

# RESUME

**Name:** Bhallamudi Sreenivasa Murty  
**Date of Birth:** April 15, 1960  
**Profession:** Research & Teaching  
**Position:** Professor  
**Organization:** Indian Institute of Technology Madras  
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## EDUCATION:

- (i) B.E. (Hons) – Civil Engineering, 1982  
University of Madras
- (ii) M.E. – Civil Engineering, 1984  
Indian Inst. of Science (Distinction)  
Thesis: Some case studies in hydraulic transients in  
pumping mains (Advisor: Prof. K. Sridharan)
- (iii) Ph. D. – Civil Engineering, 1989  
Washington State University  
Thesis: Numerical modeling of open channel flows with  
fixed and movable beds (Advisor: Prof. M. Hanif  
Chaudhry)

## RESEARCH AREA OF INTEREST:

Mathematical modeling of flow and transport in  
(i) Open-channels, (ii) Subsurface and (iii) Pipes

## PROFESSIONAL EXPERIENCE:

- (i) January 2004 – till date: Professor, I.I.T. Madras
- (ii) September 2001 – January 2004: Associate Professor, I.I.T. Madras
- (iii) December 1998 – September 2001: Assistant Professor, I.I.T. Madras

- (iv) May 1997 – December 1998: Associate Professor, I.I.T. Kanpur
- (v) April 1990 – May 1997: Assistant Professor, I.I.T. Kanpur
- (vi) July 1989 – April 1990: Lecturer, I.I.T. Kanpur
- (vii) July 1985 – July 1989: Teaching / Research Assistant  
(Worked on following project: Long Lake spillway model studies,  
sponsored by the Washington Water Power Co.)
  - (a) Mathematical modeling of circulation in Baker Bay  
(Sponsored by the U.S. Army Corps of Engineers)

(Tutored the following courses)

  - (i) Engineering Fluid Mechanics
  - (ii) Hydraulic Engineering
  - (iii) Open Channel Flow
- (viii) July 1984-July 1985: Project Associate, I.I.Sc., Bangalore  
(Worked on the project: Groundwater modeling for the composite  
command of Narmadasagar and Omkareshwar reservoirs,  
Sponsored by the Narmada Planning Agency)

## **COURSES TAUGHT:**

### Undergraduate:

1. Rate Processes (Tutor)
2. Engineering Fluid Mechanics
3. Hydraulic Engineering
4. Computer Applications in Engineering
5. Hydrosystems
6. Hydrologic Engineering
7. Water Res. Project Planning and Design
8. Hydraulic Laboratory
9. Water Management
10. Ecology and Environment (Coordinator)

### Graduate Courses:

1. Applied Hydraulic Engineering
2. Open-Channel Flow
3. Unsteady Pipe Flow
4. Unsteady Open-Channel Flow
5. Hydraulic Modeling
6. Contaminant Transport Modeling
7. Pipeline Engineering
8. Transport of Water and Wastewater
9. Sustainability in River Basin Management
10. Groundwater Engineering

## **RESEARCH GUIDANCE:**

### **A. Doctor of Philosophy**

1. **Vivekananda Singh**, I.I.T. Kanpur, 1997  
“Computation of shallow water flow over a porous medium”  
(Advisor: B.S. Murty)
2. **P. K. Mohapatra**, I.I.T. Kanpur, 1999  
“Studies on two dimensional free-surface flows with non-hydrostatic pressure distribution”  
(Advisors: B.S. Murty & V. Eswaran)
3. **S.V.N. Rao**, I.I.T. Madras, 2004  
“Conjunctive management of surface and groundwater resources in deltaic aquifers”  
(Advisors: B.S. Murty & B.S. Thandaveswara)
4. **Prashanth Reddy**, I.I.T. Madras, 2006  
“Leak detection in gas pipeline networks using transfer function based dynamic simulation model”  
(Advisors: B.S. Murty & Shankar Narasimhan)
5. **T. Shashidhar**, I.I.T. Madras, 2006  
“Experimental and modeling studies on transport and bio-transformation of chromium in contaminated aquifers”  
(Advisors: Ligy Philip & B.S. Murty)
6. **S. Mohan Kumar**, I.I.T. Madras, 2008  
“Monitoring and control of water distribution networks”  
(Advisors: Shankar Narasimhan & B.S. Murty)
7. **J. Jeya Singh**, I.I.T. Madras, 2012  
“Bioremediation of Hexavalent Chromium Contaminated Soil and aquifer”  
(Advisors: Ligy Philip & B.S. Murty)
8. **Moltot Zewdie**, I.I.T. Madras, 2012  
“Management Models for Water Quality in a Tidal River”  
(Advisor: B.S. Murty)
9. **P. Balasubramanian**, I.I.T. Madras, 2013  
“Treatment of Volatile Organic Compound Emissions from Pharmaceutical Industries Using Biotrickling Filters”  
(Advisors: Ligy Philip & B.S. Murty)
10. **M. Balamurugan**, I.I.T. Madras (2017)  
“Management models for utilizing flood flows in ephemeral channels for aquifer recharge”  
(Advisor: B.S. Murty)
11. **A.S. Arya**, IIT Madras (2018)  
Fate of emerging contaminants in different water and wastewater treatment systems  
(Advisors: Ligy Philip & B.S. Murty)

