraduates studying in other departments at IIT Bombay. A dual degree B. Tech.- M. Tech. programme has started from Autumn 2018 as well. In addition to the above listed programmes, CESE offers an Institute core course “Environmental Studies: Science and Engineering” to all undergraduates and M. Sc.– Ph. D. students. Besides, the department runs several elective courses for sensitizing students across all disciplines towards the urgent need for protection and restoration of the environment by adapting environment friendly life styles.

The on-going research activities of the department are focused towards addressing the priority areas (local and global) set by major national agencies like MHRD, CPCB, SPCB, MNRE, DBT, MoEF, CSIR, DST. In addition, the department has already established strong links and collaborations with leading industries, academic institutions and national/international agencies by conducting sponsored research and offering consultancy and technical services. The research activities of CESE are supported by excellent experimental and computational facilities, competent and dedicated technical staff and high quality students. The department is also actively engaged in organizing workshops and CEP courses for benefiting professional from other academic institutions, industries and governmental sectors.

Academic Programmes

CESE currently offers M. Tech., Ph. D. and M.Sc.-Ph. D. programmes in Environmental Science and Engineering with a strong focus in teaching and research.

Academic Programme	Student intake	Degrees awarded
DD (BTech+MTech)	29	0
MTech	16	13
PhD	6	6

R&D Activities

Fifteen new projects have been awarded in 2018-2019. The details of the projects are given below.

	Sponsored Projects	Consultancy Projects
New Projects	15	0
Ongoing	18	8
Completed	5	2

Sponsored Research Projects

Sr.No.	Project Title	Sponsoring Agency	Project Status
1	Capacity Building in Sustainability and Environmental Management (CapSEM)	European Region Action Scheme for the Mobility of University Students (ERASMUS)	Ongoing
2	Catalyzing Rural Development and Women Empowerment through Implementing Eco-Centric Technology Aimed at Gainful Recycling of Treated Sewages (Technology Development and Optimization in IIT Bombay and Demonstration of Technology at a Real-Life Scale at Mhaswad, District Satara, MH)	Rajiv Gandhi Science and Technology Commission (RGSTC), Govt. of Maharashtra	Ongoing
3	Municipal Solid Waste Characterization and Monitoring of Existing Solid Waste Management Systems in IIT Bombay Campus	Tata Centre for Technology & Design, IIT Bombay	Ongoing
4	Energy Recovery from Municipal Solid Waste using Anaerobic Digestion and its Life Cycle Analysis	IRCC, IIT Bombay	Ongoing
5	Coping With Climate: Assessing Policies For Climate Change Adoption And Transport Sector Mitigation In Indian Cities (CLIMATRANS)	Research Council Of Norway	Ongoing
6	Sustainable Technology for Removal of	McDonnell Academy,	Ongoing

	Arsenic from Drinking Water: Principles and Performance of Electrocoagulation.	St. Louis, USA.	
7	Development of Household or Community Composting System for Food Waste (MSW) Recycling	Tata Centre for Technology & Design, IIT Bombay	Ongoing
8	Municipal Solid Waste Characterization and Monitoring of Existing Solid Waste Management Systems in IIT Bombay Campus	Tata Centre for Technology & Design, IIT Bombay	Ongoing
9	Characterization of Grey Water And Development of Cost Effective Systems for Grey Water Recycling (Tata Trust)	Tata Centre for Technology & Design, IIT Bombay	Ongoing
10	Synergy at Water Interface: Transforming Arsenic and Fluoride Crisis in India into an Economic Enterprise through Technology Innovation	Global Innovation Initiative ,Department of State, U.S.A.	Ongoing
11	Development of Household or Community Composting System for Food Waste (MSW) Recycling	Tata Centre for Technology & Design, IIT Bombay	Ongoing
12	Development of a Combustion System for Energy Recovery from Municipal Solid Waste Derived Fuel	MHRD, New Delhi under IMPRINT scheme	New
13	Design of An Expert System For Flood Forecasting And Management For The City of Chennai	PSA, Govt. of India	New
14	Coupled Human And Natural Systems Environment (CHANSE) For Water Management Under Uncertainty In The Indo-Gangetic Plain	Ministry Of Earth Sciences	New
15	Characterization of Grey Water and Development of Cost Effective Systems for Grey Water Recycling	Tata Centre, IIT Bombay,	Ongoing
16	Removal of Micropollutants from Water using TiO ₂ Nanocomposites	DST, Govt. of India	Ongoing
17	Treatment of Oily Sludge: Biodegradability Assessment and Effect of Bio-augmentation and Bio-stimulation	IRCC, IIT Bombay	Ongoing
18	Indoor and Outdoor Air Pollution Exposure Assessment in Urban Metropolitan Slums	IRCC, IIT Bombay	Ongoing
19	Air Quality Monitoring and Emission Source Apportionment Studies for Ten Cities in the State of Maharashtra	MPCB, Maharashtra	New

20	Emission Inventory and Air Quality Model Development for Industrial City Centres in Maharashtra: Framework for Air Quality Management with Resources to Science based Policy and Action Plan for Chandrapur Area	MPCB, Maharashtra	Completed
21	Coping With Climate: Assessing Policies For Climate Change Adoption And Transport Sector Mitigation In Indian Cities (CLIMATRANS)	Research Council Of Norway	Ongoing
22	Solid Waste Characterization and its Management in IIT Bombay Campus	Tata Centre for Technology and Design	Completed
23	Assessment of Municipal Solid Waste Based Biogas Plants in India	Tata Centre for Technology and Design	New
24	Conducting Source Apportionment Study for Mormugao Port Trust	MPT, Goa	New
25	Portable Testing Facility for Cook stoves	Clean Energy Access Network (S3IDF*/CLEAN)	New
26	Characterization of Particulate Emissions from Non-Cooking Residential Sources in Rural Areas Of Maharashtra (Research Internship Project)	IRCC, IIT Bombay	Completed
27	Experimental Study to Evaluate Emissions from Cook Stoves using Solid Fuels with a Focus on Reduction of Exposure	Tata Centre for Technology and Design	Ongoing
28	Assessment of Ambient Air Pollution Exposures in a Cohort of Adult Women in Metropolitan Cities in India	IUF, Dusseldorf, Germany	New
29	Technical Resource Unit for Validating Technologies for Mitigating Ambient Air Pollution	DST, Govt. of India	New
30	Characterization and Quantification of Particulate Matter Emissions from On-road Vehicles in Maharashtra (Research Internship Project)	IRCC, IIT Bombay	New
31	DST-Centre of Excellence in Climate Studies, IIT Bombay	DST, Govt. of India	Ongoing
32	A Comprehensive Mapping of Flood Risk in Changing Climate: An Application to Jagatsinghpur District, Orissa	STC-IITB (ISRO)	Completed
33	Near-Real-Time Urban Flood	Ministry of Earth	Completed

	Forecasting System	Sciences (MoES), GoI	
34	Mapping Flood Risk in Data Poor Regions Enforcing Combined Geomorphic and Socio-Economic Indicators: An Application to Jagatsinghpur District Odisha	STC-IITB (ISRO)	New
35	New Generation Membranes with High Flux and Better Selectivity for the Removal of Emerging Contaminants, Micro-, and Nanoplastics	IRCC, IIT Bombay	New
36	Development of Catalytic Membranes Based on Carbon Nanomaterials for Effective Operation of Membrane Based Water Treatment Units	DST, Govt. of India	New
37	Study of Cookstoves for Enhanced Thermal Efficiency and Reduced Pollutant Emission for Large Scale Adoption in Rural Areas	IRCC, IIT Bombay	New
38	Indoor Air Pollution in Mumbai: Real-Time Characterization, Exposure & Influence of Outdoor Pollution	IRCC, IIT Bombay	New

Consultancy Projects:

A total of 10 consultancy jobs were undertaken by 8 faculty members.

