December 2017

Statement of Qualifications

R. Gopichandran PhD Biosciences ; PhD Inter- disciplinary Biosciences ; LLB

Formerly Director, Vigyan Prasar (October 2012 to October 2017)
An Autonomous Organization under the Department of Science & Technology,
Government of India)

- Fellow of the
  - i. National Environmental Science Academy
  - ii. Indian Geophysical Union &
  - iii. Andhra Pradesh Akademi of Sciences
- Alumnus: International Visitors Leadership Programme (Year 2000), Department of State, United States of America.
- Date of birth: November 4, 1961.
r.gopichandran61@gmail.com +91 9650754567

Other former positions :

- Principal Research Scientist (Scientist SH): Environment & Climate Change Wing & Director In Charge - Gujarat Energy Research & Management Institute (GERMI) Research, Innovation & Incubation Centre (GRIIC), Gandhinagar. Gujarat, India. September 2009 – October 2012.
- Scientist G (Programme Director – Environment Management) Centre for Environment Education, (CEE: A Centre of Excellence of the Ministry of Environment, Forests & Climate Change, Govt of India) June 1993 – September 2009.
- Senior Research Associate, Entomology Research Institute, Loyola College, Chennai till June 1993.

Recent Affiliation

- Designated Member of Empowered Steering Committee as Expert on Environment, by the Ministry of Environment, Forests and Climate Change, Government of India 2017 – 2020 on India's Compliance with Montreal Protocol.
- Adjunct Professor, School of Natural Sciences & Engineering, National Institute of Advanced Studies, Indian Institute of Science Campus, Bangalore.

Content

1. **Expertise relevant for science and technology communication, advocacy** and related strategically important technical backstopping pertains to reality checks to substantiate evidence based policy & plan interventions for national, regional and global level environmental governance / commitments in particular.

2. **Two highlights of outputs / outcomes** of my work directly relevant for the stated areas

Thrust areas	Important outputs / outcomes at the local, regional and global levels.
22 / 28 years of professional experience were particularly about: 1) Technical assistance in close association with the i. Ozone Cell, Government of India & ii. Compliance Assistance Programme (CAP), OzonAction Programme, United Nations Environment Programme through its offices in Paris and Bangkok. These tasks were as part of work at the CEE, GERMI & Vigyan Prasar. • CEE secured the USEPA global stratospheric ozone award for 'exceptional contributions for global environmental protection' 2009. 2) Build capacities of SMEs in particular in several sectors across India to use tools / techniques for cleaner production, emission reduction and energy efficiency enhancement, environmental benchmarking, eco industrial development.	• Integrated globally significant and country – specific institutional and technology adaptation mechanisms to continually improve environmental performance / systems and governance • Benchmarked, trained / oriented technical staff to sustain technology leadership • Showcased leadership and network with relevant forums / institutions in India and other countries of operations & • Authored several need-based ○ Fact sheets ○ Technical reports ○ Tool kits & ○ Publications

3. Significant output / achievements

Global, regional / bilateral and national levels	
1.	Presented the framework for target specific communication strategies at the Regional Meeting of Ozone Officers, Agra, India 2017.
2.	Completed major multi – country assessments on potential for collection, treatment and disposal of ODS in RAC equipment in ships destined for scrapping, through carbon credits framework: 2009 – 2011
3.	Compiled and presented updates for data base on trade names and labels of containers as part of a management information system for trade related tracking and compliance at the global level: 2009 – 2011
4.	Created tool kits for the CAP on refrigerants and solvents in industry and defence forces; working as part of the CAP Office, UNEP, Bangkok, 2008 – 2009
5.	Assessed robustness of financial mechanisms of the GEF & the Montreal Protocol at the regional and global levels 2005 – 2006.
6.	Co – authored and assisted the development of training manuals for technicians in developing countries for efficient refrigerants management 2005 – 2006
7.	Organized South & South east Asia level news media workshops on dynamics of Montreal Protocol 2006
8.	Presented the technical assessments framework at the meetings of Ozone Officers, Paris & Phuket 2003
9.	Developed the framework for providing technical assistance for phase-out of OD solvents for the benefit of small and medium enterprises in particular, in conjunction with guiding principles of economically and environmentally sustainable transitions to use non-OD solvents 2003 – 2005.
10.	Developed the awareness component for RACSSS India 2002
11.	Presented India's communication strategy insights at the ODSONET South Asia meeting, Kathmandu, 1999
12.	Developed and disseminated India's Educators' kit on ozone layer protection 1995 – 1999.
13.	Co – evaluated UNESCO / UNEP communication packages

	Other climate / environmental / science & technology co – related output
14.	Developed strategies for science communication through India Canada / India UK and India Australia bilateral programmes of the Department of Science & Technology, Government of India 2012 onwards
15.	Contributed to the development of India's 12th 5 – year plan as a Member of the Working Group on Natural Resources Management. 2011 – 2012. (Co-opted into the Working Group for environmental planning and sustainable development of the 12th 5 – year Plan preparations 2011, Government of India).
16.	Guided research and compiled the section on Environmental Governance and awareness for India's II-National Communication to the UNFCCC: 2010 – 2011
17.	Developed a framework for reality checks on Climate change mitigation & adaptation efforts with the involvement of the South Asia Cooperation Environment Programme, Sri Lanka. 2007
18.	Built capacities of several small and medium scale chemical industries on preventive environmental management tools including cleaner production and waste minimization – working closely with SIDBI, NABARD & CAPART. 1993 – 2006
19.	Demonstrated feasibility of applying principles of cleaner production, energy efficiency enhancement, emission reduction, chemical substitution and eco industrial development in industrial clusters across India working closely with the Govt of Gujarat, UNDP SGP, GTZ and the USAEP. 1999 onwards
20.	Led the team that developed the framework for the JSW Times of India Award for Excellence in Climate Change Mitigation & Adaptation: 2007 onwards.
21.	Represented in Committees set up by the Gujarat Pollution Control Board under the directions of the Honourable High Court of Gujarat (across several years since 1995) and on its own initiative & of civil society representatives in Kerala on their pollution reduction programmes (2004)

4. Academic record

i. Graduate degree in Law (LLB) of the Gujarat University, 2008.
ii. PhD in Bio-sciences (interdisciplinary) specialized in Chemical Ecology; 1996 - University of Madras
iii. PhD in Bio-sciences specialized in Microbial Ecology; 1988 - Sri Sathya Sai Institute of Higher Learning, Andhra Pradesh.
iv. MSc Bio-sciences specialized in Environmental Sciences; 1984.
v. BSc 1982, Sri Satya Sai College of Arts Science and Commerce, Whitefield, Bangalore University.