12. **Madhumathi, G.**, I.I.T. Madras (2018)  
“Transport of bacteria in saturated and unsaturated porous media”  
(Advisors: Ligy Philip & B.S. Murty)
13. **T. Suresh Kumar** (2019)  
Energy loss in high velocity flows in steep channels due to boulders and step pools  
(Advisor: B.S. Murty)
14. **Chandrasekhar Akella**, IIT Madras (**Continuing**)  
Modeling of green house gas emission from rivers and estuaries receiving untreated and partially treated wastewater  
(Advisor: B.S. Murty)
15. **Jani Fathima**, IIT Madras, Civil (**Continuing**)  
Flood routing in large channel networks with flood plains  
(Advisor: B.S. Murty)
16. **P. Prabu**, IIT Madras, Civil (**Continuing**)  
Three dimensional turbulence modeling of tsunami wave run up on beaches with different control structures  
(Advisors: B.S. Murty & Abhijit Chaudhuri)
17. **Jesna, T.K.**, IIT Madras, Civil (**Continuing**)  
Flood risk mapping under the uncertainty in topographical information  
(Advisors: K.P. Sudheer & B.S. Murty)
18. **Vengat Manickam**, IIT Madras, Ocean Engineering (**Continuing**)  
Effect of river hydraulic structures on the beach morphology in the vicinity of river mouth.  
(Advisors: S.A. Sannasiraj & B.S. Murty)

#### **B. Master of Science (By research)**

1. **P. Manisree**, I.I.T. Madras, 2003  
“Furrow irrigation systems: Simulation, parameter estimation, and optimal operation”  
(Advisor: B.S. Murty)
2. **Y.S.R. Murty**, I.I.T. Madras, 2004  
“Surface water quality management model for waste load allocation”  
(Advisors: K. Srinivasan & B.S. Murty)
3. **Chaitali Mishra**, I.I.T. Madras, 2008  
“A dynamic sub-timing method for contaminant transport modeling”  
(Advisor: B.S. Murty)
4. **V. Somasundaram**, I.I.T. Madras, 2011  
“Biotic and abiotic remediation of chromium contaminated aquifers using various bacterial isolates”  
(Advisors: Ligy Philip & B.S. Murty)

### C. Master of Technology

1. Pratap Singh, I.I.T. Kanpur, Civil, 1990  
“Transients in a hydro electric system and the cooling water system of a thermal power plant”  
(Advisor(s): S. Surya Rao & B.S. Murty)
2. K. Mohapatra, I.I.T. Kanpur, Civil, 1990  
“Flood routing through compound channels”  
(Advisor(s): S. Surya Rao & B.S. Murty)
3. P.K. Mohapatra, I.I.T. Kanpur, Civil, 1991  
“Mathematical modeling of aggradation and degradation in open-channel expansions with movable beds”  
(Advisor(s): B.S. Murty)
4. R. Bhargava, I.I.T. Kanpur, Civil, 1991  
“Computation of supercritical flows in channel junctions”  
(Advisor(s): B.S. Murty)
5. J. Sinha, I.I.T. Kanpur, Civil, 1993  
“Spectral method solution for shallow water wave equations”  
(Advisor(s): B.S. Murty & V. Eswaran)
6. M.S.V.P. Rao, I.I.T. Kanpur, 1993  
“Computation of supercritical flow in curved channels”  
(Advisor(s): B.S. Murty)
7. P.K. Shukla, I.I.T. Kanpur, Mechanical, 1994  
“A fully spectral method for hyperbolic equations”  
(Advisor(s): V. Eswaran & B.S. Murty)
8. S. Narayanan, I.I.T. Kanpur, Chemical, 1994  
“Nonlinear dynamics in a heated channel”  
(Advisor(s): S. Pushpavanam & B.S. Murty)
9. B.J. Naidu, I.I.T. Kanpur, Civil, 1995  
“Water surface profile computation in channel networks”  
(Advisor(s): B.S. Murty & S. Narasimhan)
10. K.V.K. Varma, I.I.T. Kanpur, Chemical, 1995  
“Optimal design of water distribution networks”  
(Advisor(s): S. Narasimhan & B.S. Murty)
11. A. Tewari, I.I.T. Kanpur, Civil, 1996  
“Numerical modeling of infiltration from trickle irrigation source”  
(Advisor(s): B.S. Murty)
12. Bovin Kumar, I.I.T. Kanpur, Civil, 1996  
“A simple numerical model for supercritical flow in channel junctions”  
(Advisor(s): K. Subramanya & B.S. Murty)

13. A. Narayana, I.I.T. Kanpur, Civil, 1996  
“Estimation of roughness coefficient in open-channel flow using unsteady flow data”  
(Advisor(s): Bithin Datta & B.S. Murty)
14. N. Karunakar, I.I.T. Kanpur, Civil, 1996  
“An overlapping control volume (OCV) technique for the solution of shallow water wave equations”  
(Advisor(s): B.S. Murty & V. Eswaran)
15. S.K. Tewari, I.I.T. Kanpur, Civil, 1996  
“Flood routing in tree type open channel networks”  
(Advisor(s): S. Surya Rao & B.S. Murty)
16. P.V.N. Sudhakar, I.I.T. Kanpur, Civil, 1997  
“Implicit two-dimensional storage routing of floods in a river with flood plains”  
(Advisor(s): S. Surya Rao & B.S. Murty)
17. R. Ramesh, I.I.T. Kanpur, Civil, 1997  
“Optimal estimation of roughness in open-channel flows”  
(Advisor(s): Bithin Datta & B.S. Murty)
18. H. Rajagopal, I.I.T. Kanpur, Civil, 1997  
“Numerical model for aggradation and degradation in tree type channel networks”  
(Advisor(s): B.S. Murty)
19. Rajesh Kumar, I.T. Kanpur, Civil, 1998  
“Mathematical modeling of armoring process in a channel”  
(Advisor(s): B.S. Murty)
20. K. Pandey, I.I.T. Kanpur, Civil, 1998  
“Development of software for the analysis of flow in WDS”  
(Advisor(s): S. Surya Rao & B.S. Murty)
21. Y. Sridhar Reddy, I.I.T. Kanpur, Civil, 1998  
“Numerical modeling of storm water flow in closed conduits”  
(Advisor(s): Bithin Datta & B.S. Murty)
22. Prashanth Kumar, I.I.T. Kanpur, Civil, 1998  
“Computation of GVF profiles in looped channel networks”  
(Advisor(s): B.S. Murty)
23. H. Prashanth Reddy, I.I.T. Madras, Civil, 2001  
“Computation of gradually varied flow in looped open-channel networks”  
(Advisor(s): B.S. Murty)
24. S.T. Manikandan, I.I.T. Madras, Civil, 2001  
“A numerical model for contaminant transport in subsurface”  
(Advisor(s): B.S. Murty)
25. E. Shireesha, I.I.T. Madras, Civil, 2002