Sr No.	Project Title	Sponsoring Agency	Project Status (as New, Completed, or Ongoing)
1	Articulation of the Environmental Performance Objectives and Advice for Achieving Near-zero Liquid Discharge through Suitable Design of ETP at a Power-loom Textile Mega Cluster	Ichalkaranji Power loom Mega Cluster Ltd, Ichalkaranji, Maharashtra	Ongoing
2	Work Order for Setting up of Wind Augmentation and Air Purifying Unit (WAYU)	Maharashtra Pollution Control Board	Ongoing

Sr No.	Project Title	Sponsoring Agency	Project Status (as New, Completed, or Ongoing)
	on Air Pollution Control System for Traffic Junctions and Congested Roads in Mumbai.		
3	Evaluation of Road Marking Material	MCGM, Mumbai	Completed
4	Air Quality Monitoring and Emission Source Apportionment Studies for Ten Cities in the State of Maharashtra	MPCB	Ongoing
5	Assessment of Contribution of Suitable Burning in Haryana and Punjab in Air Quality if Delhi-Remote Sensing Component	CSIR-NEERI, Nagpur	Ongoing
6	Portable Testing Facility for Cookstoves	CLEAN, New Delhi	Ongoing
7	Experimental Study to Evaluate Emissions from Cook Stoves using Solid Fuels with a Focus on Reduction of Exposure	Tata Centre for Technology and Design	Ongoing
8	Clean Coal Utilization of Indian Coals: Carbon Capture and Pollution Control	DST	Ongoing
9	Technical Audit Report on Surya II Water Supply Scheme	Gharpure Engineering and Construction (P) Ltd.	Completed
10	RRPCL EIA Study - Preliminary Impact Assessment of Air Emissions	RRPCL, BKC, Mumbai	Ongoing

Patents:

Sr. No.	Title of the Patent	Inventor	National / International	Status filed/ granted	Date of patent filed/granted
1.	“Rotary Drum Composting System for Household Wet Biodegradable Waste Stabilization”	Manu, M.K., Garg, A. , Kumar, R.	National	Filed (Application No.: 201821019181)	May 2018

Extension activities

Asolekar, S. R.

1. Transferred the “CW4Reuse” technology for management of domestic effluents employing horizontal subsurface-flow constructed wetland beds at [1] Town of Mhaswad, District of Satara, State of Maharashtra, [2] “Sant Gulab Baba Aashram”, At Post. Katel, District of Buldhana, State of Maharashtra, [3] Charotar University of Science & Technology, District of Anand, State of Gujarat
2. Developed the processes for preparing “refuse derived construction materials” (RDCMs) and “refuse derived fuels” (RDFs) from fractions obtained from landfill mining of legacy wastes aimed at recovery of materials and gainful utilization of resources
3. Developed the processes for preparing “refuse derived construction materials” (RDCMs) by incorporating asbestos and asbestos containing hazardous wastes

Garg, A.

1. Expert member, E3OW theme of CSIR-NEERI, Nagpur.
2. Member, Doctoral Advisory Committee, AcSIR, CSIR-NEERI, Nagpur.
3. Member, Technical Committee for scrutinizing applications for change in product-mix with “no increase in pollution load”, Maharashtra Pollution Control Board (MPCB), Mumbai.
4. Member, Deonar dumping ground Monitoring Committee formed on the direction of Honorable High Court, Mumbai, Municipal Corporation of Greater Mumbai.
5. Member, Project Monitoring Committee, BIRAC-SPARSH, Department of Biotechnology.
6. Member, Project Review Monitoring Committee (PRMC) constituted to review project under ‘Green Chemistry’, Office of the Principal Scientific Adviser to the Government of India, New Delhi.
7. Invited Lectures: “Performance of Hydrothermal Treatment for Wet waste,” IIT Bombay, Mumbai, February 1, 2019.
8. Invited Lectures: “Biomethanation: Process Fundamentals and Systems,” Indian Chemical Council (ICC), Mumbai, December 7, 2018.
9. Invited Lectures: “Hydrothermal Treatment for High Strength Waste Streams,” Envirotech Asia 2018, Maharashtra Pollution Control Board, Mumbai, November 1, 2018.

Karmakar, S.

1. Invited talk in the workshop - "Urban Floods" on Urban Flood Risk Mapping: Present Status and Future Needs held on 27-29 June, 2018; IISc Bangalore, India.
2. Invited presentation on Rationalization of Water Quality Monitoring Networks in India in Environmental Science & Technology Symposium - India, held on April 7, 2018, at Shiv Nadar University, organized by American Chemical Society (ACS), India Chapter.
3. Invited presentation on "GIS-based Risk Mapping and Uncertainty Modeling for Scientific Flood Management" in Short Term Training Program on - "Application of Remote Sensing and GIS in Disaster Management: Response, Recovery and Reconstruction" Mahatma Education Society's Pillai HOC College of Engineering & Technology, Rasayani, Department of Civil Engineering, 5 - 11 January 2018.

Phuleria, H.C.

1. Delivered a lecture on "Air Quality monitoring and Exposure assessment" in Training Program for MPCB Sub Regional Officers at IIT Bombay on 24 August 2018.
2. Delivered a talk on "COALESCE project: Brick kiln activity assessment at national level" in All India Bricks and Tiles Manufacturing Federation (AIBTMF) Association meeting in Gandhinagar, Gujarat on 9 Sep, 2018.

Mukherji, S.

1. Invited Talk: Menon, N. G. George, L. Tatiparti S.S.V., Mukherji, S. "Characterization and Screening of TiO₂-ZnO Nanocomposites and Photocatalytic Removal of 17 β -Estradiol" The 1st Environmental Science and Technology India Symposium, organized by American Chemical Society, held at Shiv Nader University, India, 7th April, 2018.
2. Mukherji, S. "Industrial Effluent Treatment for Promoting Recycling and Reuse" Talk presented at CEP course run for MPCB SROs, 23-26th August, 2018, Course Coordinator, V. Sethi, CESE, IIT Bombay.

Sethi, V.

1. Set up a cookstove testing hub at NEERI Nagpur with project funds from CLEAN (New Delhi) with a Portable Emissions Monitoring System.
2. HPCL New Officers Induction Training Programme, Funded by HPCL.
3. New SRO Induction Programme, CEP, Funded by MPCB
4. Advisory Committee, Indian International Conference on Air Quality Management – 2018, IIT Madras, December 6-7, 2018

Shriwastav, A.