5. Publications and other writing

I. Papers in Journals
II. Coauthored Books
III. Coauthored Technical Manuals / Kits / Published Technical report / State of art reviews
IV. Articles / Chapters / Technical contribution published in Books
V. Papers in Conference proceedings
VI. Presentations in Conferences
VII. Articles in Newsletter / Newspapers / Other technical reports
VIII. Contributions to technical reports / tool kits
IX. Working papers
X. Guided development of reports
XI. Technical reports on completing projects (along with several others in the team
XII. Papers / chapters reviewed for international publication
XIII. Completed projects as Principal Investigator / Programme Director
XIV. Training Courses
XV. Invited lectures
XVI. Leadership roles in Conferences / Workshops
XVII. Publications in progress &
XVIII. Other affiliations.

I. Papers in Journals

1. Gopichandran R 2016 Emerging Considerations about the Sustainability of CCS for EOR and other Downstream Applications: A Policy Perspective. J. Ind. Geophys. Union (January 2016) JIGU Special Volume-1/ 2016 pp: 64-66.
2. Gopichandran R 2015 Book review: Science Culture: where Canada Stands. Journal of Scientific Temper. 3 (1 & 2): 79 – 82.
3. Gopichandran R 2013 Opinion: Enable and Manifest Scientific Temper in Tangible Development Oriented Outcomes: Go Beyond Rhetoric. Journal of Scientific Temper 1: (3 & 4) 198 – 207.
4. Gopichandran R, Vipul N Shah, Niral J Patel & Harinarayana T 2012, SMEs can overcome challenges and improve sustainability through preventive management strategies: some empirical evidences from a cluster of chemical industries in Western India International Journal of Globalisation and Small Business, Inderscience. 5 (3) 209 – 223.
5. Gopichandran R, Kirit N Shelat & Shalin Shah 2010 Integrated biodiversity conservation to mainstream agriculture based mitigation and adaptation. Journal of Environmental Consumerism. 6 (11 – 12): 36 – 40.
6. Gopichandran R. & Kujur J 1998 Towards facilitating induction of cleaner production options – an environmental educational approach. Journal of Environmental Studies and Policy. 1(2).
7. Gurusubramanian G, Gopichandran R & Ananthakrishnan T N. 1993. Biochemical correlates to host specificity of Caliothrips indicus (Bagnall) relating to colonization patterns in a crop-weed ecosystem. Proc. Indian National Science Academy B 59 (5): 471-476.

8. Ananthakrishnan T N, Gopichandran R & Gurusubramaniam V R 1993. Dynamics of micro arthropod communities in relation to the chemical environment of decomposing Eucalyptus globulus litter. International Journal of Ecology and Environmental Sciences. 19:83-92.
9. Ananthakrishnan T N, Gopichandran R & Gurusubramaniam V R 1992. Chemical ecology of litter breakdown in Tectona grandis and its impact on the dynamics of natural insect communities at varying altitudes. International Journal of Ecology and Environmental Sciences. 18:73-84
10. Ananthakrishnan T N, Gopichandran R & Gurusubramaniam G. 1992 Influence of chemical profiles of host plants of the infestation diversity of Retithrips syriacus (Mayet). J Biosci 17 (4): 483-489.
11. Gopichandran R, John Peter A & Subramaniam V R. 1992. Age correlated biochemical profiles of thrips galls in relation to population density of thrips. Journal of Natural History. 26 : 609 – 619.
12. Gopichandran R, Gurusubramaniam G & Ananthakrishnan T N. 1992. Influence of chemical and physical factors on the varietal preference of Retithrups syriacus (Mayet) on different cultivars of cotton. Phytophaga. 4(1): 1-9.
13. Subramaniam VR, Gopichandran R & John Peter A. 1991. Life-table studies of some gall thrips in relation to gall development. Hexapoda. 3(1&2): 48-52.

II. Coauthored / co - Edited Books

14. 2016 Gauhar Raza, R.Gopichandran, Gurdeep S Sappal & TV Venakteswaran (Eds). Moments of Eureka. Life and work of selected Indian Scientists. 523 p. CSIR NISCAIR, Rajya Sabha TV & Vigyan Prasar DST. ISBN 978-81-7480-283-5
15. 2016 Gauhar Raza R.Gopichandran, TV Venkateswaran & Kinkini Dasgupta Mishra (Eds). Scientifically Yours. Selected Indian Women Scientists. 135p. CSIR NISCAIR, Rajya Sabha TV & Vigyan Prasar DST. ISBN 978-81-7480-284-2.
16. 2015 AK Singh, Dagar JC, Arunachalam A, Gopichandran R & Shelat KN (Eds) Climate Change Modelling, Planning & Policy for Agriculture. 243p. Springer New Delhi, Heidelberg, New York, Dordrecht, London. ISBN 978-81-322-2156-2.
17. 2014 Behnassi M, Syomiti MM, Gopichandran R & Shelat KN (Eds) Vulnerability of agriculture, water and fisheries to climate change: Towards sustainable adaptation strategies. Springer Dordrecht Heidelberg, New York, London. ISBN 978-94-017-8961-5.
18. 2011 Dipayan Dey & Gopichandran R (Eds) Bio rights. South Asian Forum for Environment, Kolkata. (Released at the 1st meeting of the Sub Group on Natural Resources Management towards the 12th 5 Year Plan) ISBN 978-81-908391-0-5
19. Shyam R Asolekar & R. Gopichandran 2005 Preventive Environmental Management – An Indian Perspective. 650p. CEE & Foundation Books*, New Delhi (*Indian Subsidiary of the Cambridge University Press) ISBN 81 – 7596-313-1.
20. Ananthakrishnan T N & Gopichandran R. 1993 Chemical Ecology in Thrips – host plant interactions. 125 p. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi. ISBN 81-204-0792-X.

III. Coauthored Technical Manuals / Kits / Published Technical report / State of art reviews

21. UNEP DTIE 2005 Training Resource Kit: Preparing Small Businesses For The transition Away From CFCs In Refrigeration And Air Conditioning : A Support Guide For National Ozone Units (NOUs) and Their Local Partners In Developing Countries. 105 p. The document was researched and written by: Elizabeth Martin Perera, ICF Consulting, USA, David Hathaway, ICF Consulting, USA, R. Gopichandran, CEE India & Mark Wagner, ICF Consulting, USA. ISBN 92-807-2602-1.
22. UNEP DTIE 2005 Implementing the Montreal Protocol in Small Businesses: Chemical Management under a Multilateral Environmental Agreement. 84pgs. The document was researched and written by: Elizabeth Martin Perera, ICF Consulting, USA David Hathaway, ICF Consulting, USA Mark Wagner, ICF Consulting, USA. Contributions were also made by: R. Gopichandran, Centre for Environment Education, India. ISBN 92-807-2572-6.
23. Office of Monitoring and Evaluation of the Global Environment Facility 2005 Third Overall Performance Study (OPS3) – Progressing toward environmental results (with R.Gopichandran from CEE, India as part of ICF- OPS3 Team's Regional Team) ISBN 1-8841-2248-5.
24. UNEP DTIE OzonAction Programme 2004 Global Communication Strategy For Compliance With The Montreal Protocol - Guidance For National Ozone Units. 43pgs. This document was produced by James S. Curlin, Information Manager, UNEP DTIE OzonAction Programme (Paris, France) in co-operation with R. Gopichandran, Programme Coordinator, Centre for Environment Education (Ahmedabad, India).
25. Ozone Cell, MoEF, Govt. of India. 2004 The State of Art Report: Implementation of Montreal Protocol in India – Perspectives, Results and proactive measures.
26. CEE 1999 (For Ozone Cell, MoEF, Govt. of India: Educator's Kit on Ozone Layer Protection.

