# Kalasalingam Academy of Research and Education

(Deemed to be University)
Anand Nagar, Krishnankoil – 626 126

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| **Name of the Center** | Center for Water Technology |
| **Department** | Civil Engineering, Biotechnology, Chemical Engineering, Agricultural Engineering |
| **School** | School of Bio, Chemical and Processing Engineering & School of Mechanical, Aero, Auto and Civil Engineering |


## About the Center

### History

The 'Water and Environmental Research Group' of the Department of Civil Engineering and Department of Biotechnology, Department of Chemical Engineering, Agricultural Engineering is engaged in active research for the past 7 years. Recognizing the need for multi-disciplinary approach to the solutions of water and environmental engineering, this research group has been conceived into a research center from May 2015. This emerging center is aimed to undertake aid, promote and coordinate systematic and scientific work in all aspects of hydrology, water resources engineering and waste water engineering. In the long run, the center wishes to offer certificate courses and full fledged PG programmes.

**Aims/Objectives of the Center**

- To forecast potential impact of climate change in water resources
- To develop models on optimal utilization of water resources
- To design and develop sustainable systems for water, wastewater treatment and waste processing
- To apply alternative water sources including treated and reclaimed water

## People

**Dr. C.Sivapragasam**
Director (Center for Water Technology)
Sr. Professor/Civil Engineering
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**Dr. Naresh Kumar Sharma**
Dy. Director (Center for Water Technology)
Associate Professor/ Biotechnology
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**Dr. P.L.Meyyappan**
Sr. Associate Professor &Head/Civil Engineering
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**Dr. S. Vanitha**
Associate Professor / Civil Engineering
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**Dr.V.Aruna Janani**
Associate Professor & Head/ Chemical Engg
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**Mr.B.Baranitharan**
Assistant Professor /Agricultural Engg
Email: b.baranitharan@klu.ac.in
Phone: 9344934482

**PhD Scholars**

| Sl No | Name of the Scholars | Registration No | PT/FT | Date of Registration |
|---|---|---|---|---|
| **1** | Mr T Augustin Jacob | **9923101001** | **FT** | **19/12/2022** |
| **2** | Mrs Muthumariammal | **9923101003** | **FT** | **19/12/2022** |
| **3** | Mr.Nittin Johnson | **9921603005** | **FT** | **14/09/2021** |
| **4** | Mrs Karthiga | **9921601004** | **PT** | **01/07/2021** |
| **5** | Mrs K Suganya | **201905150** | **FT** | **11/02/2019** |
| **6** | Mrs Rajnandini Meher | **201901158** | **FT** | **01/02/2019** |
| **8** | Mr.B.K.Ramesh | **201705237** | **PT** | **18/02/2017** |
| **9** | Dr.A.Karthiga (PDF Scholar) | **N/A** | **PT** | **1/12/2016** |
| **10** | Mr. P. Saravanan | **201505232** | **PT** | **01/08/2015** |
| **11** | Mr. S. Rajesh | **201505231** | **PT** | **01/08/2015** |
| **12** | Mr.Subburaj | **201505224** | **PT** | **18/08/2015** |
| **13** | Mr.P.Velumani | **201505225** | **PT** | **18/08/2015** |
| **14** | Mr.L.Balaji | **201405214** | **PT** | **22/09/2014** |

| International/National Advisory Committee |
|---|
| **Dr. Lavania Baloo**<br>Senior Lecturer, PhD, Civil & Environmental Engineering Department,<br>Universiti Teknologi PETRONAS, 32610, Bandar Seri Iskandar, Perak, MALAYSIA.<br>(: Tel +605 368 7343; lavania.baloo@utp.edu.my |
| **Dr.Liong, Shie-Yui,** Deputy Director, Tropical Marine Science Institute & Professor, Department of Civil and Environmental Engg,, National University of Singapore. |
| **Dr. Nitin Muttil,** Leader, Water Resources Research Group, College of Engineering and Science, Victoria University, Melbourne, Australia |
| **Dr. T.Vel Rajan**, Professor, Department of Civil Engineering, Thiyagarajar College of Engineering, Madurai. |

