

**Dr.NASAR Thuvanismail (Ph.D., IIT Madras)**

Assistant Professor  
Department of Applied Mechanics and Hydraulics  
National Institute of Technology Karnataka, Surathkal  
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**Research interest**

Wave structure interaction, coastal engineering, liquid sloshing dynamics in engineering applications, Dynamics of offshore structures/wave energy devices, development of smart materials, structural health monitoring

**Educational qualifications**

Course	University	Year
Ph. D. (Ocean Engg.)	Indian Institute of Technology Madras (IITM), Chennai, India	2008
M.E. (Structures)	College of Engineering Guindy, Anna University, Chennai, India	2003
B. Tech. (Civil Engg.)	Arulmighu Kalasalingam College of Engineering, Madurai Kamarajar University, Madurai, India	1998

**Professional experience**

Designation/Position	Name of the institute/industry and duration
Assistant Professor (Post under Govt. of India)	Department of Applied Mechanics and Hydraulics, NITK Surathkal March 2015 – till date
Professor	Department of Civil Engineering, TKM Institute of Technology, Kollam April 2014 – March 2015
Professor	Department of Civil Engineering, ToCh Institute of Science and Technology, Ernakulam October 2013 – March 2014
Assistant Professor (Post under Govt. of India)	Department of Naval Architecture and Ocean Engineering, Indian Maritime University, Cochin Campus December 2012 – August 2013
Professor	Department of Civil Engineering, Noorul Islam Centre for Higher Education, Nagercoil May 2010 - December 2012
Senior Marine Engineer	DAR AL-Handasah (Shair & Partners) Pune-411028, India November 2008 – April 2010
Research Scholar/ Assistant (during Ph.D)	Indian Institute of Technology Madras, Chennai January 2004 – October 2008
Project Officer	Indian Institute of Technology Madras, Chennai August 2003 – November 2003
Graduate Engineer Trainee	Venus constructions, Chennai July 1998 – May 2001

## Publications

### International Journals

1. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2008) Experimental study of Liquid sloshing dynamics in a barge carrying tank. *Fluid Dynamics Research*, **40**, 427-458. <http://dx.doi.org/10.1016/j.fluidyn.2008.02.001> (Secured 3rd place in the contest of Top 25 hottest articles, between April -June 2008)
2. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2008) Sloshing pressure variation in a barge carrying tank. *Ships and Offshore structures*, **3(3)**, 185-203. <http://dx.doi.org/10.1080/17445300802204363>
3. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2009) Wave-induced sloshing pressure in a liquid tank under irregular waves. *ASME Part M: Journal of Engineering for the Maritime Environment*, **223(2)**, 145-161. doi: 10.1243/14750902JEME135
4. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2010) Motion responses of barge carrying liquid tank. *Ocean Engineering*, **37(10)**, 935-946. <http://dx.doi.org/10.1016/j.oceaneng.2010.03.006>
5. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2012) Liquid sloshing dynamics in a barge carrying container subjected to random wave excitation. *Journal of Naval Architecture and Marine Engineering*, **9(1)**, 43-65. <http://dx.doi.org/10.3329/jname.v9i1.7600>
6. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2013) A Numerical study: Liquid sloshing dynamics in a tank due to uncoupled sway, heave and roll ship motions. *Journal of Naval Architecture and Marine Engineering*, **10(2)**, 119-138. <http://dx.doi.org/10.3329/jname.v10i2.16215>
7. **T. Nasar**, and S. A. Sannasiraj (2019). Sloshing Dynamics and performance of porous baffle arrangements in a barge carrying liquid tank. *Ocean Engineering*, 183, 24-39. <https://doi.org/10.1016/j.oceaneng.2019.04.022>
8. **T. Nasar**, S.A.Sannasiraj and V.Sundar (2019). Performance assessment of porous baffles on liquid sloshing dynamics in a barge carrying liquid tank. *Ships and Offshore structures* (Under review).
9. **T. Nasar**, S.A.Sannasiraj and V.Sundar (2019). Effect of porous baffle on sloshing pressure distribution in a barge mounted container subjected to regular wave excitation. *Journal of Naval Architecture and Marine Engineering* (Under review).
10. Salsala A., Nagan, S and **Nasar, T.**, (2015). Intelligent control of semi active Tuned Liquid Column Damper with structure. *International Journal of Applied Engineering Research*, ISSN 0973-4562, Vol. 10 (55), pp 3579-3582.
11. Salsala A., Nagan, S and **Nasar, T.**, (2016). Particle Swarm Optimized Fuzzy Control of structure with Tuned Liquid Column Damper. *Global Journal of Pure and Applied Mathematics (GJPAM)*, ISSN 0973-1768, Vol. 12 (1), pp 875-886.
12. Salsala A., Nagan, S and **Nasar, T.**, (2016). Comparison of PID control with passive control. *Imperial journal of interdisciplinary research*, Vol. 2 (2), pp 497-500.
13. Tayesh kumar and **Nasar, T.**, (2016). Prediction of natural frequency of wind turbine off Mangalore coast. *International journal of innovative research in science, Engineering and Technology*, ISSN 2347-6710, Vol. 5(9), pp 497-500.
14. Praveen K M., Karmakar, D and **Nasar, T.**, (2016). Hydroelastic analysis of thick floating elastic plate in shallow water. *Perspective science*. <https://doi.org/10.1016/j.pisc.2016.06.084>
15. A I Shirkol., **Nasar, T** and Karmakar D (2016). Wave interaction with Very Large Floating Structures (VLFS) using BEM approach-revisited. *Perspective science* (doi:10.1016/j.pisc.2016.06.012)
16. A I Shirkol and **Nasar, T** (2017). Wave interaction with Floating platform of different shapes and supports using BEM approach. *Journal of Naval Architecture and Marine Engineering*, Vol. 14(2), pp 115-133. <http://dx.doi.org/10.3329/jname.v14i2.28267>

