

# Centre for Environmental Science and Engineering

(Annual Report 2013-2014)

## Introduction and an Overview of the Centre

The Centre for Environmental Science and Engineering (CESE) was established in 1985. The Centre has a core group of 12 faculty members (11 regular and 1 emeritus) with multi-disciplinary background and diversifying research interests. In addition to the above 12 faculty members, two visiting faculty also joined CESE. Apart from this, the professionals from consultancies and government organizations come for delivering the lectures time to time. Currently, the centre is expanding teaching and research activities and has started a new dual degree M.Sc. – Ph.D. programme since July 2010 in addition to already existing M. Tech. and Ph.D. programmes. In addition to these three programmes, the centre is running a minor in Environmental Science and Engineering for undergraduates studying in other departments at IIT Bombay. In near future, a dual degree B. Tech.- M. Tech. programme will also be started. In addition to the above listed programmes, CESE offers an Institute core course “Environmental Studies: Science and Engineering” to undergraduates and M. Sc. – Ph. D. students. Besides, the centre runs several elective courses for sensitizing students across all disciplines towards the urgent need for protection and restoration of environment by adapting environment friendly life styles.

The on-going research activities of the Centre are focused towards addressing the priority areas (local and global) set by major national agencies like MHRD, CPCB, SPCB, MNRE, DBT, MoEF, CSIR, DST, AICTE. In addition, the Centre 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 centre is also actively engaged in organizing workshops and CEP courses for benefiting the professional from other academic institutions, industries and governmental sectors.

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## 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.

Degrees Awarded last year	
M. Tech.	: 15
Ph. D.	: 5

**Scholarships:** Information is provided in the table given below.

Category	Number of Students Admitted Under Each Programme in 2013		
	<u>M. Tech</u>	<u>Ph.D</u>	<u>M.Sc.-Ph.D.</u>

Institute Teaching Assistance (TA)	14	5	6
External sponsored College Teacher (CT) Industry	-	-	-
Project sponsored (PS)	-	2	-
UGC/CSIR/DBT / QIP/CPHEO fellowship holders	-	1	-

## R&D Activities

Two new projects have been awarded in 2013-2014. The details of the projects are given below.

### Sponsored Research Projects

<b>Sponsored Research Projects:</b>	
New	: 3
Ongoing	: 17
Completed	: 6
<b>Faculty Involved</b>	<b>: 10</b>

Sr.No.	Project Title	Sponsoring Agency	Project Status
1	Emerging Chemicals of Concern: PPCPs in Water Resource Recovery Facilities of Developing Countries	Industrial Research and Consultancy Center, IIT Bombay	New
2	Energy recovery from municipal solid waste using anaerobic digestion and its life cycle analysis	IRCC, IIT Bombay	New
3	A Comprehensive Mapping of Flood Risk in Changing Climate: An Application to Jagatsinghpur District, Orissa	STC-IITB (ISRO)	New
4	Treatment of Oily Sludge: Biodegradability Assessment and Effect of Bio-augmentation and Bio-stimulation	IIT Bombay	Ongoing
5	Biological Treatment of Biomass Gasifier Wastewater Using Algal-Bacterial System in Rotating Biological Contactor	DBT, New Delhi	Ongoing
6	Newcastle and Mumbai Partnership on Sustainability and Environment Research (NAMPSER)	UK-India Education and Research Initiative	Ongoing
7	“Improvement in Biodegradability of Cresylic Spent Caustic Waste Stream (Generated From Petroleum Refinery) Using Catalytic Wet	CSIR, New Delhi	Ongoing

	Oxidation in Combination with Adsorption Process”		
8	Preventive Technological Interventions for Improving Environmental Attributes of Ship Recycling in Alang <i>i.e. Green Alang Initiative</i>	Gujarat Maritime Board, Govt. of Gujarat, Gandhinagar	Ongoing
9	Enhancement of Natural Water Systems and Treatment Methods for Safe and Sustainable Water Supply in India <i>i.e. Saph Pani</i>	European Commission, Brussels, Belgium	Ongoing
10	Ganga River Basin Management Plan	Ministry of Environment and Forests, New Delhi	Ongoing
11	Environmental Stewardship Studies	Andhra Pradesh Paper Mills Pvt Ltd., Rajhamundry	Ongoing
12	Evaluation of Trophic State of Lakes in Thane city.	Thane Municipal Corporation	Ongoing
13	Funding for Research Collaboration	Washington University in St. Louis	Ongoing
14	Multivariate Flood Frequency Analysis : Nonparametric Approach	Department of Science & Technology	Ongoing
15	Constructed Wetlands and Natural Treatment Systems for Wastewater Treatment and Reuse	European Commission's Seventh Framework Programme	Ongoing
16	Continuous Arsenic Removal Using Zero-valent Iron Filter (ARUZIF) from Drinking Water	Department of Science & Technology	Ongoing
17	Design and Development of Vacuum Pyrolysis Plant to Process Various Agricultural and Agro-Industrial Biomass to Demonstrate Its Technical and Economical Feasibility	Ministry of New And Renewable Energy	Ongoing
18	Sustainable Technology for Removal of Arsenic from drinking water: Principles and performance of Electrocoagulation.	MCDONNELL ACADEMY ,ST. LOUIS, USA	Ongoing
19	Multivariate flood frequency analysis : nonparametric approach	Department of Science & Technology, GoI	Ongoing
20	Evaluation of trophic state of lakes in thane city	Thane Municipal Corporation	Ongoing
21	Characterization and Treatment of Wastewater from Large/Small Scale Biomass Gasification Systems (Prof. S. Mukherji, PI; Co-PIs: Prof. Sanjay Mahajani, Chemical Engg., and Prof. Virendra Sethi,	IIT Bombay under ACCESS Scheme	Completed
22	Assessment of the Prevailing Situation & Development of Policy Framework and Plan for Implementation of Strategies for Application of	The Planning Commission of India	Completed

	Waste to Energy Technologies in the Context of Integrated Municipal Solid Wastes Management in India		
23	Technology and Waste Load Assessment for NPK Fertilizers Expansion as well as Assessment of Technology and Wastes generated from the proposed CNA Plant	Deepak Fertilizers and Petrochemical Limited (DFPCL), Taloja, Mumbai, India	Completed
24	Measures for Achieving Near-Zero Discharge from the Proposed Additional Lines for Cold Rolling of Aluminum Foils at the Mouda Site	Hindalco Industries Limited, Mouda, Nagpur	Completed
25	Collaborative Research and Technical Advice on Effluent Management (Agave Industries (India) Pvt Ltd., Andhra Pradesh)	Agave Industries (India) Pvt. Ltd.	Completed
26	Development of Continuous Mode Arsenic Removal Technology for Drinking Water Based on Indigenous Zerovalent Iron.	Department of Science & Technology	Completed

### Consultancy Projects :

A total of on consultancy jobs were undertaken by 7 faculty members. Total income generated from consultancy work was Rs. 4,51,463/-.