| Funded Projects | |
|---|---|
| Self Sustaining Photo bioreactors for crepe cotton textile wastewater treatment<br><br>Grant: 18, 30, 000/- | Duration: 3 Years (2018-2021)<br>Agency: SERB |
| Development of Economically feasible constructed wetland technology using locally available plants for treating grey water in village<br>Grant: 1,00,000/- | Duration: 6 months (2022)<br>Agency: UBA |
| Bio treatment of hazardous sludge from petroleum and refinery industry<br><br>Grant: USD 5100/- | Duration: 3 Years (2019-2021)<br><br>Agency: UTP-KARE Mutual Grant |
| Design of Economically Feasible Fluoride Removal Unit.<br><br>Grant:1,00,000/- INR | Duration:1 year (2016)<br><br>Agency: DST-IEDC |
| Rain Gauge Network Design to Improve Rainfall Estimation for Sustainable Planning of water Resources in River Basin<br><br>Grant: 6,50,000/- INR | Duration: 2 years (2009 – 2011)<br><br>Agency: CSIR |
| Optimal Reservoir Operation Rules for Pillavakkal Scheme using AI based Techniques<br><br>Grant: 10,00,000/- INR | Duration: 3 years (2003 – 2007)<br><br>Agency: DST<br><br>*(Project sanctioned to Mepco Schlenk Engg College, but completed at KARE)* |

| **Project proposal submitted** |
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| Dr Naresh Kumar Sharma has submitted a project proposal entitled " Water Pre softening with algae based effluent treatment and byproduct recovery" to DST Optimal Water Usage 2022, with a budget of 38,65,910/- |
| Development of low cost organic manure from food waste for the welfare of the farmers through effective natural process , submitted to UBA with the budget of 1 lakh, 2023 |
| A sustainable Mechanical repellent to control farmyard horsefly submitted to MSME, 2023 |
| Development of Eco friendly Sanitary Napkins from Aquatic Weed Cattail Coated with Sericin submitted to MSME, 2023 |

| **Funded Projects – By State Government** | |
|---|---|
| Design of Low-cost and Effective treatment system for Industrial Waste Water causing Serious Environmental problems<br><br>Grant: 10000/-INR | Duration: 1 year (2022-2023)<br><br>Agency: TNSCST |
| Studies on arriving effective disposal methods for fire cracker waste in and around Sivakasi region<br>Grant: 10000/-INR | Duration: 1 year (2022-2023)<br><br>Agency: TNSCST |
| Low Cost Tsunami Resistant Dwelling Units For Mass Fishing Community Living Along Coastal Tamil Nadu<br><br>Grant: 10000/-INR | Duration: 1 year<br><br>Agency: TNSCST |
| Experimental Study on Tsunami Wave<br><br>Grant: 10000/-INR | Duration: 1 year<br><br>Agency: TNSCST |

| Research Facilities Available | | | | |
|---|---|---|---|---|
| **S.No** | **Image** | **Generic Name/Model** | **Cost in INR** | **Date of Purchase** |
| 1) |  | Temperature Controlled Orbital Shaker | Rs90,000/- | 02/08/2019 |
| 2) |   | Laminar Flow Chamber | Rs70,200/- | 02/08/2019 |
| 3) |  | Double Distillation Unit | Rs60,000/- | 02/08/2019 |

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|---|---|---|---|---|
| 4) |  | Closed Reflux COD Digester | Rs90000 | 04/02/2019 |
| 5) |  | UV Spectrophotometer | Rs2,20,000/- | 08/12/2021 |
| 6) |  | Fluorometer | 58,905 | 05/05/2016 |
| 7) |  | Total Dissolved Solids meter | 8,030 | 16/06/2016 |

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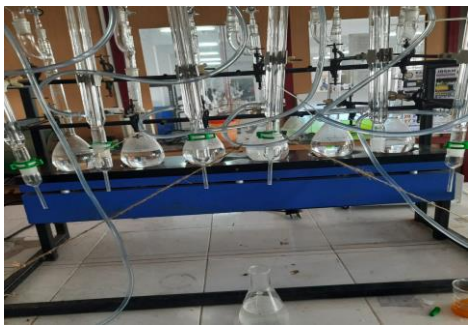
|---|---|---|---|---|
| 8) |  | Dissolved Oxygen meter | 21,875 | 16/06/2016 |
| 9) |  | BOD Incubator | 92,163 | 12/01/2015 |
| 10) |  | Kjeldhal Nitrogen unit | 60000 | 2022 |
| 11) |  | Hot air oven | 46406 | Sep2017 |

