Bhola R. Gurjar, Ph.D.

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Statement of research and teaching motivation

I enjoy in exploring, constructing and disseminating scientific knowledge with a view of its real-world application for accomplishing sustainable solutions to pressing environmental problems. My interdisciplinary educational training and cross-disciplinary work experience give me a leading edge to contribute effectively in multidisciplinary teams working on the environment, emissions, air quality, health risk, urban transport, energy, economy, and climate change related problems.

Methodological approach: I uphold an interdisciplinary and hybrid research/teaching approach to analyze external physical phenomena observed in nature with an understanding that human concepts of the environmental engineering and management, natural resources and man-made infrastructure, energy sources and economic structures, etc., are socio-technologically constructed entities that vary in time and space. I prefer to use a mixture of quantitative and qualitative approaches in an integrated manner, and like to work with multi-disciplinary teams encompassing cross-functional areas of environmental engineering research along with their socioeconomic and geopolitical implications.

Current research interests: Air / water pollution; Emissions and air quality in megacities; Urban transport and the environment; GHG emissions and climate change; Health risk assessment; EIA and risk analysis; Waste management; Energy and environmental policy evaluation; and Integrated cross-disciplinary studies of the environment, economy, technology, and infrastructure developments – particularly with the global change, sustainable development and risk governance perspectives.

Education:

Postdoc (2002-2005):	**Study of megacity emissions and their local-to-regional-to-global impacts** Max Planck Institute for Chemistry, Mainz, **Germany**
Ph.D. (2000):	**Environmental Risk Analysis for Industrial Siting, Planning and Management** Indian Institute of Technology Delhi, India.
M.E. (1992): Honors (First Rank)	**Civil (Environmental) Engineering** Jai Narain Vyas University, Jodhpur, India.
B.E. (1987): First Div. (In top slab)	**Civil Engineering** Jai Narain Vyas University, Jodhpur, India.

Advanced Short-Term Training

1. GRIHA: Green Rating for Integrated Habitat Assessment training program (2-4 Sept. 2009). Organized by GRIHA Secretariat in Association with the Ministry of New and Renewable Energy (MNRE), Govt. of India, and The Energy & Resources Institute (TERI), New Delhi, **India**.
2. Administration / Management Training Program (25-29 May 2009): A Primer in Administration and Management for Scientists and Technologists. Conducted by Centre for Disaster Management, L.B.S. National Academy of Administration, Mussoorie, **India**.
3. Sida's International Training Course (2007): Advanced International Training Programme on Air Pollution Management (Sept. 3 - Oct. 5, 2007); sponsored by Sida and organized by Swedish Meteorological and Hydrological Institute (SMHI), Norrköping, **Sweden**.
4. USEPA Training Course (2007): Hands-on training on National Mobile Inventory Model (May 14, 2007). Organized by Emission Inventory and Analysis Group, United States Environmental Protection Agency (USEPA), Research Triangle Park, NC 27711, **USA**.

5. AsiaFlux Training Course (2006): AsiaFlux Training Course on Micrometeorology -Theory and Practice of CO_2 Flux Measurement (August 21-30, 2006). Organized by AsiaFlux Secretariat, Centre for Global Environmental Studies, Tsukuba, **Japan**.

Fellowships and Scholarships

1. **UKIERI Fellowship,** University of Surrey, Guildford, UK (2012)
2. **Advanced Postdoctoral Research Fellowship**, Max Planck Society, Germany (2002-05)
3. **Senior Research Fellowship**, Council of Sci. & Ind. Res. (CSIR), Govt. of India (1994-96)
4. **Junior Research Fellowship**, Council of Sci. & Ind. Res. (CSIR), Govt. of India (1992-94)
5. **National Merit Scholarship**, Government of India (1982-87)
6. **Village Talent Scholarship**, Government of Rajasthan, India (1979-82)

Work Experience

Approx. 24 years progressive professional experience in industry, teaching, training, research, and consultancy.

1. 04 Apr. 2014 – continue: i) **Professor**, **Environmental Engineering Group**, Department of Civil Engineering, Indian Institute of Technology Roorkee; ii) **Head, Centre for Excellence in Transportation Systems (CTRANS),** IIT Roorkee, India (2015-present), iii) **Adjunct Faculty, Centre for Transportation Systems**, IIT Roorkee (2006-present), and iv) **Adjunct Faculty, Centre of Excellence in Disaster Mitigation and Management**, IIT Roorkee (2008-present),. Teaching, researching and consulting in the interdisciplinary area of air / water pollution, risk assessment and urban climate change.
2. 07 Dec. 2009 – 03 Apr. 2014: i) **Associate Professor**, **Environmental Engineering Group**, Department of Civil Engineering, Indian Institute of Technology Roorkee. Taught UG/PG courses, conducted research on air pollution, health risk in megacities and urban heat island studies, consultancy on EIA and environmental management.
3. 21 Mar. 2005 – 06 Dec. 2009: **Assistant Professor**, **Environmental Engineering Group**, Department of Civil Engineering, Indian Institute of Technology Roorkee. Taught UG/PG courses, conducted research on air and water pollution, and provided consultancy related to environmental impact assessment.
4. 21 Jan. 2002 – 10 Mar. 2005: **Research Scientist**, Atmospheric Chemistry Division, Max Planck Institute for Chemistry, Mainz, **Germany**. Conducted research on megacity emissions and their local-to-regional-to-global impacts on air quality and climate.
5. 08 Apr. 1996 – 18 Jan. 2002: **Lecturer**, National Institute of Technical Teachers Training and Research, Chandigarh, India. Coordinated and conducted postgraduate level short-term courses for technical teachers and industry personnel. Taught postgraduate courses, conducted training and research, and provided consultancy services related to entrepreneurship development and environmental management.
6. 12 Feb. 1996 – 05 Apr. 1996: **Lecturer**, North Eastern Regional Institute of Science & Technology, Nirjuli, India. Taught undergraduate students of civil engineering department.
7. 01 Aug. 1992 – 09 Feb.1996: **Junior/Senior Research Fellow**, Indian Institute of Technology Delhi, India. Conducted research on environmental risk analysis for industrial siting, planning and management with an emphasis on dispersion of airborne accidentally released toxic chemicals from industrial facilities and health risk assessment.
8. 27 Jan. 1991 – 13 Apr. 1991: **Lecturer** (Contractual), Civil Engineering Dept., Jai Narain Vyas University (Formerly University of Jodhpur), Jodhpur, Rajasthan, India. Taught undergraduate students of civil engineering department.
9. 16 Mar. 1988 – 31 Aug.1990: **Site/Civil Engineer**, in Indian consultancy and construction companies. Supervised construction activities, provided consultation on estimation and costing and geo-environmental testing.

Academic / Research Visits to Foreign Countries

1. May 19 – June 30, 2014: Visiting Professor, The Federal University of Technology – Paraná, **Brazil**.
2. June 15 – July 07, 2013: Visiting Scientist, National Institute for Environmental Studies, Tsukuba, **Japan**.

3. Dec. 21, 2012 – Jan. 09, 2013, UKIERI Fellow, University of Surrey, Guildford, **UK**.
4. December 15-27, 2010: Visiting Scientist, National Institute for Environmental Studies, Tsukuba, **Japan**.
5. June 06 – July 05, 2010: Visiting Professor, The Cyprus Institute, Nicosia, **Cyprus**.
6. February 27 to March 07, 2010: Visiting Scientist, National Institute for Environmental Studies, Tsukuba, **Japan**.

International Collaborations

1. Max Planck Institute for Chemistry, Mainz, **Germany**
2. United Nations University, Institute of Advanced Studies, Yokohama, **Japan**
3. National Institute for Environmental Studies (NIES), Tsukuba, **Japan**
4. University of Surrey, Guildford, **UK**
5. MIT, Cambridge, and Molina Center for Energy and the Environment, California, **USA**
6. Karlsruhe Institute of Technology (KIT), Institute for Meteorology and Climate Research, Atmospheric Environmental Research Div. (IMK-IFU), Garmisch-Partenkirchen, **Germany**
7. Meisei University, Tokyo, **Japan**
8. The Federal University of Technology – Paraná, **Brazil**
9. Universidad Nacional Autonoma de Mexico, Mexico City, **Mexico**
10. Alexandru Ioan Cuza University, Iasi, **Romania**
11. ETH Zurich, **Switzerland**