17. A I Shirkol and **Nasar, T** (2018). Coupled boundary element method and finite element method for hydroelastic analysis of floating plate. *Journal of Ocean Engineering and Science*, Vol. 3(1), pp 19-37. <https://doi.org/10.1016/j.joes.2017.11.003>.
18. A I Shirkol and **Nasar, T** (2019). Coupled BEM and FEM for the analysis of floating elastic plate with an arbitrary shape. *Ships and Offshore Structures*. Vol. 14(1), pp 1-11. <https://doi.org/10.1080/17445302.2018.1564540>
19. Jhoga, P, **Nasar, T**, Anand, K.V. and Kunhimammu P (2019). Geospatial approach to study shoreline configuration change of coast along with construction of breakwaters. *Marine Geodesy*. (Under review).

#### **National Journals**

Jhoga. P, **Nasar, T**, Aanand. K. V, Kunhimammu. P, (2017), "A geospatial approach to study shoreline configuration Dynamics - pre, during and post construction of training wall", *Journal of the Indian National Cartographic Association (INCA)*, Vol.37, pp.202-210.

#### **International Conferences**

1. **Nasar, T.**, Balaji, R. and Sundar, V. (2005) Stability assessment of rubble mound breakwater and seawall with geosynthetics. *Proceedings of the 1<sup>st</sup> International Conference on Coastal management and Engineering in the Middle East*, Dubai, United Arab Emirates, 27-29 November.
2. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2006) Wave induced sloshing in a liquid tank system. *Proceedings of the 15th Asia and Pacific Division of International Association of Hydraulic Engineering and Research (APD-IAHR) Congress*, Indian Institute of Technology Madras, India, August 7-10, 2, 873-880.
3. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2008) Liquid sloshing dynamics in a container subjected to coupled mode excitation (OMAE2008-57340). *Proceedings of the 27th International Conference on Offshore mechanics and arctic engineering*, Estoril, Portugal, June. (In CD-ROM).
4. **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2009) Experimental investigation of sloshing dynamics coupled with barge responses (OMAE2009-79404). *Proceedings of the 28th International Conference on Ocean, Offshore and arctic engineering*, Honolulu, Hawaii, 31<sup>st</sup> May – 5<sup>th</sup> June.
5. Salsala A., Nagan, S and **Nasar, T.**, (2015). Intelligent control of semi active Tune Liquid Column Damper with structure. *Proceedings of the International Conference on Advances in Applied Engineering and Technology*, Ramanathapuram, India, May 14-16.
6. Salsala A., Nagan, S and **Nasar, T.**, (2016). PID Control of structure with Tuned Liquid Column Damper. *Proceedings of the 10<sup>th</sup> international conference on Intelligent Systems and Control*, Coimbatore, India, January 7-8.
7. Salsala A., Nagan, S and **Nasar, T.**, (2016). Control of structure with Tuned Liquid Column Damper. *Proceedings of the international conference on Civil, Mechanical and Environmental Engineering Technologies*, Coimbatore, India, February 26-27.
8. A I Shirkol., **Nasar, T** and Karmakar D (2016). Wave interaction with Very Large Floating Structures (VLFS) using BEM approach-revisited. *Proceedings of the International Conference on recent trends in Engineering and Material science*, Jaipur, India, March 17-19.
9. Praveen K M., Karmakar, D and **Nasar, T.**, (2016). Hydroelastic analysis of thick floating elastic plate in shallow water. *Proceedings of the International Conference on recent trends in Engineering and Material science*, Jaipur, India, March 17-19.
10. Narmada, A S and **Nasar, T.**, (2016). A study on the effect of scour on the natural frequency of offshore wind turbine on monopile foundation. *Proceedings of the 1<sup>st</sup> International Conference on Disaster Mitigation and Management for Sustainable Development and Risk reduction*, NIT Trichy, India, February 22-24.