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|---|---|---|---|---|
| 12) |  | Constructed Wetland Tank | 150000 | Aug/2014 |

| **International Collaborators** | |
|---|---|
|  | Dr Nitin Muttil<br><br>Leader, Water Resources Research Group,<br>Victoria University<br>Melbourne, Australia |
|  | Dr. Neelamani Subramaniam<br>Senior Research Scientist,<br>Kuwait Institute for Designation, Kuwait |

| **National Collaborators** | |
|---|---|
|  | Dr.D.V.Reddy,<br>Professor,<br>National Institute of Technology, Surathkal,<br>Karnataka |
|  | Prakash Marimuthu K.<br>Assistant Professor ,<br>Department Of Mechanical Engineering,<br>Amrita School Of Engineering,<br>Bangalore Campus |

| **Events Organized** | |
|---|---|
| Technical Talk on "**Effluent Treatment**" on 21.09.2023 | With the support of 'Department of Civil Engineering , KARE |
| Technical Talk on "**Pollution prevention measures in Industrial Sectors**", on16.11.2021 | Expert Mr.Basha fromNeyveli Lignite Corporation Ltd |
| Technical Talk on "**Solid Waste Management Techniques**" on 05.06.2021 | Expert Mr.Ramesh, Municipal Engineer Kovilpatti |
| Faculty Development Programme on "**Experimental and Modelling Aspects in Environmental Engineering"** 08-06-2020 - 13-06-2020 | With the support of 'Department of Civil Engineering , KARE |
| Faculty development programme on "**Fluid Mechanics" in the year 2018 and 2021** | With the support of 'Department of Civil Engineering , KARE |
| Two day workshop on " **Techniques in sustainable Urbanization**" on 17/03/2018 and 18/03/2018 | In collaboration with IIHS, Bangalore and IIT Delhi with the support of United states-India Educational Foundation and IEI Students Chapter KARE. |
| **"Industry Institute Interaction Meet"** at Theni (District), Tamilnadu on 24/04/2017 | With the support of Consultancy Office, KARE |
| One day National Level Seminar on "**Practical case studies in water and waste water engineering"** on 24/03/2016 | With the support of 'Department of Civil Engineering , KARE |
| A Video conferencing lecture in the title of "**Climate Change Effects– Case Study**" in 2015 organised for KARE students By *Dr. Nitin Muttil* of Victoria University, Australia | In collaboration with Water Resources Research Group, Victoria University, Australia |
| A "**Research meet"** with *Dr. LIONG, Shie-Yui,* National University of Singapore, organized for young researchers of our Civil Department |  |

## Book Published

**1.Name of the Book**: *Experiments in fluid Mechanics and hydraulic machinery,2016*
**Author**: Dr. C. Sivapragasam, Mr. M. Deepak, Mrs. S. Vanitha
**Published by:** Lambert Academic Publishing, Germany ISBN: 978-3-659-95135-0

**2.Name of the Book Chapter:** Book chapter in Soft Computing Techniques in Soild Waste management and Wastewater management, 2021
**Author:** C.Sivapragasam, Naresh Kumar Sharma, Vanitha S
Elsevier, ISBN 9780323859301

**3. Name of the Book Chapter**
Studies on Treatment of Domestic Waste Water by using Duckweed Species, 2020
**Author**: PL. Meyyappan
Chapter Book on Global Environmental Problems (ISBN: 978-93-89840-77-3) Red'shine Publication**,** pp 133-136 (DIP: 18.20.89840773.53)

**4.Name of the Book Chapter**
Studies on Treating Potable Water using Bio-Sand Filtration, 2020
**Author:** PL. Meyyappan
Chapter Book on Global Environmental Problems (ISBN: 978-93-89840-77-3) Red'shine Publication, pp 133-136 (DIP: 18.20.89840773.54)

**5. Name of the Book Chapter**
Studies on Treating the Dyeing wastewater with Nava fruit seed powderas natural adsorbents,2020
**Author: PL. Meyyappan , Parameswaran**
Chapter Book on Global Environmental Problems (ISBN: 978-3-16-148385-4), Multiidisciplinary Subjects for Research-VII, Vol I, pp 1-6

## Note worthy UG/PG Projects

**Project Name:** Modelling River Water Quality based on Dissolved Oxygen Dynamics

**Guided by:** Dr. C. Sivapragasam

**Students Name:** Ravinashree

**Output:** *IOP Conference Series: Earth and Environmental Science*

**Project Name:** Design of detention pond as infrastructure intervention for augmenting water need at KARE: A Water Energy Nexus Approch(2020)