### Patents

Sr.No.	Title of the Patent	Inventor	National/ International	Status filed/ granted	Date of patent filed/ granted
1	"Site Remediation Technology" (Remediation Technology for Soils, Sediments and Aquifers Solids at Sites Contaminated by Oil Spills or Hazardous Wastes)	Shyam R. Asolekar	US and European Patent Application	In progress	
2	Site Remediation Technology" (Remediation Technology for Soils, Sediments and Aquifers Solids at Sites Contaminated by Oil Spills or Hazardous Wastes)	Shyam R. Asolekar	Indian Patent Application	In progress	
3	"A process for recycling hazardous jarosite waste released from zinc industries in developing non-hazardous building	Asokan P., Saxena M., Asolekar S.R.	Indian Patent Application	In progress	

	blocks".				
4	"A process for the preparation of Granulated non-living biomass of the fungus Rhizopus species for sorption of Toxic Trade and Heavy metal and organic chemicals from effluents"	Dr. Shyam Ramchandra Asolekar, Dr. G. K. Sureshkumar, Niraj Ashvin Shah & Iynampudi Padma Suhasini	Indian Patent	renewed for the current year	
5	"A process for sorption of toxic trace and heavy metals and organic chemicals from effluents using granulated non-living biomass of the fungus Rhizopus species"	Dr. Shyam Ramchandra Asolekar, Dr. G. K. Sureshkumar, Niraj Ashvin Shah & Iynampudi Padma Suhasini	Indian Patent	renewed for the current year	

## Extension Activities

### Dikshit, A.K.

Helped develop the course contents for "Introductory Course on Environmental Technology" mainly to be given to students on the Construction program, primarily on basic level (year 2) but also as an optional course for first year students on advanced level (first year), School of Business, Society and Engineering at Malardalen University, Vasteras, Sweden.

### Asolekar, S.R.

Organized the 5th Biannual Meeting of the R & D Project funded by the European Commission entitled: "Constructed wetlands and other natural treatment systems for wastewater treatment and reuse", Organized by Centre for Environmental Science & Engineering (CESE) in Victor Menezes Convention Centre (VMCC) during 25th and 26th November, 2013 in IIT Bombay.

Organized Two-days Training Course on Constructed Wetlands for "Wastewater Treatment and Reuse" at IIT Bombay during 20<sup>th</sup> and 21<sup>st</sup> November, 2013.

Organized a Round Table on "Is Free Water Sustainable"? conducted by the Indian Environmental Association (IEA) and several other Institutions at IIT Bombay on 21<sup>st</sup> February, 2014.

### Garg, A.

3 – day Short-term course on "Municipal Solid Waste Management – Options for Recycling and Recovery" was conducted at IIT Bombay during 3 – 5 October 2013.

### Sethi, V.

Co-organized a national workshop on *Automated Air Pollution Monitoring – State of Art, Data Management, Decision Making and Implementation*, held during January 23-24<sup>th</sup>, 2014, at IIT Bombay, Mumbai.

Organized the short course on *Occupational Exposure & Industrial Health and Safety*, held during Jul 22- 23<sup>rd</sup>, 2013, at IIT Bombay, Mumbai.

## **Visitors to the Department**

Prof. Margaret Bell and Prof. Anil Namdeo from New Castle University, U.K. visited CESE in Jan. 2014. Prof. Bell delivered a talk on air pollution from transport operation.

Ms. Divya Vasudeva from ENVISA, France visited in February 2014. She interested with faculty members to explore possibility of joint consultation.

Prof. Tong Yen Wah from Department of Chemical and Biomolecular Engineering, National University of Singapore visited in February 2014. Prof. Tong is Co-Supervisor of Mr. Ramjee Chaudhary under IITB-NUS joint Ph.D. programme along with Prof. A.K. Dikshit.

Prof. Brajesh Dubey from Environmental Engineering Science and Health, University of Guelph, Canada visited in March 2014. He delivered a talk on “Municipal solid waste management scenarios in developing and developed world”.

EU delegation on resources engineering and clean technology from Copenhagen Cleantech Cluster, LiqTech International A/S, AVAENSEN, KALHIDRA, Plastics Recyclers Europe, CeDo Recycling B.V., Mazovia ICT Cluster, Bel System Ltd., Water Sensors and Membranes (WSM), POLYMEM, GreenWin, RECYMET SA visited CESE on 24 October 2013.

Dr. Sharad P. Kale, Professor & Padma Shri winner-Homi Bhabha National Institute, Head Technology Transfer Division, BARC and Head, Pesticide Residue and Soil Sciences Division has visited CESE to deliver a set of lectures on “Industrial Wastewater Treatment and Reuse” on 28<sup>th</sup> March, 2014.

Dr. R. Gopichandran, Director Vigyan Prasar, Delhi has visited CESE to deliver lecture on “Industrial Pollution Prevention and Clean Technology” on 19<sup>th</sup> March, 2014.

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

### **National**

#### **Asolekar, S.R.**

Invited by ENVIS Centre, Ministry of Environment and Forest (MoEF) to speak on “Safe Disposal of Municipal Solid Waste” held on 26<sup>th</sup> February, 2014 at SNDT Women's University, Mini Auditorium, Juhu, Mumbai.

#### **Asolekar, S.R.**

Participated in Waste to Resource Conference / Exhibition, India, 2013 held at The Leela Hotel, Mumbai during 18<sup>th</sup> and 19<sup>th</sup> December, 2013.

#### **Ghosh, I., Kamat, M, Mukherji, S.**

“Degradation of a Synthetic NAPL containing Aliphatic Hydrocarbons and PAHs by Two Pure Bacterial Isolates”, National Conference on “Environment: Pollution and Protection” EPP 2014,

Organized by NIT Durgapur, Durgapur, Jan 30-Feb 1, 2014. *Poster Presentation*, Received Best Poster Award.

**Panchratna, D. , Sethi, V., Mukherji, S.**

Sorption of Simulated Biomass Gasification Wastewater on Rice Husk Char and Activated Carbon” 2<sup>nd</sup> International Conference on “Agriculture, Food Technologies and Environment-New Approaches (AFTENA-2013), JNU, New Delhi, 19<sup>th</sup>-20<sup>th</sup> October, 2013, Oral Presentation.

**Lal, K., Garg, A.**

“Treatment of Pulp Mill Wastewater by Combined Coagulation-Fenton- like Oxidation Process.” In “*International Symposium on Halogenated Persistent Organic Pollutants (POPs)*” organized by CSIR – National Environmental Engineering and Research Institute (NEERI) at NEERI, Nagpur during January 16-17, 2014. (Oral presentation)

**Gupta, A., Garg, A.**

“Removal of ciprofloxacin by sewage sludge based activated carbon.” Presented in International Conference on “*Chemical, Environmental and Bioprocess Engineering*” (CEBE – 2013) organized by “Krishi Sanskriti” on 21<sup>st</sup> and 22<sup>nd</sup> December 2013 at Jawaharlal Nehru University, New Delhi. (paper published in International Journal)

**Manu, M. K., Kumar, R., Garg, A.**

“Physical and chemical characterization of yard waste.” Presented in International Conference on “*Chemical, Environmental and Bioprocess Engineering*” (CEBE – 2013) organized by “Krishi Sanskriti” on 21<sup>st</sup> and 22<sup>nd</sup> December 2013 at Jawaharlal Nehru University, New Delhi. (paper published in International Journal)

**Mandal, D., Dohare, V., Honkalaskar, V. H., Garg, A., Bhandarkar, U. V., Sethi, V.**

“Evaluation of Micro Gasifier Cookstove Performance with Handmade Biomass Pellets using Region-Specific Fuels and Assessment of Deployment Potential.” Proceedings of The National Conference on *Recent Advances in Bio-Energy Research* at Sardar Swaran Singh National Institute of Renewable Energy, Kapurthala, Punjab, India during 22-24 November 2013. (Oral presentation)

**Mohite, R., Garg, A.**

“Catalytic wet oxidation of *o*-cresol using copper impregnated activated carbon catalyst.” International Conference on “*Technologies for Sustainable Waste Management in Developing Countries*” organized by Vignan University in Association with WTER-India and CSIR-NEERI on 23-24 August 2013 at Vadlamudi, Guntur, Andhra Pradesh, India. (*Oral presentation; Best paper award*)

**Mohite, R., Garg, A.**

“Catalytic wet air oxidation of *o*-cresol using copper impregnated activated carbon catalyst.” International Conference on “*Advances in Chemical Engineering (ICACE)*” held on 5-6<sup>th</sup> April 2013, NIT Raipur, India. (*Oral presentation*)

**Lal, K., Garg, A.**

“Phenol degradation using homogeneous copper catalyzed wet oxidation at mild conditions.” International Conference on “*Advances in Chemical Engineering (ICACE)*” held on 5-6<sup>th</sup> April 2013, NIT Raipur, India. (*Oral presentation*)

**Phuleria, H.C.**

Presented a paper on “Air pollution exposure modeling using GIS” in a workshop on *New GIS and Modelling – Applications in Environmental Engineering*, held on March 28-29<sup>th</sup>, 2014, at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka.