1. Delivered an invited research talk on “Presence of Microplastics in Commercial Sea Salts from India” in Environmental Science & Technology Symposium –India, at Shiv Nadar University Greater Noida on 07th April 2018.
2. Delivered a lecture on "Algae Based Processes for Wastewater Treatment and Resource Recovery" in 'CE&QIP' Short Term Course on Advances in Urban Water Engineering and Management at IIT Bombay on 12 December 2018.
3. Delivered a lecture on "Managing the Quality of Water" in Training Program for MPCB Sub Regional Officers at IIT Bombay on 24 August 2018.

Visitors to the Department

1. Prof. Krishnanand Maillacheruvu, Ph.D., P.E., Civil Engineering and Construction, Bradley University, Peoria, Illinois 61625, USA. He delivered some lectures in the institute elective course *ES 644: Industrial Pollution Prevention and Cleaner Technologies* during February and March 2019.

Conferences/Symposia/Workshops/Seminars (Participated/Papers Presented)

National

Garg, A.

1. Singh, S. & Garg, A. “Degradation of chlorophenols by photo-Fenton oxidation process.” Online Proceedings of 50th Annual Convention 2018, Goa. February 2018.

Mukherji S.

1. Mukherji, S., Kumar, R, Menon, N.G., Tatiparti, S.S.V. “Photocatalytic Removal of Micropollutants Using TiO₂ Nanocomposites” National Environmental Conference (NEC, 2019) organized by Centre for Environmental Science & Engineering, IIT Bombay, Mumbai, 31st January to 2nd February, 2019. *Invited Oral Presentation*.
2. Bharti, S., Mukherji, S., Mukherji, S. “Antiviral Activity of Colloidal and Immobilized Silver Nanoparticles” National Environmental Conference (NEC, 2019) organized by Centre for Environmental Science & Engineering, IIT Bombay, Mumbai, 31st January-2nd February, 2019. *Oral Presentation*.
3. Mohapatra, S., Sharma, S., Padhye, L.P., Mukherji, S. “Characterization of Dissolved Organic Matter in Wastewater Obtained from a WWTP using Fluorescence

Spectroscopy” National Environmental Conference (NEC, 2019) organized by Centre for Environmental Science & Engineering, IIT Bombay, Mumbai, 31st January-2nd February, 2019. *Oral Presentation.*

4. Pisharody, L.P., Mukherji, S., Suresh, S. “Evaluation of Con A Lectin for Concentration of Rotavirus from Water Samples” National Environmental Conference (NEC, 2019) organized by Centre for Environmental Science & Engineering, IIT Bombay, Mumbai, 31st January-2nd February, 2019. *Oral Presentation.*
5. Jasmine, J., Mukherji, S. “Bioremediation of a Model Oily Sludge using Various Strategies and Microbial Population Dynamics” National Conference on Crossroads of Biological Science and its Applications (CBSA 2019), organized by P.G. Department of Zoology, Berhampur University, Bhanja Bihar, 760007, Odisha, India, 15th - 16th February, 2019. *Poster Presentation.*

Phuleria, H.C.

1. Anand, A.; Phuleria, H.C. “Modelling Indoor PM2.5 and BC in Slum Homes of Mumbai, India” *National Environmental Conference*, held during 31.Jan -2.Feb, 2019 at IIT Bombay, Mumbai
2. Raparthi, N.; Phuleria, H.C. “Estimating the average fleet emission factors for on-road vehicles by driving a car through the roadway tunnels” *National Environmental Conference*, held during 31.Jan -2.Feb, 2019 at IIT Bombay, Mumbai

Shriwastav, A.

1. Karim, A.V., Shriwastav, A. (2019). Sonocatalytic removal of Ciprofloxacin using polystyrene as catalyst. National Environmental Conference. 31 Jan to 02 Feb 2019. IIT Bombay, Mumbai, India.
2. Krishnan, S., Shriwastav, A. (2019). Natural dye-sensitized photocatalysis for the discolouration of methylene blue. National Environmental Conference. 31 Jan to 02 Feb 2019. IIT Bombay, Mumbai, India.

International

Dikshit, A.K.

1. Biliangadi, S., Yellishetty, M., Wong, V.N.L., Dikshit, A.K., Majumdar, S. "Experimental Investigation of Synthetic (Top) Soils for Mine Rehabilitation: Column Leaching Study" *Proceedings of 2nd International Symposium on Land Reclamation and Ecological Restoration*, Beijing, China, October 2017. (Biliangadi, S. won the best presentation award) for this paper).

Garg, A.

1. Malhotra, M. & **Garg, A.** “Effect of Wet Oxidation Pretreatment on the Characteristics of Waste Activated Sludge.” *Abstract Book of International Conference in Sludge Management in Circular Economy (SMICE-2018)*, Rome, Italy. May 2018, pp. 227-229.
2. Gupta, D., Mahajani, S. M. & **Garg, A.** “Opportunities for Resource Recovery after Hydrothermal Pretreatment of Biodegradable Municipal Solid Waste: A Mini-Review.” *Proceedings of the 8th International Conference on Sustainable Waste Management*, Guntur, Vijaywada. November 2018, pp. 336-342.
3. Modi, S., Mahajani, S.M., Honkalaskar, V. & **Garg, A.** “Co-composting of Cattle Dung and Pigeon Pea Stalk in Large Scale Pit System using Passive Aeration.” *Proceedings of the 8th International Conference on Sustainable Waste Management*, Guntur, Vijaywada. November 2018.

Karmakar, S.

1. Patel, P., Subhankar Karmakar (2018) “Analysis of vulnerability to water stress at a nationwide scale”, International Geoscience and Remote Sensing Symposium, IGARSS 2018, IEEE Geoscience and Remote Sensing Society, Valencia, Spain, 22-27 July 2018. (Poster Presentation)
2. Gusain, A., Patel, P., Subhankar Karmakar, Ghosh, S. (2018) "Hydrologic impacts of reservoir operation on flood inundation pattern in a highly flood-prone deltaic region of Mahanadi River Basin, India, Paper Number: EGU2018-9717", EGU General Assembly Conference, European Geosciences Union, Vienna, Austria, 8-13 April, 2018. (Poster Presentation)
3. Patel, P., Subhankar Karmakar, Ghosh, S., Niyogi, D. (2018) “Performance evaluation of WRF for extreme precipitation events by integrating WUDAPT”, EGU General Assembly Conference, European Geosciences Union, Vienna, Austria, 8-13 April 2018. (Poster Presentation)
4. Gusain, A., Ghosh, M., Sharma, T., Subhankar Karmakar, Ghosh, S. (2018) "Hydrological simulation of projected high flows over a flood-prone river basin under data-scarce conditions", International SWAT Conference 2018, IIT Madras, India, 10-12 January 2018. (Poster Presentation)

Phuleria H.C.

1. Anand, A.; Patra, A.; Phuleria, H.C. “Modelling Indoor PM_{2.5} and BC in Slum Homes of Mumbai, India” Oral presentation accepted in the Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018), held during 26-30 Aug, 2018, Ottawa, Canada.
2. Phuleria, H.C; Anand, A.; Gulam, T. “Assessment of Indoor and Outdoor PM_{2.5} in Slums of Mumbai, India” Oral presentation accepted in the Joint Annual Meeting of the

International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018), held during 26-30 Aug, 2018, Ottawa, Canada.