- “Effect of subsoil moisture redistribution on infiltration rates”  
(Advisor(s): B.S. Murty)
26. Chirag K. Upadhyay, I.I.T. Madras, Civil, 2002  
“Coupled modeling of flow and contaminant transport in streams and rivers”  
(Advisor(s): B.S. Murty)
27. A. Vijaya Saradhi, I.I.T. Madras, Civil, 2002  
“Software development for the design of barrages”  
(Advisor(s): B.S. Murty)
28. P. Devender Rao, I.I.T. Madras, Civil, 2003  
“Modeling the effect of seepage through piles on safety of hydraulic structures on permeable foundations”  
(Advisor(s): B.S. Murty)
29. Kaustubh Salvi Anil, I.I.T. Madras, Civil, 2006  
“State estimation in gas pipe networks”  
(Advisor(s): B.S. Murty)
30. Nisha Nandan, I.I.T. Madras, Civil, 2006  
“Optimal design of bio-barriers for Cr(VI) containment in confined aquifers”  
(Advisor(s): B.S. Murty)
31. Prem, J., I.I.T. Madras, Civil, 2006  
“CFD studies for intake structures”  
(Advisor(s): B.S. Murty)
32. Bhavani Bhavana, I.I.T. Madras, Civil, 2006  
“Mathematical modeling for fate and transport of pesticides in the unsaturated zone”  
(Advisor(s): B.S. Murty)
33. P. Sateesh Kumar, I.I.T. Madras, Civil, 2007  
“Numerical Modeling of oil spills over the land surface”  
(Advisor(s): B.S. Murty)
34. S. Pauline, I.I.T. Madras, Civil, 2007  
“Modeling of transport and bio-transformation of Cr(VI) in confined aquifers : Role of biogenic gas formation”  
(Advisor(s): B.S. Murty)
35. Sekhar, I.I.T. Madras, Civil, 2008  
“Numerical Modeling of oil spills over the land surface”  
(Advisor(s): B.S. Murty)
36. Wankhede Girish Gajanan, I.I.T. Madras, Civil, 2009  
“Flood Routing in Compound Channels”  
(Advisor(s): B.S. Murty)
37. Ranit Amitkumar Baburao, I.I.T. Madras, Civil, 2009  
“Optimal design of air chamber for surge suppression in pumping mains”

(Advisor(s): B.S. Murty)

38. P. Sainath, I.I.T. Madras, Civil, 2010  
“Study of non-linear pressure oscillations in bubbly gas water flows”  
(Advisor(s): B.S. Murty)
39. Divya Chandran, I.I.T. Madras, Civil, 2011  
Modeling for water quality management in drinking water reservoirs  
(Advisor(s): B.S. Murty & Ligy Philip)
40. R. Harish, I.I.T. Madras, Civil, 2012  
‘Leak detection in large water distribution networks’  
(Advisor(s) : B.S. Murty & S. Narasimhan)
41. Raviteja Kanneganti, I.I.T. Madras, Civil, 2012  
‘Contaminant detection in water distribution networks’  
(Advisor(s) : B.S. Murty & S. Narasimhan)
42. Anu Roy, I.I.T. Madras, Civil, 2015  
‘Sub-timing method for unsteady flow simulations in open channel system’  
(Advisor(s) : B.S. Murty)
43. Sreejith Mohan I.I.T. Madras, Civil, 2017  
Hydraulic design of 24x7 water distribution system for peripheral circles of greater  
Hyderabad Municipal Corporation  
(Advisor(s) : B.S. Murty)
44. Debidutt Mishra, IIT Madras, Civil, 2018  
Design of pumping station using computational fluid dynamics simulations  
(Advisor(s) : B.S. Murty)
45. Vamsi Krishna Mula, IIT Madras, Civil, 2019  
Development of Decision support system for pipe material selection  
(Advisor(s) : B.S. Murty)
46. Pragya Dwivedi, IIT Madras, Civil, 2019  
Using an IOT enabled level sensor for monitoring supply to consumers in  
water distribution networks  
(Advisor(s) : Shankar Narasimhan & B.S. Murty)
47. B. Sivakumar, IIT Madras, Civil, 2020  
Optimal design of District Metering Areas (DMAs) for water distribution networks  
(Advisor(s) : B.S. Murty)
48. Aakash Dev, IIT Madras, Civil, 2020  
Optimal implementation of grey water recycling  
(Advisor(s) : B.S. Murty)



## PUBLICATIONS

### A. Refereed Journal Publications

#### 2021

1. Thappeta, S.K., **Bhallamudi, S.M.**, Chandra, V., Fiener, P., Baki, A.B.M., “Energy Loss in Steep Open Channels with Step-Pools”, *Water* 2021, 13, 72.

#### 2020

2. Nithila Devi, N., B. Sridharan, V. M. Bindhu, B. Narasimhan, **S. Murty Bhallamudi**, C. M. Bhatt, Tune Usha, D. Thirumalai Vasan, and Soumendra Nath Kuiry. "Investigation of Role of Retention Storage in Tanks (Small Water Bodies) on Future Urban Flooding: A Case Study of Chennai City, India." *Water* 12, No. 10 (2020): 2875.
3. Jani Fathima Jamal, **M. S. Bhallamudi**, “Improved Junction Point Water Stage Prediction and Correction Method for Dynamic Flood Routing in Channel Networks Using Sub-Timing Approach,” IRENG-8832, **Journal of Irrigation and Drainage Engineering, ASCE**, 146(6), 2020: 04020012.