IV. Articles / Chapters / Technical contribution published in books

27. 2016 Shyam R. Asolekar, R. Gopichandran, Anand M. Hiremath and Dinesh Kumar Green Chemistry and Ecological Engineering as A Framework for Sustainable Development. pp 97-126. In An Integrated Approach to Environmental Management. Edited by D. Sarkar, R. Datta, A. Mukherjee & R. Hannigan. 601 p, John Wiley and Sons, Inc., Hoboken, New Jersey. ISBN 978-1-118-74435-2
28. 2016 R. Gopichandran, Shyam R. Asolekar, Omkar Jani, Dinesh Kumar and Anand M. Hiremath Green Energy and Climate Change. pp 127-150. In An Integrated Approach to Environmental Management. Edited by D. Sarkar, R. Datta, A. Mukherjee & R. Hannigan. 601 p, John Wiley and Sons, Inc., Hoboken, New Jersey. ISBN 978-1-118-74435-2.
29. 2014 Mohamed Behnassi; Mohamed Boussaid & R. Gopichandran Achieving Food Security in a Changing Climate: The Potential of Climate-Smart Agriculture. Chapter 2 14p In Environmental cost and changing face of agriculture in Gulf States. Gulf Research Centre. Eds Shabbir A Shahid & Mushtaque Ahmed. DOI 10.1007/978-3-319-05768-2_2, © Gulf Research Centre Cambridge. ISBN 978-3-319-05767-5 Springer Cham Heidelberg New York Dordrecht London.

30. Mohammed Behnassi, Shabbir A Shahid & R Gopichandran 2014 Agriculture and food system-Global Change Nexus: Dynamics & Policy Implications. Pp 3 – 15 In Science, Policy & Politics of Modern Agricultural System: Global context to local dynamics of sustainable agriculture. Eds Mohammed Behnassi, Shabbir A Shahid & Nazia Mintz –Habib. ISBN 978-94-007-7956-3 ISBN 978-94-007-7957-0 (eBook) DOI 10.1007/978-94-007-7957-0 Springer Dordrecht Heidelberg New York London

31. 2012 R Gopichandran & Dilip Surkar Awareness to well-informed action through strategically adapted science communication: A development perspective to tackle some predominant challenges in environmental management. pp 23-33. In Communication Express. An Anthology of Collected Essays on Communication. Suparna Dutta, 159 p, Macmillan Publishers India Ltd. ISBN 978-9350-59311-0.

32. 2010 R.Gopichandran et al Can small and medium enterprises rise up to the challenges of mitigation?: An Indian perspective. Pp 160 – 175. In Climate Change, Society & Sustainable Development. Agenda for Action. 317p. Times Knowledge Series. Times Group Books. A division of Bennett, Coleman & Co Ltd. New Delhi. ISBN 978-81-89906-36-8.

33. 2007 Bagai, A; Balaji, N & R.Gopichandran, Partnership changing the world through well – defined technology transfer mechanisms: The Asia – Pacific Experience. In – Technology Transfer for the Ozone Layer – Lessons for Climate Change. Eds Stephen O. Andersen, Madhava Sarma & Taddonio, KN. GEF & Earthscan, London. ISBN 978-1-84407-473-0.

34. 1993 Gopichandran R & Ananthakrishnan T N. Chemical ecology in relation to forest litter dynamics. Pp. 261-274 In : Chemical ecology of phytophagous insects.332 p. (Eds) T N Ananthakrishnan & A Raman. Oxford & IBH Publishing Co. Pvt. Ltd. N. Delhi. ISBN 81-204-0835-7.

V. Papers in Conference proceedings

35. Gopichandran R 2012 Less understood role of free living Protozoa in biological waste treatment plant. Pp 19 – 25. In Proceedings of the Gujarat Technological University Organized National Conference on “Environmental Technologies: Today & Tomorrow”. 18 & 19 May 2012. ISBN 978 – 93 – 80867 – 31 – 1. Books India Publications, Ahmedabad. India.
36. Gopichandran R., Praveen Prakash, Jigar Deliwala, Shalin Shah. Enabling Cleaner Solutions: An integrated policy framework for minimizing industrial wastes at source. Paper presented at the International conference on ‘Strategies for Waste Minimisation’ organized by United States Educational Foundation in India, Fulbright Indo American Environment Leadership Programmes, 2004.
37. Gopichandran R.2002 Mechanisms of Capacity Building in the RAC Service Sector in India – The Need and Approaches 9p. Paper presented at the Conference on Meeting Challenges in Change over to Ecological Refrigeration March 2002: Conference organized by the Ministry of Environment and Forests (Ozone Cell) Govt. of India, Swiss Agency for Development and Cooperation, Govt. of Switzerland and German Technical Cooperation (GTZ), Govt. of Germany in association with Indian Institute of Technology, New Delhi.

38. Shailesh Patwari, Shalin Shah & Gopichandran R 2001. Hazardous Waste Disposal Facility – the Odhav site at Ahmedabad – paper submitted at the National seminar on Hazardous Waste Management organized by the Indian Environmental Association- Mumbai, May 2001.
39. Gopichandran R. and Ananthakrishnan T N 1996. Biochemical correlates in varietalresistance of Capcisum annuum to infestation by Scirtothrips dorsalis Hood. Pp 65-88 in Proceedings: National Symposium on Biochemical bases of host plant resistance to insects. Ed T. N. Ananthakrishnan. National Academy Agricultural Sciences, Indian Agriculture Research Institute, New Delhi.