3. Patra, A.; Anand, A.; Phuleria, H.C. "Characterisation of fine particulates in different commute modes in Mumbai" Poster presentation accepted in the Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018), held during 26-30 Aug, 2018, Ottawa, Canada.
4. Patra, A.; Lohe, S.; Phuleria, H.C. "Spatial and Temporal Variation of Lung Deposited Surface Area at Kerbside Locations in a Metropolitan City" Poster presentation accepted in the Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018), held during 26-30 Aug, 2018, Ottawa, Canada.

Mukherji S.

1. Bharti, S., Mukherji, S., Mukherji, S. "Point-of-use water disinfection using silver nanoparticle immobilized capillary tube packed fixed bed reactor" Innovating the Future of Water, Annual Conference & Exposition (ACE-18) of the American Water Works Association (AWWA) held in Las Vegas, USA, 11th-14th June, 2018. *Oral Presentation.*
2. Bharti, S., Mukherji, S., Mukherji, S. "Synthesis of Anisotropic Silver Nanoparticles and Their Potential Application in Bacterial Inactivation" in International Conference on Environmental Nanotechnology for Socio Economic Development of India (ENTSED 2018), held at DIT University, Dehradun, 28th-29th September, 2018. *Oral Presentation.* Received 2nd Prize for Oral Presentation.
3. Menon, N. G., Tatiparti S.S.V., Mukherji, S. "Photocatalytic Degradation of Acetaminophen Under UV and Visible Irradiation Using TiO₂-ZnO Nanocomposites" International Conference on Environmental Nanotechnology for Socio Economic Development of India (ENTSED 2018), held at DIT University, Dehradun, 28th-29th September, 2018. *Oral Presentation.*
4. Goenka, R., Mukherji, S., Ghosh, P.C., "Determination of Electrogenic Behaviour of Specific Microbes for Use in a Microbial Fuel Cell" in 4th North American Conference of the International Society for Microbial Electrochemistry and Technology, Saint Paul, MN, USA, held on Oct 10-12, 2018.
5. Kumar, R. and Mukherji, S., "Heterogeneous Photocatalytic Degradation of Phorate using Graphene Oxide-TiO₂ Nanocomposite" 3rd Regional IWA Diffuse Pollution Conference: Innovation and Frontier Technology for Water Security and Scarcity" Chiang Mai, Thailand, 19th to 22nd November, 2018. *Oral Presentation.*
6. Menon, N.G., George, L, Tatiparti, S.S.V., Mukherji, S., "Photocatalytic Treatment of 17 β -Estradiol using Visible Light Active TiO₂/ZnO Nanocomposite" 3rd Regional IWA Diffuse Pollution Conference: Innovation and Frontier Technology for Water Security and Scarcity" Chiang Mai, Thailand, 19th to 22nd November, 2018. *Oral Presentation.*

7. Phatak, P., Garg A., Mukherji, S., “Impact of Thiosphaera pantotropha Bioaugmentation on Nitrogen Removal Performance in Sequencing Batch Reactor and Effect of Operating Conditions” International Conference on Biotechnological Research and Innovation for Sustainable Development (BioSD-2018) and the XV Convention of the Biotech Research Society, IICT Hyderabad, India, November 22-25th November, 2018. Oral Presentation.
8. Thian, X.Y., Sadani, K., Mukherji, S., Mukherji, S. “Detection of Nitrite Using Chitosan Capped Gold Nanoparticles” The International Conference on Fibre Optics & Photonics (Photonics 2018), organized by IIT Delhi, New Delhi, India, 12th to 15th December, 2018. Poster Presentation.
9. Ghosh P., Mukherji, S. “Biodegradation of Carbazole using *Pseudomonas aeruginosa* RS1” International Conference on Advanced Technologies for Industrial Pollution Control (ATIPC 2018) organized by Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur, Kolkata, 17th to 19th December, 2018. Oral Presentation.
10. Garg, N., Mukherji, S. “Bioleaching of Heavy Metals from Indian Steel Slag using *Acidithiobacillus ferrooxidans*” International Conference on Advanced Technologies for Industrial Pollution Control (ATIPC 2018) organized by Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur, Kolkata, 17th to 19th December, 2018. Oral Presentation.
11. Chand, P. Dutta, S., Mukherji, S. “Characterization of Water Accommodated Fraction of Oily Sludge by GCxGC-TOF-MS” International Conference on Advanced Technologies for Industrial Pollution Control (ATIPC 2018) organized by Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur, Kolkata, 17th to 19th December, 2018. Oral Presentation.

**Conferences/Symposia/Workshops/Seminars
(Coordinated/Chaired by Faculty)**

Asolekar, S. R.

1. Coordinated the “Water Resources Management” Module under Capacity Development Program in Environment Management organized by K J Somaiya College of Science and Commerce, Vidyavihar, Mumbai 400077 in Collaboration with Mumbai Metropolitan Region - Environment Improvement Society (MMR-EIS) during 23rd and 27th April, 2018.
2. Organized the “Sustainability Training Programme” with Earthwatch Institute India on 12th - 13th April, 2018, 11th - 12th October, 2018, 21st - 22nd February, 2019, and 4th April, 2019 for training HSBC citizen scientists in Mumbai (under the ongoing project:

“Rejuvenation of Blue-Green Spaces in Metropolitan Mumbai through Implementation of Environmental Technologies: *Case Studies on Powai Lake and Banganga Lake*”).

3. Co-organized and presented the ‘position paper and recommendations’ to lead the technical discussion at the ‘Seminar and Exhibition’ entitled “Current Issues on Plastics and Environment” organized by Rotary Club of Mumbai Green City and Plastindia Foundation on 8th September, 2018 at Rotary Service Centre, Juhu, Mumbai.
4. Organized a two-day capacity building workshop and industry case presentations programme entitled: “Urban & Rural Ecological Upgradation of Blue - Green Spaces Through Water Reuse & Community Engagement: *A Circular Economy Approach to Building Smart Habitats*” during 19th and 20th September, 2018 at IIT Bombay under the ongoing project: “Capacity building in Sustainability and Environmental Management” (CapSEM) funded by the European Commission Erasmus+.
5. Co-organized and presented the ‘position paper and recommendations’ to lead the discussion at the ‘Policy Roundtable’ that focused on the recent “ban on plastics” imposed by the State of Tamil Nadu in Chennai on 22nd February, 2019 organized by Water Today Pvt. Ltd from Chennai and the Indian Environmental Association from Mumbai.
6. Prof Shyam R Asolekar from Environmental Science and Engineering Department conducted the training and awareness session for the representatives from All India Women’s Conference (AIWC), Mumbai Branch as well as the international activist women from Germany, Mexico, South Africa and Indonesia on 28th February, 2019 at IIT Bombay.
7. Collaborated with Delft University of Technology (TU Delft), Delft, the Netherlands, in organizing the “Capacity Building Workshop” during 12th and 13th March, 2019 at Delft, the Netherlands, under the ongoing project: “Capacity building in Sustainability and Environmental Management” (CapSEM) funded by the European Commission Erasmus+.
8. Collaborated with Norwegian University of Science and Technology (NTNU), Alesund, Norway, in organizing the “Capacity Building Workshop” during 14th and 15th March, 2019 at Alesund, Norway, under the ongoing project: “Capacity building in Sustainability and Environmental Management” (CapSEM) funded by the European Commission Erasmus+.
9. Conducted the “Capacity Building Workshop on Recycling and Reuse using Circular Economy Approach” during 22nd and 25th March, 2019 at IIT Bombay for training 11 faculty members from Makerere University Business School (MUBS), Kampala, Uganda, under the ongoing project: “Capacity building in Sustainability and Environmental Management” (CapSEM) funded by the European Commission Erasmus+.
10. Conducted a training and awareness session for the activists united for rejuvenation of Mithi River in Mumbai on 1st April, 2019 at IIT Bombay and coordinated the visit of the participants to the “CW4Reuse” technology demonstration site on IIT Bombay campus for management of domestic effluents employing horizontal subsurface-flow constructed wetland beds.