Honors, Awards and Distinctions

1. **2014 ASCE State of the Art of Civil Engineering Award** for "Climate Change Modeling, Mitigation, and Adaptation," published by EWRI in 2013". Honors & Awards Program Office, American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, USA.
2. **UK-India Education and Research Initiative (UKIERI) Fellow grant award – 2012** from the British Council Division of British High Commission, New Delhi, to visit Univ. of Surrey, UK (Dec. 2012-Jan. 2013).
3. **National Design Award in Environmental Engineering – 2011**. National Design and Research Forum (NDRF), The Institution of Engineers (India).
4. **Highly Cited Author (2010-11)**; Elsevier's journal Atmos. Environment (Imp. Factor = 3.465).
5. **Highly Cited Author (2007-10)**; Elsevier's journal Atmos. Environment (Imp. Factor = 3.139).
6. **2004 START Young Scientist Award**, an International award from the Scientific Steering Committee of the global change SysTem for Analysis, Research and Training (START), Washington, D.C., U.S.A. <http://www.start.org/> in recognition of the outstanding contributions made to global change science.
7. **Advanced Research Support**, Max Planck Society, Germany (2002-05)
8. **Ford Foundation International Fellow-Elect** (2001-2002).
9. **The Nawab Zain Yar Jung Bahadur Memorial Medal** (1995-96). A National level award from The Institution of Engineers (India) for the best paper published in the Environmental Engineering Division.
10. **First Rank in J.N.V. University** Jodhpur, M.E. Civil (Environmental) 1992 (77.53 % Marks).
11. **Qualified** CSIR-UGC Test for JRF & Eligibility for Lectureship in Engineering Sciences; 30.06.1991.
12. **Two times represented** J.N.V. University in National level debate contests (1986-87).
13. **First Prize** in Inter-college poetry contests at National (1986) and State (1993) levels.
14. **Best Scholar**, Chopasni Higher Secondary School, Jodhpur (1981-82).
15. **First Rank** in School and 26th Rank in Rajasthan State (India), Higher Secondary Examination 1982 (84.3 % Marks) with distinctions in Physics (88%), Chemistry (95%), and Mathematics (95%).
16. **First Rank** in School and 22nd Rank in Rajasthan State (India), Secondary School Examination 1981 (86.4 % Marks) with distinctions in Physics (89%), Chemistry (88%), and Mathematics (98%).

17. **Outstanding Performance Medal**, awarded by the Board of Secondary Education, Rajasthan (India) for making extra ordinary performance in extra-curricular activities (poetry), 1980-81.
18. **First Rank** in District Sawai Madhopur, Rajasthan State (India), Village Talent Search Exam. 1979.

Major R & D Projects and Consulting Assignments

Major R & D Projects Undertaken (as Principal Investigator)

1. **Study of the urban transport system of megacity Delhi with co-benefits approach**. Sponsored by the United Nations University, Tokyo, Japan (2011-Continued). **(Rs. 1.86 Million)**.
2. **Implementation and Validation of Numerical Models for Heat Island Studies in Megacity Delhi.** Sponsored by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) (2008-2013). **(Rs. 1.6 Million)**.
3. **Megacities and global change**: An integrated study of South Asian megacity emissions and their local-to-regional-to-global impacts on air quality and climate. **Indo-German collaborative research project** sponsored by the Max Planck Society, Germany, as a Max Planck Partner Group of the Max Planck Institute for Chemistry, Mainz (Germany) at IIT Roorkee (2006-2011). **[Euro 100K (~ Rs. 6.0 Million)].**
4. **Study of Riverbank Filtration (RBF) performance under extreme environmental conditions.** Research project sponsored by IIT Roorkee under faculty initiation grant scheme (2006-2007). **(Rs. 0.1 Million)**.

Major R & D Projects Undertaken (as Co-Principal Investigator)

1. **Evaluation of Riverbank Filtration (RBF) performance under extreme environmental conditions.** An international collaborative research project co-sponsored by NWRI, USA, and IIT Roorkee, India (2006-2009). **(US$ 50,000/-, ~ Rs. 2.0 Million)**.

Major R & D Project Collaborations

1. **MEGAPOLI: Megacities: Emissions, urban, regional and Global Atmospheric POLlution and climate effects, and integrated tools for assessment and mitigation;** THEME FP7-ENV-2007.1.1.2.1: Megacities and regional hot-spots air quality and climate. Collaborative Project (medium-scale focused research project), Grant agreement no.: 212520 **(Total cost: Euro 5.1 Million, EU contribution: ~Euro 3.4 Million)**. [participated as MEGAPOLI (non-funded by EC) non-European international scientific Collaborator/Co-P.I.] URL: http://megapoli.dmi.dk/maininfo/colbrs.html
2. Multiscale Investigations of the Two-way Interactions between Climate and Aerosol with Radiative Feedbacks (MSITICA). Collaborative project of total budget Rs. 1037.10 lakhs; submitted to the Ministry of Earth Sciences (MoES), Govt. of India, New Delhi, by a consortium of eight institutes including IIT Kanpur, TERI, New Delhi, NEERI, Nagpur, IIT Roorkee, IIT Khargpur, IIT Guwahati, ARAI, Pune and CDAC Pune.

Consulting Assignments Undertaken (as Principal Investigator)

1. **Validation of design for Air & Water Pollution Control equipment** for 8 TPH Bio waste Boiler. M/s ITC Ltd., Sardar Patel Marg, Saharanpur, India (2014). **(Rs. 0.247 Million).**
2. **Vetting of feasibility report of air pollution control system**. M/s Gold Plus Glass Industry Ltd., Thithola, Landhora, Roorkee, India (2014). **(Rs. 0.196 Million).**
3. **Study of Environmental Issues** of Irrigation and Drainage network of a Dam Canal System in Bundelkhand region of Uttar Pradesh (UP), India. Tahal Consulting Engineers Ltd., New Delhi, India (2012). **(Rs. 0.154 Million)**.
4. **Environmental Impact Assessment** and Environmental Management Plan for a Common Solid Waste treatment, storage & disposal facility (CSWMF) in Sector-5, SIDCUL-Haridwar, Uttarakhand. Funded by Bharat Oil and Waste Management Limited (BOWML), New Delhi, India (2010-11). **(Rs. 0.491 Million)**.
5. **Environmental Impact Assessment** of a proposed Common Hazardous Waste Management Facility (CHWMF) at Mauza Mukimpur, Roorkee, Uttarakhand. Funded by

Bharat Oil and Waste Management Limited (BOWML), New Delhi, India (2007-08). **(Rs. 0.375 Million)**.

6. **Environmental Impact Assessment** of Doon Cyber Towers at IT Park in Dehradun. Funded by SIDCUL IDEB Project Co. Pvt. Ltd., Dehradun. (2007). **(Rs. 0.32 Million)**.
7. **Energy and Environmental Policy Analysis** (EEPA). Funded by the Liberty Institute, New Delhi (2005-2007). **(Rs. 60K)**.

Consulting Assignments Undertaken (as Co-Principal Investigator)

1. **Cumulative scientific study to assess the impact of existing and proposed HP stations on Saryu river basin** in the Distt. of Bageshwar. Funded by GM (Civil- UJVNL, Dehradun (2012-15) **(Rs. 4.85 Million).**
2. **Vetting of Design of 15 MLD and 20+7.5 MLD Water Treatment Plants (WTPs)**, **Dehradun**. Funded by O.P. Gupta and Contractors, Agra, (U.P.) (2014). **(Rs. 0.842 Million)**.
3. **Effect of Fine Bubble Aeration in Jamuna Jheel**: Water Quality Studies. Lucknow Development Authority, Lucknow (U.P.) (2011-12). (**Rs. 1.0 Million**).
4. **Upgradation of Existing UASB based Sewage Treatment Plants (STPs) in NOIDA.** Funded by Chief-Maintenance Engr. (Jal), NOIDA Development Authority, Noida (U.P.) (2010-11). (**Rs. 1.5 Million**).
5. **Scrutiny of PMGSY Road DPRs** for Phase VII of Uttar Pradesh. Funded by National Rural Road Development Agency, Govt. of India, New Delhi (2009-10). (**Rs. 0.71 Million**)
6. **Muck Disposal and Management Plan** for 330 MW Shrinagar Hydro Electric Power Project in Uttaranchal (India). Funded by Alaknanda Hydro-Power Co. Ltd., Shrinagar, Uttaranchal (2008). **(Rs. 0.5 Million)**.
7. **Environmental Impact Assessment** of Sara Industrial Estate Ltd. Dehradun. Funded by Sara Industrial Estate Ltd. Dehradun (Uttarakhand) (2007). **(Rs. 0.224 Million)**.
8. **Environmental Impact Assessment of** Dev Bhoomi Industrial Estate. Funded by the Datt Infrastructure & Services Ltd., Dehradun (2005-2006). **(Rs. 0.165 Million)**.
9. **Tracer Study** for polytechnic pass-outs (a part of the World Bank assisted project on Strengthening Technician Education in India), NITTTR Chandigarh (2000). **(Rs. 0.35 Million).**
10. **Energy Conservation through Energy Audit in Medium and Small Scale Industries** – a consultancy project sponsored by the Department of Science and Technology (DST), UT Administration, Chandigarh (1999-2000). **(Rs. 60K).**