#### 2019

4. Ghosh, S. et al., “Development of India’s first integrated expert urban flood forecasting system for Chennai, CURRENT SCIENCE, VOL. 117, NO. 5, 10 SEPTEMBER 2019, pp. 741-745. (*Scientific Correspondence*)
5. P. Prabu, **S. Murty Bhallamudi**, Abhijit Chaudhuri and S. A. Sannasiraj, “Numerical Investigations for Mitigation of Tsunami Wave Impact on Onshore Buildings Using Sea Dikes”, *Accepted for publication*, Ocean Engineering, Elsevier
6. **S. Murty Bhallamudi**, R. Kaviyarasn, A. Abilarasu, Ligy Philip, “Nexus between Sanitation and Groundwater Quality: Case Study from a Hard Rock Region in India”, Journal of Water, Sanitation and Hygiene for Development, IWA Publishing, Vol. 9(4), pp. 703-713, 2019.
7. Paul Wagner, **S. Murty Bhallamudi**, Balaji Narasimhan, Shamita Kumar, Nicola Fohrer, Peter Fiener, “Comparing the effects of dynamic versus static representations of land use change in hydrologic impact assessments”, Volume 122, December 2019, Article number 103987, **Environmental Modeling and Software, Elsevier. (IF – 4.404, Citation-7).**
8. Chandra Sekhar Akella and **S. Murty Bhallamudi**, “Managing Municipal Wastewater Treatment to Control Nitrous Oxide Emissions from Tidal Rivers”, **Water, MDPI Publishers**, 2019, 11, Paper No. 1255.
9. Ligy Philip and **S. Murty Bhallamudi**, “Editorial Perspectives: innovation needs for the water sector in India to achieve sustainable development goals”, **Environmental Science: Water Research & Technology, RSC**, DOI: RSC10.1039/C9EW90026H, June 2019. (*Editorial*)

10. Sudheer, K. P., **S. Murty Bhallamudi**, Narasimhan, B., Jobin Thomas, Bindhu, V. M., Vamsikrishna Vema, Cicily Kurian. Role of dams on the floods of August 2018 in Periyar River Basin, Kerala, **Current Science**, 116(5), 780-794, 2019 (**IF – 0.70**).

#### 2018

11. Arya Vijayanandan, Ligy Philip, and **S. Murty Bhallamudi**, “Analysis of breakthrough behaviours of hydrophilic and hydrophobic pharmaceuticals in novel clay composite adsorbent column in the presence and absence of biofilm”, **Ind. Eng. Chem. Res.**, 57(27), ACS, pp. 8978-8988, June 15, 2018 (**IF:, Citation -1**).
12. V. Arya, Ligy Philip, **S. Murty Bhallamudi**, “Enhanced removal of PhACs in RBF supplemented with biofilm coated adsorbent barrier: Experimental and modeling studies”, **Chemical Engineering Journal, Elsevier**, 338, pp. 341-357, 2018 (**IF: 6.216, Citation-0**).

#### 2017

13. Suresh Kumar Thappeta, **S. Murty Bhallamudi**, Peter Fiener, Balaji Narasimhan “Resistance in Steep Open Channels due to Randomly Distributed Macro Roughness Elements at Large Froude Numbers, **Journal of Hydrologic Engineering, ASCE**, Vol. 12, Issue 12, December 2017, Article No. 04017052 (**IF – 1.694, Citation-0**)
14. G. Madumathi, LigyPhilip, **S. Murty Bhallamudi**, “Transport of *E. Coli* in Saturated and Unsaturated Porous Media: Effect of Physiological State and Substrate Availability, in print, **Sadhana**, DOI 10.1007/s12046-017-0650-8, **Springer**, 42(6), pp. 1007-1024, 2017 (**IF – 0.465; Citation - 0**).

#### 2016

15. V. Arya, Ligy Philip, **S. Murty Bhallamudi** (2016), “Performance of suspended and attached growth bioreactors in cationic and anionic pharmaceutical removal”, **Chemical Engineering Journal, Elsevier**, Vol. 284, pp. 1295-1307, (**IF – 6.216, Citation – 14**)
16. M. Balamurugan and **S. Murty Bhallamudi** (2016), “Flood routing in an ephemeral channel with compound cross section”, **Sadhana, Springer**, 41(7), 771-785. (**IF – 0.465; Citation - 0**)
17. Venkata Reddy Palleti, Shankar Narasimhan, Raghunathan Rengaswamy, Ravi Teja Kanneganti, **Murty S. Bhallamudi** (2016), “Sensor network design for contaminant detection and identification in water distribution networks”, **Computers and Chemical Engineering, Elsevier**, Vol. 87, No. 6, 246-256, (**IF – 3.024; Citation - 8**)
18. Paul Daniel Wagner, **S. Murty Bhallamudi**, Balaji Narasimhan, Lakshmi Kantakumar, N., K. P Sudheer, Shamita Kumar, Karl Schneider, Peter Fiener (2016), “ Dynamic integration of land use changes in a hydrologic assessment of a rapidly developing Indian

catchment”, **Science of Total Environment, Elsevier**, Vol. 539, pp. 153-164, (IF – 4.900; Citation -21 )