Phuleria, H.C.

1. Co-convener of the National Environmental Conference - 2019, IIT Bombay Diamond Jubilee Year, held during Jan 31- Feb 2, 2019, at IIT Bombay, Mumbai.

Chandel, M.K.

1. Co-convener of the National Environmental Conference - 2019, IIT Bombay Diamond Jubilee Year, held during Jan 31- Feb 2, 2019, at IIT Bombay, Mumbai.

Karmakar, S.K.

1. Co-convener of the National Environmental Conference - 2019, IIT Bombay Diamond Jubilee Year, held during Jan 31- Feb 2, 2019, at IIT Bombay, Mumbai.

Invited Lectures

National

Asolekar, S. R.

1. Invited to deliver lecture on “CW4Reuse” Technology for Protection of Drinking Water Sources at Rotary Club Seminar in Mumbai on 19th April, 2018.
2. Invited to deliver lectures on (a) How to integrate the “water cycle” with best management practices? (b) Treatments and standards for drinking water and sewages: Challenges faced by urban India and (c) Sewage Treatment Technologies, Eco-centric Treatment Technologies for Protection of Drinking Water Sources, Water Footprints and Water Audit for “Water Resources Management” Module under Capacity Development Program in Environment Management organized by K J Somaiya College of Science and Commerce, Vidyavihar, Mumbai 400077 in Collaboration with Mumbai Metropolitan Region-Environment Improvement Society (MMR-EIS) during 23rd and 27th April, 2018.
3. Invited to deliver lectures for the Training Programme of the officers from Maharashtra Pollution Control Board (Coordinated by Prof Virendra Sethi) during 23rd and 25th August, 2018 at IIT Bombay.
4. Invited to deliver lecture on "Gandhi's Relevance while Addressing Today's Environmental Issues" at two-day national conference on 'Exploring an Unknown Gandhi' organized by K C College, Mumbai on 1st September, 2018.
5. Invited to deliver lecture on "Ban on Plastics & Thermocol: Substitutes & Opportunities for Recycling" in the Seminar and Exhibition on "Current Issues on Plastic and Environment" organized by Rotary Club of Mumbai Green City on 8th September 2018 at Rotary Service Centre, Juhu, Mumbai.

6. Invited to deliver lecture on “The Science and Technology of Minimizing the Micro-Pollutants and Pathogens to Enhance Reuse of Treated Wastewaters” at National Conference on Innovations in Food, Environment & Health Care 2018 at D Y Patil University, Navi Mumbai on 29th September, 2018.
7. Invited to deliver lecture on " The Challenge of Rejuvenation of Ecosystems in Urban Water Environment" in “Environmental Lecture Series” organized by the FERN in Town Hall Amphitheatre at Thane on 24th November, 2018.
8. Invited to deliver a keynote address on "Zero Liquid Discharge: Is it credible and sustainable?" in “ICIWE² 2019, CODISSIA Conference & Trade Fair at Coimbatore on 25th January, 2019.

Garg, A.

1. An invited presentation on “Sewage Sludge Solubilization and its Volume Reduction by Hydrothermal Pretreatment”, National Seminar on Innovative Water and Sewerage Management Practices in Urban Environment organised by IWWA, Mumbai (oral presentation), India, held on January 20-21, 2018 at IIT Bombay, Mumbai. (The lecture included the research work by Ph.D. Scholar Mr. Milan Malhotra).

Karmakar, S.

1. Invited talk in the workshop - “Urban Floods” on Urban Flood Risk Mapping: Present Status and Future Needs held on 27-29 June, 2018; IISc Bangalore, India.
2. Invited presentation on Rationalization of Water Quality Monitoring Networks in India in Environmental Science & Technology Symposium - India, held on April 7, 2018, at Shiv Nadar University, organized by American Chemical Society (ACS), India Chapter.
3. Invited presentation on "GIS-based Risk Mapping and Uncertainty Modeling for Scientific Flood Management" in Short Term Training Program on - “Application of Remote Sensing and GIS in Disaster Management: Response, Recovery and Reconstruction” Mahatma Education Society’s Pillai HOC College of Engineering & Technology, Rasayani, Department of Civil Engineering, 5 - 11 January 2018.

Mukherji, S.

1. Mukherji, S. “Nanoparticles and Nanocomposites for Water Treatment Applications” Talk presented at Chemistry Department, North Bengal University, Shiliguri, West Bengal, India, 17th May 2018.
2. Mukherji, S. “Technological Advances in Efficient Effluent Treatment and Recycling” Talk presented at National Seminar on Water, Wastewater Treatment & Solid Waste

Management (Water Tech, Waste Tech India), organized by Messe Frankfurt Trade Fairs India Pvt. Ltd. & Maharashtra Pollution Control Board (MPCB), Mumbai, India, 6-7th June, 2018.

3. Mukherji, S. “Water Quality and Sustainability Considerations: Challenges & Opportunities” Talk presented in Masterclass, Vortex-2018, Institute of Chemical Technology (ICT) Mumbai, India, 9th October 2018.

Sethi, V.

1. Keynote address, Indian International Conference on Air Quality Management – 2018, IIT Madras, December 6-7, 2018

International

CEP Organized

Honorary Work

Asolekar, S.R.

1. Appointed (in March 2019) as the Head of the ‘Board of Advisors’ of an international NGO named: “Circular Economy and Eco-Industrial Institute” (CEEII) in Uppsala, Sweden. It is an Indo-Swedish and Greek cooperation at different levels such as history, philosophy, science, environment and respect to human rights; together with UNESCO, Water for People and Peace, sida, National Technical University of Athens, Uppsala University and KTH Royal Institute of Technology in Stockholm.
2. The Member of “Dahanu Taluka Environmental Protection Authority” constituted by the Honorable Supreme Court of India and entrusted with the conservation and sustainable development of the eco-fragile region of Dahanu Taluka in Thane District (1997 to present).

Dikshit, A.K.

1. Reviewer for journal of Environmental Management (Published by Elsevier).
2. Reviewer for Journal of Clean Technology and Environmental Policy (Published by Springer)

Garg, A.

1. Reviewed papers for Environmental Science & Technology, Chemical Engineering Journal, Journal of Environmental Chemical Engineering, Waste Management, Journal of Water Process Engineering and Water Environment Research in May-October 2018.

Mukherji, S.