**Guided by:** Dr. C. Sivapragasam, Dr.K.Rajesh

**Students Name: A.**Kowsiga, G.Lidwin John Jeraldine

**Output:** IOP Conference Series: Materials Science and Engineering

**Project Name:** Increasing crop yield by Panchagavya(2019)

**Guided by:** Dr. C. Sivapragasam, Dr.K.Selvarani, Dr.S.Vanitha

**Students Name:** Kowsiga, Lidwin John Jeraldine

**Output:** Patent is in grant stage

**Project Name:** Investigation on Hurst exponent as a predictability indicator(2017)

**Guided by:** Dr. C. Sivapragasam and Mr.P.Saravanan

**Students Name:** A. Farjana Farveen, S. Sumila, S. Keerthi,

**Output:** Published in Meteorological Application (Impact factor 1.411 )

**Project Name:** *Developing LabView based Graphical User Interface for Water Footprint Estimation of Vaigai Reservoir(2017)*

**Guided by:** Dr. C. Sivapragasam

**Students Name:** M. Vinotha

**Output:** Published in Water Policy (Impact factor 1.6)

**Project Name :** *Irrigation Scheduling for Native Crops in Sundarapandiam Village(2017)*

**Guided by:** Dr. C. Sivapragasam and Mrs. S. Vanitha

**Students Name:** A. Farjana Farveen, S. Sumila, S. Keerthi, G. Priyadharshni

**Output:** A new software developed

**Project Name:** *Drinking Water Quality Issues at Sundarapandiam(2017)*

**Guided by:** Dr. C. Sivapragasam and Mrs. S. Vanitha

**Students Name:** G. Gokilavani, R. Gowsalya, S. Hema Devi, M. Padma

**Output:** Published in newspaper

**Project Name:** *ANN-Based Bias Correction Algorithm for Precipitation in the Yarra River Basin, Australia.(2016)*

**Guided by:** Dr. C. Sivapragasam and Mr. P. Saravanan

**Students Name:** V. Vel Murugan, R.K. Ragul, G. Selva Ganesan, S. Sundar Prakash

**Output:** Published in Scopus Indexed Conference

**Project Name:** *ANN as alternative to Standard Step Method for GVF(2016)*

**Guided by:** Dr. C. Sivapragasam

**Student Name:** K. Ganesh Moorthy, S. Dilip Kumar, T.V. Ramesh Kumar, A.M. Muhil, V. Rakesh

**Output :** Potential of Ann Software to obtain GVF profile is verified , Accepted to publish in SIST, Springer, a Scopus indexed Journal

**Project Name :** *Creation of Virtual Experiments using LabView(2016)*

**Guided by:** Dr. C. Sivapragasam

**Student Name:** B. Archana, G.C. Rithu Christy

**Output:** Virtual Lab is created for 2 Experiment

**Project Name :** 'Textile wastewater treatment using algae and bacterial sludge '

**Guided By :** Dr. Naresh kumar Sharma, S.Vanitha

**Student Name :** P.Kalaivanan

**Project Name:** EPANET based Simulation Study for Pipe Network(2016)

**Guided By:** Dr. C. Sivapragasam

**Student Name:** K. Vigneshwari, Sharmila, S. Karthiga, V. Akila Reddy

## Research Publications: in Journals

1. Kumar, R., Basu, A., Bishayee, B., Chatterjee, R.P., Behera, M., Ang, W.L., Pal, P., Shah, M., Tripathy, S.K., Ambika, S. and Janani, V.A., 2023. Management of tannery waste effluents towards the reclamation of clean water using an integrated membrane system: A state-of-the-art review. ***Environmental research***, p.115881. **Impact factor 8.431**
2. Saravanan, P., Prethivirajan, A.R., Sivaprasanna, A.S., Udhayakumar, K., Sivapragasam, C.Performance Evaluation of an ANN based Bias Correction algorithm in Monthly and Daily Precipitation Time Series of La Farge Station, USA ***Disaster Advances***, 2023, 16(4), pp. 27–33 . Impact factor **0.158**
3. Aruna Janani, V., Gokul, D., Dhivya, N., Nesarani, A., Mukilan, K., Suresh Kumar, A., & Vignesh Kumar, M. (2023). Optimization Studies on Methyl Orange (MO) Dye Adsorption using Activated Carbon Nanoadsorbent of Ocimum basilicum Linn Leaves**. *Journal of Nanomaterials*, *2023*.** **Impact factor *3.791***
4. Sivapragasam, C., Natarajan, N., Prabavathy, I., Ragasudha, D.Apparent temperature as a modelling substitute for evapotranspiration: Ramanathapuram, Tamil Nadu, India ***Water Practice and Technology***, 2023, 18(1), pp. 119–129. **Impact factor *3.791***
5. Sivapragasam, C., Ajith, S., Arumugaprabu, V. A conceptual framework for minimizing construction site accidents using Task-Personnel Nexus Matrix ***International Journal of Construction Management,*** 2023, 23(9), pp. 1603–1610, Impact factor 0.719