VI. Presentations in Conferences / Roundtables / National / International Workshops

40. 2017 Initiatives by Vigyan Prasar: The way ahead through a science of science communication perspective. ISC 2017 Tirupati. Science Communicators Meet.
41. 2016 Are we over simplifying science communication in India, Indian Science Congress Mysuru on Science Communication.
42. 2014 PCST Brazil
43. 2013 & 2012 Presentations at side events at the UNFCCC CoP at Doha & Poland
44. 2013 Science, Technology & Society Interface Panel Discussion, Organized by the Forum of Scientists, Engineers & Technologists, Kolkata July 2013.
45. 2013 Chemical ecological aspects of interactions of bio systems in oceans. National Roundtable organized by Lights Foundation, Supported by the Ministry of Earth Sceinces, Government of India.
46. 2012 Gopichandran R & Venkateswaran TV Ozone layer protection & soil, water and bio dynamics; A need based Science & Technology Communication perspective: An integrated earth sciences framework to complement India's missions on climate change mitigation and adaptation; 30 October 2012, IGU Convention, GERMI.
47. 2012 Integrated support for extension mechanisms: Deliver appropriate information in a timely manner (R Gopichandran, Subodh Mahanti, TV Venkateswaran, Bharat Bhushan, Kinkini Das Gupta Mishra & K Upadhyay) Vigyan Prasar, DST at the National Level Workshop on Micro level action Plan For Climate Resilient & Sustainable Agriculture, Planning Commission & the NCCSD. NASC 2 11 2012.
48. 2013 Community action for climate resilient agriculture. Godhra. NCCSD.
49. 2012 Kirit N Shelat & R Gopichandran "Achieve and sustain climate resilient agriculture through focused involvement of the farming community: A bottom – up public leadership perspective in support of the missions of the Government of India - At the international conference by the ICAR & the NCCSD, New Delhi, February 2012.
50. 2012 R Gopichandran & Kirit N Shelat Mainstreaming Agriculture for Climate Change Mitigation: A Public Administration Perspective. Plenary II Climate Change & Agriculture GECS, Morocco. Global Environmental Change & Human Security (GECS2012) The Need for a New Vsion for Science, Policy and Leadership 22-24 November 2012 Marrakech (Morocco) North-South Center for Social Sciences (NRCS).
51. 2011 Gopichandran R, Jani O, Hasan S Z, Ramachandran K & Agravat S. GERMI Important parameters in determining carbon credits in the case of some unconventional fossil fuels: emerging trends. International Conference on Unconventional Sources of Fossil Fuels and Carbon

Management, GERMI in association with Colorado School of Mines, Golden Colorado, USA. February 2011.

52. 2006 Gopichandran.R., Praveen Prakash and Khan A.A., Resolving conflicts and facilitating cooperation in preventive management of large scale mobile common resource: Lessons from Montreal Protocol. Paper for the Regional Conference on Management of Common Property Resources, May 2006 organized by Centre for Ecological Economics and Natural Resources, Institute for Social and Economic Change Bangalore.

VII. Articles in Newsletter / Magazines / Newspaper:

a. Gopichandran R 2007 Sustainable environmental protection. The imperatives of stakeholder empowerment in sustainable environmental protection. American Center Bulletin. September 1&2.
b. Gopichandran R & Praveen Prakash 2003. Responsible entrepreneurship through cleaner production. GPCB Bulletin 1 (1): 2 – 3.
c. Gopichandran R & Praveen Prakash 2003 Emerging trends in pollution control: Appropriate use of solvents. GPCB Bulletin 1 (2): 1,3&6.
d. Gopichandran R. 1998 Participatory Approaches in Environmental Protection: Emerging trends. Times of India, Ahmedabad, June 5.
e. Gopichandran R. 1995 Industry – Environment link. Times of India. June 5, 1995.

As Editorials for the science magazine DREAM 2047 from November 2012 to February 2017.

1. A national mission for effective value-added S&T communication. Dec 2012. 15 3 39
2. Enabling circumstances essential for success of communication for compliance. Jan 2013. 15 4 35
3. Renewed impetus for Science and Technology Initiative in India. Feb 2013. 15 5 31
4. Some important insights regarding the objective and process of S&T communication: A synthesis. Mar 2013. 15 6 39
5. Premise of S & T Communication: Preparedness of stakeholders. Apr 2013. 15 7 39
6. A bottom up approach to strengthen S&T communication. May 2013. 15 8 35
7. Sector-specific and cross-sectoral science and technology information support and capacity building interventions. Jun 2013. 15 9 39
8. Some important facets of Science Communications. Jul 2013. 15 10 35
9. Some useful leads on assisting disaster mitigation. Aug 2013. 15 11 39
10. Wetlands as a medium of learning and communication: An intro. Sept 2013. 15 12 43
11. Concerted efforts needed to help citizens know about climate change: Some useful leads. Oct 2013. 16 1 39
12. Some interesting dilemmas in communicating science & technology: A synthesis. Nov 2013. 16 2 39
13. Recent insights from the European Commission on technology communication: Receivers of messages expect clarity of purpose and options. Dec 2013. 16 3 39
14. Classic insights from Jean-Yves Le De'art Foreword. Jan 2014. 16 4 43
15. Three transitions in the interface of science, scientists and citizens defined by Vincent BB- 2013. Feb 2014. 16 5 39
16. On Development Communication...., Mar 2014. 16 6 47

17. Some recently re-consolidated development related insights on infusing scientific temper. Apr 2014. 16 7 39
18. ESOF 2014 and HORIZON 2020 of the UK: Robust converge platforms in the interface of science, technology and the public. May 2014. 16 8 39
19. Technology communication and essentials for stakeholder benefit. Jun 2014. 16 9 35
20. Ten important strands of S&T Communication. Jul 2014. 16 10 35
21. Constructive dialogue in Communication for Development (CfD): A robust approach. Aug 2014. 16 11 35
22. Valuable snapshots on citizen science. Sept 2014. 16 12 43
23. Valuable snapshots on citizen science. Oct2014. 17 1 35
24. Swachchta shapath and classic convergence. Nov 2014. 17 2 35
25. When will we learn, after all?? Dec 2014. 17 3 35
26. The radio is set to grow. Jan 2015. 17 4 35
27. Useful leads on disasters-related communication strategies. Feb 2015. 17 5 35
28. We care a damn!!!!. C'mon we are probably too naive to know we harm others in this process ..., Mar 2015. 17 6 3
29. Is this scientific temper? Apr 2015 17 7 35
30. Going back to square one: Just inform. May 2015. 17 8 35
31. Science Communicators!!!!!! Scientists!!!!!! Jun 2015 17 9 35
32. Important Lessons on S&T Communication from the Other Side of the Atlantic. Jul 2015. 17 10 35
33. Credibility of science communicator and messages. Aug 2015. 17 11 35
34. Citizen Science and human values. Sept 2015. 17 12 35
35. Some grassroots level engagement with students on biotechnology. Oct 2015. 18 1 35
36. Always keep to the left side of the road. Nov 2015. 18 2 35
37. How very clear! Truly Inspiring. Dec 2015. 18 3 35
38. Scientific temper for collective action: The climate cause. Jan 2016. 18 4 35
39. Do I have a scientific temper if I do not acknowledge the limitations of my own thinking? Feb 2016. 18 5 35
40. Some interesting thoughts on the "science of science communication". Mar 2016. 18 6 35
41. State of art on the science of science communication. Apr 2016 18 7 35
42. We should not over simplify science communication May 2016 18 8: 35
43. Valuable resource platforms on the dynamics of science communication Jun 2016 18 9 35
44. Continuing on the science of science communication. Jul 2016 18 10 35
45. Some interesting insights into the Science and Engineering Indicators Aug 2016 18 1 35
46. Communication platforms and real engagement outcomes. Sept 2016. 18 12 35
47. Did someone say, "Your freedom ends where my nose begins"? Oct 2016 19 1: 35
48. Why should Article 12 of the Paris Agreement about climate change not be considered science popularization? Nov 2016 19 2 35
49. Consider and Indian Academy of Science & Technology Communication. Dec 2016 19 3 35 - 36
50. Two amazing state of the art references in the field of science and technology communication / teaching Jan 2017 19 4 35
51. Of cold weather and thicker skins. Feb 2017 19 5 35.
52. This far and no further I suppose March 2017

53. Please do not trivialize science communication April 2017
54. Consolidating science communication activities in our country May 2017
55. Three considerations about the what and how of science communication in our country June 2017
56. What an Excellent Set of Editorials! July 2017
57. Science Communication and (Human) Values August 2017
58. Some interesting lessons for predators and parasites from nature September 2017
59. Do we create New Sense or Nuisance? October 2017
60. Some priorities for science communication management in India November 2017.