**Phuleria, H.C.**

Participated in national workshop on *Automated Air Pollution Monitoring – State of Art, Data Management, Decision Making and Implementation*, held during January 23-24<sup>th</sup>, 2014, at IIT Bombay, Mumbai.

**Phuleria, H.C.**

Presented a paper on “Long-term air pollution exposure assessment in epidemiological studies” in a workshop on *Occupational Exposure & Industrial Health and Safety*, held during Jul 22- 23<sup>rd</sup>, 2013, at IIT Bombay, Mumbai.

**International**

**Dikshit, A.K.**

Attended International IWA Conference on “Sludge Management” organised by International Water Association at Vasteras, Sweden on May 3-5, 2013.

**Agnihotri, S., Mukherji, S., Mukherji, S.**

Comparison of Amine and Thiol Functionalized Glass Wool Fibres for Silver Nanoparticle Immobilization: Characterization, Bactericidal Efficacy and Potential Risk” International Conference on Nanoscience and Technology, ICONSAT 2014, organized by: Institute of Nano Science & Technology, Mohali, 3<sup>rd</sup>-5<sup>th</sup> March, 2014, Chandigarh, India.

**Jeswani, H., Mukherji, S.**

“Effect of Wastewater Characteristics on Performance of a Lab-scale RBC Treating Biomass Gasifier Wastewater” First International Forum on Asian Water Environment Technology” (1<sup>st</sup> IFAWET), organized by: University of Tokyo, Japan, JNU, New Delhi and IIT Roorkee; held in JNU, New Delhi, 18-20<sup>th</sup> December, 2013.

**Jasmine, J., Mukherji, S.**

“Sustainable Management of Tank Bottom Sludge from Refineries: Role of Bioaugmentation with n-Alkane and Naphthalene-Degrading *Burkholderia* Cultures” International Symposium on a Sustainable Future (ISSF), IGIDR, Mumbai, 16<sup>th</sup> to 18<sup>th</sup> October, 2013, Oral Presentation. *Paper in Conference Proceedings on CD.*

**Jasmine, J., Mukherji, S.**

, “Evaluation of Bioaugmentation and Biostimulation Effects on the Treatment of Refinery Oily Sludge using 2n Full Factorial Design” IWA Regional Conference on Waste and Wastewater Management Science and Technology, Grand Resort Hotel, Limassol, Cyprus, 26<sup>th</sup> to 28<sup>th</sup> June, 2013, *Oral Presentation.*

**Ghosh, I., Mukherji, S.**

“Micellar Solubilization of Pyrene in Triton X-100 Hinders Pyrene Degradation by *Pseudomonas aeruginosa*” IWA Regional Conference on Waste and Wastewater Management Science and Technology, Grand Resort Hotel, Limassol, Cyprus, 26<sup>th</sup> to 28<sup>th</sup> June, 2013, *Poster Presentation*, Received Best Poster Award.

**Tejaswini, D. N., Karmakar, S., Pradhan, M. M., Palkar, V. S.**

Presented a paper “A Framework for Assessing Eutrophication: Application to a Cluster of Lakes in Thane City, India.” *International Conference of Estuaries and Coastal Areas in Times of Intense Change, Elsevier*, held during October 13-17, 2013, Shanghai, China.

**Ragetti, M.S., Braun-Fahrländer, C., Tsai, M.Y., de Nazelle, A., Schindler, C., Perez, L., Ducret-Stich, R.E., Künzli, N., Phuleria, H.C.**

Presented a paper “Simulation of NO<sub>2</sub> commute exposure: Investigation of its contribution to total exposure and comparison of air pollution models”, *Environment & Health conference - Joint*



*international conference of three international societies: ISEE, ISES & ISIAQ*, held during August 20-24, 2013 in Basel, Switzerland.

**Jeong, A., Phuleria, H.C., Keidel, D., Rochat, T., Probst-Hensch, N.M., Schindler, C.**

Presented a paper “Stability of air pollution models over time: Evaluation of PolluMap models for the Swiss cohort study, SAPALDIA”. *Environment & Health conference - Joint international conference of three international societies: ISEE, ISES & ISIAQ*, held during August 20-24, 2013 in Basel, Switzerland.

**Phuleria, H.C., Tsai, M.Y., Ragettli, M.S., Corradi, E., Ineichen, A., Rochat, T., Probst-Hensch, N.M., Fierz, M., Künzli, N.**

Presented a paper “Spatiotemporal variation of particle number and surface area concentration in four Swiss areas and its relationship with mass measurements”, *17th ETH-Combustion Generated Nanoparticles conference*, held during June 18-20, 2013, Zürich, Switzerland,

**Phuleria, H.C., Ineichen, A., Corradi, E., Tsai, M.Y., Schindler, C., Probst-Hensch, N.M., Künzli, N.**

Presented a paper “Seasonal and spatial variation of indoor and outdoor particulate mass and nitrogen dioxide concentrations in eight Swiss areas”, *Environment & Health conference - Joint international conference of three international societies: ISEE, ISES & ISIAQ*, held during August 20-24th, 2013 in Basel, Switzerland.

**Phuleria, H.C., Chandrasekaran, V., Swaminathan, S., Probst-Hensch, N.M.**

Presented a paper “Impact of household cooking fuels on gender-specific adult tuberculosis and diabetes in India: a cross sectional study”, *Environment & Health conference - Joint international conference of three international societies: ISEE, ISES & ISIAQ*, held during August 20-24th, 2013 in Basel, Switzerland.

**Ducret-Stich, R.E., Corradi, E., Foraster, M., Morelli, X., Aguilera, I., Basagana, X., Rivera, M., Slama, R., Künzli, N., Phuleria, H.C.**

Presented a paper “Spatial distribution and modeling of ultrafine particle concentrations in a Swiss urban city”, *Environment & Health conference - Joint international conference of three international societies: ISEE, ISES & ISIAQ*, held during August 20-24th, 2013 in Basel, Switzerland.

**Bhusnoor, S S., Bhandarkar, U.V and Sethi, V.,**

“Study of Thermophoretic Deposition of Engine Emissions in a Pipe flow” *24<sup>th</sup> International Symposium on Transport Phenomena*, Tokyo University of Science, 1-5, November 2013, Japan.

**Menon, R.; Husar, R. B.; Sethi, V.; Westphal, D. L.,**

“Dust pattern over Indian subcontinent based on NAAPS model, satellite and surface observations”, *American Geophysical Union, Fall Meeting 2013*, abstract #A41G-0162

**Bojjagani, S., R. H. Chaudhari , R. Menon, V.M. Motghare , R.S. Patil , R. Kumar , V. Sethi**

“Development of approaches for air quality management in coal mining areas”, *International Symposium on Environmental Management and Current Practices in Mining & Allied Industries (EMPM-2014)*, 13-15 February, 2014 Indian Institute of Technology, Varanasi.