6. Baranitharan, B., Sivapragasam, C., Rajesh, K.Long term monthly prediction of energy requirements from a probabilistic perspective - A case study in southern States of India ***Sustainable Energy Technologies and Assessments***, 2022, 53, 102707 **Impact Factor 8**

7. Baranitharan, B., Sivapragasam, C., Rajesh, K., An analysis of statistical distributions of energy requirement in western part of India, ***Renewable Energy Focus,*** 2022, 41, pp. 198–205. **Impact Factor 4.8**

8. Sivapragasam, C., Saravanan, P., Balamurali, S.Estimation of climate change impact on the flood of Kickapoo River at La Farge ***AIP Conference Proceedings,*** 2022, 2463, 020026, **(Scopus Indexed)**

9. Baranitharan, B., Sivapragasam, C., Rajesh, K. Identification of appropriate statistical distribution for the assessment of energy requirement of Eastern states of India ***AIP Conference Proceedings,*** **2022, 2463, 020029 (Scopus Indexed)**

10. Ravinashree, A., Sivapragasam, C., Vasudevan, M,.Developmental Strategies for a Water Quality Assessment Model with Limited Datasets - A Case Study from River Bhavani, India ***IOP Conference Series: Earth and Environmental Science,*** 2022, 1032(1), 012018. **(Scopus Indexed)**

11. Subbiah, A., Chandrasekaran, S., Veerasimman, A., Experimental Investigations to Promote Better Adaptability of Safety Helmets Using Jute Fiber Reinforced Polyester Composites– A Waste Utilization Approach ***Journal of Natural Fibers,*** 2022, 19(13), pp. 5755–5767. **Impact factor 3.507**

12. Priya P. P., A Jenit, NK Sharma (2023), Predictive Biodegradation of Multiple Toxic Pollutants in Bioreactors Treating Real Wastewater using ANN and GP., ***IOP Conference Series: Earth and Environmental Science*** 1130 (1), 012-040 **(Scopus Indexed)**

13. Khalid Sayed, Lavania Baloo and Naresh Kumar Sharma. Bioremediation of total petroleum hydrocarbons (Tph) by bioaugmentation and biostimulation in water with floating oil spill containment booms as bioreactor basin. ***International Journal of Environmental Research and Public Health***, 2021, 18(5), pp. 1–27, 2226 **Impact Factor 4.614**

14. Rajanandini, M., Kumar, S.N. A biological and technological approach to treat wastewater by using macroalgae and microalgae. ***Research Journal of Chemistry and Environment***, 2021, 25(6), pp. 181–187 **(Scopus Indexed)**

15. Meyyappam PL, Sivapragasam C, Neelamani S, Zaqah, Md Al Khalidi, Modeling studies on the behavior of single double mound break water using genetic programming tool, ***Indian Journal of Geomarine Sciences***, 2021, Vol.50 (06), pp437-444. **Impact factor 0.5**

16. Arunajanani, V., Naresh Kumar Sharma, N.K., Hariram, N., Chitradevi, K., Sheik Asraf, S. Outcome based project for betterment of rural community. ***Journal of Engineering Education Transformations***, 2021, 34(Special Issue), pp. 263–270 **(Scopus Indexed)**

17. Veeraragavan, Aruna Janani. "Kinetic studies validated by Artificial Neural Network simulation for the removal of dye from simulated waste water by the activated carbon produced from Acalypha indica leaves." ***Environmental Technology & Innovation*** 21 (2021): 101244. **Impact factor 7.451**

18. Vij, Rakesh Kumar, V. Aruna Janani, Deepalakshmi Subramanian, Chintan R. Mistry, Gokul Devaraj, and Sivakumar Pandian. "Equilibrium, kinetic and thermodynamic studies for the removal of Reactive Red dye 120 using Hydrilla verticillata biomass: A batch and column study." ***Environmental Technology & Innovation*** 24 (2021): 102009. **Impact factor 7.451**

19. Sivapragasam, C., Janani, V. A., Andappan, A., Archana, B., Vasudevan, M., & Natarajan, N. (2021). Real-time monitoring as an adaptive strategy towards green treatment of textile effluent using biosorbent from Acalypha indica**.** ***Water Supply,*** *21*(5), 2019-2034. **Impact factor 7.451**