VIII. Contributions to technical reports / tool kits

1) R Gopichandran (Research guidance) India's NATCOM II, Final report on Work Programme on environmental governance, education, awareness & training on climate change. Submitted by CEE to the Ministry of Environment & Forests, Government of India. 2010.
2) Mehta S S and Gopichandran R. 1998 Environment and Development Issues in Gujarat: Urban Environmental Issues. pp 22-23. In Report No. 36: Public Hearing on Environment & Development with particular reference to Indo- Dutch Environment Programme. The People's Commission on Environment & Development India, New Delhi.
3) Gopichandran R. 1995 Aspects of Environmental Protection strategies through in-process modification in the steel sector. Environment Management Division, Steel Authority of India Ltd
4) Gopichandran R. 1994 Resources used and management of wastes in relation to environmental protection. GDMA Bulletin April – June: 15-17.
5) http://planningcommission.nic.in/aboutus/committee/wrkgrp12/agri/wg_NRM_Farming.pdf Planning Commission 2011. Report of the XII Plan Working Group on Natural Resource Management and Rain-fed Farming. 70p.
6) 2011. Madhya Pradesh State Action Plan for Climate Change Preparation Process Agro-Climatic Zone wise Public Consultation Workshops Consolidated Report. CEE.
7) Applied Bio diversity. Published by National Council for Climate Change, Sustainable Development and Public Leadership, Ahmedabad. VP, DST. 2010.
8) UNEP 2009 Ozone Protection and National Security A Military Perspective. Toolkit for Defence Forces. 101 p
9) Report prepared by ICF Consulting, Ltd. United Kingdom 2004 – (along with AFRICON of Pretoria, South Africa, and Pearce Consulting of Washington, DC) On External Evaluation of The Financial Mechanism of the Montreal Protocol – At the request of The Parties to the Montreal Protocol.

IX. Working papers (submitted to the United States Asia – Environmental Partnership, Department of State, USA, Mumbai)

1. Towards Cleaner Production through improved management of spent acid – R.Gopichandran et.al for USAEP – Mumbai. 2001
2. Potential Applications of Waste-Mining, Recovery and By-Product Generation with reference to some predominant waste streams in the Naroda Industrial Estate as part of Eco-Industrial Networking. R. Gopichandran et.al. 2003
3. Options for improving sulfonation: A Technical intervention supporting Eco Industrial Development R. Gopichandran et.al. 2003

4. Some productivity enhancement opportunities in the Stainless Steel Re – Rolling Cluster. R. Gopichandran et.al. 2003
5. Thrust areas for value addition in the future – with special reference to some of the predominant waste streams at NIE. R. Gopichandran et.al.2003
6. A framework of Eco-Industrial Development – integrating community participation; R. et.al. 2003
7. Guidelines for providing technical assistance to strengthen and sustain phase out of OD solvents in SME prepared by R. Gopichandran et.al. CEE, India, for UNEP DTIE OzonAction Programme, Paris.

X. Guided development of reports

1. 2011 Environmental Management Initiatives: Gujarat Pollution Control Board
2. 2011 Climate Change Adaptation in industries & Industrial Areas. Federation of Indian Chambers of Commerce and Industry.

XI. Technical reports on completing projects (as the leader of teams with several other colleagues)

1) 2011 Technical report / database inclusions on recent / new trade names and other identification features of ODS for compliance assistance at the global level: Submitted to UNEP, Bangkok / Paris.
2) 2010 Recovery of ODS from ships destined for scrapping in South Asia: Submitted to UNEP, Bangkok / Paris.
3) 2011 Stakeholder consultations on water management and community rights JSW.
4) 2009 Toolkit for HCFC Phase out and fact sheets. UNEP.
5) 2007 Emerging trends in understanding and enabling adaptation to climate change. 32 p. NORAD.
6) 2004. Development and demonstration of an implementation strategy for providing technical assistance to initiate and sustain phase out of ozone depleting solvents in small and medium enterprises - A technical report (IM / 4040-01-71-2265) UNEP DTIE OzonAction Programme, Paris
7) Data base for Media specialists on Ozone layer protection UNEP 2007. UNEP.
8) Climate Change and Energy – Scoping Study on Information Support – prepared by R. Gopichandran et.al for the British High Commission, New Delhi. 2004.
9) Strategy for awareness generation on use of alternatives and the CFC-phase out plan for the servicing sector – UNEP DTIE, OzonAction Programme, Paris. 2002.
10) CEE for Ozone Cell, MoEF, Gov't of India: Educator's kit on Ozone Layer Protection 1999.
11) Waste minimization and cleaner production thrust areas in small and medium enterprises in the chemicals sector. SIDBI.
12) Output on training in the tie & dye micro enterprises. CAPART.
13) Output on training of middle and senior level officers in financial institutions on EIA. NABARD
14) Technical frameworks for the assessment of mitigation and adaptation interventions by communities. JSW.

XII. Papers / chapters reviewed for international publications

1. 2012 Springer, Morocco; Two chapters for a book
2. 2010. Inderscience Publishers Ltd; A paper for the International Journal for Environmental Engineering.