Research Guidance

PhD Thesis

1. Walvekar, P. Stack Emission and Health Risk Integrated Modeling of a Coal Power Plant. Ph.D. thesis – Roorkee: Civil Engineering Department, I.I.T. Roorkee, India, 2014, p.169.
2. Sharma, R.K., Risk Assessment of a Petroleum Oil Storage Terminal: Ph.D. thesis – Roorkee: Centre of Excellence in Disaster Mitigation and Management, I.I.T. Roorkee, India, 2014, p. 179 (jointly with Dr. R. Agrawal, IIT Roorkee, and Dr. S.R. Wate, NEERI, India).
3. Gosu, Vijayalakshmi. Removal of Nitrogenous Heterocyclic Compounds by Nanoscale Zerovalent Iron. Ph.D. thesis – Roorkee: Civil Engineering Department, I.I.T. Roorkee, India, 2014, p.193.
4. Kumar, P. Structural Studies on 11S Globulin and 2S Albumin from Wrightia Tinctoria. Ph.D. thesis – Roorkee: Department of Biotechnology, I.I.T. Roorkee, India, 2014 (jointly with Dr. P. Kumar, IIT Roorkee, India).
5. Nagpure, Ajay S., Modeling of Urban Traffic Emissions: Ph.D. thesis – Roorkee: Department of Paper Technology, I.I.T. Roorkee, India, 2011, p. 375 (jointly with Dr. V. Kumar, IIT Roorkee, India).
6. Thakur, A.K. Study of Water Quality in River Bank Filtration: Ph.D. thesis – Roorkee: Civil Engineering Department, I.I.T. Roorkee, India, 2007, p. 227 (jointly with Prof. C.S.P. Ojha, IIT Roorkee, India, and Prof. Thomas Grishek, Univ. of Applied Sciences, Dresden, Germany).

7. Chandrrasekar. Air Pollution Modeling. Ph.D. thesis – Roorkee: Civil Engineering Department, I.I.T. Roorkee, India (in-progress, jointly with Prof. C.S.P. Ojha, IIT Roorkee, India).
8. Katiyar, Richa. Enhancing the Production of Biodiesel from Microalgae for Environment Friendly Transportation. Ph.D. thesis – Roorkee: Centre for Transportation Systems, I.I.T. Roorkee, India (in-progress, IIT Roorkee, India).
9. Mudhoo, A. Accounting of Greenhouse Gas Emissions for Different Treatments of Organic Wastes. Dept. of Chemical & Environmental Engineering, Faculty of Engineering, Univ. of Mauritius. (in-progress, jointly with Romeela Mohee, Univ. of Mauritius).
10. Jayaswal, K. UASB Post-Treatment by Downflow Hanging Sponge Process. Ph.D. thesis – Roorkee: Centre for Transportation Systems, I.I.T. Roorkee, India (in-progress, jointly with Prof. H. Harada, Tohoku Univ., Japan).

M.Tech. Dissertation

1. Jha, Shilpi. Low carbon mobility plan for Viajayawada. M.Tech. thesis: Centre for Transportation Systems, IIT Roorkee, India, 2014-15. (jointly with Prof. M. Parida)
2. Rathod Harshadkumar Karashanbhai. Isolation of algal species from water bodies using various stress conditions. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2014-15. (jointly with Dr Raja Choudhury)
3. Gupta, Mohit. Wastewater treatment using membrane bioreactor. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2014-15. (jointly with Dr Pramod Kumar)
4. Gunjuruli, Anvesh. Assessment of Greenhouse gas emissions from storage based hydropower scheme. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2014. (jointly with Dr M L Kansal)
5. Kumar, A. Mathematical Modeling of Composting Process. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2013. (jointly with Dr Pramod Kumar)
6. Varshney, R. Mathematical Modeling of Secondary Settling Tank (SST) for Activated Sludge Process (ASP). M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2013. (jointly with Dr Pramod Kumar)
7. Yadav, S.K. Greenhouse gas emissions from different waste management techniques. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2012. (jointly with Dr M.K. Chandel)
8. Prayakarrao, S. Effect of fine bubble aeration on water quality of Jamuna Jheel, Lucknow. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2012. (jointly with Dr A.A. Kazmi)
9. Patel, D. Post treatment of UASB effluent by extended aeration. Department of Civil Engineering, IIT Roorkee, India, 2012. (jointly with Dr AA Kazmi)
10. Bhargava, N. Assessment of GHG mitigation and CDM potential in urban transport sector of Chandigarh. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2011. (jointly with Dr Suman Mor)
11. Kumari, S. Study of tailpipe emissions of gasoline powered vehicles. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2010.
12. Kumar, R. Source apportionment of Urban PAHs using molecular cluster signature. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2010 (with Dr. R.J. Krupadam).
13. Ganga, S. System dynamics modeling of CO_2 emissions in megacities of India. M.Tech. thesis: Department of Civil Engineering, IIT Roorkee, India, 2009.
14. Desireddy, P. Development of a model for the determination of BOD kinetic parameters: M.Tech. thesis: Civil Engineering Department, I.I.T. Roorkee, India, 2008 (with Prof. U.B. Chitranshi).
15. Zanwar, S.G. Study of emissions and air quality in Delhi in context of various policy measures: M.Tech. thesis: Civil Engineering Department, I.I.T. Roorkee, India, 2008.
16. Singh, M. Physico-Chemical Characterization of PM10 in Ambient Air of Roorkee. M.Tech. thesis: Civil Engineering Department, I.I.T. Roorkee, India, 2007 (with Prof. A. Kumar, IIT Roorkee, India).

17. Sharma, K. Technology transfer and the clean development mechanism (CDM) – the case of Indian pulp and paper industry. M.Tech. thesis: Department of Paper Technology (IITR Saharanpur Campus), I.I.T. Roorkee, India, 2007 (with Dr. Vivek Kumar, IIT Roorkee, India, and Prof. Volker Hoffmann, ETH Zurich, Switzerland).
18. Singh, M. Public health risk due to urban air pollution: M.Tech. thesis: Civil Engineering Department, I.I.T. Roorkee, India, 2006 (with Dr. Pramod Kumar, IIT Roorkee and Dr. S.R. Wate, NEERI, Nagpur, India).
19. Mohan, K.Y. Air quality and health risk assessment of stack emissions from thermal power plant: M.Tech. thesis: Civil Engineering Department, I.I.T. Roorkee, India, 2006 (with Dr. Pramod Kumar, IIT Roorkee, India).
20. Rayudu, P.P. Seasonal variation in air quality with respect to Metals, SPM, SO_2, and NOx: M.Tech. thesis: Civil Engineering Department, I.I.T. Roorkee, India, 2006.
21. Anand, A. Environmental risk assessment of vehicular pollution in Chandigarh: M.E. thesis. – Chandigarh: Post Graduate Environmental Engineering Dept., Punjab Engineering College, Chandigarh, India, 2002 (with Er. S. Meena).

M.Tech. Seminar

1. Rathod Harshadkumar Karashanbhai. Algae based wastewater treatment. Department of Civil Engineering, IIT Roorkee, India, 2014. (jointly with Dr Raja Choudhury)
2. Gupta, Mohit. Modeling of enhanced biological phosphorous removal. Department of Civil Engineering, IIT Roorkee, India, 2014. (jointly with Dr Pramod Kumar)
3. Gunjuluri Anvesh. Calculation of Greenhouse Gas Emissions from Reservoir: Carbon Foot Print of a Reservoir. Department of Civil Engineering, IIT Roorkee, India, 2013. (jointly with M. L. Kansal)
4. Kumar, A. Review of Composting Process. Civil Engineering Department, I.I.T. Roorkee, India, 2012. (with Dr. Pramod Kumar)
5. Varshney, R. Growth of Flocs in Activated Sludge. Civil Engineering Department, I.I.T. Roorkee, India, 2012. (with Dr. Pramod Kumar)
6. Divyesh Patel (2011). Post Treatment of UASB Effluent by Activated Sludge Process. Civil Engineering Department, I.I.T. Roorkee, India, 2012. (with Dr. A.A. Kazmi)
7. Sandeep C. Environmental Risk Assessment: An Integrated Approach. Civil Engineering Department, I.I.T. Roorkee, India, 2010.
8. Bhargava, N. Co-Benefits of Air Quality Management and GHG Reductions in Megacities. Civil Engineering Department, I.I.T. Roorkee, India, 2010.
9. Kumar, R. Black Carbon: Source, Dispersion and Impact. Civil Engineering Department, I.I.T. Roorkee, India, 2009.
10. Mustafa, M. Carbon Capture and Sequestration. Civil Engineering Department, I.I.T. Roorkee, India, 2009.
11. Khan, A. Mercury in Air. Civil Engineering Department, I.I.T. Roorkee, India, 2009. (with Dr. Pramod Kumar).
12. Ganga, S. Carbon Footprints of Megacities in India. Civil Engineering Department, I.I.T. Roorkee, India, 2008.
13. Zanwar, S.G. Review of Phytoremediation Techniques and Benefits. Civil Engineering Department, I.I.T. Roorkee, India, 2007.
14. Singh, M. Air Pollution and Climate Change: A public health perspective. Civil Engineering Department, I.I.T. Roorkee, India, 2006. (with Prof. A. Kumar).
15. Rayudu, P.P. Trends in oil and gas consumption and atmospheric emissions. Department of Civil Engineering, IIT Roorkee, India, 2005.
16. Singh, M. Science, impacts and policy of global climate change. Department of Civil Engineering, IIT Roorkee, India, 2005.