1. Reviewer for manuscripts for various National & International Journals: J of the Institution of Engineers India, Series A (IEI & Springer); Applied Nanoscience (Springer); Colloids & Surfaces A: Physicochemical and Engineering Aspects (Elsevier); Applied Microbiology & Biotechnology (Springer); Journal of Environmental Chemical Engineering (Elsevier)
2. Reviewer for projects submitted to DST
3. Associate Editor, Applied Nanoscience, Springer
4. Associate Editor, J of the Institution of Engineers India, Series A
5. Selection Committee Member for Appointment of Scientists in Ministry of Environment, Forest, and Climate Change (MoEFCC), Govt. of India, New Delhi, August, 2018.
6. Member, National Advisory Committee, International Conference on Advanced Technologies for Industrial Pollution Control (ATIPC 2018) organized by Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur, Kolkata, 17th to 19th December, 2018.
7. Member of Committee for “Reviewing issues related to recruitment, promotion, additional requirements of scientific posts as well as review of Ministry of Environment, Forest and Climate Change Recruitment Rules, 2015” October 2018 to current. Meeting held in Jan, 2019.
8. Member of Faculty Selection Committee in Environmental Sciences, SRM University, AP, Amaravati, 13th-14th February, 2019.

Faculty Members and Their Specializations

1. Anil Kumar Dikshit

Professor

Environment and Water Technologies; Municipal, Biomedical and Industrial Wastes Management; Environmental Impact Assessment, Systems Modelling and Sustainability; GIS Application for Environmental Planning and Management.

2. Shyam R. Asolekar

Professor

Development and modelling of reactors for treatment of domestic sewage and industrial wastewaters for pollution control and reuse, Hazardous, solid, and biomedical wastes management including decontamination of soils and sediments (field assessments, reactor development and modelling), Preventive environmental management and sustainable development incorporating waste minimization, cleaner and greener technologies,

Application of remotely sensed data for monitoring and modelling of environmental systems;
Environmental planning, policy and law

3. Virendra Sethi

Professor

Air Pollution Science and Engineering, Aerosol Transport Measurements, Aerosol Characterisation. Satellite Data Assisted Air Quality Management, Biomass Gasification Hot Gas Cleanup, Engineering Education.

4. Sanjeev Chaudhari

Professor

Water and Wastewater Treatment.

5. Suparna Mukherji

Professor & Head

Biodegradation and Bioremediation of Complex Organic Pollutants, Toxicity Evaluation of Complex Mixtures, Environmental Application of Nanomaterials, Water and Wastewater Treatment, Treatment of Industrial Waste, Sampling and Analysis of Bioaerosols.

6. Subhankar Karmakar

Assoc. Professor

Environmental and Water Resources Systems Engineering, Uncertainty Modeling, Disaster Risk and Vulnerability Assessment.

7. Anurag Garg

Assoc. Professor

Municipal solid waste treatment by composting; energy from waste; hydrothermal treatment of sludge and municipal solid waste; Industrial wastewater treatment by catalytic wet oxidation and advanced wastewater treatment methods

8. Munish Kumar Chandel

Assoc. Professor

Carbon Capture and Storage, Chemical Looping Combustion, Fluidized bed combustion, Greenhouse Gas Mitigation, Solid Waste Management, Waste to Energy, Water-Energy Nexus

9. Harish C. Phuleria

Asst. Professor

Aerosols & Air Quality Characterization, Environmental Noise Exposures, Environmental

Health

10. Amritanshu Shriwastav

Asst. Professor

Ecology of microorganisms, Water and wastewater treatment, Algal bio-refinery for biofuel production, Algal-bacterial photo-bioreactors, Remediation of heavy metal contamination

11. Swatantra Pratap Singh

Asst. Professor

Desalination and wastewater treatment by membranes; biofouling control by nanomaterials, Analytical environmental chemistry, Fate & transport of organic and emerging contaminants in the environment, Environmental quantum chemical modeling, Physico-chemical & biological treatment processes.

12. Manoranjan Sahu

Asst. Professor

Aerosol and air pollution research (Indoor/Outdoor Aerosol Monitoring, Characterization and Modeling, Aerosol technology and advanced applications), Nanotechnology & Application to Environment and energy: Nanomaterials synthesis, advanced characterization and application to solve various societal problems (waste water treatment, air contaminant and other areas of application), Climate Change: CO₂ capture, GHG emission and nanomaterials application for CO₂ reduction to useful products, Chemical Process Research and Development: Process research and development, scale-up and technology transfer from lab scale to pilot scale to commercialization (solar energy, silicon materials, specialty polymers).

13. Abhishek Chakraborty

Asst. Professor

Real-time air pollution monitoring, Physicochemical characterization of aerosols, Atmospheric processing of organic aerosols, Source apportionment, Air pollution control and general environmental engineering related issues

14. V.S. Vamsi Botlaguduru

Asst. Professor

UV-based Advanced Redox Processes for water/wastewater treatment, Removal of emerging contaminants from water/wastewater, Air Quality Trends Analysis.

Publications

	Books Published	Chapters in Books	Papers in Conference	Papers in Journals
Total	1	6	10	35

Books

Asolekar, S.R.

1. Arceivala, S.J. and Asolekar, S.R.
Wastewater Treatment for Pollution Control (3rd Edition, 14th Reprint),
McGraw Hill Education (India) Pvt. Ltd., New Delhi, 2018.

Books (Edited)

Karmakar, S.

1. Venkataraman, C., Mishra, T., Ghosh, S., & Karmakar, S. eds. *Climate Change Signals and Response: A Strategic Knowledge Compendium for India*. Springer, Singapore, 2018, <https://link.springer.com/book/10.1007/978-981-13-0280-0>.

Chapters in Books

Karmakar, S.

1. Mishra, H., Karmakar, S., Kumar, R. “A Systematic Development of Uncertainty Modeling in the Assessment of Health Risk to Environmental Contaminants.” In: Gupta T., Agarwal A., Agarwal R., Labhsetwar N. (eds) *Environmental Contaminants. Energy, Environment, and Sustainability*. Springer, Singapore, 2018. pp. 195-207.
2. Sharma, T., Gusain, A., Karmakar, S. “Future Hydrologic Scenarios in India Under Climate Change”, in: Venkataraman C., Mishra T., Ghosh S., Karmakar S. (eds) *Climate Change Signals and Response*, Springer, Singapore, 2018. pp. 39-59.
3. Vittal, H., Karmakar, S. “A Comprehensive Social Vulnerability Analysis at a National Scale”, in: Venkataraman C., Mishra T., Ghosh S., Karmakar S. (eds) *Climate Change Signals and Response*. Springer, Singapore pp. 163-176

Mukherji, S.

4. Mukherji, S. Bharti, S., Shukla G., Mukherji, S., “Synthesis and Characterization of Size and Shape Controlled Silver Nanoparticles” In: *Chemistry of Nanomaterials - A Practical Guide*, Vol 2, Metallic Nanomaterials, Part B. Chapter 1, pp. 1-115. Edited by: Challa Kumar, Degruyter, November, 2018. The same is also published Online in Physical Sciences Reviews, Vol. 4 (1), 20170082, Walter de Gruyter GmbH, Berlin/Boston, 2018. DOI: <https://doi.org/10.1515/psr-2017-0082>.
5. Mohapatra, S., Padhye, L.P. Mukherji, S. “Challenges in Detection of Antibiotics in Wastewater Matrix” pp. 3-20, In: *Environmental Contaminants: Measurement, Modelling and Control*, Edited by, T. Gupta, A.K. Agarwal, R.A, Agarwal, N.K. Labhsetwar, Springer Nature, Singapore, 2018.

Shriwastav, A.