11. Tayesh kumar and **Nasar, T.**, (2016). Prediction of natural frequency of wind turbine off Mangalore coast. Proceedings of *the International Conference on emerging trends in Engineering*, Manipal, India, May12-13.
12. Jhoga. P, **Nasar. T**, Aanand. K. V, Kunhimammu. P, (2017),"A geospatial approach to study shoreline configuration Dynamics - pre, during and post construction of training wall", *37th Indian National Cartographic Association (INCA) International Congress on Geoinformatics for Carto-Diversity and it's management*, Naval Hydrographic Office, Indian Navy, Dehradun. (Acknowledged as Best Paper)
13. **Thuvanismail, N.**, Shah, A.P, Surahonne, D.J. and Annamalaisamy, S.S. (2017) Effect of porous baffle on sloshing dynamics in a barge mounted container subjected to wave excitation (OMAE2017-61318). Proceedings of *the 36th International Conference on Ocean, Offshore and arctic engineering*, Trondheim, Norway, 25<sup>th</sup> – 30<sup>th</sup> June.
14. **Thuvanismail, N.**, Surahonne, D.J., Shah, A.P. and Annamalaisamy, S.S. (2017) Effect of porous baffle on sloshing pressure distribution in a barge carrying tank (OMAE2017-61499). Proceedings of *the 36th International Conference on Ocean, Offshore and arctic engineering*, Trondheim, Norway, 25<sup>th</sup> – 30<sup>th</sup> June.
15. Jhoga.P, **Nasar.T**, and Kunhimammu P (2018). Numerical approach to understand sediment transport and nearshore wave transformation after construction of breakwaters-Ponnani Harbour, Kerala, India. *International conference on HDYRO 2018*, NIT Patna, 1-11, 19-21 December.
16. Bhargav.J, **Nasar.T** and Kunhimammu Paravath (2018). "A study on shoreline configuration dynamics of Beypore estuary using End point rate analysis – During and Post Construction of Breakwaters" *International conference on HDYRO 2018*, NIT Patna, 1-11, 19-21 December.
17. Vadelu Krishna Chaithanya, **Nasar.T** and Kunhimammu Paravath (2019). A study on shore line dynamics during and post-construction of break waters in kasaragod fishing harbor. The Fifth International Conference on Emerging Trends in Engineering (ICETE-2019), 23rd - 24th May [NMAM Institute of Technology](#), Nitte, Karnataka.
18. Ammu John, **Nasar.T** and Kunhimammu Paravath (2019). A study on morphodynamic nature of Muthapozhi harbor using geospatial approach. The Fifth International Conference on Emerging Trends in Engineering (ICETE-2019), 23rd - 24th May, [NMAM Institute of Technology](#), Nitte, Karnataka.