M.Tech. Project

1. Kumar, A. Calculation of Composting Efficiency. Department of Civil Engineering, IIT Roorkee, India, 2012. (with Dr Pramod Kumar).
2. Varshney, R. Characterization of Flocs in Activated Sludge Process (ASP). Department of Civil Engineering, IIT Roorkee, India, 2012. (with Dr Pramod Kumar).

3. Yadav, S.K. Integrated waste management. Department of Civil Engineering, IIT Roorkee, India, 2011. (with Dr MK Chandel).
4. Patel, D. Scenario of Pollution Load in Himachal Pradesh State. Department of Civil Engineering, IIT Roorkee, India, 2011. (with Dr A.A. Kazmi).
5. Manjul, M. Emission inventory for industrial sector. Department of Civil Engineering, IIT Roorkee, India, 2010.
6. Bhargava, N. Study of start-up vehicular exhaust emissions using AVL Di Gas 444 Apparatus. Department of Civil Engineering, IIT Roorkee, India, 2010.
7. Khan, A. CDM application in bagasse cogeneration at sugar mills. Department of Civil Engineering, IIT Roorkee, India, 2009.
8. Kumar, R. Determination of molecular signature of urban PAHs. Department of Civil Engineering, IIT Roorkee, India, 2009.
9. Ganga, S. Study of emissions in KCP cement plant. Department of Civil Engineering, IIT Roorkee, India, 2008.
10. Singh, M. Measurement and analysis of RSPM in IIT Roorkee Campus. Department of Civil Engineering, IIT Roorkee, India, 2006. (with Prof. A. Kumar).
11. Rayudu, P.P. Diurnal variation in air quality with respect to SPM and NO_x. Department of Civil Engineering, IIT Roorkee, India, 2005.
12. Singh, M. Assessment of noise pollution exposure to the passengers on Delhi-Hardwar Highway (NH-58). Department of Civil Engineering, IIT Roorkee, India, 2005.

B.Tech. Project

1. Shashank V. Jain, Lakshay Choudhary, Hulsurkar Anirudha (2014). Challenges and Opportunities for Cleaning Ganga: Engineering Approach. Civil Engineering Department, I.I.T. Roorkee, India.
2. Ankit Jain, Rashesh Gupta, Sachin, Sahil Singhal, Shantanu Agarwal (2014). Trans-boundary Infrastructure Footprint (TBIF) based GHG Accounting for Indian Cities. Civil Engineering Department, I.I.T. Roorkee, India.
3. Neeraj Waiker, Vaibhav Jatav (2011). Study of hazardous waste management plant, Laksar. Civil Engineering Department, I.I.T. Roorkee, India.
4. Shashank Shekhar, Prashant & Shubham (2011). Study of Urban Transport Emission With Co-Benefit Approach in Delhi. Civil Engineering Department, I.I.T. Roorkee, India.
5. Singh, S. and Biswarup (2010). Rapid EIA of a Solid Waste Disposal Site at Haridwar. Civil Engineering Department, I.I.T. Roorkee, India.
6. Gupta, S. and Group (2009-10). EIA of Expressways. Civil Engineering Department, I.I.T. Roorkee, India. (with Dr. M. Parida).
7. Sharma, A. and group (2008-09). EIA of Public Transport System in Delhi. Civil Engineering Department, I.I.T. Roorkee, India. (with Dr. M. Parida).
8. Singh, H. and group (2008-09). GIS based Modeling to Estimate Urban Carbon Footprints in Delhi. Civil Engineering Department, I.I.T. Roorkee, India. (with Dr. R.D. Garg).
9. Purohit, A. and group (2007-08). Development of Emission Inventory for the City of Mumbai. Civil Engineering Department, I.I.T. Roorkee, India. (with Dr. M. Parida).
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6. Gurjar, B.R., M. Mohan, 2007. Industrial Risk Assessment Tools and Techniques: Development of Simple Approaches Appropriate to Developing Countries. Proceedings of Hazardous Chemicals Management Regional Training Workshop, December 10-14, 2007, Asian Institute of Technology, Bangkok, Thailand, pp.176-183.
7. Gurjar, B.R., A.S. Nagpure, 2007. Vehicular Particulate Emissions (2000-2005) in Indian Megacities. International Symposium on Aerosol-Chemistry-Climate Interactions, 20-22 November, 2007. Physical Research Laboratory, Ahmedabad (India), pp. 120-121.
8. Gurjar, B.R., M. Singh, T.P. Singh, 2007. Physico-Chemical Characterization of PM10 in Ambient Air of Roorkee (India). International Symposium on Aerosol-Chemistry-Climate Interactions, 20-22 November, 2007. Physical Research Laboratory, Ahmedabad (India), pp. 40-41.
9. Butler, T. M.; Lawrence, M. G.; Gurjar, B. R.; van Aardenne, J.; Schultz, M.; Lelieveld, J., 2007. Modelling the Effects of Megacities on Global Atmospheric Chemistry. Thursday, 19 April 2007. EGU General Assembly 2007. Geophysical Research Abstracts, Vol. 9, 07196, 2007. SRef-ID: 1607-7962/gra/EGU2007-A-07196.
10. Lawrence, M. G.; Butler, T. M.; Steinkamp, J.; Gurjar, B. R.; Lelieveld, J., 2007. Regional pollution potentials of megacities and other major population centers. Wednesday, 18 April 2007. EGU General Assembly 2007. Geophysical Research Abstracts, Vol. 9, 05051, 2007. SRef-ID: 1607-7962/gra/EGU2007-A-05051.
11. Gurjar, B.R., I.M. Ciumasu, N. Costica, A. Kumar, C.S.P. Ojha, 2006. Overexploitation of ecosystem resources vs. the costs of storms and flooding risk management. Proceedings of International workshop on Climate Change and Disaster Losses: Understanding and Attributing Trends and Projections, 25-26 May 2006 - Hohenkammer, Germany, pp. 91-107.
12. Gurjar, B.R., J. Lelieveld, J. van Aardenne, 2003. Air quality and emission trends in a megacity: the case of Delhi. In R.S. Sokhi and J. Brechler (Eds.), Proceedings of the 4th International Conference on Urban Air Quality: Measurement, Modelling and Management, 25-27 March 2003, Charles University, Prague (Czech Republic), pp. 187-190
13. Vijay, S., B.R. Gurjar, 1999. Nuclear Power and Risk Communication: An alternate model based on Indian value system. Proceedings of International Seminar on Nuclear

Power in 21st century: Challenges and Opportunities (sponsored by the Council of Power Utilities, and Central Board of Irrigation and Power, Govt. of India), 21-22 April 1999, Mumbai (India), pp. 146-151.

14. Gurjar, B.R., M. Mohan, T.S. Panwar, 1995. Evaluation of Chatwin-Sullivan model for concentration fluctuations using large-scale field trials. Pre-proceedings of Indo-US Workshop on Environmental Risk Analysis: Safety, Planning and Management, IIT Delhi, 2-6 January 1995, New Delhi (India).