20. Sharma, N.K., Arivalagan, A.R. Algae or bacteria-the future of biological wastewater treatment. **Handbook of Advanced Approaches Towards Pollution Prevention and Control**, 2021, 2, pp. 217–247

21. Babu, A.R., Sharma, N.K., Manickam, M. Carbon dissipation from surgical cotton production wastewater using macroalgae, microalgae, and activated sludge microbes. ***Environmental Science and Pollution Research***, 2021, **Impact factor 5.44**

22. Ramesh BK, Vanitha S Hydrogeochemical and Geospatial analysis of water quality for domestic and irrigation purposes for Padmanabhapuram, Kanyakumari District, ***Arabian Journal of Geosciences***, volume 14, No.2012,2021, **Impact factor** 1.534

23. S Rajalingam, A Alaguraj, K Vijays Siva, S Vanitha , A Malathy and K Study on different parts of moringa oleifera for treating wastewater, ***Journal of Physics,*** Vol. 2070, 012180. pp.1-7 (2021) **(Scopus Indexed)**

24. Karthika Arumugam, Swaminathan Meenkashisundaram, Naresh Kumar Sharma. Photocatalysis for Wastewater Treatment with Special Emphasis on Plastic Degradation. ***Handbook of Nanomaterials and Nanocomposites for Energy and Environmental Applications,*** pp 1-21

25. Sharma, N.K., Suganya, K., Sivapragasam, C., Matheswaran, M. Genetic Programming Modeling for Pollutant Removal from Aerobic Bioreactor Treating Industrial Wastewater. ***IEEE International Conference on Intelligent Techniques in Control, Optimization and Signal Processing, INCOS 2019***, 2019, 8951364. (**Scopus Indexed)**

26. Swaminathan, M., Sharma, N.K. Antimicrobial activity of the engineered nanoparticles used as coating agents. ***Handbook of Ecomaterials***, 2019, 1, pp. 549–563

27. Arumugam, K., Roy, A., Sabreen, T., Sharma, N.K., Swaminathan, M. Antibacterial and photocatalytic properties of the engineered nanoparticles against infectious pathogens. ***Materials Today: Proceedings***, 2019, 15, pp. 669–676 (**Scopus Indexed)**

28. Naresh Kumar Sharma, Ligy PhilipB. S. Murty. Aerobic Degradation of Complex Organic Compounds and Cyanides in Coke Oven Wastewater in Presence of Glucose. ***Urban Ecology, Water Quality and Climate Change***, 2018, pp 293-304

29. Muttu Pandian P., Matheswaran M., Vanitha S., Sivapragasam C., Naresh K. Sharma. acroalgae and Activated Sludge Microbes in Treatment of Crepe Cotton Effluent. ***International Journal of Innovative Technology and Exploring Engineering*** (IJITEE) ISSN: 2278-3075, Volume-9, Issue-2S2, December 2019

30. K.Suganya, C.Sivapragasam, Naresh K Sharma, S.Vanitha. Current Trends on Oil Sludge Characterization, Toxicity and Treatment Systems. ***International Journal of Recent Technology and Engineering*** (IJRTE) ISSN: 2277-3878, Volume-8, Issue-4S2, December 2019

31. Naresh K Sharma, C.Sivapragasam, S.Vanitha , K.Ganeshmoorthy, S.Dilipkumar S.Saivishnu, A.M.Muhil. Ingenious Method Towards Sustainable Decentralized Solid Waste Management. ***International Journal of Recent Technology and Engineering*** (IJRTE) ISSN: 2277-3878, Volume-8, Issue-4S2, December 2019

32. Naresh Kumar Sharma, Balakrishnan A, Karthika A, Thirumalai K, Swaminathan M. Activity of Engineered Nano-Semiconductor Oxides against Gram Positive and Gram Negative Bacteria. ***International Journal of Recent Technology and Engineering*** (IJRTE) ISSN: 2277-3878, Volume-8, Issue-4S2, December 2019

33. Karthika A, Karthike R, Swaminathan M, Naresh Kumar Sharma. Assessing the Degradation of Organics in Surgical Cotton Processing Wastewater by Mixed Microbial Culture and Photo-Catalysis***. International Journal of Recent Technology and Engineering*** (IJRTE) ISSN: 2277-3878, Volume-8 Issue-4S2, December 2019

34. Sivapragasam, C., Archana, B., Rithuchristy, G. C., Aswitha, A., Vanitha, S., &Saravanan, P. (2019, February). Developing Virtual Labs in Fluid Mechanics with UG Students' Involvement. In International Conference on Remote Engineering and Virtual Instrumentation (pp. 733-741). Springer, Cham. **(Scopus Indexed)**