#### **National Conferences / Seminars / Symposia**

- 1) Sundar, V., Sannasiraj, S.A. **Nasar, T.** and Balaji R. (2004) Anti-sea erosion work–Coastline north of Royapuram fishing harbour. Proceedings of *the International Seminar on Coastal Area Construction Management*, Mumbai, India, October 28-29, 57-61.
- 2) **Nasar, T.**, Balaji, R. and Sundar, V. (2004) Hydrodynamic characteristics and stability of rubble mound breakwater with Geobags as core. Proceedings of *the 3<sup>rd</sup> Indian National Conference on Harbour and Ocean Engineering (INCHOE 2004)*, Goa, India, December 7–9, Vol. 2, 492-497.
- 3) **Nasar, T.**, Sannasiraj, S.A. and Sundar, V. (2007) Experimental investigation of sloshing pressure distribution in barge carrying tank, Proceedings of *the 4<sup>th</sup> Indian National Conference on Harbour and Ocean Engineering (INCHOE 2007)*, Surathkal, India.
- 4) Sundar, V., Murali, K., Chandramohan, C. and **Nasar, T.** (2007) Hydrodynamic characteristic and stability of KOLOS armoured rubble mound breakwater, Proceedings of *the 4<sup>th</sup> Indian National Conference on Harbour and Ocean Engineering (INCHOE 2007)*, Surathkal, India.
- 5) Bhargav.J, **Nasar.T** and Kunhimammu Paravath (2018) "A study on shoreline configuration dynamics of Beypore estuary using Geospatial approach – During and Post Construction of Breakwaters" Proceedings of *6<sup>th</sup> National Conference on Coastal, Harbour and Ocean Engineering(INCHOE 2018)*, CWPRS, Pune, India, 26<sup>th</sup> – 28<sup>th</sup> September, 2018, 504-512.

- 6) **T. Nasar**, M. Visweswaraiiah and S. A. Sannasiraj (2018) “Study on Draft influence in sloshing dynamics in a barge carrying tank” *Proceedings of 6<sup>th</sup> National Conference on Coastal, Harbour and Ocean Engineering (INCHOE 2018)*, CWPRS, Pune, India, 26<sup>th</sup> – 28<sup>th</sup> September, 2018, 235-248.
- 7) Sahaj K.V. and **T. Nasar** (2019) “An experimental study on sloshing dynamic in a rectangular tank” National conference on advances in structural technologies, NIT Silchar, India, 1<sup>st</sup>– 3<sup>rd</sup> February, 2019.

### **Book chapters**

- **T. Nasar** and S. A.Sannasiraj (2018), ‘Experimental investigation on effect of submerged solid baffle in a barge carrying liquid sloshing tank’ in the book titled “Lecture Notes in Civil Engineering” edited by Murali K., Sriram V., Samad A., Saha N. (eds.) Springer, Singapore/ Vol.22/ pp365-384.
- Anoop. I. Shirkol and **T. Nasar** (2018) ‘Coupled Boundary Element Method And Finite Element Method For Hydroelastic Analysis Of Floating Plate’, in the book titled “Lecture Notes in Civil Engineering” edited by Murali K., Sriram V., Samad A., Saha N. (eds.) Springer, Singapore/ Vol.22/ pp81-102.
- “Physical Modelling of Coastal Structures”, AICTE sponsored QIP programme in Coastal Processes and Modelling, March 2012, **IIT Bombay**, Vol.1, pp.1-18

### **Lectures delivered**

1. “Tsunami Generation and Propagation”, National Level symposium on Recent advances in Civil Engineering, Noorul Islam University, August 2011.
2. “Physical Modelling of Coastal Structures”, AICTE sponsored QIP programme in Coastal Processes and Modelling, 19-23, March 2012, **IIT Bombay**.
3. “Nonlinear aspects of liquid sloshing dynamics”, Naval Research Board, India sponsored workshop on Numerical simulation of free surface waves, 18-19, March 2013, **IIT Chennai**.
4. “Liquid sloshing dynamics in seagoing vessels” Department of Naval Architecture and Ocean Engineering, **Osaka University, Osaka, Japan**, March 2016.