National Conferences

1. Walvekar, P. P., Gurjar, B. R., 2012. Indian Coal Fired Power Plants: Sustainable Technologies. In: Role of Infrastructure for Sustainable Development, Proceedings of Twenty-Eighth National Convention of Civil Engineers, October 12-14, 2012, The Institution of Engineers (India) - Roorkee Local Center, Roorkee, India. pp. 785-789.
2. Chandrrasekar, Gurjar, B. R. and C.S.P. Ojha. (2012). Prediction of hourly surface ozone concentrations at major traffic intersection using artificial neural network approach. In: Role of Infrastructure for Sustainable Development, Proceedings of Twenty-Eighth National Convention of Civil Engineers, October 12-14, 2012, The Institution of Engineers (India) - Roorkee Local Center, Roorkee, India. pp. 767-771.
3. Gosu V., Gurjar BR. Advance treatment technologies for pharmaceutical effluents. Proceedings of Twenty-eighth National Convention of Civil Engineers, October 12-14, 2012. The Institution of Engineers (India), Roorkee Local Centre, IIT Roorkee, India. 778-784.
4. Sharma, R.K. and B. R. Gurjar, 2012. The Indian Oil Corporation Ltd (IOCL), Jaipur Explosion and Fire – Lessons Learned. In: Role of Infrastructure for Sustainable Development, Proceedings of Twenty-Eighth National Convention of Civil Engineers, October 12-14, 2012, The Institution of Engineers (India) - Roorkee Local Center, Roorkee, India. Pp. 393-400
5. Sharma, R., B.R. Gurjar, 2009. Chemical and Industrial Accident Hazards in India: An Evaluation of their Causes and Consequences and Mitigation Strategies. 2nd India Disaster Management Congress, 4-6 Nov.2009, Vigyan Bhavan, New Delhi, India, pp. 155-156.
6. Nagpure, A., B.R. Gurjar, 2008. Impact of Altitudes on Vehicular Emissions of Ozone Precursors. Proceedings of 3rd Uttarakhand State Science and Technology Congress – 2008, November 10-11, 2008, Indian Institute of Technology Roorkee, India, p. 193.
7. Gurjar, B.R., 2006. Particulate pollution and aerosol emissions in and around Roorkee: Past, present and future. Brain Storming Workshop on Aerosols and Its Impact on Climate with Special Reference to Indo-Gangetic Plains, November 10-11, 2006, IIT Kanpur, India, pp. 18-23.
8. Rayudu, P.P., B.R. Gurjar, 2006. Emissions and accumulation of metals in the atmosphere due to crackers and sparkles during Diwali festival. In B.R. Gurjar (Ed.), Proceedings of All India Seminar on Air Pollution and Health Impacts, 23-24 February 2006, IE(I) RLC, Roorkee, pp. 89-94.
9. Singh, M., B.R. Gurjar, A. Kumar, 2006. Assessment of noise pollution exposure to the passengers on Delhi-Hardwar Highway (NH-58). In B.R. Gurjar (Ed.), Proceedings of All India Seminar on Air Pollution and Health Impacts, 23-24 February 2006, IE(I) RLC, Roorkee, pp. 144-147.
10. Gurjar, B.R., M. Mohan, 1999. IIT-QRA Model: An indigenous IT-Tool for industrial siting and planning. Proceedings of 13th Indian Engineering Congress on Information Technology for Sustainable Competitiveness, the IE (India) State Centre, 25-26 April 1999, Chandigarh (India), pp. 13-20.

Conference/seminar/workshop proceedings edited

1. Gurjar, B.R. (ed.), 2011. Workshop on Air Pollution and Climate Change (30 April 2011). The Institution of Engineers (India) Roorkee Local Centre, IIT Roorkee Campus, Roorkee. 70 p.

2. Gurjar, B.R. (ed.), 2007. Brainstorming Workshop on Urban Air Pollution in India (25 Nov. 2007). The Institution of Engineers (India) Roorkee Local Centre, IIT Roorkee Campus, Roorkee. 41 p.
3. Gurjar, B.R. (ed.), 2006. Air Pollution and Health Impacts. Proceedings of the All India Seminar on Air Pollution and Health Impacts (23-24 Feb. 2006). The Institution of Engineers (India) Roorkee Local Centre, IIT Roorkee Campus, Roorkee. 234 p.

Book reviews

1. Gurjar, B.R., 1996. Green Production Systems. Cleaner Production in industry: integrating business goals and environment. Manufacturing Engineer 75 (2), 60. ISSN: 0956-9944
2. Gurjar, B.R., 1996. Product Development and the Environment. Engineering Management Journal 6 (5), 232. ISSN: 0960-7919
3. Gurjar, B.R., 1995. Compendium of Ergonomics. A guide to the ergonomics of manufacturing. Manufacturing Engineer 74 (5), 211. ISSN: 0956-9944

Thesis, dissertation, academic reports

1. Gurjar, B.R. Environmental risk analysis for industrial siting, planning and management: Ph.D. thesis. – New Delhi: Centre for Atmospheric Sciences, I.I.T. Delhi, India, 1999. 216 p.
2. Gurjar, B.R. Formulation and application of a simple numerical method to determine the first-stage BOD constants from a series of BOD Measurements: M.E. dissertation. – Jodhpur: Department of Civil Engineering, Faculty of Engineering, J.N.V. University, Jodhpur, Rajasthan, India, 1992.
3. Gurjar, B.R. Principles and methods of sewage sludge treatment: Seminar report. – Jodhpur: Department of Civil Engineering, Faculty of Engineering, J.N.V. University, Jodhpur, India, 1991.
4. Gurjar, B.R. Design of an earthen dam: Project report. – Jodhpur: Department of Civil Engineering, Faculty of Engineering, J.N.V. University, Jodhpur, Rajasthan, India, 1988.
5. Gurjar, B.R. Construction of bridge over river Chambal at Palighat, Sawai Madhopur: Training project report. – Jodhpur: Dept. of Civil Engineering, Faculty of Engineering, J.N.V. University, India, 1986.
6. Gurjar, B.R. Construction of forest hostel building: Training project report. – Jodhpur: Department of Civil Engineering, Faculty of Engineering, J.N.V. University, Jodhpur, Rajasthan, India, 1985.

Technical reports, monographs, manuals

1. Report on EIA/EMP study conducted for a Common Solid Waste treatment, storage & disposal facility (CSWMF) in Sector-5, SIDCUL-Haridwar, Uttarakhand. IIT Roorkee (2011), 141p.
2. Environmental Impact Assessment of a proposed Common Hazardous Waste Management Facility (CHWMF), Mauza Mukimpur, Roorkee. IIT Roorkee (2008), 113p.
3. Energy and Environmental Policy Analysis in Indian Context. IIT Roorkee (2007), 33p.
4. Temperature trends over India in the past century: An analysis in the regional & global climate change context. IIT Roorkee (2007), 46 p
5. Energy & carbon efficiency in India and some other countries. IIT Roorkee (2007), 37 p.
6. Impact of taxation and subsidies on prices and consumption of petroleum products in India and some other countries. IIT Roorkee (2007), 42 p.
7. Environmental Impact Assessment of Doon Cyber Towers at SIDCUL IT Park, Dehradun. IIT Roorkee (2007), 79 p.
8. Environmental Impact Assessment of SARA Industrial Estate in Dehradun. IIT Roorkee (2007), 69 p.
9. Environmental Impact Assessment of Dev Bhoomi Industrial Estate at Bandakheri, Roorkee. IIT Roorkee (2006), 66 p.
10. Energy Conservation through Energy Audit in Selected Medium and Small Scale Industries, NITTTR Chandigarh (1999), 90 p.

11. Environmental Impact Assessment (Air Quality) of proposed 500 MW Thermal Power Plant to be sited in Mangrol area of Chittorgarh, Rajasthan, IIT Delhi (1994), 90 p.
12. Tracer Study of Employment Status of Polytechnic Pass-Outs, NITTTR Chandigarh (1999), 127 p
13. Facilities and Incentives to Entrepreneurs, NITTTR Chandigarh (1998), 196 p

International conference posters, presentations

1. Gurjar, B.R., 2014. Modeling of Exhaust and Non-exhaust Emissions from Urban Road Transport Vehicles in India. International Workshop on Novel Combustion Concepts for Sustainable Energy Development, 2-4 January 2014, IIT Kanpur, India.
2. Gurjar, B.R., 2013. Urban Air Quality and Health Risk in the Developing World: Trends and Strategies. Keynote address during 4th Colombian Meeting and International Conference on Air Quality and Public Health (August 13-16, 2013), Bogota, Colombia.
3. Sharma, R.K., B.R. Gurjar, R. Agrawal, 2013. A violent, episodic vapour cloud explosion in fuel storage area. International conference on Challenges in Disaster Mitigation and Management Strategies at Centre for Excellence in Disaster mitigation & Management, IIT Rooorkee, (India),15-17 February 2013.
4. Gosu V., Gurjar BR. Removal of nitrogeneous heterocyclic compounds from pharmaceutical industries, International Conference on Advances in Chemical Engineering February 22-24, 2013, IIT Roorkee, India.
5. Gosu V., Gurjar BR. Synthesis and characterization of GAC supported nano zero valent iron for the removal of nitrogenerous heterocyclic compounds in pharmaceutical industries, 7th Uttarakhand State Science & Technology Congress, November 21-23, 2012, Dehradun, India.
6. Sharma, R.K., B.R. Gurjar, S.R. Wate, S.P. Ghuge, R. Agrawal, 2012. The Indian oil corporation Ltd. Jaipur explosion and fire incident: causes, consequences and lesson learned. RDEIA- IACM International Conference at National Environmental Engineering Research Institute (NEERI), Nagpur, (India), 29-31 March 2012.
7. Gurjar, B.R., V. Tyagi, 2009. GHG emissions from cooking fuels used in Indian megacities: Estimates and implications. GEIA- ACCENT Open Conference on Emissions of gases and aerosols: Progress – Modelling Needs – Emission Issues. October 26 -28, 2009. Oslo Innovation Center, University of Oslo, Oslo, Norway.
8. Gurjar, B.R., K. Sharma, M. Mohan, 2007. Estimation of traffic emissions for megacity Delhi. Paper poster presented during 16th Annual International Emissions Inventory Conference - "Emission Inventories: Integration, Analysis, and Communications", held at Raleigh, NC (USA) from 14-17 May, 2007. Sponsored by Emission Inventory and Analysis Group, United States Environmental Protection Agency (USEPA), Research Triangle Park, NC 27711, USA.
9. Gurjar, B.R., 2005. Megacities and sustainability. An air quality perspective. Delivered the invited expert lecture at International Seminar on Regional Issues and Priorities for Sustainable Development: An Asian Perspective, 10-16 April 2005, DIT, Dehradun (India).
10. Lawrence, M. G., T.M. Butler, B.R. Gurjar, J. Lelieveld, 2005. Near-future global atmospheric chemistry changes in light of the role of megacities. Presented at the Workshop on Global Air Pollution Trends Up To 2030, 27-28 Jan. 2005, Int. Inst. For Applied Systems Analysis (IIASA), Laxenburg (Austria).
11. Butler, T.M., J. van Aardenne, B.R. Gurjar, M.G. Lawrence, J. Lelieveld, 2004. The influence of mega-cities on reactive nitrogen deposition. Presented at the 8th International Global Atmospheric Chemistry (IGAC) Conference, 4-9 September 2004, Christchurch (New Zealand).
12. Gurjar, B.R., J. van Aardenne, T.M. Butler, M.G. Lawrence, J. Lelieveld, 2004. Air pollution emissions in megacities. Presented at the 8th IGAC Conf., 4-9 September 2004, Christchurch (New Zealand).