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

### **Invited Lectures**

#### **National**

**Dikshit, A.K.**

Keynote on “Environmental Concerns in the Reuse and Disposal of Fly Ash” in the National conference on “Fly Ash Utilization for Sustainable Environment Management” organized 2014 by SIES Nerul, Navi Mumbai on January 16-17, 2014.

**Dikshit, A.K.**

“Water Quality Modelling” at Department of Civil Engineering, Bapuji Institute of Engineering and Technology, Davangere, April 8, 2013.

**Dikshit, A.K.**

Keynote address on “RIO+20-Sustainable Development: Environmental Issues and Concerns particularly for the Shipping Sector” in 50th World Maritime Day celebrated by the Directorate General of Shipping, Government of India, Mumbai on September 27 2013.

**Dikshit, A.K.**

“Operation and Maintenance of Wastewater Treatment Plant-I” and “Operation and Maintenance of Wastewater Treatment Plant-II” in the CEP on “Operation and Maintenance of Environmental Facilities for P.W.D. and Irrigation Engineers” organised by Department of Civil Engineering, BDT College of Engineering, Davangere on October 11 2013.

**Asolekar, S.R.**

Invited by UN CEO Water Mandate to speak at the CEO Water Mandate’s Multi-Stakeholder Working International Conference on “Corporate Water Stewardship and the Post-2015 Development Agenda” during 5<sup>th</sup> and 7<sup>th</sup> March, 2013 in Mumbai.

**Asolekar, S.R.**

Invited by DMD CPRI, Bangalore to give lecture on “Technology selection on Poly Chlorinated Biphenyl disposal” during 12<sup>th</sup> March and 13<sup>th</sup> March, 2013.

**Asolekar, S.R.**

Invited by Aluminum India Summit, 2013 to deliver lecture on “State of the Art Preventive Environmental Strategies in Aluminium Sector” at the Developing Profitable Strategies to Grow New Markets for the Indian Aluminum Industry on 12<sup>th</sup> September, 2013 in Mumbai.

**Asolekar, S.R.**

Invited by The Institution of Engineers (India) (IEI) to deliver thoughtful speech on “Frugal Engineering” on the eve of Engineers Day on 15<sup>th</sup> September, 2013 in IEI Mumbai.

**Asolekar S.R.**

Invited by Centre for Science and Environment (CSE), New Delhi, to speak at the Regional workshop “Energy and Resource Efficiency in Urban Water Management”, Goa on “Zero Liquid Discharge Concept For Efficient Management Of Urban Water/ Wastewater Resources” on 27<sup>th</sup> September, 2013 in Goa.

**Asolekar, S.R.**

Invited as Panel Member by “Save Ganga & Save Himalayas Meeting-Cum - Panel Discussion” on 2<sup>nd</sup> October 2013 at Bhartiya Vidya Bhavan, K.M. Munshi Road, Mumbai.

**Asolekar, S.R.**

Invited by Jedimetla Effluent Treatment LTD, 2014 to deliver lecture on “Activated Sludge: History and Theory” at the National Seminar held during 28<sup>th</sup> and 29<sup>th</sup> March, 2014 in Hyderabad.

**Patil, R.S.**

Workshop on Automated Air Pollution Monitoring; 23-24 Jan 2014, IIT Bombay, Organized by CESE, NEERI, IL&FS, WUSL, MPCB, GPCB; Member of the Organizing Team.

**Patil, R.S.**

Short Course on Occupational Exposure and Industrial Health & Safety, 22-23 July 2013, organized by CESE, IIT Bombay, Member of the Organizing Team.

**Mukherji, S.**

“Clean-up of Coal Wastewater using Microorganisms with Enhanced Degradation Capabilities” National Symposium on "Environmental Management on Coal Based Thermal Power Plants in Indian perspective" organized by College of Engineering and Management, Kolaghat, 21<sup>st</sup> and 22<sup>nd</sup> December, 2013.

**Mukherji, S.**

“Biofuel from Algae and Sustainability Considerations” Workshop on Algae Cultivation and Biofuel Production, Organized by Algae, Biofuel and Biomolecules Centre (ABBC), Maharshi Dayanand Saraswati University, Ajmer, India, 26-31 July 2013.

**Mukherji, S.**

“Mass Cultivation of Algae” Workshop on Algae Cultivation and Biofuel Production, Organized by Algae, Biofuel and Biomolecules Centre (ABBC), Maharshi Dayanand Saraswati University, Ajmer, India, 26-31 July 2013.

**Mukherji, S.**

“Water Disinfection using Silver Nanoparticles and Sustainability Considerations”, Workshop on “Nanotechnology Applications for Sustainable Development” organized by Department of Chemical Engg., SVNIT, Surat, India, 19-21 April, 2013.

**Garg, A.**

Two lectures were delivered on Wastewater Treatment Processes in a training course held on 25-26 September 2013 organized by Civil Engineering Department, IIT Bombay for BMC, Mumbai.

**Garg, A.**

A lecture was presented on “Sustainable Wastewater Management for Industries” in a short course conducted by Civil Engineering Department, IIT Bombay for ONGC professionals on April 4, 2013.

**Karmakar, S.**

Chaired the session on “Session 4: Linking Science to Impact and Response,” *1st Climate Science and Policy Workshop*, held during March 6-7, 2014, at The Victor Menezes Convention Centre, Indian Institute of Technology Bombay, Powai, Mumbai

**Karmakar, S.**

“Design of Sampling Locations for River Water Quality Monitoring considering Seasonal Variation of Discrete and Diffuse Pollution Loads,” Centre for Water Resources Development and Management (CWRDM), Kozhikode, Kerala, An Institution of the Kerala State Council for Science, Technology and Environment, Government of Kerala, on May 10, 2013.

**Chandel, M.K.**

Expert lecture on “Emissions from Incinerators and its Health Impacts,” at National Seminar on “Thermal and other techniques for waste management, National Institute of Technology Calicut, March 7-8, 2014.

**Chandel, M.K.**

Expert lecture on “Carbon Capture and Storage—The Way Forward to Reduce Greenhouse Gases,” at International Conference on Emerging trends in Science & Technology, Impact on Environment & Society for inclusive growth at AISECT University Bhopal Feb 14-15, 2014.

**Padhye, L. P.**

“Pharmaceuticals in Urban Drinking Water – Challenges for Developing Countries”, International Conference on Emerging Trends in Science & Technology: Impact on Environment & Society, Bhopal, India, February 14-15, 2014.

**Phuleria, H.C.**

Coordinated the workshop on *Occupational Exposure & Industrial Health and Safety*, held during Jul 22- 23<sup>rd</sup>, 2013, at IIT Bombay, Mumbai.

**Sethi, V.**

Chaired the national workshop on *Automated Air Pollution Monitoring – State of Art, Data Management, Decision Making and Implementation*, held during January 23-24<sup>th</sup>, 2014, at IIT Bombay, Mumbai.

**International****Dikshit, A.K.**

Delivered lecture series on “Biotechnology for Sustainable Environmental Management” to Bachelors students at the School of Business, Society and Engineering at Malardalen University, Vasteras, Sweden.

**Asolekar, S.R.**

Invited by World Maritime University (WMU) of International Maritime Organization (IMO), the member institution of the United Nations (UNO) to be a member of scientific committee and to deliver the keynote address at the “International Conference entitled: Ship Recycling” (SHIPREC-2013) on "The role, actions and Projects of the NGOs in Ship Recycling" during 7<sup>th</sup> and 9<sup>th</sup> April, 2013 in Malmo, Sweden.

**Phuleria H.C.**

Co-chaired the session on “Measuring and Modeling Spatio-Temporal Variation in Airborne Pollutants”, in *Environment & Health conference - a joint international conference of three international scientific societies: ISES, ISEE, ISIAQ* held during Aug 20-24<sup>th</sup>, 2013, in Basel, Switzerland .