### **Fellowships/scholarships**

- GATE scorer and received fellowship for pursuing M.E course in college of engineering Guindy, June – January 2003.
- Received HTRA from MHRD, India for pursuing Ph.D course in IIT Madras, January 2004 – December 2007.
- IITMANNA travel grant fellowship to present a technical paper in 27th International Conference on Offshore Mechanics and Arctic Engineering (OMAE 2008), Lisbon, Portugal

### **Professional honour**

- International reviewer member of a SCOPUS indexed journal ‘**Marine Structures**’, Elsevier Publications
- reviewer member of a SCOPUS indexed journal ‘**ISH Journal of Hydraulic Engineering**’, Taylor and Francis Publications

### **Countries visited**

- Cairo, Egypt, professional visit, January – March 2009
- Lisbon, Portugal, to present paper in 27<sup>th</sup> OMAE, 31<sup>st</sup> May – 5<sup>th</sup> June 2008
- Osaka University, Japan, Research interaction, 23<sup>rd</sup> April– 30<sup>th</sup> April 2016
- Trondheim, Norway, to present paper in 36<sup>th</sup> OMAE, 25<sup>th</sup> – 30<sup>th</sup> June 2017

### **Administrative works at NITK**

- Faculty Advisor – B.Tech First year students-Academic year 2015-2016, 2017,2018
- DUGC Secretary, UG courses, Department of Applied Mechanics and Hydraulics—  
Academic year 2015-2016, 2018-19
- Anti-ragging invigilation committee member-Academic year 2015-16, 2016-17, 2017-18
- Seating arrangement and Registration committee member in Convocation 2015, 2016,  
2017, 2018
- Ring presentation ceremony organizing member at Department level-Academic year  
2015-2016, 2018-19
- M.Tech. (WRE) seminar reviewing committee member at Department level-Academic  
year 2015-2016
- RPAC panel member in Dept. of Mechanical Engineering
- Annual stock verification at Resident Engineer office-Academic year 2015-2016, 2016---  
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- Member of Department exam monitoring committee at Department level-Academic year  
2015-2016, 2018-19
- OBC nominee for shortlisting Ph.D applications at Department level
- Executive member in Disaster Management cell, NITK Surathkal, 2018-
- Faculty In-charge, Water works, 2018-till date

### **Research Guidance at NITK**

- Marine structures (M.Tech) (Completed -7, Ongoing-8)
- Marine Structures (M.Tech, Research) (Completed -1, Ongoing-1)
- Ph.D (Thesis submitted-1, Ongoing - 3)

### **List of research projects involved in IIT Madras (Read as Project title and Sponsored agency)**

- (1) Design of effluent disposal and diffuser system for Textile Park, South Indian Mills Association Ltd (SIMA), Cuddalore.
- (2) Stability assessment of Rubble Mound Breakwater armoured with Accropode units at Karaikal port, MARG Engineering Ltd, Chennai, India.
- (3) Design of Outfall Facilities for 1050MW Natural Gas/LNG based combined cycle power plant at KOVAYA, GSPC Pipavav Power Company Ltd, Gujarat.
- (4) Research project on Stability assessment of Rubble Mound Breakwater armoured with **KOLOS** (Modified DOLOS) at Krishnapatnam port, Andhra Pradesh, India.
- (5) Hydrodynamic performance of Geobags and Gabions, Garware Wall Ropes Ltd., Pune.
- (6) Stability study of CORE-LOC armoured rubble mound breakwater at Pawas Bay, Finolex Industries Ltd., Mumbai, India.
- (7) Series of bathymetry surveys at Kanyakumari district (Periathalai, Manakudi and Enaiyam villages), Public Works Department, Tamilnadu Government.
- (8) Improvement of Pondicherry fishing harbour – Bathymetry survey, Department of

Fisheries, Government of Pondicherry.

- (9) Anti sea erosion work – Coastline north of Royapuram Fishing Harbour, Tamil Nadu Water Resources Organization, Public Works Department, Chennai.
- (10) Development of adequate road connectivity to Chennai and Ennore Port – Sea protection work – Hydrographic surveys, RDS Project Limited, Chennai.
- (11) Hydrographic survey at Nizampatnam, Good Earth Maritime Ltd., Chennai.
- (12) Tranquility studies of Chennai port, Tamilnadu Government, India.
- (13) Preliminary studies and Bathymetry survey at Idinthakarai, for construction of Fishing Harbour - Public Works Department, Tamilnadu Government, India.

### **R&D projects (Ongoing)**

1. Funding Agency -SERB, DST, GOI; Project Amount – INR.32.67Lakhs

Title of the project: Optimal damping of porous screen in TLD-Structure interaction (File No ECR/2015/000176); Duration: 2016-19.