13. Lawrence, M. G., T.M. Butler, B.R. Gurjar, J. van Aardenne, J. Lelieveld, 2004. Megacity regional pollution potentials. Presented at the 8th IGAC Conf., 4-9 Sept. 2004, Christchurch (New Zealand).
14. Lelieveld, J., T.M. Butler, B.R. Gurjar, M.G. Lawrence, J. van Aardenne, 2004. Regional and global ozone from megacity pollution emissions. Presented at the 8th IGAC Conference, 4-9 September 2004, Christchurch (New Zealand)
15. Gurjar, B.R., J.A. van Aardenne, J. Lelieveld, M. Mohan, 2004. Megacity Delhi emission trends (1990-2000) and implications. Presented by Prof. Dr. Jos Lelieveld during Atmospheric Brown Cloud (ABC) Science Team meeting, 2-4 February 2004, New Delhi (India).
16. Gurjar, B.R., M. Mohan, 2003. Potential air quality and climatic impacts of the Thar Desert: A review analysis of regional aerosol chemistry and physics. Presented in the Desert Technology-7 International conference, 9-14 November 2003, Jodhpur (India).

Story Published on Research Findings and Publications

1. Story based on article "Kumar, P., Gurjar, B.R., Nagpure, A., Harrison, R.M., 2011. Preliminary estimates of particle number emissions from road vehicles in megacity Delhi and associated health impacts. Environmental Science and Technology.2011, 45, 5514–5521" published in **Nature India** with title **"**Deadly vehicular nanoparticles pollute cities" doi:10.1038/nindia.2011.125; Published online 29 August 2011.
2. Story based on article "Nagpure, A. S., Gurjar, B. R., Kumar, P., 2011. Impact of altitude on emission rates of ozone precursors from gasoline-driven light-duty commercial vehicles, Atmospheric Environment 45 , 1413-1417" published in Vertical News with title **"**Data on Ozone Discussed by Researchers at Indian Institute of Technology" http://www.verticalnews.com/premium_newsletters/Journal-of-India/2011-04-05/67690JI.html; Published online 5 April 2011.

Outreach & Knowledge Dissemination

1. **Breathless in the Megacity**. Special feature coverage on IITR's Max Planck Partner Group's research findings on megacities emissions and air quality in Max Planck Society's International Magazine. *Max-Planck-Gesellschaft* (*Max Planck Research)*; September 22, 2011. URL: http://www.mpg.de/4433733/India_Megacity

Conferences Organized, Production of Educational TV Programs, Short Term Courses Conducted, Courses Developed

Conferences/Workshops/Seminars Organized

1. **Convener,** Brainstorming workshop on Urban Air Pollution in India, 25 November, 2007. The Institution of Engineers (India) Roorkee Local Centre, IIT Roorkee Campus, Roorkee, India.
2. **Organizing Committee Member**, International workshop on Climate Change and Disaster Losses: Understanding and Attributing Trends and Projections, 25-26 May 2006 - Hohenkammer, Germany.
3. **Coordinator,** All India Seminar on Air Pollution & Health Impacts, February 23-24, 2006., The Institution of Engineers (India) Roorkee Local Centre, IIT Roorkee Campus, Roorkee, India.

Educational TV Programs

Significantly contributed in the development of educational TV programs related to following areas:

1. School level experiments in Physics Laboratory (Telecasted several times on Gyan Darshan Channel)
2. Entrepreneurial opportunities for Civil Engineers

3. Air Pollution and Health Impacts (assisted the EMMRC, IIT Roorkee, in making one ETV film and two e-contents).

Short-Term Courses (STCs)/Continuing Education Programs (CEPs)

1. **Coordinator,** Short-Term Course on Technical Paper Writing, 14-15 May 2010. The Institution of Engineers (India) Roorkee Local Centre, IIT Roorkee Campus, Roorkee, India.
2. **Training in Environmental Laboratory** – a consulting program sponsored by the MMM Engineering College, Gorakhpur (UP) (2005).
3. **Industry Institute Community Interaction** program in Jammu and Kashmir State of India, significantly contributed in development of project proposal for this program that was accepted for the grant of approximately Rs. 1 million under World Bank assisted project *Tech-Ed-III*, National Institute of Technical Teachers Training & Research (NITTTR), Chandigarh (2001).
4. **Coordinated** more than a dozen State and National level sponsored short-term training programs for technical teachers and industry personnel in the area of Industry-Institute Interaction, Environmental Management, and Entrepreneurship Development (1996 – 2001). Major themes of such programs were as listed below:
   i) Professional Development Program (PDP) for Industry-Institute-Interaction (III) Cell Officials and Training & Placement Officers (TPOs).
   ii) Quality System Standards : ISO 9000
   iii) Entrepreneurship Development Program (EDP) with Special Emphasis on Project Report Preparation.
   iv) EDP for Women (sponsored by Small Industries Development Bank of India).
   v) Industrial Reforms and Marketing with Special Emphasis on Export Promotion.
   vi) EDP for beneficiaries of Prime Minister's Rozgar Yojana.

Curriculum and Courses Development

1. Organized two-day workshop on 'Curriculum Development' (18-19 March'99), TTTI, Chandigarh.
2. Participated and contributed as an expert in the workshop on revision of curriculum for diploma program in 'Civil Engineering' of Uttaranchal polytechnics held from 9-10 March, 2006 at National Institute of Technical Teachers' Training and Research, Chandigarh.
3. Developed three UG courses; i) Environmental Studies, ii) Air and Water Pollution, and iii) Environmental Management and Sustainable Development, for IIT Roorkee B.Tech. (Civil) students.
4. Developed three PG courses; i) EIA of Transport Infrastructure System, ii) Air Pollution and Control, and iii) Environmental Economics and Legislation for IIT Roorkee M.Tech. (Civil) students.

<u>Invited Lectures, Talks, Presentations, Session Chairs, Panel Discussions</u>

1. Chief Guest, Valedictory Session, National Conference on Make In India: A Vision Strategy & Goal, 29th March 2015. S.D. College of Engineering & Technology and S.D. College of Management studies, Muzaffarnagar, U.P.
2. Environment Impacts of the transport sector and how to mitigate them. Invited Lecture delivered on 13th March, 2015 at CAG of India's International Center for Environment Audit and Sustainable Development, Jaipur.
3. Emissions from Megacities and their Health Impacts. Invited talk delivered during international scientific seminar on "Knowledge transfer on Indian mega-cities: developing effective environmental mitigation strategies" held from 18-20 February 2015 at the Edinburgh Centre for Carbon Innovation (ECCI), Edinburgh, U.K.
4. Fundamentals of water and wastewater treatment. Invited talk delivered at S.D. College of Engg. & Tech., Muzaffarnagar, U.P., India. 27 September 2014.
5. Assessment and control of urban air pollution in large cities of India. Keynote lecture during All India Seminar on "Methodologies for Air pollution control" (30-31 August 2013); MNIT, Jaipur.