#### 2015

19. Gokul, S.S., Mohan Kumar, S., Narasimhan, S., Narasimhan, S., **S. Murty Bhallamudi** (2015), “Optimal control of water distribution networks with storage facilities”, **Journal of Process Control, Elsevier**, Vo. 32, pp: 127-137, (IF – 2.700; Citation -7 )
20. Oberoi, Akashdeep Singh, Ligy Philip, and **S. Murty Bhallamudi** (2015), "Biodegradation of Various Aromatic Compounds by Enriched Bacterial Cultures: Part B—Nitrogen-, Sulfur-, and Oxygen-Containing Heterocyclic Aromatic Compounds." **Applied Biochemistry and Biotechnology, Springer**, Vol. 176(6); pp: 1746-1769, (IF – 1.606, Citation – 13)
21. Oberoi, Akashdeep Singh, Ligy Philip, and **S. Murty Bhallamudi** (2015), "Biodegradation of Various Aromatic Compounds by Enriched Bacterial Cultures: Part A—Monocyclic and Polycyclic Aromatic Hydrocarbons." **Applied Biochemistry and Biotechnology, Springer**, Vol. 176(7), pp: 1870-1888, (IF – 1.606, Citation – 6)

#### 2014

22. Aviraj Dutta, Ligy Philip and **S. Murty Bhallamudi**, (2014), “Modeling the biodegradation kinetics of aromatic and aliphatic volatile pollutant mixture in liquid phase”, **Chemical Engineering Journal, Elsevier**, Volume 241, Pages 288-300. (IF – 6.216, Citation – 12)
23. Kannan Aravamudan, Varun Harikumar, Bhuvanesh Kumar, Ligy Philip, **S. Murty Bhallamudi**, K. Srinivasa Reddy (2014), “Simulation of a cross flow wind aided evaporator”, **Desalination, Elsevier**, Volume 340, 1 May 2014, Pages 18-29. (IF – 5.527, Citation – 2)

#### 2013

24. Philip, Ligy; Reddy, K. S.; Kumar, Bhuvanesh; **Bhallamudi, S.M.**, Kannan, A. (2013), “Performance evaluation of a solar and wind aided cross-flow evaporator for RO reject management”, **Desalination, Elsevier**, Vol. 317 Pages: 1-10, (IF – 5.527, Citation – 6)

#### 2012

25. Belayneh, M. Z. and **S. Murty Bhallamudi** (2012), “Multi-objective management model for waste load allocation in a tidal river using archive multi objective simulated annealing algorithm”, **Civil Engineering and Environmental Systems, Taylor & Francis**, Vol. 29 (4), pp. 222-230, (IF – 0.700, Citation – 1)
26. Chaitali, M., Manikandan, S.T., **S. Murty Bhallamudi**, and Panday, S. (2012), “A dynamic sub-timing based implicit non-oscillating scheme for contaminant transport modeling”, **Jl. of Hydrologic Engineering, ASCE**, 17(6), pp. 694-703, (IF –1.694, Citation – 2)

27. Balasubramanian, P., Ligy Philip, **S. Murty Bhallamudi**, (2012), “Biotrickling filtration of complex VOC emissions along with chloroform”, **Bioresources Technology, Elsevier**, 114, pp. 149-159, (IF – 5.651, Citation – 22)
28. Balasubramanian, P., Ligy Philip, **S. Murty Bhallamudi**, (2012), “Biotrickling filtration of VOC emissions from pharmaceutical industries”, **Chemical Engineering Journal, Elsevier**, Vol. 209, pp. 102-112, (IF – 6.216, Citation – 23)
29. Naresh K. Sharma, Ligy Philip and **S. Murty Bhallamudi**, (2012), “Aerobic Degradation of Phenolics and aromatic hydrocarbons in Presence of Cyanide”, **Bioresources Technology, Elsevier**, Vol. 121, pp. 263-273. (IF – 5.651, Citation – 31)

#### 2011

30. Balasubramanian, Ligy Philip, **S. Murty Bhallamudi**, (2011), “Biodegradation of chlorinated and non-chlorinated VOCs from pharmaceutical industries”, **Applied Biochemistry and Biotechnology, Springer**, Vol. 163 (4), pp. 497-518, (IF – 1.606, Citation – 21)
31. H. Prashanth Reddy, Shankar Narasimhan, **S. Murty Bhallamudi**, S. Bairagi (2011), “Leak Detection in Gas Pipeline Networks Using an Efficient State Estimator - Part-I: Theory and Simulations”, **Computers & Chemical Engineering, Elsevier**, 35(4), pp. 651-661, (IF – 3.024, Citation – 31)
32. H. Prashanth Reddy, Shankar Narasimhan, **S. Murty Bhallamudi**, S. Bairagi (2011), “Leak Detection in Gas Pipeline Networks Using An Efficient State Estimator - Part-II: Experimental and Field Evaluation”, **Computers & Chemical Engineering, Elsevier**, 35(4), pp. 662-670, (IF – 3.024, Citation – 8)
33. J. Jeya Singh, V. Somasundaram, Ligy Philip, **S. Murty Bhallamudi** (2011), “Pilot scale studies for the remediation of chromium contaminated aquifer using bio barrier and reactive zone technologies”, **Chemical Engineering Journal, Elsevier**, 167(1), pp. 206-214, (IF – 6.216, Citation – 20)
34. V. Somasundaram, Ligy Philip, **S. Murty Bhallamudi** (2011), “Transport and bio-transformation of Cr(VI) in contaminated aquifers in presence of CRB, SRB, and IRB”, **Chemical Engineering Journal, Elsevier**, 171(2), pp. 572-581, (IF – 6.216, Citation – 25)

#### 2010

35. S. Mohan Kumar, S. Narasimhan, **S. Murty Bhallamudi** (2010), “Parameter estimation in water distribution networks”, **Water Resources Management, Kluwer**, Vol. 24, No. 6, pp. 1251-1272, (IF – 2.848, Citation – 13)
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## PROJECTS