6. Karim, A.V., Singh, S.P., Shriwastav, A. (2018) Measurement and Removal of Endosulfan from Contaminated Environmental Matrices. In: Gupta, T., Agarwal, A., Agarwal, R., Labhsetwar, N. (Eds) *Environmental Contaminants. Energy, Environment, and Sustainability*. Springer, Singapore.

Articles in Journals National

Asolekar, S. R

1. Sutar, R. S., B. Lekshmi, Kamble, K. A., Kharat, M., Ranade D. R., Parikh, Y. J., and Asolekar, S. R. “How Do We Transition to the Integrated Management of Water Cycle?”, *Journal of Indian Water Works Association*, Vol. 1, 2018, pp. 9-13 (ISSN 0970-275X).

Mukherji, S.

2. Mishra, M., Menon, N.G., Tatiparti, S.S.V., Mukherji, S. “Assessment of Endocrine Disruption Potential of Selected Pharmaceuticals Using an In-vitro Assay”, *Journal of Indian Chemical Society*, Vol. 95, 2018, pp. 269-277.
3. Bharti, S., Mukherji, S., Mukherji, S. “Photocatalytic Action of Silver-Titanium dioxide Nanocomposites Against Pathogenic Bacteria”, *Journal of Indian Chemical Society*, Vol. 95, 2018, pp. 261-268.
4. Kumar R., Mukherji, S. “Feasibility of Photocatalytic Degradation of an Organophosphorus Pesticide using Graphene Oxide-TiO₂ Nanocomposite” *Journal of Indian Chemical Society*, Vol. 95, 2018, pp. 217-222.

International

Asolekar, S.R.

5. Sutar, R. S., Lekshmi, B., Kamble, K. A., and Asolekar, S. R. (2018). "Rate Constants for the Removal of Pollutants in Wetlands: A Mini-Review". *Desalination and Water Treatment*, Vol. 122, 2018, pp. 50-56.

Dikshit, A. K.,

6. Kumar, A., Brandt, J., Ketzel, M., Patil, R. S., Dikshit, A. K., Hertel, O. "Evaluation of Urban Background Model (UBM) for Mumbai City of India", *Environmental Modelling and Assessment*, Vol. 24 (1), 2018, pp. 75-86.
7. Kumar, A., Vijay S, Kumar, R., Patil, R. S., Dikshit, A. K., Dhingra, S. L. "Prediction and analysis of pollution and congestion level for present and future scenario on an urban road network- India", *International Journal for Traffic and Transport Engineering*, Vol. 8 (2), 2018, pp. 213 – 227.
8. Maji, K. J., Arora, M., Dikshit, A. K. "Premature mortality attributable to PM_{2.5} exposure and future policy roadmap for 'airpocalypse' affected Asian megacities". *Process Safety and Environmental Protection*. Vol. 118, 2018, pp. 371-383.
9. Maji, K. J., Dikshit, A. K., Arora, M., Deshpande, A. "Estimating premature mortality attributable to PM_{2.5} exposure and benefit of air pollution prevention and control policies in China for 2020". *Science of the Total Environment*. Vol. 612, 2018, pp. 683-693.
10. Chaudhary, R., Dikshit, A.K., Tong, Y.W. "Carbon-dioxide biofixation and phycoremediation of municipal wastewater using *Chlorella vulgaris* and *Scenedesmus obliquus*", *Environmental Science and Pollution Research*, Vol. 25 (21), 2018, pp. 20399-20406.
11. Chaudhary, R., Tong, Y.W., Dikshit, A.K. "CO₂-assisted removal of nutrients from municipal wastewater by microalgae *Chlorella vulgaris* and *Scenedesmus obliquus*", *International Journal of Environmental Science and Technology*, Vol. 15 (10), 2018, pp. 2183-2192.
12. Chaudhary, R., Tong, Y.W., Dikshit, A.K. "Kinetic study of nutrients removal from municipal wastewater by *Chlorella vulgaris* in photobioreactor supplied with CO₂-enriched air", *Environmental Technology*, (In press), 2018.
13. Shinde, A.M., Dikshit, A.K., Singh R.K., Camapana, P.E. "Life Cycle Analysis based Comprehensive Environmental Performance Evaluation of Mumbai Suburban Railway, India", *Journal of Cleaner Production*, Vol. 188, 2018, pp. 989-1003.

Garg, A.

14. Khatri, I., Singh, S., & Garg, A. "Performance Of Electro-Fenton Process For Phenol Removal Using Iron Electrodes And Activated Carbon," *Journal of Environmental Chemical Engineering*, Vol. 6, December 2018, pp. 7368-7376.
15. Malhotra, M., Suresh, S., & Garg, A. "Tea Waste Derived Activated Carbon For The Adsorption Of Sodium Diclofenac From Wastewater: Adsorbent Characteristics, Adsorption Isotherms, Kinetics, And Thermodynamics," *Environmental Science and Pollution Research*, Vol. 25, Nov. 2018, pp. 32210-32220.
16. Gupta, D. & Garg, A. "Effect Of The Preparation Method On The Catalytic Activity Of The Heterogeneous Catalyst CuO/CeO₂ For The Oxidative Degradation Of Sulfide And Phenolic Compound," *Reaction Kinetics, Mechanisms and Catalysis*, Vol. 124, June 2018, pp. 101-121.
17. Kamat, S., Bandyopadhyay, S., Garg, A., Foo, D. C. Y. & Sahu, G. C. "Heat Integrated Water Regeneration Networks with Variable Regeneration Temperature," *Chemical Engineering Transactions*, Vol. 70, August 2018, pp. 307-312.
18. Gupta, A. & Garg, A. "Degradation Of Ciprofloxacin Using Fenton's Oxidation: Effect Of Operating Parameters, Identification Of Oxidized By-Products And Toxicity Assessment," *Chemosphere*, Vol. 193, Feb. 2018, pp. 1181-1188.
19. Yadav, B. R. & Garg, A. "Hetero-Catalytic Hydrothermal Oxidation Of Simulated Pulping Effluent: Effect Of Operating Parameters And Catalyst Deactivation," *Chemosphere*, Vol. 191, Jan. 2018, pp. 128-135.

Karmakar, S.

20. Gusain, A., Vittal, H., Kulkarni, S., Ghosh, S., and Subhankar Karmakar "Role of vertical velocity in improving finer scale statistical downscaling for projection of extreme precipitation." *Theoretical and Applied Climatology*, 2018, pp. 1-14. <https://doi.org/10.1007/s00704-018-2615-1>.
21. Mohanty, M. P., Sherly, M. A., Ghosh, S., Subhankar Karmakar "Regionalized design rainfall estimation: An appraisal of inundation mapping for flood management under data-scarce situations." *Water Resources Management*, Springer, 32 (14), 2018, pp. 4725-4746.
22. Yadav, V., Subhankar Karmakar, Dikshit, A. K, Bhurjee, A. K. "Interval-valued facility location model: An appraisal of municipal solid waste management system", *Journal of Cleaner Production*, Elsevier, Vol. 171, 2018, pp. 250-263.
23. Mishra, H., Subhankar Karmakar, Kumar, R., Kadambala, P. "A long-term comparative assessment of human health risk to leachate-contaminated groundwater from heavy metal with different liner systems", *Environmental Science and Pollution Research*, Springer, Vol. 25(3), 2018, pp. 2911-2923.
24. Sharma, T., Vittal, H., Chhabra, S., Salvi, K., Ghosh, S., Subhankar Karmakar "Understanding the cascade of GCM and downscaling uncertainties in hydro-climatic

projections over India" *International Journal of Climatology*, John Wiley & Sons Ltd, Vol. 38, 2018, pp. e178-e190.