6. Urban AIR Quality Conditions in Large cities of India. Talk delivered on 12 August 2013 at College of Engineering EAN University, Bogota, Colombia.
7. Urban pollutants and inventory in Asia/India. Talk delivered during International Workshop on Inventory, Modeling and Climate Impacts of Greenhouse Gas emissions (GHG's) and Aerosols in the Asian Region (June 26-28, 2013), Tsukuba, Japan.
8. Urban Transport Emissions Modeling. Talk delivered during Workshop on "Regional Atmospheric Chemistry: Emerging Trends" (6-7 May 2013), Physical Research Laboratory, Ahmedabad, India.
9. Urban Transport Emission Modeling. Distinguished Speaker during National Workshop on "Sustainable Transportation for Indian Cities (STIC 2013)" (22 March 2013), CSIR-CRRI, New Delhi, India.
10. Emission Inventories in India. Talk delivered during Workshop on 'Indo-US Project on Climate Change and Air Quality' 14-15th May 2012; TERI University Campus, Vasant Kunj, New Delhi. Organised by The Energy & Resources Institute and IIT-Kanpur (Partners NEERI, C-DAC, IITM, IIT-Roorkee, NCSU (US).
11. Air Pollution Emissions and Health Impacts in Megacity Delhi. Technical talk delivered during one day seminar on "Urban Challenges in the Context of Climate Change" held on 20th April 2012 at Civil Engg. Dept., IIT Delhi (in partnership with Liberty Institute, New Delhi, with the support of Friedrich Naumann Foundation for freedom Germany).
12. Emissions and air quality in South Asian Megacities. Presentation made during Workshop on "Atmospheric Chemistry in South Asia: Progress and Emerging Issues" (5-6 March 2012). Organized by IISER, Mohali, Punjab, India.
13. Environmental Issues of Transport Sector with a Special Emphasis on Vehicular Emissions and Ambient Air Quality. Technical talk delivered during National Workshop on "Transportation Challenges – 2022 and R & D Needs", 1-2 March 2012, CRRI, New Delhi.
14. Chaired the Thematic Session on "Urban Heat Island and Indoor Air Quality" during the Summit on Sustainable Habitat 2011 held on 9th December 2011 at New Delhi.
15. Chaired a session "Long-term variation and future projections in Asian emission" during Third International Workshop on Emission Inventory in Asia, February 24-25, 2012; Yokohama, Japan.
16. Emissions and Air Quality in South Asian Megacities. Presented during Third International Workshop on Emission Inventory in Asia, February 24-25, 2012; Yokohama, Japan.
17. Urban Heat Island and Indoor Air Quality: Their Role in Sustainable Urban Built Environment. Presented during the Summit on Sustainable Habitat 2011 held on 9th December 2011 at New Delhi.
18. Application of Sustainable Green Technologies, Green Buildings and Environmental Management. Presented during National Seminar on "Emerging Trends in Civil Engineering" from 16-17 November, 2011. NITTTR, Chandigarh.
19. Study of the urban transport system of megacity Delhi with co-benefits approach. Presented during Workshop on Urban Development with Co-benefits Approach" on 24-27 July 2011, United Nations University – Institute of Advanced Studies (UNU-IAS), Yokohama, Japan.
20. Gaseous and particulate emissions in Indian megacities. Lecture during Second International Workshop on Emission Inventory in Asia. Tsukuba International Conference Center (EPOCHAL Tsukuba), Tsukuba (Japand). March 11-12, 2011.
21. Environmental Pollution and its Impact on Health. Lecture during 4th National Conference Health Impacts of Polluted Environment: Assessment & Solutions. India International Centre Annexe, New Delhi. February 25-26, 2011.
22. Mortality and Mobidity due to Air Pollution in Megacities. Lecture at Regional Atmospheric Modeling Section, Asian Environmental Research Program, National Institute for Environmental Studies, Tsukuba, Japan. December 24, 2010.
23. NO_x and NO_y Emissions and Impacts. Presentation as a panelist (Panel-1 Human Health: Nitrate and Human Health; session conducted by Dr. S.K. Gupta) during 5th International Nitrogen Conference on "Reactive Nitrogen Management for Sustainable Development – Science, Technology and Policy", The Ashok, New Delhi. December 4, 2010.

24. Advances in Air Pollution Control. Lecture during a short term course titled 'Green technologies for energy security public health and clean environment'. The Institution of Engineers (India) Roorkee Local Chapter, Roorkee, India. August 27, 2010.
25. Mega-cities and global change. Talk delivered during German Indian Partnership for IT-Systems (GRIP-IT) Workshop, July 23, 2010, Bangalore. Organized by acatech – German Academy of Science and Engineering.
26. Human Health Risk in Megacities due to Air Pollution: A Comparative Study. Lecture at the United Nations University - Institute of Advanced Studies (UNU-IAS) Seminar Series, Yokohama, Japan. March 05, 2010.
27. Gaseous Emissions in Asia with special reference to megacities in China, India and Japan. Presentation in the First International Workshop on Emission Inventory in Asia at National Institute for Environmental Studies (NIES), Tsukuba, Japan. March 1, 2010.
28. Trace Gas Emissions in India/Asia with special reference to Megacities. Talk during 2nd Review Meeting of Atmospheric Trace gases – Chemistry, Transport and Modeling (AT-CTM), Project of ISRO-GBP. Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital, India. January 29, 2010.
29. Health Risks in Megacities Due To Ambient Air Pollution. Lecture during Environmental Health and Safety Management; a Short-Term Course sponsored by AICTE and organized by QIP Centre and Chemical Engineering Department, IIT Roorkee, India. January 25, 2010.
30. Carbon Capture and Sequestration. Keynote presentation during session on Role of Cleaner Production in Mitigation of Global Warming. National Seminar on Cleaner Production Technologies. National Institute of Technical Teachers' Training and Research, Chandigarh, India. November 17-18, 2009.
31. GHG emissions from cooking fuels used in Indian Megacities: Estimates and Implications. Presented during GEIA International Conference on Emissions of Gases and Aerosols> Progress and Modeling Needs, 26-28 October, 2009, University of Oslo, Oslo, Norway.
32. Chaired Session on Eco-Friendly Processes and Materials, Safe Drinking Water, 5th Annual Session of Students Chemical Engineering Congress. Department of Chemical Engineering, IIT Roorkee, India. September 20, 2009.
33. Megacities Emissions and Global Climate Change. Lecture during Indo-UK Workshop on Water Resources Management under Climate and Environment Change. Department of Civil Engineering, IIT Roorkee, India. September 12-13, 2009.
34. Urban Heat Island Potential in Megacities – with special reference to Delhi. Presentation during 4th Workshop on the Asian Urban Heat Island Issues. Meisei University, Tokyo, Japan. December 25, 2008.
35. Role of Megacities in Global Change. Public Lecture at UNAM (UNIVERSUM), Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, December 10, 2008.
36. Emission and Air Quality in South Asian Megacities. Seminar presentation at Centro de Ciencias de la Atmosfera, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, December 08, 2008.
37. Study of Technological & Policy Measures to Reduce Vehicular Emissions in Megacity Delhi. Presentation during Air Pollution Management Training Course – Regional Workshop; organized by Sida (Sweden) and Pollution Control Department (Thailand). Siam City Hotel, Bangkok, April 21-25, 2008.
38. National Implementation Plan on Stockholm Convention: Status in India. Presentation during Regional Workshop on "Hazardous Chemicals Management"; organized by the Foundation for Scientific and Industrial Research of Norway, AIT, and Pollution Control Department, Thailand. AIT, Bangkok, December 10-14, 2007.
39. Urban Environment Modeling. Presentation during QIP STP on Urban Transportation Planning; IIT Roorkee, India. June 27, 2007.
40. Megacities and Global Change. Lecture at the Group of Sustainability and Technology at the Department of Management, Technology, and Economics of ETH Zurich, Switzerland. May 22, 2006.
41. Emissions and air quality trends in Indian megacities. National Level Brainstorming Workshop: Indian Urban Air Quality 2005, Oct 24-25, 2005. NEERI, Nagpur (India).