**Significant Awards/ Distinctions****Dikshit, A.K.**

Erasmus Mundus Visiting Professorship in the School of Business, Society and Engineering at Malardalen University, Vasteras, Sweden from May to July 2013 under EU Fellowship.

Excellent Thesis Award to Dr. Sanjay Kumar Singh 2013 PhD student.

Member, Editorial Advisory Board, Journal of Environmental Science and Engineering, (Publishers: NEERI, Nagpur, India)

Member, Editorial Board, Journal of Environmental Science and Health, Part A (Publishers: Taylor and Francis Group)

Member, Editorial Board, Journal of Clean Technology and Environmental Policy (Publishers: Springer Verlag)

**Asolekar, S.R.**

The best paper award for the paper “Towards Green Ship Dismantling: Scientific Assessment of Health, Safety and Environment Agenda” authored by Deshpande, P. C., Hiremath, A. M., Kalbar, P. P. and Asolekar, S. R. and presented by P. C. Deshpande at the International Conference on Ship Recycling SHIPREC2013 – in Malmö, Sweden, during 7<sup>th</sup> and 9<sup>th</sup> April, 2013.

**Garg, A.**

“Nawab Zain Yar Jung Bahadur” Memorial Prize by Institution of Engineers (India) for a paper published in the Series A Journal of IET.

Member, Advisory Committee Municipal Waste Treatment Facility in Navi Mumbai, India

“Best paper award” in an International Conference on “Technologies for Sustainable Waste Management in Developing Countries” held on 23-24 August 2013 at Guntur, India.

**Chandel, M.C.**

Young Faculty Award

**Padhye, L.P.**

Young Faculty Award

**Phuleria, H.C.**

Young Faculty Award

**Distinctions:**

**Honorary Work**

**Dikshit, A.K.**

Delivered talk on *Sustainable Water Management for Industries* at Training Course organised by civil Engineering Department, IIT Bombay on August 4, 2013.

Delivered talk on *MSW Collection and Transfer* in the CEP on “Municipal Solid Waste Management - Options for Recycling and Recovery” organised by CESE, IIT Bombay on October 3, 2013.

Delivered talk on *Wastewater Management in India* in the DAAD Alumni International Seminar organised by German Alumni Water Network at IIT Bombay on 21 October 2013.

Member, Advisory Committee for Bio-Medical Rules, Govt. of Maharashtra since 2009

Member, Academic Advisory Committee, Nirma University, Ahmedabad since 2010.

Member, Sub-Committee for ‘Development of National Sustainable Habitat Parameters in the field of Storm Water Management’ constituted by the Carbon Credit Cell of the Ministry of Urban Development, Govt. of India since 2010.

Honorary Professor in the School of Civil Engineering, Faculty of Engineering, University of KwaZulu-Natal, Durban, South Africa.

Nominated Invitee Member on the Academic Board of the Government College of Engineering, Amravati (Maharashtra).

**Asolekar, S.R.**

Member of the Technical Expert Panel (TEP) for the World Bank aided “Capacity Building for Industrial Pollution Management Project (CBIPMP)”

Member of “Project Review and Supervisory Group” Constituted by Ministry of HRD and Government of India for Establishing “E-Training Environment for Training Technical Teachers and Students”.

Member of the “Dahanu Taluka Environmental Protection Authority” (since 1997) constituted by the Honorable Supreme Court of India.

Member of “Steering Committee on Environment, Forests & Wildlife” for the 12<sup>th</sup> Five Year Plan constituted by the Honorable Planning Commission of India (2012-2017).

Member of “Expert Committee” formed for “Evaluation of Non Combustion Technologies Suitable for our Country for Remediation of Poly-Chlorinated Bi-Phenyls” under the Post National Implementation Project Sponsored by GEF and UNIDCO, December 2012 to March 2013.

Member of the "Award Committee" of Indira Gandhi Paryavaran Puraskar (IGPP)-2011 constituted by MoEF, India 2013.

Member of "Vasvik Award Committee" for 2012, 2013 and 2014 constituted by Vividhlaxi Audyogik Samshodhan Vikas Kendra, India.

Advisory member of Solar "Decathlon (Team Shunya)" IITB, 2014; an international competition to design and build a fully equipped and furnished net-zero energy solar-powered house.

Member of the "Technical Committee" constituted to Study Merits/Demerits of use of Petcoke as a Fuel in Place of Coal by Maharashtra Pollution Control Board (MPCB), Government of Maharashtra, February, 2014.

**Patil, R.S.**

Member, Atmospheric and Space Science Board of Studies Committee, Pune University 19/4/2012 for two years.

Member, Scientific Program Committee of the Environmental Health Conference in Basel; from 19-23<sup>rd</sup> Aug. 2013; Organized by Swiss Tropical and Public Health Institute, Univ. of Basel, with Int. Soc. Of Exposure Sciences (ISES), Int. Soc. Of Env'tl. Epidemiology (ISEE) and Int. Soc. of Indoor Air Quality (ISIAQ).

Nominated as a member of MAPAN (Monitoring Air Pollution Automatic Network) Project Monitoring Committee (PMC), IITM, Pune, March 2013, 5 years.

Reviewer, Research projects, Dept. of Science & Technology, Atmospheric Sciences under SERC, 2004 till date.

Member, Editorial Board, Asian Journal of Chemical and Environmental Research, 2007 till date.

**Mukherji, S.**

Editorial Board Member, Applied Nanoscience, Springer

PhD Thesis Review, Thesis submitted in Department of Ecology and environmental Sciences, Pondicherry Central University, Kalapet, Puducherry (March, 2014)

Reviewed papers for international journals

1. Applied Nanoscience in Aug, 2013
2. Reviews in Environmental Science and Engineering, September, 2013
3. Acta Biomateriala, September, 2013
4. Colloids and Surfaces B Biointerfaces, October, 2013
5. Chemical Engineering Journal, October, 2013
6. Bioresource Technology, March 2014

Expert Committee Member for External Review of Centre for Environment, IIT Guwahati (Jan, 2014)

### **Chaudhari, S.**

Reviewed papers for Journal of Water and Health, Water Research, Environmental Science and Technology, Chemical Engineering Journal, Journal of Hazardous, Toxic, and Radioactive Waste.

Reviewed grant proposal for National Science Centre, Poland.

Reviewed several project proposal for DST-SERB (Civil), DST-WTI.

Member of Research Committee for CSIR-NEERI Nagpur, Member PAC of DST-SERB (Civil)

Member Technical Advisory Committee-Wastewater MCGM (Mumbai)

### **Garg, A.**

Reviewed paper for Bioresource Technology, November 2013.

Reviewed two papers for Waste Management & Research April & August 2013.

Reviewed paper for Journal of Toxic, Hazardous and Radioactive Wastes November 2013.

Reviewed paper for Chemical Engineering Journal, November 2013.

Reviewed paper for Desalination and Water Treatment, November 2013.

Reviewed three papers for Clean Technologies and Environmental Policy, September & December 2013 and March 2014.

Reviewed paper for American Journal of Environmental Sciences, May 2013

### **Karmakar, S.**

Reviewed papers for ISH Journal of Hydraulic Engineering, April 2013 and July 2013;

Reviewed papers for Journal of Climate, June 2013;

Reviewed papers for Climate Dynamic, September 2013;

Reviewed papers for Journal of Computing in Civil Engineering (American Society for Civil Engineers), August 2013; November 2013;

Reviewed papers for Journal of Flood Risk Management (Wiley), October 2013; February 2014;

Reviewed papers for Water Resources Research (AGU), November 2013

### **Chandel, M.K.**

Reviewed paper for Clean Technologies and Environmental Policy, October 2013.