35. C. Sivapragasam, P. Saravanan, S. Balamurali, S.Sumila, S.Keerthi, A.Farjana Farveen. "An Investigation on Relationship between Hurst exponent and Predictability of a Rainfall Time Series" **(Impact factor 1.411)**

36. Suribabu, C.R., Neelakantan, T.R., "Discussion of "optimizing the cross-sectional area of the break pressure tanks" by N. N. Sontake, A. D. Vasudeo, A. D. Ghare, and R. N. Ingle", ASCE Journal of Pipeline systems Engineering and Practice", Volume 9, Issue 2, 2018. **(Impact Factor 1.170)**

37. Suribabu, C.R., Neelakantan, T.R., Sivakumar, P., "Discussion of "New pressure-driven approach for modeling water distribution networks" by Herman A. Mahmoud, Dragan Savić, and Zoran

Kapelan", ASCE Journal of Water Resource Planning and Management, Volume 144, Issue 6, 2018. **(Impact Factor 3.537)**

38. Neelakantan T.R and C. R. Suribabu., "Discussion of "simultaneous optimization of operating rules and rule curves for multireservoir systems using self-adaptive simulation-GA model" by Ali Ahmadi Naji, Ali Haghighi and Hossein Mohammad Vali Samani", ASCE Journal of Water Resource Planning and Management, Volume 144, Issue 4, 2018. **(Impact Factor 3.537)**

39. Suribabu, C.R., Neelakantan, T.R., "Discussion of 'hydraulic simulation techniques for water distribution networks to treat pressure deficient conditions' by Ho Min Lee, Do GuenYoo, JoongHoon Kim, and Doosun Kang", Volume 144, Issue 3, 2018. **(Impact Factor 1.170)**

40. Neelakantan, T.R., Suribabu, C.R., "Discussion of "Optimal operation of water distribution networks under water shortage considering water quality" by Mohammad Solgi, Omid Bozorg-Haddad, SamanehSeifollahi-Aghmiuni, ParisaGhasemi-Abiazani, and Hugo A. LoÃ¡iciga", Journal of Pipeline Systems Engineering and Practice, Volume 9, Issue 1, 2018. (**Impact Factor 1.170)**

41. Neelakantan,T.R., Suribabu, C.R. (2017), Discussion of "Systemic Approach for the Capacity Expansion of Multisource Water-Supply Systems under Uncertainty", ASCE's Journal of Water Resources Planning and Management, 143(9), https://doi.org/10.1061/(ASCE)WR.1943-5452.0000825 **(Impact Factor 3.537)**.

42. Sivapragasam C,Vanitha S, Nampoothiri NNN, Mahalakshmi R (2017)Genetic programming-based mathematical modeling of influence of weather parameters in $BOD_5$ removal by *Lemna minor* Environ Monit Assess (2017) 189: 607. https://doi.org/10.1007/s10661-017-6337-0 **(Impact Factor 1.687).**

43. Vanitha S, Nampoothiri NNN, Sivapragasam C. (2017). "Modeling of Constructed Wetland Performance in BOD5 Removal for Domestic Waste Water under Changes in Relative Humidity using Genetic Programming", Environmental Monitoring and Assessment, 189, 4, 164, DOI: 10.1007/s10661-017-5857-y **(Impact Factor 1.687)**.

44. Sivapragasam, C., Pallikonda Rajasekaran, M., Vinotha, M. (2017). "A Conceptual Framework for Real Time Estimation of WFP for Small Hydroelectric Power Plant", Water Policy, wp2017289; DOI: 10.2166/wp.2017.289 **(Impact Factor 1.144)**.

**Research Publications: in Conference**

1. Vanitha S (2020) Study on suitability of single and hybrid constructed wetland for treating sewage for a small community, ***IOP Conference Series: Materials Science and Engineering*** 955 (1), 012094. **(Scopus Indexed)**
2. Vanitha S (2020) Performance of different types of constructed wetlands for treating wastewater

in short time horizon,. ***IOP Conference Series: Materials Science and Engineering*** 955 (1), 012095 **(Scopus Indexed)**

3. Prakash, A.C., Sharma, N.K., Vanitha, S. Macro algae based adsorption for treatment of cotton processing wastewater. IOP Conference Series: ***Materials Science and Engineering***, 2020, 872(1), 012186 **(Scopus Indexed)**