Expert Workshop Participation

1. Networking Conference on “New Frontiers: Shifting Trends in the Global Research Landscape and their Impact on Researchers’ Career Patterns” and Workshop on “Alumniportal Deutschland” held on March 29-31, 2012 at Gurgaon, India. Organized by Alexander von Humboldt Foundation, Germany.
2. CSE-IIT Second National Research Conference on Climate Change. November 5-6, 2011 @ IIT Delhi. Organized by the Centre for Science and Environment (CSE), Indian Institute of Technology (IIT) Delhi and IIT Madras.
3. The World Bank Workshop on the Bank and Global Best Practices in Environmental Management and Role of Training & Knowledge Network. June 13-14, 2011, New Delhi.
4. Workshop on Cleaner liquid fuels and improved vehicular technologies, 31st May 2011, India Habitat Centre, New Delhi. Jointly organized by the International Council on Clean Transportation (ICCN), and TERI, New Delhi, India.
5. 3rd Bi-annual Meeting of Heads of Max Planck Partner Groups, 20-21 February 2011, Indian Institute of Technology Delhi.
6. One day International seminar on “Integrated Pollution Prevention and Control: Sharing experience with special focus on air pollution”. India Habitat Centre, New Delhi, India. Held by European Union and MoEF, Govt. of India. 17 February 2011.
7. Workshop on Comprehensive Environmental Pollution Index (CEPI) for Industrial Clusters. Organized by Central Pollution Control Board (CPCB) in collaboration with the Indian Institute of Technology Delhi. The Ashok, New Delhi, India. December 24, 2009.
8. Workshop on Development of Environmental Pollution Index (EPI) for Industrial Clusters/ Areas. Organized by Central Pollution Control Board (CPCB) in collaboration with the Indian Institute of Technology, Delhi, IIT Delhi, New Delhi, India. October 24, 2009.
9. Workshop on Web of Science – As a Research Tool. IIT Roorkee, India. October 6, 2009.
10. MPG-India Partner Group Head Meeting. S.N. Bose National Centre for Basic Sciences, Kolkata, India. February 25-27, 2009.
11. Workshop on Hazardous Air Pollutants: Monitoring & Control; organized by Indian Association for Air Pollution Control (Delhi Chapter) and Central Pollution Control Board, Delhi. WWF- INDIA, Lodi Estate, New Delhi, August 23, 2008.
12. Indo-Swedish Workshop on Sustainable Urban Development; organized by Centre for Indian Swedish Cooperation on Technical Research and Education (INSTEC). Casurina Hall, IHC Complex, Lodi Road, New Delhi, April 4, 2008.
13. International Conference on Energy Efficiency & Climate Change; jointly organized by IIT Delhi Alumni Association and IIT Delhi, New Delhi. April 4, 2008.
14. Stakeholder Workshop on “Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS-Asia)”; organized by TERI (India) and IIASA (Austria). Amaltas, IHC Complex, New Delhi. 25 October 2007.
15. Workshop on “Integrated Development of Public Transport System”; Jointly organized by Centre for Transport Systems (CTRANS), Indian Institute of Technology Roorkee, and Queensland University of Technology, Birsbane, Australia. IIT Roorkee, Oct. 13, 2006.
16. Experts' Workshop on "Climate Change Adaptation and Rural Livelihoods - Practical Approaches to Risk Management”; organized by German Technical Cooperation (GTZ), New Delhi. The Grand Hotel, Nelson Mandela Road, Vasant Kunj, New Delhi. September 12, 2006.

Administrative, Managerial and Leadership Roles

1. **Head**, Centre for Excellence in Transportation Systems (CTRANS), IIT Roorkee (2015-Continue)
2. **Chairman**, Centre’s Research Committee, CTRANS, IIT Roorkee (2014-2015)
3. **Convener**, Development, Planning and Overseas Issues Committee, Dept. of Civil Engg., IIT Roorkee (2014-2016).
4. **Member**, Institute Academic Research Committee (IARC), IIT Roorkee (2014-Continue)
5. **Member**, Institute Academic Program Committee (IAPC), IIT Roorkee (2013-Continue)

6. **Chairman**, The Institution of Engineers (India) Roorkee Local Centre, Roorkee (2012-2014)
7. **Coordinator**, Environmental Engineering Group, Department of Civil Engineering, IIT Roorkee (2012-2014)
8. **Chairman**, Grade Moderation Committee, CTRANS, IIT Roorkee (2013-Continue)
9. **Head**, Max Planck Partner Group of the MPI for Chemistry – Mainz (Germany) at IIT Roorkee (2006-2011)
10. **Honorary Secretary**, The Institution of Engineers (India) Roorkee Local Centre, Roorkee (2010-2012)
11. **Officer-In-Charge**, M.Tech. (Environmental) Programme, Civil Engineering Department, IIT Roorkee (2010-2012)
12. **Member**, Departmental Academic Committee (DAC), Civil Engineering Department, IIT Roorkee (2010-2012)
13. **Member**, Time Table Committee, Civil Engg. Dept., IIT Roorkee. (2010-2012)
14. **Faculty Advisor**, Literary Section (Magazines), Cultural Council, IIT Roorkee. (2009-2014)
15. **Member**, Cultural Council, IIT Roorkee. (2009-2014)
16. **Member**, CED Interaction Committee (IITR VISION 2030), IIT Roorkee (2009).
17. **Executive Committee Member**, The Institution of Engineers (India) Roorkee Local Centre, Roorkee (2008-10)
18. **Executive Committee Member**, The Institution of Engineers (India) Roorkee Local Centre, Roorkee (2006-08)
19. **Member**, Convocation Seating Arrangement Committee (2007-Continue)
20. **Member**, Departmental Research Committee (DRC), Civil Engg. Dept., IIT Roorkee. (2008-2010)
21. **Member**, Office, Establishment and Central Facilities Committee (OE&CFC), Civil Engg. Dept., IIT Roorkee. (2009-2010)
22. **Member**, Time Table Committee, Civil Engg. Dept., IIT Roorkee. (2008-10)
23. **Additional Officer-In-Charge**, Environmental Engineering Laboratory, Civil Engg. Dept., IIT Roorkee (2005-Continue)
24. **Member & Secretary**, Departmental Under Graduate Committee (DUGC), Civil Engineering Department, IIT Roorkee (2006-2008)
25. **Officer-In-Charge**, UG Practical Training, Civil Engg. Dept., IIT Roorkee (2006-2008)
26. **Member**, Website committee, Civil Engg. Dept., IIT Roorkee. (2007-2008)
27. **Member**, NITTTR Chandigarh Deptt. Screening Committee (group A, B, C & D employees) (2001)
28. **Member**, NITTTR Chandigarh Team for In-house Faculty Dev. & Cultural Programs (1997-99)
29. **House Secretary**, Vindhyachal House, Indian Institute of Technology Delhi, New Delhi (1995-96)
30. **Cultural Secretary**, Vindhyachal House, Indian Institute of Technology Delhi, New Delhi (1994-95)
31. **Editor**, Board for Student Publications, Indian Institute of Technology Delhi, New Delhi (1992-93)
32. **Cultural Secretary**, M.B.M. Engineering College, Jai Narain Vyas University, Jodhpur (1986-87)

Professional Services, Affiliations and Memberships

1. **Mentor**, Prakriti, Techfest-2014, IIT Bombay
2. **External examiner**, University of Pretoria, South Africa; Jawaharlal Nehru Technological University (JNTU), Hyderabad; TERI University, New Delhi; Thapar University, Patiala; MANIT, Bhopal; NIT, Patna.
3. **Expert Reviewer**, Climate Risk chapter of the International Panel on Climate Change in Cities' (IPC3's) First Assessment Report [A complementary activity to the Intergovernmental Panel on Climate Change (IPCC), the IPC3 is an initiative of the Urban Climate Change Research Network (UCCRN) and supported by the World Bank's Global Facility for Disaster

Reduction and Recovery (GFDRR), the U.S. Geological Survey (USGS), the City University of New York Institute for Sustainable Cities (CISC), Columbia University's Center for Energy, Marine Transportation and Public Policy (CEMTPP), the Columbia Center for Climate Systems Research (CCSR), and the NASA Goddard Institute for Space Studies].

4. **External reviewer**, The **A**sia-**P**acific **N**etwork for Global Change Research (APN).
5. **Peer-Reviewer**, Journal of Environment and Development, Atmospheric Environment, Environmental Science & Technology, Science of the Total Environment, Environmental Monitoring and Assessment, International Journal of Environment and Waste Management, Journal of The Institution of Engineers (India) Environmental Engg. Div.
6. **International Representative Committee Member**, International Association for Urban Climate (IAUC), Columbus, USA.
7. **Fellow / Member,** Population Environment Research Network (PERN), USA; Indo-German Forum on International Environmental Governance, Potsdam, Germany; Indian Association for Environmental Management, Nagpur, India; The Institution of Engineers (India), Kolkata, India; Institution of Water and Environment (India); International Association of Hydrological Sciences, Oxfordshire, UK; Indian Science Congress Association, Kolkata, India; Indian Society for Technical Education, New Delhi, India.

Editorial Positions

1. **Editorial Board Member**, International Scholarly Research Notices, Hindawi Publishing Corporation (2014-Continue).
2. **Associate Editor,** GSTF Journal of Engineering Technology (JET) (2014-Continue).
3. **Associate Editor,** Journal of Energy and Environmental Sustainability (JEES); an official publication of the International Society for Energy, Environment and Sustainability (ISEES), IIT Kanpur, India (2014-Continue).
4. **Editor,** Indian Journal of Air Pollution Control; An official journal of Indian Association for Air Pollution Control, New Delhi, India (2014-Continue).
5. **Editor,** American Journal of Environmental Protection (2012-Continue)
6. **Associate Editor,** American Society for Civil Engineers' Journal of Hazardous, Toxic and Radioactive Waste (ASCE-JHTRW), USA (2012-Continue).
7. **Editorial Board Member**, Journal of Earth, Ocean and Atmospheric Sciences, Columbia International Publishing, USA.
8. **Editorial Board Member**, International Journal of Wastewater Treatment and Green Chemistry (IJWTGC), Serials Publications, India.
9. **Editorial Board Member**, ISRN Atmospheric Sciences, Hindawi Publishing Corporation (http://www.hindawi.com/isrn/atmospheric.sciences/editors/) (2012-2014).

Extracurricular: Poetry, Music, Philosophy, and Literature.