XIII. Completed projects as Principal Investigator / Programme Director

1. Repellence of Synthetic Volatiles to Household pests.
2. Assessment of information needs and capacity building on Cleaner production in chemical industries, especially SMEs. SIDBI.
3. Capacity building of micro enterprises on waste minimization and cleaner production: Textile tie & dye sector. CAPART.
4. Capacity building of decision makers on EIA in the agriculture & rural development sectors. NABARD.
5. Development of Educators kit for the Ozone Cell, MoEF, Govt of India.
6. Framework for awareness strategy for the servicing sector in India aligned with phase out goals in R & AC applications. UNEP.
7. Reality check on technical barriers and technical assistance for phase out of CTC in cleaning applications in several sectors in India. UNEP.
8. Development of the State of Art report for the Ozone Cell. Govt of India.
9. Reality check on information dissemination mechanisms on climate change in India. DFID.
10. Eco industrial development In Madhya Pradesh, MPCB.
11. Establishment of the Cleaner Production Centre, Naroda and some cleaner production assessments.
12. Eco industrial development frameworks, USAEP.
13. Capacity building of EPCO on aspects of integrated environmental management, ERM Consulting.
14. Emerging trends in adaptation and priority interventions. NORAD.
15. Develop a tool kit for news media specialists on ozone layer protection issues and progress of the Montreal Protocol and train on using it. UNEP.
16. Human Resources Development Platform on environmental management. GTZ.
17. GPCB Bulletin.
18. Framework for the JSW Times of India Earthcare award. JSW.
19. Develop a tool kit to assist Ozone Officers phase out HCFCs and some fact sheets on strategically important ODS phase out aspects. UNEP.
20. Assess ODS from banks on board ships destined for scrapping in South Asia and the scope for collection and destruction of waste ODS. UNEP
21. Update database on trade names of ODS. UNEP.
22. Stakeholder consultation on practices and legalities of adaptation and mitigation strategies on water issues. JSW.

XIV. Training Courses participated in:

1. BARC 1985. Short term training on Radiological Protection at the Bhabha Atomic Research Centre, Mumbai.
2. IIM A 1996. Summer School on Common Property Resources Management.

XV. Lectures (on invitation) delivered at:

1. NTPC Business School
2. Power Management Institute, NTPC Ltd.
3. Indian Institute of Mass Communication All India Institute of Medical Sciences
4. School of Environmental Sciences, Allahabad University
5. Gujarat Chamber of Commerce & Industry
6. South Gujarat Chamber of Commerce & Industry
7. Tamil Nadu Agriculture University, Coimbatore.
8. Oil & Natural Gas Commission, Ahmadabad Asset
9. Ahmadabad Management Association
10. JK Cement
11. Gujarat Institute of Civil Engineers & Architects
12. Gujarat Cleaner Production Centre
13. Institute of Rural Management, Anand
14. Gujarat Dye Stuffs Manufacturers Association
15. The American Centre, Mumbai.
16. United Nations Environment Programme, Paris & Bangkok.
17. British Trade Office, Mumbai.
18. Alliance to Save Energy, USA.
19. Gujarat Pollution Control Board.
20. Centre for Science & Environment
21. Indian Environmental Association
22. National Law School of India University, Bangalore.
23. The Indian Science Congress Mumbai on emerging trends in science Communication.
24. Springer – DWIH Innovative Research Lecture, New Delhi.
25. APN capacity building workshop on REDD+ at the Dept of Environmental Sciences, Allahabad University
26. Scoping assessments and strategically important S & T Communication strategies, Centre for Media Studies, Anna University.
27. Workshop on small – holder dairy value chain transformation in Bihar: Challenges, Opportunities and the way forward organized by the ICARDA, WorldFish, ILRI and CIAT.
28. IIMC Seminar, New Delhi on Communication University
29. UN Global Compact meeting - Urban Thinkers Campus-India The City We Need Fosters Inclusive Prosperity
30. Meet the Scientist programme: Ozone Day 2013 TNS&T Centre
31. Aluminum India Summit 2013.
32. Indian People Science Congress on agriculture, water and food security, Lucknow and follow meeting in Hyderabad.
33. Bhundelkhand University on National Science Day, Jhansi
34. AISECT University
35. FICCI meeting on Gujarat Sustainability Vision, Ahmedabad
36. Earthwatch WWF India meeting on wetlands, New Delhi.
37. KSTA Academy conference on sustainability at Bellary

38. ICLEI consultation on India GHG Protocol for local governments; urban climate guidelines New Delhi
39. 12th Indian Science Communication Congress: Risk communication and Development. INSA.
40. TISS Conference on equity, adaptation and sustainable development, Mumbai
41. UNEP HCFC phase out launch related awareness and technical assistance programme, Mumbai
42. Climate resilient urban systems and wetlands for eco system services organized by South Asian Forum for Environment in Kolkata and Guwahati
43. Energy efficiency enhancement through market tools and community engagement of the CUTS, New Delhi.
44. International Conference on Pathways for Climate Resilient Livelihoods in Himalayan River Basins, Organized by IRMA August 1 & 2 New Delhi
45. APJ STYA University on Climate change mitigation and adaptation policy frameworks
46. Meeting of the Institution of Engineers, Kolkata on environmental policies and market instruments to improve compliance
47. Forum of Scientists, Engineers & Technologists, Kolkata on science and technology communication for inclusive development.
48. On climate resilient agriculture and related communication strategies at the Anand Agriculture University, Agriculture Technologies Centre, Dahod, Gujarat Chamber of Commerce & Industry, Ahmedabad and at the State Institute of Agriculture Management, Jaipur.
49. ST supported Seminar of the GujCOST son Creative India: Innovative India with reference to the National IPR Policy 2016, Gandhinagar.
50. Centre for Environment Education as part of a UNESCO international conference on communication for energy efficiency and inclusive stakeholder engagement
51. Homi Bhabha Centre for Science Education, Mumbai on Science of Science Communication
52. Osmania University on creating and sustaining interests on science education and careers
53. Sastra University on Science, Technology and Public Policy
54. Centre for Development of Imaging Technologies on the inclusive agenda of scientific temper.
55. Lectures at INSPIRE camps / workshops
56. Interviews through All India Radio
57. MoEFCC meeting on alternatives to HFC aligned with India's commitments to the Montreal Protocol.
58. Sharda University.

XVI. Leadership roles in Conferences / Workshops: C: Coordinator; Co: Co Chair; D: Discussant; E: Expert; F: Facilitator; M: Moderator; OS: Organizing Secretary; TSC: Member Technical & Steering Committee; KN: Key note address. P: Panelist. IA: Inaugural Address

Year & role	Theme
1. 1999 E	India's awareness strategy & output: ODS Officers Network Meeting, South Asia, Kathmandu, Nepal of the UNEP.
2. 2003 E	Global Awareness strategy, for the Compliance Assistance Programme, UNEP, Paris