Reviewed research proposals for Department of Science and Technology, Govt. of India, December, 2013.

Member of Expert Committee on Municipal Solid Waste (MSW) Processing Facility at Calangute / Saligao in North Goa & Cacora in South Goa” 2013.

### **Padhye, L.P.**

Invited Reviewer for Environmental Science & Technology

## **Faculty Members and their Specializations**

### **Anil K. Dikshit**

#### **Professor & Head**

Water and Wastewater Treatment Technologies; Urban Solid Waste Management; Environmental Systems Modelling and Optimization; Environmental Management and Impact Assessment; GIS Applications for Environment.

### **Shyam R. Asolekar**

#### **Professor**

Hazardous, municipal & biomedical waste management, Eco-industrial networking, Eco-centric and low-cost wastewater treatment, Treatment of leachates and special industrial wastewaters, Environmental policy and preventive environmental management.

### **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.

### **Sumathi Suresh**

#### **Professor**

Environmental biochemistry and microbiology, Biological treatment processes, Enzymology, Application of biochemistry for cleaner production technologies, Biomonitoring and bioassay for toxicity testing.



**Sanjeev Chaudhari**

**Professor**

Water and Wastewater Treatment.

**Suparna Mukherji**

**Professor**

Biodegradation and Bioremediation of Complex Organic Pollutants, Toxicity Evaluation of Complex Mixtures, Environmental Application of Nanomaterials, Sorption Phenomena, Sampling and Analysis of Bioaerosols

**Subhankar Karmakar**

**Asst. Professor**

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

**Anurag Garg**

**Asst. Professor**

Catalytic wet oxidation, Advanced oxidation, Coagulation, Adsorption, Biological treatment processes, Municipal Solid waste characterization and treatment, Energy from solid waste; Decision support modeling for solid waste management

**Munish Kumar Chandel**

**Asst. Professor**

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

**Harish C. Phuleria**

**Asst. Professor**

Aerosols & Air Quality Characterization, Environmental Noise Exposures, Environmental Health

**Lokesh P. Padhye**

**Asst. Professor**

Aquatic Chemistry and Physicochemical and Biological Treatment Processes

**Rashmi S. Patil**

**Emeritus Fellow**

Air Pollution Modelling Monitoring and Management; Indoor Air Quality and Exposure Assessment; Environmental Impact Assessment

**Rakesh Kumar**

**Visiting Professor**

NEERI, Mumbai

**Pramod Kulkarni**

**Visiting Associate Professor**

National Institute for Occupational Safety & Health

USA

**Gurumurthy Ramachandran**

**Visiting Professor**

University of Minnesota

USA

**Publications**

## a) Books

### Books (Authored)

**Huang, C.-H., Padhye, L. P., Wang, Y.-L.,**

Catalytic Impact of Activated Carbon on the Formation of Nitrosamines from Different Amine Precursors, in *Interactions of Nanomaterials with Emerging Environmental Contaminants*, American Chemical Society, 2013, pp. 79-100.

**Manu, B., Chaudhari, S.**

Sequential Anaerobic-aerobic Treatment of Azo dye Wastewater", Scholar press, Germany, 2014, p. 163.

### Chapter (Book)

**Asolekar, S.R., Kalbar, P.P., Chaturvedi, M.K.M., Maillacheruvu, K.**

"*Rejuvenation of Rivers and Lake in India: Balancing Societal Priorities with Technological Possibilities*" in Volume 4 - Sustainability of Water Quality Ed. Jerald Schnoor in Comprehensive Water Quality and Purification Edited by Satinder Ahuj, 2013.

**Asolekar, S.R., Gopichandran, R., Hiremath, A.M., Kumar, D.**

"*Green Chemistry and Ecological Engineering as Framework for Sustainable Development*" Wiley & Sons, Inc., Edited by Dibyendu Sarkar, Avindan Mukherjee, Neeraj Vedwan, Rupali Datta and Robyn Hannigan, 2014. [Chapter under review].

**Gopichandran, R., Asolekar, S.R., Jani, O., Kumar, D., Hiremath, A.M.**

"*Green Energy and Climate Change*" Wiley & Sons, Inc., Edited by Dibyendu Sarkar, Avindan Mukherjee, Neeraj Vedwan, Rupali Datta and Robyn Hannigan, 2014. [Chapter under review].

**Chaudhari, S., Banerji, T. and Puram, R. K.**

"Domestic and Community scale Arsenic Removal Technologies suitable for developing countries", In *Water Reclamation and Sustainability*, Ed S. Ahuja. Elsevier- Science (In press). pp. 155-182.

**Garg, A., Mishra, I. M.**

Removal of persistent organic compounds by wet oxidation process. In: The Encyclopedia of Environmental Management, ISBN: 1-4398-2927-6, Publishers: Taylor and Francis: New York, May 2013, pp. 1904-1912.

## Scientific Reports

**Amerasinghe P., Asolekar S. R., Essel L., Grischek T., Gupta P. K., Heinze K., Jampani M., Lesch M., Kimothi C., Kumar D., Lesch M., Sandhu C., Semwal M., Singh P. D. K., Starkl M.**

*D 6.1: Report on initial sustainability assessment*, Saph Pani Project supported by the European Commission within the Seventh Framework Programme Grant agreement No. 282911, 2013.

**Boisson, A., Sandhu, C., Kumar, D., Grützmaier, G., Kaur, H., Mehrotra, I., Elango ,L., Ronghang, M., Kumar, P., Sajil, K. P.J., Kumar, P., Ahmed, S., Asolekar, SR., Sharma, SK., Grischek, T., Wintgens, T.**

*D4.3: Post-treatment Requirements of Different Natural Treatment Systems*, Saph Pani Project supported by the European Commission within the Seventh Framework Programme Grant agreement No. 282911, 2013.

## Articles in Journals

## National

## International

**Pathak, R.K., Dikshit A.K.**

“Screening of Bacterial Biosorbents for Removal of Atrazine”, *Clean Technology and Environmental Policy*, Vol.15 (6), pp. 921:929.

**Deval, Animesh, Dikshit A.K.**

“Construction, Working and Standardization of Microbial Fuel Cell”, *APCBEE Procedia*, Vol.5, pp. 59 – 63.

**Kalbar, P.P., Karmakar, S., Asolekar, S.R.**

The Influence of Expert Opinions on the Selection of Wastewater Treatment Alternatives: A Group Decision-Making Approach. *Journal of Environmental Management*, Vol. 128, 2013, pp. 844-851. [Elsevier Publication; IF: 3.057/2012] ]

**Kalbar, P.P., Karmakar, S. and Asolekar, S.R.**

Life cycle-based Environmental Assessment of Municipal WWTP in India. *International Journal of Environment and Waste Management*, Vol. 14(1), 2014, pp. 84-98. [Inderscience Publication, Impact Factor Not Available].

**Deshpande P.C., Kalbar, P. P., Tilwankar, A.K. and Asolekar, S.R.**

A novel approach to estimating resource consumption rates and emission factors for ship recycling yards in Alang, India. *Journal of Cleaner Production*, Vol. 59, 2013, pp.251-259, [Elsevier Publication, IF: 3.398/2012]

**Patil, R.S., Rakesh, K., Menon, R., Shah, M.K., Sethi, V.**

“Development on Particulate Matter Speciation Profiles for Major Sources in Six Cities in India”, *Atmospheric Research*, Vol. 132-133 , 2013, pp. 1-11.