### A1. Sponsored Research Projects: (Principal Investigator)

Sl. No	Title of the Project	Duration of the Project	Value of the Project	Funded by
1	Development of models for managing water quality in drinking water reservoirs	12-11-2009 To 31-12-2012	Rs:37,69,000/-	DST
2	Sustainable water and waste management in the Chennai basin	15-04-2010 To 27-10-2011	Rs: 22,50,000/-	IGCS
3	Investigation on pressure wave propagation in bubbly gas-water flows	3 Years Completed	Rs:3,90,000/-	DAE
4	Flood and sediment routing in river systems: A mathematical model	3 Years Completed	Rs:2,70,000/-	MoWR
5	Modelling the effect of land use and climate change upon in-stream hydraulics in mountainous streams	2 Years Completed March 2017	Rs:46,00,000/-	IGCS-DST

6	Smart and reliable water and wastewater infrastructure systems for our future cities in India and Germany	3 years April 2018- March 2021	Rs. 87,80,000	DST /IGSTC
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## A2. Sponsored Research Projects: (Co-Investigator)

Sl. No	Title of the Project	Duration of the Project	Value of the Project	Funded by
1	Development of Models For The Cleanup of Cr(Vi) Contaminated Aquifers using Bio-Remediation	19-12-2006 to 18-12-2009	Rs. 22,65,865/-	MoWR
2	Decentralized waste water management, benchmarking of public utilities and PPP	01-05-2009 to 31-12-2014	Rs. 2,00,27,000/-	MoUD
3	Ganga River Basin Management plan(GRBMP) - A Pan IIT project	06-07-2010 to 31-03-2015	Rs. 65,94,075/-	MoEF
4	Building an International research network on sustainability to enhance strategic knowledge <i>(Became PI during the final year of the project)</i>	28-03-2013 to 30-09-2016	Rs. 5,33,74,400/-	IGCS-DST
5	CoE of MoUD (Phase-II) Performance Evaluation Study of Sewerage Treatment Plants Sanctioned	01-01-2014 to 31-03-2018	Rs. 2,72,00,000/-	MoUD
6	Demonstration Project For the Bioremediation of Chromium Contaminated Soil and Aquifer in Ranipet	27-07-2009 to 26-07-2011	Rs. 14,41,200/-	CPCB
7	Solution to Textile Pollution by undertaking Feasibility Study on Natural Evaporator as an Alternative to Mechanical Evaporator	January 2011 – December 2011	Rs. 10,00,000/-	GoTN
8	Design of an expert system for flood forecasting and management for the city of Chennai.	03-10-2016 to 02-04-2018	Rs. 1,00,00,000/-	PSA to PM
9	Leak detection and isolation in gas pipeline networks	2.5 Years Completed	Rs. 17,50,000/-	GAIL (India)
10	Control and operation of urban distribution networks	13-06-2014 To 12-06-2017	Rs. 32,90,000/-	DST

11	Impact of Navigation on Flow and Sediment Transport at River Confluences: An Experiment Study	12-03-2018 to 11-03-2021	Rs. 3851600/-	Ministry of Shipping (NTCPWC)
12	New Strategies for optimal operation of water supply schemes by use of scheduling and decentralized	15-03-2018 To 14-03-2021	Rs. 1,34,87,210/-	WTI / DST
13	Experimental and Numerical Model Study of Urban Flood	21-08-2018 To 20-08-2021	Rs. 47,05,420/-	SERB / DST
14	Storm surge impact on estuaries	23-03-2018 To 22-03-2023	Rs. 41,46,560/-	IGCS-DST
15	Climate Change Impacts on Coastal Infrastructure and the Adaptation Strategies <i>(Along with Prof. Sannasi Raj, I am responsible for overall coordination of this project)</i>	23-03-2018 To 22-03-2023	Approx. Rs. 8.9 crores	IGCS-DST
16	Water Distribution and Sewer Networks	23-10-2018 To 22-10-2023	Rs. 33,08,000/-	DST-WTI Center
17	Sustainable Drainage Systems and Water Management	23-10-2018 To 22-10-2023	Rs. 38,81,300/-	DST-WTI Center

### B. Research Based Consultancy Projects

Sl. No	Title of the Project	PI / Co-PI	Duration of the Project	Value of the Project	Funded by
1	Numerical modeling of avalanches	PI	2 years Completed	Rs. 1,75,000/-	SASE (DRDO)
2	Model Testing For Construction of HL Bridge over River Koshi	PI	2009 -2011	Rs. 69,48,900/-	M/s: BRPNNL
3	Conducting Study for Modernizing The Thanneermukkom Bund and for Improving the Efficiency of Thottapalli barrage	PI	2009 – 2012	Rs. 35,00,000/-	MoWR, GoI
4	Developing improved Design of Septic Tanks to Prevent Groundwater Contamination	PI	01-10-2015 To 30-09-2017	Rs. 52,30,560/-	ARGHYAM

	in the Context of Namakkal				
5	Sustainable waste management and resource recovery for clean and healthy villages [Vichoor]	Co-PI	31-03-2015 To 30-03-2018	Rs. 2,00,00,000/-	M/s. India Additives Ltd
7	Sustainable waste management and resource recovery for clean and healthy villages [SP Kovil]	Co-PI	19-10-2015 To 18-10-2018	Rs. 1,14,00,000/-	M/s. Technip India Limited

### C. Industrial Consultancy Projects

Sl. No	Title of the Project	PI / Co-PI	Duration of the Project	Funded by
1	Strengthening of existing water distribution system in Tirupur water supply project	Co-PI	1 year Completed	M/s NTADCL
2	One dimensional breach analysis on summer storage tank and safety	PI	6 months completed	M/s IFFCL
3	Prakasam barrage at Vijayawada: Investigations for assessment of the condition of the barrage and recommendations for maintenance	Co-PI	completed	M/s APGENCO
4	Vijayawada Thermal Power Station (VTPS): Investigations on the condition of the cooling water canal and recommendations for improvement	Co-PI	completed	M/s APGENCO
5	Options to meet the water requirement of VTPS	Co-PI	completed	M/s APGENCO
6	Consulting services for alternative cooling water system to run 1100 cusecs of river water and install 3 Nos. cooling towers at VTPS, Ibrahimpatnam and for other civil works at APGENCO	Co-PI	completed	M/s APGENCO