25. Paul, S., Ghosh, S., Mathew, M., Devanand, A., Subhankar Karmakar, Niyogi, D. "Increased Spatial Variability and Intensification of Extreme Monsoon Rainfall due to Urbanization", *Scientific Reports*, Nature Publishing Group, Vol. 8 (1), 2018, pp. 3918.

Mukherji, S.

26. Sarat Chandra, T., Maneesh Kumar, M., Mukherji, S., Chauhan, V.S., Sarada, R., Mudliar, S.N. "Comparative Life Cycle Assessment of Microalgae-Mediated CO₂ Capture in Open Raceway Pond and Airlift Photobioreactor System", *Clean Technology and Environmental Policy*, Vol. 20, 2018, pp. 2357-2364.
27. Goenka R., Mukherji, S., Ghosh P.C. "Characterization of Electrochemical Behavior of *Escherichia coli* MTCC 1610 in a Microbial Fuel Cell" *Bioresource Technology Reports*, Vol. 3, 2018, pp. 67-74.
28. Dasgupta D., Jasmine J., Mukherji S. "Characterization. Phylogenetic Distribution and Evolutionary Trajectories of Diverse Hydrocarbon Degrading Microorganisms Isolated from Refinery Sludge" *3Biotech*, Vol. 8:273, 2018, pp.1-18.
29. Menon N.G., Tatiparti, S.S.V., Mukherji, S. "Effect of Calcination Temperature on the Microstructure and Electronic Properties of TiO₂-ZnO Nanocomposites and Implications on Photocatalytic Activity" *Applied Nanoscience*, Vol. 8(5), 2018, pp. 915-930.
30. Ghosh P., Mukherji, S. "Optimization of Media Composition for Enhancing Carbazole Degradation by *Pseudomonas aeruginosa* RS1", *Journal of Environmental Chemical Engineering*, Vol. 6, 2018, pp.2881-2891.
31. Kumar, R., Mukherji, S. "Threats Posed by Persistent Organochlorine Pesticides and their Mobility in the Environment" *Current Organic Chemistry*, Vol. 22(10), 2018, pp. 954-972.
32. Shome, N., Mukherji, S. "Application of kinetic bioluminescence inhibition assay using live cultures of *Aliivibrio fischeri* for determination of zinc toxicity", *International Journal of Environmental Science and Technology*, Vol. 15, 2018, 1313-1322

Shriwatav, A.

33. Seth, C.K., Shriwastav, A. "Contamination of Indian sea salts with microplastics and a potential prevention strategy. *Environmental Science and Pollution Research*" Vol. 25, 2018, pp. 30122-30131.

34. Shriwastav, A., Ashok, V., Thomas, J., Bose, P. “A comprehensive mechanistic model for simulating algal-bacterial growth dynamics in photobioreactors” *Bioresource Technology*, Vol. 247, 2018, pp. 640–651.

Sethi, V.

35. Ranka, P, Sethi, V., and Contractor, A. Q. “One step electrodeposition of composite of PANI-PSS tubules with TiO₂ nanoparticles and application as electronic sensor device” *Sensors and Actuators B: Chemical*, Vol. 261, 2018, pp. 11-21.

Papers Published in Proceedings of Conferences/Symposia

National

Dikshit, A.K.,

1. Shinde, A.M., Dikshit, A.K., Singh, R.K. “Life Cycle Assessment for Sustainable Urban Transportation”, *Academic LCA India 2018*, Mumbai, India, February, 2018.

International

Asolekar, S.R.

2. Singh, R., Vivek, J. M., Rao, B. and Asolekar, S. R., (2019). “Significance of the Presence of Asbestos in Construction and Demolition Wastes in India”. In Kalamdhad A., Singh J., and Dhamodharan K. (Editors), *Advances in Waste Management* (pp. 303-317), *Select Proceedings of Recycle 2016 Conference*, Springer Nature Singapore Pte Ltd., Singapore.
3. Sutar, R. S., Motghare, V. M., Kollur, S. C., Parikh, Y. and Asolekar, S. R. (2019). “Significance of Addressing Persistence of Pathogens and Micropollutants to Enhance Reuse of Treated Sewages Using Constructed Wetlands”. In Kalamdhad A., Singh J., and Dhamodharan K. (Editors), *Advances in Waste Management* (pp. 355-367), *Select Proceedings of Recycle 2016 Conference*, Springer Nature Singapore Pte Ltd., Singapore.
4. Vivek, J. M., Singh, R., Sutar, R. S. and Asolekar, S. R. (2019). “Characterization and Disposal of Ashes from Biomedical Waste Incinerator”. In Kalamdhad A., Singh J., and Dhamodharan K. (Editors), *Advances in Waste Management* (pp. 421-435), *Select Proceedings of Recycle 2016 Conference*, Springer Nature Singapore Pte Ltd., Singapore.
5. Sutar, R. S., Kumar, D., Kamble, K. A., Kumar, D., Parikh, Y. and Asolekar, S. R. (2019) “Significance of Constructed Wetlands for Enhancing Reuse of Treated Sewages in Rural India”. In S. K. Ghosh (ed.), *Waste Management and Resource Efficiency* (pp. 1221-1229), *Proceedings of 6th Icon SWM 2016 Conference*, Springer Nature Singapore Pte Ltd., Singapore.

6. Singh, R., Sontakke, M., Vivek, J. M., Rao, B. and Asolekar, S. R. (2019). "Environmental Sound Management of Asbestos-Containing Wastes Generated from Industries in India". In S. K. Ghosh (ed.), *Waste Management and Resource Efficiency* (pp. 597-611), Proceedings of 6th *IconSWM 2016* Conference, Springer Nature Singapore Pte Ltd., Singapore.
7. Vivek, J. M., Singh, R. and Asolekar, S. R. (2019). "Hazardous Waste Generation and Management in Ship Recycling Yards in India: A Case Study". In S. K. Ghosh (ed.), *Waste Management and Resource Efficiency* (pp. 1051-1065), Proceedings of 6th *IconSWM 2016* Conference, Springer Nature Singapore Pte Ltd., Singapore.

Dikshit, A.K.

8. Chaudhary, R., Tong, Y.W., Dikshit, A.K. "Algal Technology for Treatment of Municipal Wastewater". *Proceedings of International Symposium on Water: Resources, Challenges & Sustainability* (WRCS 2018), IIT Indore (India), March 2018.
9. Shinde, A.M., Dikshit, A.K., Singh, R.K. "Life Cycle Framework for Environmental Assessment of Public Transport Systems", *SETAC Europe 28th Annual Meeting*, Rome, Italy, May, 2018.
10. Biliangadi, S., Wong, V.N.L., Yellishetty, M., Dikshit, A.K., Majumdar, S. "Possible Environmental Risks Associated with Steel Slag: A Batch Study" *Proceedings of the 18th Symposium on Environmental Issues and Waste Management in Energy and Mineral Production*. Santiago, Chile, November 2018.