3. 2003 E	Global Awareness strategy as part of Compliance Assistance Programme, UNEP, Phuket, with a special focus on South and South East Asia.
4. 2006 E	Tool kit for News media specialists, CEE & UNEP, Bangkok
5. 2006 E & C	Adaptation strategies. Colombo, SACEP & CEE.
6. 2000 E	Adaptation strategies, Kathmandu. SACEP
7. 2006 & 2007 F	Environmental Education for Industry, North American Association for Environmental Education, Minnesota & Virginia
8. 2009 E	Launch of the Defense tool kit, Port Ghalib, Egypt, UNEP
9. 2007 - C	Education for a sustainable future: CEE on UNESCO's ESD initiative of two sessions on energy efficiency enhancement / emission reduction by industry & responsible corporate action.
10. 2007 – M	EE Global of the ASE, Washington DC. (Session on Market drivers & End-Use: Unleashing the Power of the Global Consumer).
11. 2011 – O S	Unconventional Sources of fossil fuels and carbon management, Organized by GERMI in association with the Colorado School of Mines, Golden Colorado, USA in Gandhinagar, Gujarat, India.
12. 2012 – Co	International conference on Climate change, sustainable agriculture and public leadership organized by the Indian Council for agricultural research & the NCCSD in New Delhi India.
13. 2012, D & Inaugural Address	Stakeholder consultation workshop for preparation of State of Land, Water, and Climate Change Reports of Gujarat 2011, Institute of Rural Management, Anand. Gujarat.
14. 2012, D & Concluding address	International Workshop on Adapting Rural Livelihoods to Climate Change; Organized by IRMA, TIFAC & IIASA, Austria.
15. 2012 TSC	GECS, Morocco. GLOBAL ENVIRONMENTAL CHANGE AND HUMAN SECURITY (GECS2012) The Need for a New vision for Science, Policy and Leadership 22-24 November 2012 Marrakech (Morocco) North-South Center for Social Sciences (NRCS) http://www.nrcs-center.org: http://www.nrcs-center.org/scientific-events/gecs-20122/gecs-2012-fr/ Member: Scientific Board & Steering Board & Technical presentation
16. 2013 C	International Conference on Pathways for Climate Resilient Livelihoods in Himalayan River Basins, Organized by IRMA August 1 & 2 New Delhi.

17. Jun 2015 D	Led dialogues on India Canada bilateral cooperation on science & technology cooperation as part of India delegation
18. Jan 2016. KN	Science Communication at the Science Communicators Meet, ISC Mysore.
19. Nov 2016 KN	International Conference on Open Learning at the TNAU Coimbatore.
20. Jan 2017 C	Challenges in science communication at the ISC, Science Communicators Meet, S V University, Tirupati.
21. Jan 2017 C	Communication strategies in disaster contexts NIDM
22. Feb 2017 KN	Sustainable production and consumption correlates at the International Conference on Design (CODE) GD Goenka University School of Fashion & Design with the Politecnico Milano 1863.
23. Feb 2017 P	Does Science Need to be Better Communicated? Transdisciplinary Univ, Bangalore
24. Feb 2017 IA & P	Ninth Science Communicator's Meet ISNA, Kolkota.
25. March 2017 P	TARU roundtable on urban planning, New Delhi.
26. April 2017 P	National Consultation on Responsible Research & Innovation: Science Education & communication. Organized by the Research & Information System for Developing Countries & The DST, Govt of India.
27. May 2017 C & P	National Conference on ICT in Education: Perspectives, Practices & Possibilities, Mysuru
28. May 2017 C	ICT in education for masses at the National Conference on ICT in education Perspectives, Practices & Possibilities 11 & 12 May 2017 Mysore, Organized by SVYM, Mysore Co – organized by Govt of Karnataka, VIBHA, VP, ISRO & EXCELSOFT
29. May 2017 P	Policy environment & way forward in above.
30. May 2017 E	South Asia Network meeting of Ozone Officers; Compliance Assistance Programme, United Nations Environment Programme & Ministry of Environment, Forests & Climate Change, Govt of India. Agra.
31. July 2017 E	Theories in Science Communication, Workshop at the Centre of Science Education & Communication, University of Delhi.

XVII. **Publications in progress:** Dipayan Dey & Gopichandran R (Eds) Biorights including a wetlands ecosystem services perspective.

XVIII. **Important affiliations as Member of the**

i. Member Inter Ministerial Empowered Steering Committee of the Ministry of Environment, Forests and Climate Change (2017 – 2020) on India's compliance with the Montreal Protocol & Kigali amendment.
ii. Expert Committee Gujarat Pollution Control Board set up for Environment audits under the direction of the Honourable High Court of Gujarat / disbursement of the Green Fund / capacity building of the Board & policies for CETPs and HWDFs./ Ahmedabad District EIA Committee.
iii. Expert group of the Gujarat State Disaster Management Authority, Gujarat, to review report on climate change impacts on disasters
iv. Working group on Natural Resources Management of the Planning Commission, Govt of India, preparing for the 12th 5-year plan
v. Technical Steering Committee for the PDNA study of the MHA affiliated with the NIDM
vi. Member expert group: National Disaster Management Authority (NDMA) Committee on Urban floods.
vii. Steering Committee for Science Gallery, Karnataka State Dept of Science & Technology
viii. Research Advisory Committee of the National Institute for Science Communication and Allied Information Resources (CSIR NISCAIR).
ix. Society of the Indian Institute of Mass Communication as DST nominee
x. Research Committee of the National Science Centre, New Delhi
xi. Board of Studies
    i. Member: Dept of Botany / Environmental Sciences, Allahabad University
    ii. Chairman: School of Liberal Studies, Environmental Studies, PDPU, Gandhinagar
    iii. Member: Masters in Leadership Science, Bombay University (Present)
xii. Scientific Advisory Group, Publication and Information Division, Indian Council of Medical Research.

6. Positions & Responsibilities

I. Director: Vigyan Prasar, An autonomous institution of the Department of Science & Technology, Government of India. From 15 October 2012 to 15 October 2017 -
Executive Functions fulfilled included:

- Periodic and consistent reporting to the General Body / Governing Body;
- Compliance, Verification & Certification through audits;
- Improved governance in Vigyan Prasar for
- Increasingly robust management of financial resources
- Periodic promotions of scientific and administration staff
- High resilience to tackle stresses due to time / resource / other institutional constraints &
- Enhanced momentum in academic functions with significantly higher zeal, enthusiasm and self-esteem; including much deserved visibility amongst peers at the national / international level &

- Equal opportunities for all and inspiration through such human values as compassion and transparency for tangible outcomes.

The overarching guiding principles were:

i. Consolidate and strengthen India's leadership to communicate fundamentals and applications of principles / method of science and technology interfaces across individual and cross cutting sectors within India and the regional and global levels.
ii. Define and serve the unfinished agenda in science & technology communication including reaching the unreached on the basis of logical frameworks that emphasize parameters of science of science and technology communication;
iii. Complement communication efforts through bottom – up information, education and engagement strategies for optimal impacts and avoid duplication;
iv. Provide technical assistance to develop need based and easy to use knowledge products; wherein awareness becomes a forerunner to capacity building &
v. Harmonize the science popularization agenda of Vigyan Prasar with nationally and globally relevant / emerging paradigms of science and technology communication.

The logical framework presented below indicates three emerging strands of communication (in addition to the ones traditionally in progress at VP) and expected outcomes / impacts.