**Aggarwal, S.G., Kawamura, K., Umarji, G.S., Tachibana, E., Patil R.S., Gupta, P.K.**

“Organic and Inorganic Markers and Stable C-, N-isotopic Compositions of Tropical Coastal Aerosols from Megacity Mumbai : Sources of Organic Aerosols and Atmospheric Processing”, *Atmospheric Chem. Phys.*, Vol. 13, 2013, pp. 4667-4680.

**Agnihotri, S., Mukherji, S., Mukherji, S.**

“Size-controlled silver nanoparticles synthesized over the range 5-100 nm using the same protocol and their antibacterial efficacy” *RSC Advances*, Vol. 4, 2014, pp. 3974-3983.

**Jasmine, J., Mukherji, S.**

“Sustainable Management of Tank Bottom Sludge from Refineries: Role of Bioaugmentation with n-alkane and naphthalene degrading *Burkholderia* cultures” *International Journal of Sustainable Innovation*, Vol. 3(1), Published in March 2014, pp. 9-16.

**Mohanty, S. Jasmine, J., Mukherji, S.**

“Practical Considerations and Challenges Involved in Surfactant Enhanced Bioremediation of Oil” *BioMed Research International*, Volume 2013, Article ID 328608, 2013, pp. 1-16.

**Panchratna, D., Sethi, V., Mukherji, S.**

“Sorption of Simulated Biomass Gasification Wastewater on Rice Husk Char and Activated Carbon” *International Journal on Environmental Engineering and Management*, Vol. 4(5), 2013, pp. 489-496.

**Patel, S. C., Khalkho, R., Patel, S. K., Sheikh, J. M., Behera, D., Chaudhari, S., Prabhakar, N.**  
“Fluoride contamination of groundwater in parts of eastern India and a preliminary experimental study of fluoride adsorption by natural haematite iron ore and synthetic magnetite,” *Environ. Earth Science*, Vol., March 2014, pp. -- --. DOI 10.1007/s12665-014-3112-1

**Yadav, A., Mukherji S., Garg, A.**  
“Removal of COD and Color from Simulated Textile Wastewater Using a Combination of Chemical/ Physico-chemical Processes” *Industrial & Engineering Chemistry Research*, Vol. 52 (30), 2013, pp. 10063–10071.

**Agnihotri, S., Mukherji, S., Mukherji, S.**  
“Immobilized Silver Nanoparticles Enhance Contact Killing and Show Highest Efficacy: Elucidation of the Mechanism of Bactericidal Action of Silver” *Nanoscale*, Vol. 5(16), 2013, pp. 7328–7340.

**Gupta, A., Garg, A.**  
“Removal of ciprofloxacin by sewage sludge based activated carbon”, *International Journal of Applied Engineering Research*, vol. 16, December 2013, pp. 1879-1884.

**Manu, M. K., Kumar, R., Garg, A.**  
“Physical and chemical characterization of yard waste”, *International Journal of Applied Engineering Research*, vol. 16, December 2013, pp. 1891-1896.

**Yadav, A., Mukherji, S., Garg, A.**  
“Removal of COD and color from simulated textile wastewater using a combination of chemical/ physicochemical processes”, *Industrial & Engineering Chemistry Research*, vol. 52, July 2013, pp. 10063-10071.

**Yadav, B. R., Garg, A.**  
“Ferulic acid degradation by wet oxidation process”, *International Journal of ChemTech Research*, vol. 5, April-June 2013, pp. 654-658.

**Adekola, O., Stamp, J. D., Majozi, T., Garg, A., Bandyopadhyay, S.**  
“Unified approach for the optimization of energy and water in multipurpose batch plants using a flexible scheduling framework”, *Industrial and Engineering Chemistry Research*, vol. 52, May 2013, pp. 8488-8506.

**Kalbar, P. P., Karmakar, S. and Asolekar, S.R.**  
“Life Cycle-based Environmental Assessment of Municipal WWTP in India.” *International Journal of Environment and Waste Management*, Pub. Inderscience, Vol. 14(1), 2014, pp. 84-98.

**Tejaswini, D. N. and Karmakar, S.**  
“Modeling Impreciseness of Trophic State Levels for Eutrophication Assessment.” *Journal of Clean Energy Technologies*, Pub. IACSIT Press, Vol. 2(2), 2014, pp. 140-144.

**Kalbar, P. P., Karmakar, S. and Asolekar, S.R.**  
“Comparative Assessment of Wastewater Treatment Technologies: Life Cycle Approach.” *Water and Environment Journal*, Pub. Wiley, Vol. 27, 2013, pp. 261-268.

**Alameddine, I., Karmakar, S. Qian, S.S. Paerl, H.W. and Reckhow, K.H.**  
“Optimizing an estuarine water quality monitoring program through an entropy-based hierarchical spatio-temporal Bayesian framework.” *Water Resources Research*, Pub. American Geophysical Union (AGU), Vol. 49 (10), pp. 6933-6945.

**Kalbar, P. P., Karmakar, S. and Asolekar, S.R.**

“The Influence of Expert Opinions on the Selection of Wastewater Treatment Alternatives: A Group Decision-making Approach.” *Journal of Environmental Management*, Pub. Elsevier, Vol. 128, 2013, pp. 844-851.

**Vittal, H., Karmakar, S. and Ghosh, S.**

“Diametric Changes in Trends and Patterns of Extreme Rainfall over India from Pre-1950 to Post-1950.” *Geophysical Research Letters*, Pub. American Geophysical Union (AGU), Vol. 40(12), pp. 3253-3258.

**Padhye, L. P., Yao, H., Kung'u, F. T., Huang, C.-H.**

“Year-Long Evaluation on the Occurrence and Fate of Pharmaceuticals, Personal Care Products, and Endocrine Disrupting Chemicals in an Urban Drinking Water Treatment Plant”, *Water Research*, Vol. 51, 2014, pp. 266-276.

**Padhye, L. P., Kim, J. H., Huang, C.-H.**

“Oxidation of Dithiocarbamates to Yield N-Nitrosamines by Water Disinfection Oxidants”, *Water Research*, Vol. 47 (2), 2013, pp. 725-736.

**Padhye, L. P.**

“Tezel U., Fate of Environmental Pollutants”, *Water Environment Research*, Vol. 85, (10), 2013, pp.1734-1785.

**Pellegrin, M., Aguinaldo, J., Arabi, S., Sadler, M., Min, K., Liu, M., Salamon, C., Greiner, A., Diamond, J., McCandless, R., Owerdieck, C., Wert, J., Padhye, L. P.**

“Membrane Processes”, *Water Environment Research*, Vol. 85, (10), 2013, pp. 1092-1175.