<b>7</b>	Consultancy Services For Vetting The Civil Designs – Karimnagar	PI	01-02-2003 To 31-01-2004	APGENCO
<b>8</b>	Priyadarshini Jurala Hydroelectric Project Tail Race Channel Mathematical Model Studies	PI	03-03-2004 To 02-07-2004	APGENCO
<b>9</b>	To Examine the Feasibility And Adoptability of the Proposed Mini Hydel Scheme	PI	15-06-2005 To 30-06-2006	APGENCO
<b>10</b>	Promoting Effective Water Management Policies And Practices -Water Utilities Data book	CO-PI	01-08-2007 To 31-10-2007	ADB
<b>11</b>	Ground Water Quality Monitoring And Modeling For Preparation Of Action Plan For Remedial Measures	CO-PI	24-10-2007 To 31-12-2008	CPCB
<b>12</b>	Pulichinatala Hydro Electric Project- Tail Race Channel Mathematical Model Studies	PI	21-09-2007 To 30-08-2008	APGENCO
<b>13</b>	Calibration Of Water Current Meters	PI	03-07-2008 To 02-01-2009	CWC
<b>14</b>	Vetting Opinion Of Surge Designs	PI	03-11-2008 To 02-05-2009	Saisanket Enterprises Mumbai
<b>15</b>	Vetting Of Design Notes Dehani LIS Project	PI	29-06-2009 To 31-08-2010	Shree Consultants Maharashtr
<b>16</b>	Karaikal Port River Diversion Studies Work Order	PI	03-07-2009 To 30-11-2010	L&T Ramboll Consulting Eng Ltd
<b>17</b>	Onsite Treatment Plant Of Sewage Without Polluting The Ground Water-Feasibility Study	CO-PI	11-05-2010 To 31-08-2010	TSIDTL
<b>18</b>	Vetting Of Water Treatment Plant Design	CO-PI	01-01-2012 To 01-06-2012	Megha Engineering & Infrastructures Ltd., Hyderabad



<b>19</b>	Vetting For Hydraulic Designs	PI	01-11-2012 To 31-10-2015	Megha Engineering & Infrastructures Ltd
<b>20</b>	Vetting Of The Desing And Drawings Of 10.0mld Sewage Treatment Plant At Bodhgaya Buidco, Bihar	CO-PI	01-01-2013 To 31-12-2013	BUIDCL, Patna
<b>21</b>	Vetting Of The Desing And Drawings Of 16.0 Mld Sewage Treatment Plat At Buxar, Buidco, Bihar	CO-PI	01-01-2013 To 31-12-2013	BUIDCL, Patna
<b>22</b>	Vetting Of The Design And Drawings Of 17.0 Mld Sewage Treatment Plant At Begusarai, Buidco, Bihar	CO-PI	01-01-2013 To 31-12-2013	BUIDCL, Patna
<b>23</b>	Construction Of Check Dam Across Bharathapuzha At Mannanur In Palakkad District	CO-PI	04-11-2013 To 03-05-2014	IDRB., Thiruvananthapuram
<b>24</b>	Vetting Of The Design And Drawings Of Water Treatment Plant And Intake Structures For Patna Buidco	CO-PI	17-07-2013 To 15-07-2014	BUIDCL, Patna
<b>25</b>	Technical Assessment of DPRs of integrated water supply and sewerage project of Nellore Municipal	PI	01-08-2015 To 31-10-2015	Public Health And Municipal Engineering Department A.P.
<b>26</b>	Guntur Municipal Corporation (GMC) and Vijayawada Municipal Corporation (VMC) - Govt.of India	PI	04-01-2016 To 30-04-2016	Public Health and Municipal Engineering Department A.P.
<b>27</b>	Vetting of pipeline and open-channel designs	PI	01-10-2015 To 30-09-2018	Navayuga Engineering Company Limited
<b>28</b>	Vetting of designs for surge tank and other transient control measures	PI	01-03-2016 To 28-02-2017	Megha Engineering and Infrasture Ltd
<b>29</b>	Proof checking of channel related designs of Amanishah	PI	21-07-2016 To 20-03-	TPL - Sug Consortium

	Nallah, Jaipur		2017	
<b>30</b>	Entering into Community: Awareness Campaigns, Exhaustive studies need to be carried out to "assess(Vilangattupakkam)	CO-PI	03-06-2016 To 28-02-2017	AM Corporate Social Responsibility Foundation
<b>31</b>	Suitable Technology & Design for Sewage Treatment Plant (STP) for 6.5 MLD for Kodaikanal Municipal	CO-PI	10-10-2016 To 09-04-2017	TWAD Board
<b>32</b>	Identification of reliable source for drinking water supply and designing of conveyance systems(Vilangattupakkam)	CO-PI	01-02-2017 To 31-01-2018	AM Corporate Social Responsibility Foundation
<b>33</b>	Testing Soil Samples for Contamination of Hexavalent Chromium around Lohianagar, Ghaziabad	CO-PI	01-01-2017 To 30-06-2017	Shriram pistons & Rings Ltd.