Emerging opportunities as a logical extension of activities in progress	Positive outcomes that strengthen Vigyan Prasar's niche
1. Gather empirical evidences about impacts of science and technology popularization / communication to design bottom – up community engagement strategies aligned with India's agenda for inclusive development	Enhanced core strengths & roles to Theorize on communication related to the framework of science of science communication & Develop medium to large scale hands – on programmes to deliver targeted knowledge enhancement benefits to stakeholders & Provide strategically important information support in India to help fulfil her commitments through bilateral and multilateral agreements & Mutually reinforce communication action of all development related missions.
2. Develop and implement IEC programmes that assist / enhance compliance outcomes through a value-added Secretariat function	
3. Help reach the unreached for optimal engagement	

- Several staff of Vigyan Prasar were inspired to pursue doctoral research. One of them has secured his PhD and a few others are steadily progressing towards their final stages.
- Infused programmatic approaches to sustain and reinforce Vigyan Prasar's niche on the basis of
  i. Logical frameworks that enhance topical and time relevance of Vigyan Prasar's activities at the national and international levels &
  ii. Directions received from the Governing Board and feedback from presentations at the Autonomous Bodies Conclave about pathways for VP's human resources and institutional development (HID) / continual evolution aligned with developments worldwide in the field of science & technology communication.

Two typical examples of expanded portfolios of programmes include communication and capacity building for

i. Drudgery reduction for the benefit of women farmers & locally adapted practices for home gardens: This approach
   - Helped secure a project from the SEED Division of the DST,
   - Set the final stage for a project in several hotspots across India with support of the National Initiative on Climate Resilient Agriculture &
   - Attracted attention of the Central Institute of Women in Agriculture to explore possibilities of medium to long term interventions.

ii. Mitigation and adaptation strategies to reduce vulnerabilities of communities / eco systems enhanced by climate change at the local level: Vigyan Prasar serves as a knowledge partner in the DST JNU project on climate resilience in Himalayan states.

- Linked Vigyan Prasar with the

i. Ministry of Earth Sciences to deliver weather and climate systems related knowledge products to schools: Several school clubs centred programmes are now being organized in collaboration with the MoES. Department of Biotechnology to enhance broadcasts and engagement with stakeholders about programmes, policy positions and knowledge products of the department and related institutions & exhibitions through innovative models,

ii. Municipal Corporation of Delhi for grass roots level interventions &

iii. Bilateral programmes of the DST for joint initiatives on science and technology communication through India Canada, India UK and India Australia frameworks.

II. Director in Charge (November 2010 – November 2011) & as the Principal Research Scientist (Sci H) of the Division on Environment & Climate Change: (September 2009 – October 2012), Gujarat Energy Research & Management Institute, Gandhinagar: Developed the framework for research; guided activities on mitigation and adaptation and policy assessments, carbon markets, and coordinated activities on other thrust areas too.

III. Centre for Environment Education (CEE): June 1993 to September 2009: As Programme Director – Environment Management at CEE, I provided leadership for development and implementation of plans to initiate and sustain technical information support and capacity building in industry and related stakeholders on preventive environmental management. This involved, working with national, regional and international organizations on sustainable development / triple bottom line imperatives integrating regulations, technical capacities, institutional mechanisms and options to tackle challenges; communication with all concerned stakeholders and coordinate activities & reporting, writing and publication based on the guidelines of relevant agencies on successfully completing activities.

IV. Entomology Research Institute, Chennai (till June 1993: Senior Research Associate, reporting to (Prof T N Anathakrishnan) the Director - Entomology Research Institute, Chennai, for a period of five years: Developed research frameworks, protocols to evaluate location specific chemical ecological dynamics.

In all these cases over the last 28 years I have functioned as the senior most scientific and management specialist in the team I was part of and reported only to the Head of the institution. (The Secretary Department of Science & Technology, Government of India in the present context).

7. Teaching / Research Guidance

	1 C	2 C	3 C	4 C	5 I	6 C	7 P	8 P	9 P	10 P	11 C	12 C	13 BU	14 CF PGDM PM
1996 – '97														
1997 – '98														
1998 – '99														
1999 – 2000														
2000 – '01														
2001 – '02														
2002 – '03														
2009 – '10														
2010 – '11														
2011 – '12														
2012 – '13														
2013 – '14														
2014 – '16														
2016 – '17														
2017 - 18														
Taught at IIT B[10] Centre for Environmental Sciences & Engineering 2001 – 2004, 2014 / 15 & IISER[1], Pune occasionally 2014.														

Legend for the Table above:

1. Principles of Environmental Planning / Chemical ecology (COM 1040
2. Fundamentals of environmental sciences for planning (ENP 202)
3. Environmental Impact assessment (ENP 302)
4. Sustainable Development (E 302)
5. Environmental management
6. Energy efficiency enhancement & climate protection / Technology Management
7. Principles of Environmental Sciences
8. Fundamentals of Environmental Law
9. Environmental Biology / Multilateral environmental Agreements
10. Financial and institutional mechanisms for environmental management.
11. Climate change impacts management
12. Bio diversity conservation
13. Leadership (Science & Technology focus)

- C: Faculty of Planning & Public Policy & School of Tech Mgmt CEPT University: M.Tech level
- I: Centre for Management in Agriculture, Indian Institute of Management Ahmedabad: Fellow Prog.

- P: School of Liberal Studies, Pandit Deendayal Petroleum University (PDPU): Undergraduate level & on Carbon Finance at the Masters of the PGDM on Petroleum Management
- BU: Bombay University &
- Advisor & Professor: Professional Certificate Course on "Environmental Impact Assessment" through e-learning mode under Centre for Continuing Education (CCE) at CEPT University. 2009 – 2012.

b) MTech / PhD Theses as guide / co – guide / Member of Thesis progress review committee.

1) 11 M.Tech * & 1 MSc * * theses as the main guide (* CEPT University ** Gujarat University on climate change impacts management, cleaner production, waste minimization, social forestry & bio diversity conservation. (1995 – 97; 2010 – 12)
2) One M.Tech * thesis as a Co – guide (2009): urban environmental management
3) One Minor - PhD thesis * Eco system services and bio rights.
4) Two doctoral theses as Co – Guide on science communication at the APEEJAY STYA University New Delhi (2014 onwards).
5) One doctoral thesis on advanced treatment of industrial waste water and related green taxes (as a member of thesis progress review committee, Nirma University, Ahmedabad, 2014 onwards).

8. Important Professional Referees.

1) Prof Anil Kakodkar, Formerly Chairman Atomic Energy Commission India kakodkar@barc.gov.in
2) Prof T Ramasami, Formerly Secretray DST, Government of India dstsec@yahoo.co.in
3) Prof Ashutosh Sharma, Secretary, Department of Science & Technology, Government of India, dstsec@nic.in
4) Mr Atul Bagai, IAS. Senior Coordinator (Networking) South Asia Network, Compliance Assistance Programme, OzonAction Programme, UNEP Regional Office for Asia and the Pacific, Bangkok, Phone 00 66 2288 1662 bagai@un.org
5) Mr Raghuvansh Saxena, Director, Earthwatch Institute India. rsaxena@earthwatch.org.in ; raghu.saxena@gmail.com +91 9811995028
6) Prof Shyam R Asolekar, Centre for Environmental Sciences & Engineering IIT B. asolekar@gmail.com + 91-98204 10443.