**Beelen R, Raaschou-Nielsen O, Stafoggia M, Andersen ZJ, Weinmayr G, Hoffmann B, Wolf K, Samoli E, Fischer P, Nieuwenhuijsen M, Vineis P, Xun WW, Katsouyanni K, Dimakopoulou K, Oudin A, Forsberg B, Modig L, Havulinna AS, Lanki T, Turunen A, Oftedal B, Nystad W, Nafstad P, De Faire U, Pedersen NL, Ostenson CG, Fratiglioni L, Penell J, Korek M, Pershagen G, Eriksen KT, Overvad K, Ellermann T, Eeftens M, Peeters PH, Meliefste K, Wang M, Bueno-de-Mesquita B, Sugiri D, Krämer U, Heinrich J, de Hoogh K, Key T, Peters A, Hampel R, Concin H, Nagel G, Ineichen A, Schaffner E, Probst-Hensch N, Künzli N, Schindler C, Schikowski T, Adam M, Phuleria HC, Vilier A, Clavel-Chapelon F, Declercq C, Gironi S, Krogh V, Tsai MY, Ricceri F, Sacerdote C, Galassi C, Migliore E, Ranzi A, Cesaroni G, Badaloni C, Forastiere F, Tamayo I, Amiano P, Dorronsoro M, Katsoulis M, Trichopoulou A, Brunekreef B, Hoek G.**

“Effects of long-term exposure to air pollution on natural-cause mortality: an analysis of 22 European cohorts within the multicentre ESCAPE project”. *Lancet*, 2013, doi: 10.1016/S0140-6736(13)62158-3

**Mehta AJ, Thun GA, Imboden M, Ferrarotti I, Keidel D, Künzli N, Kromhout H, Miedinger D, Phuleria HC, Rochat T, Russi EW, Schindler C, Schwartz J, Vermeulen R, Luisetti M, Probst-Hensch N; SAPALDIA team.**

“Interactions between SERPINA1 PiMZ genotype, occupational exposure and lung function decline”, *Occupational & Environmental Medicine*, 2013, doi: 10.1136/oemed-2013-101592

**Ragettli MS, Corradi E, Braun-Fahrlander C, Schindler C, de Nazelle A, Jerrett M, Ducret-Stich RE, Künzli N, Phuleria HC.**

“Commuter exposure to ultrafine particles in different urban locations, transportation modes and routes”, *Atmospheric Environment*, 77, 2013, 376-384.

**Ducret-Stich RE, Tsai MY, Thimmaiah D, Künzli N, Hopke PK, Phuleria HC.**

“PM10 source apportionment in a Swiss Alpine valley impacted by highway traffic”, *Environmental Science & Pollution Research*, 20(9), 2013, 6496-6508.

**Ducret-Stich RE, Tsai MY, Ragettli MS, Ineichen A, Künzli N, Phuleria HC.**

“Role of highway traffic on spatial and temporal distributions of air pollutants in a Swiss Alpine valley”, *Science of the Total Environment*, 456,2013, 50-60.

**Jürgens V, Ess S, Phuleria HC, Früh M, Schwenkglens M, Frick H, Cerny T, Vounatsou P.**

“Tobacco-related cancer mortality: projections for different geographical regions in Switzerland”, *Swiss Medical Weekly*, 2013, doi: 10.4414/smw.2013.13771.

**Jürgens V, Ess S, Phuleria HC, Früh M, Schwenkglens M, Frick H, Cerny T, Vounatsou P.**

“Bayesian spatio-temporal modelling of tobacco-related cancer mortality in Switzerland” *Geospatial Health*, 7(2), 2013, 219-236.

**Schikowski T, Schaffner E, Meier F, Phuleria HC, Vierkötter A, Schindler C, Kriemler S, Zemp E, Krämer U, Bridevaux PO, Rochat T, Schwartz J, Künzli N, Probst-Hensch NM.**

“Improved Air Quality and Attenuated Lung Function Decline: Modification by Obesity in the SAPALDIA Cohort”, *Environmental Health Perspectives*, 121(9), 2013, 1034-1039.

**de Hoogh K, Wang M, Adam M, Badaloni C, Beelen R, Birk M, Cesaroni G, Cirach M, Declercq C, Dédélé A, Dons E, de Nazelle A, Eeftens M, Eriksen K, Eriksson C, Fischer P, Gražulevičienė R, Gryparis A, Hoffmann B, Jerrett M, Katsouyanni K, Iakovides M, Lanki T, Lindley S, Madsen C, Mölter A, Mosler G, Nádor G, Nieuwenhuijsen M, Pershagen G, Peters A, Phuleria HC, Probst-Hensch NM, Raaschou-Nielsen O, Quass U, Ranzi A, Stephanou E, Sugiri D, Schwarze P, Tsai MY, Yli-Tuomi T, Varró MJ, Vienneau D, Weinmayr G, Brunekreef B, Hoek G.**

“Development of Land Use Regression Models for Particle Composition in Twenty Study Areas in Europe”, *Environmental Science & Technology*, 47(11), 2013, 5778-5786.

**Wang M, Beelen R, Basagana X, Becker T, Cesaroni G, de Hoogh K, Dedele A, Declercq C, Dimakopoulou K, Eeftens M, Forastiere F, Galassi C, Gražulevičienė R, Hoffmann B, Heinrich J, Iakovides M, Künzli N, Korek M, Lindley S, Mölter A, Mosler G, Madsen C, Nieuwenhuijsen M, Phuleria HC, Pedeli X, Raaschou-Nielsen O, Ranzi A, Stephanou E, Sugiri D, Stempfelet M, Tsai MY, Lanki T, Udvardy O, Varró MJ, Wolf K, Weinmayr G, Yli-Tuomi T, Hoek G, Brunekreef B.**

“Evaluation of Land Use Regression Models for NO<sub>2</sub> and particulate Matter in 20 European Study Areas: The ESCAPE Project”, *Environmental Science & Technology*, 47(9), 2013, 4357-4364.

**Patil, R.S., Kumar, R., Menon, R., Shah, M.K., Sethi, V.,**

“Development of particulate matter speciation profiles for major sources in six cities in India”, *Atmospheric Research Volumes 132–133*, 2013, Pages 1–11

## **Papers Published in Proceedings of Conferences/Symposia**

### **National**

**Deval, Animesh, Bhagwat, A.M., Dikshit, A.K.**

“Effect of Antifoam on the Efficiency and Sustainability of Microbial Fuel Cell Fed on Anaerobically Digested Distillery Wastewater”, *National Symposium on Multidisciplinary Research in Biomedical and Applied Sciences*, NMIMS University, Mumbai, November 11-12, 2013 (won first prize)

**Mandal, D., Dohare, V., Honkalaskar, V. H., Garg, A., Bhandarkar, U. V., Sethi, V.**

“Evaluation of Micro Gasifier Cookstove Performance with Handmade Biomass Pellets using Region-Specific Fuels and Assessment of Deployment Potential.” Proceedings of The National Conference on

*Recent Advances in Bio-Energy Research* at Sardar Swaran Singh National Institute of Renewable Energy, Kapurthala, Punjab, India during 22-24 November 2013.

## **International**

### **Deval, Animesh, Dikshit A.K.**

“Construction, Working and Standardization of Microbial Fuel Cell”, *4<sup>th</sup> International Conference on Environment and Sustainable Development (ICESD2013)*, Dubai, January 19-20, 2013.

### **Nagabhushan Biliangadi, Dikshit, A.K.**

“Treatment of Potable Wastewater”, *International Conference on Science and Technology (ICST2K14)* organized by S.B. Patil College of Engineering, Indapur, February 21-23, 2014.

### **Shabiimam, M.A., Dikshit, A.K.**

Issues in Sustainable Leachate Control and Management”, *International Conference on Science and Technology (ICST2K14)* organized by S.B. Patil College of Engineering, Indapur, February 21-23, 2014.

### **Deval, Animesh, Dikshit, A.K.**

“Harvesting Energy from Anaerobically Digested Distillery Wastewater through Microbial Fuel Cell”, *International Conference on Science and Technology (ICST2K14)* organized by S.B. Patil College of Engineering, Indapur, February 21-23, 2014.

### **Awakash Kumar, Patil, R.S, Dikshit, A.K.**

“Variation in Vehicular Pollution with Time Period”, *International Conference on Science and Technology (ICST2K14)* organized by S.B. Patil College of Engineering, Indapur, February 21-23, 2014.

### **Shinde, Amar, Dikshit, A.K.**

“Life Cycle Assessment and Air Quality Management”, *International Conference on Science and Technology (ICST2K14)* at S.B. Patil College of Engineering, Indapur, February 21-23, 2014.

### **Pandey, S.K., Hiremath, A.M., Salve, A.B., Asolekar, S.R.**

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