Role: Principal Investigator

2. Funding Agency -DST, GOI; Project Amount – INR118 Lakhs

Title of the project: "Impounding of River flood waters along Dakshina Kannada Coast: A sustainable strategy for water resource development"- File Number: IMP/2018/001298, Duration: 2019-21.

Role: Co Investigator

3. Funding Agency -MHRD, GOI; Project Amount – INR 78 Lakhs

Title of the project: " Renewable energies from Ocean: Adoptable and Sustainable technologies for Indian conditions"- File Number: SPARC/2018-2019/P689/SL, Duration: 2019-20.

Role: Co Investigator

### **Research Consultancy project (Submitted)**

1. Title: Implementation of Coastal Management Information System along Karnataka Coast

Funding Agency: Central Water Commission, GOI

Project Amount :100Lakhs

### **Seminars/workshops/conferences attended (Recent)**

-Indo-Australian workshop on ‘Marine Renewable Energy’ sponsored by Department of Ocean Engineering, IIT Madras & Swinburne University of Technology, Australia held at IIT Madras, April 4-5, 2016.

-Paper presentation in 36th International Conference on Ocean, Offshore and arctic engineering, Trondheim, Norway, 25<sup>th</sup> – 30<sup>th</sup> June, 2017.

- Paper presentation in 36th International Conference on Ocean, Offshore and arctic engineering, Trondheim, Norway, 25<sup>th</sup> – 30<sup>th</sup> June.

- Paper presentation in 4<sup>th</sup> International Conference in Ocean Engineering (ICOE 2018), IIT Madras, India

### **Professional society activities, events, conferences organized etc**

- i) Organized an expert lecture titled ‘Surfzone Processes and Sediment Transport’ on 16.08.2016. Expert Name and details: Dr.Seelam Jayakumar, Principal scientist, NIO Goa
- ii) Organized MIKE-21 training programme between 22.08.2016-26.08.2016. Course instructor: Dr.Susant Misra, DHI, Delhi
- iii) organized TEQIP –II sponsored workshop on Coastal Hydrodynamics and modelling held on 7<sup>th</sup> October 2016, NITK Surathkal
- iv) Organised expert lectures titled ‘1)Structural aspects and effect of coastal vegetation on attenuation of Tsunami and, (2) Harnessing of wave energy by point absorber-simulation and Experimental approach on 16.01.2017. Dr.L.Noarayanan, Post-Doctoral fellow, NTU, Singapore
- v) Organized TEQIP –II sponsored workshop on Past Present and Future scenario of Marine structures held on 20<sup>th</sup> February 2017, NITK Surathkal
- vi) Organized Five days of GIAN course on ‘Environmental loads and design approach for fixed and floating offshore structures’ December 23-27, 2019.

#### **Awards and Recognition:**

1. Best paper award in *37th Indian National Cartographic Association (INCA) International Congress on Geoinformatics for Carto-Diversity and it's management*, 2017, Naval Hydrographic Office, Indian Navy, Dehradun.
2. Certificate of Recognition by IISc. Bangalore for the contribution to the project titled Coastal reservoir concept to impound Nethravathi River Flood waters: A sustainable strategy for water resource development for Mangalore and Bangalore

#### **Research interaction**

-Research interaction with Prof.Ijima Kazuhiro, University of Osaka, Japan sponsored by TEQIP-II scheme during 23<sup>rd</sup> April– 30<sup>th</sup> April 2016

#### **Professional Membership:**

- Life member of Indian Society for Hydraulics (Membership No: 1338)
- Life member of The Indian Science Congress Association (Membership No: L33873)

#### **Consultancy works**

- 1.Title: Feasibility study on coastal reservoir concept to impound Nethravathi flood waters: a sustainable strategy for water resource management of Mangalore  
Client: BWSSB, Bangalore, Karnataka  
Amount: 6 Lakhs, Year 2017
- 2.Title: Establishment of Desalination plants based on Low Temperature Thermal Desalination (LTTD) technology at islands of UT Lakshadweep  
Client: Hi-Tech Civil Engineers, UT Lakshadweep  
Amount: 7 Lakhs, Year 2018-19  
Responsibility: Proof checking of Design of structural components

**June 2019**