### **SOCIALLY RELEVANT PROJECTS**

1. Development of a humane sewer cleaning system  
Sponsoring Agency: I.I.T Madras  
Amount: Rs. 1.5 Lakhs  
Investigators: Ligy Philip and **B.S. Murty (PI)**  
Status: Completed (2005-2006)

### **COLLABORATIVE RESEARCH WITH INDUSTRY**

1. **Tata Consulting Engineers, Bombay**  
Period: June 15 – July 14, 1991  
Task: Developed guidelines and software for air valve sizing in penstocks
2. **HydroGeoLogic Inc., Virginia, USA**  
Period: May 14 – July 14, 1991  
Task:
  - (i) Bench marking the EPA's screening level model for oil spills on land surfaces using a complete numerical model, which was modified from an earlier model developed by Dr. Singh and myself.
  - (ii) Incorporation of simple alternatives for infiltration component into a sophisticated surface-subsurface conjunctive flow model.
  - (iii) Development of sub-timing and sub-spacing numerical methods for solution of partial differential equations describing the conservation laws.

### **CONTINUING EDUCATION PROGRAMS**

- a. Video Course on “Water and Wastewater Engineering” (4 Lectures), **NPTEL, IIT Madras (2005-2006)**
- b. Web based Course on “Hydraulic Engineering (10 lectures) **NPTEL, IIT Madras (2005-2006)**
- c. Contaminant Transport Modeling: Theory and Application Sponsored by AICTE under QIP program. Held during 11-16, June, 2007 at Indian Institute of Technology, Madras (Coordinators: Ligy Philip and B.S. Murty)
- d. Collection, Treatment and Distribution of Water and Wastewater. Training Program conducted for Nagarjuna Construction Company (CEP) during 11-13 September, 2007, at Indian Institute of Technology, Madras (Coordinators: Ligy Philip and B.S. Murty)
- e. Collection, Treatment and Distribution/reuse of Water and Wastewater. Sponsored by AICTE under QIP program. Held during 25-30, August, 2008 at Indian Institute of Technology, Madras (Coordinators: Ligy Philip and B.S. Murty)
- f. Collection, Treatment and Distribution of Water and Wastewater. Training Program conducted for Nagarjuna Construction Company (CEP) during 18-20 November, 2008, at Indian Institute of Technology, Madras (Coordinators: Ligy Philip and B.S. Murty)
- g. Two days training program for officials of PCBs on HWDS and its remediation, 8-3-2010 to 9-03-2010 at Indian Institute of Technology, Madras (Coordinators: Ligy Philip and B.S. Murty)

## **ADMINISTRATIVE / ACADEMIC RESPONSIBILITIES**

1. Head, Environmental and Water Resources Engineering Laboratory, IIT Madras (Dec 2002 –December 2005)
2. Warden, Sindhu Hostel
3. Coordinator of Socially Relevant Projects of IIT Madras, September 2006 – 2012
4. Coordinator of Water Management Group of the Center for Sustainable Development at IIT Madras since 2011
5. Coordinator, Indo-German Center for Sustainability (IGCS), since August 2016

## **PROFESSIONAL RECOGNITION**

### **Editorial board**

Member of the Editorial Board of ISH Journal of Engineering

Associate Editor, Sadhana, Journal Published by Indian Academy of Science

### Awards

1. **Best paper award** from Indian Society for Hydraulics for the paper “Flood routing in tree type channel networks” by S. Surya Rao, **S. Murty Bhallamudi**, S.K. Tiwari and Ravi Bhushan Kumar, ISH Journal of Hydraulic Engineering, ISH, Vol.6, No. 1, pp. 35-45, 2000.
2. **Best paper award** from the Institution of Engineers (India) for the paper “Effect of intermediate non-return valves on transients in pumping mains” by **Murty, B.S.**, Sridharan, K. and Prasad, I., Journal of the institution of engineers (Ind), Vol. 67, Part CI 3, pp. 99-104, November 1986.
3. **Best paper award** from the Institution of Engineers (India) for the paper “Implicit two dimensional storage routing of floods in a river with flood plains” by P.V.N. Sudhakar, S. Surya Rao and **S. Murty Bhallamudi**, Journal of the Institution of Engineers (Ind), Vol. 80, November 1999, pp. 105-109.
4. **Fellow of Indian Society for Hydraulics**
5. **S.N. Gupta Memorial Award of Indian Society for Hydraulics, 2010**

### Invited Lectures

1. **Keynote lecture** “Numerical and physical considerations in Hydraulic routing”, in National Workshop on Hydrologic and Hydraulic Routing in Alluvial Streams, **November 26-27, 1999, Roorkee**, pp. 1-10.
2. Delivered one of the two key note addresses in Joint Indo-Australian Workshop on Water Resources Engineering, **Adelaide, Australia, held during 11-02-2007 to 15-02-2007.**
3. **Centenary Seminar Series, Department of Civil Engineering, IISC., Bangalore**, 19 August, 2008, “On-line condition assessment and control of water distribution and gas pipeline networks”.
4. **Keynote lecture** “Conjunctive modeling of surface-subsurface modeling”, in **ICCMS09, IIT Bombay**, 1-5 December, 2009.
5. **S.N. Gupta Memorial Lecture**, “Contaminant Transport: Experimental and Modeling Studies”, **HYDRO-2010, Indian Society for Hydraulics**, MM University, Mullana, Haryana, December 16, 2010.

### Member, Expert committee

1. **Pollution Control Board**, Pondicheri. To assess the ground water contamination caused by Shashun Chemicals, Pondicheri

2. **High Court Chennai.** To assess the water quality and environmental issues associated with lakes in Veeranam village (Tiruvannamali) due to quarrying operations
3. **APGENCO,** Hydrological studies for fixing the plant capacity of Hydro-electric power station in Polavaram Project.
4. **APGENCO – SLBHES & SRBHES –** unprecedented floods in Krishna river during the first week of October, 2009 – Inundation of SRBHES and damages to AC plant building at SLBHES – Rectification and Strengthening measures.
5. **TWAD Board,** for guidelines to select pipe material