4. M Shivani and S Vanitha (2020) Removal of organics in crepe cotton wastewater using aerobic biodegradation IOP Conference Series: ***Materials Science and Engineering,*** 872(1), 1-6, 2020. **(Scopus Indexed)**

5. Malathy, A., Selvapalam, N., Vanitha, S., & Sivapragasam, C. (2020, June). Study on effect of aeration time on methylene blue removal using titanium dioxide. In IOP Conference Series: ***Materials Science and Engineering,*** 872(1), 1-8 . **(Scopus Indexed)**

6. PL Meyyapan, Sivapragasam C, T Sekar ., (2018)"An Evolutionary Algorithm approach to Modelling of Tsunami Wave Force al for costal" ***4th International Conference on Civil, Offshore & Environmental Engineering (ICCOEE2018) under the banner of World Engineering, Science & Technology Congress*** (ESTCON2018) at Universiti Teknologi PETRONAS (UTP) will be published in *MATEC Web of Conferences Proceedings* **(Scopus Indexed)**

7. Sivapragasam C, Saravanan P, Balamurali S, Nitin M, Ascertaining time series predictability in process control - case study on rainfall prediction in ***4th International Conference on Civil, Offshore & Environmental Engineering (ICCOEE2018) under the banner of World Engineering, Science & Technology Congress (ESTCON2018) at Universiti Teknologi PETRONAS (UTP)*** will be published in *MATEC Web of Conferences Proceedings* **(Scopus Indexed)**

8. Naresh K Sharma, Sivapragasam C, Sundar K, Suitability of ANN and GP model for predicting soak pit tank efficiency in ***4th International Conference on Civil, Offshore & Environmental Engineering (ICCOEE2018) under the banner of World Engineering, Science & Technology Congress (ESTCON2018)*** at *Universiti Teknologi PETRONAS (UTP) will be published in MATEC Web of Conferences Proceedings* **(Scopus Indexed)**

9. Sivapragasam C, Saravanan P, Ganeshmoorthy K, Muhil A, Dilip Kumar S, Saivishnu S "Mathematical Modeling of Gradually Varied Flow with Genetic Programming: A Lab Scale Application was presented in 3rd ***International Conference on Information and Communication Technology for Intelligent Systems at Ahmedabad will be published in The Smart Innovation, Systems and Technologies book series , Springer (Scopus Indexed)***

## Research Publications: in Patent

1. **Authors :** S.Vanitha, K.Selvarani, C.Sivapragasam, Meyyappan.PL, Kowsiga, Lidwin Joan Jeraldine
   **Title:**Method of preparation of organic manure to promote plant growth and crop yield
   **Country patented in:** Government of India
   **Application No:202241002967**

2. **Authors :** S.Vanitha, K.Selvarani, , Nittin Johnson
   **Title:** Method of preparing biofertilizer to promote plant growth and crop yield
   **Country patented in:** Government of India
   **Application No:2022241008036.**

3. **Authors :** Aruna Janani V, Y. Robin Dhanaraj., D. Gokul
   **Title: A**PPARATUS AND METHOD FOR PRODUCTION OF CONDUCTIVE INK FROM COMBUSTION GAS,
   **Country patented in:** Government of India
   **Application No:** 20224100386

4. **Authors :** Aruna Janani V, D. Gokul., E.Karthikeyan., Keerthana., Satheeshl
   **Title:** METHOD OF PREPARING HERBAL SANITATION KIT
   **Country patented in:** Government of India
   **Application No:** 202241002963

5. **Authors :** Aruna Janani V, Aruna Janani. V., Balakumar. R., Moorthy. S., Kapilan. B
   **Title:** APPARATUS AND METHOD FOR MIXING FIREWORK CHEMICALS
   **Country patented in:** Government of India
   **Application No:** 202141059776

6. **Authors:** Mr.Praveen, Mr. S.Y Prabhu, Mr.Ranjith Kumar and Mr.S.Rajesh
   **Title:** Recycling and Reclamation of Municipal Solid Waste by Material Recovery Facilities,
   **Country patented in:** Government of India
   **Application No.** 1247/CHE/2015

7. **Authors:** P.Murukan, M.Vignesh, Anoop Venugopalan, S.Muthuram, Dr.R.Rajini, Dr.M.Sivasubramaniyan**,** Dr. NVN. Nampoothiri.
   **Title:** Locking System of Unused Bore wells
   **Country patented in:** Government of India ,
   **Application No.** 5093/CHE/2014-18636

8. **Authors :** Dr. C. Sivapragasam, Mrs. S. Vanitha, Mrs. T. Theivasanthi, Mr. G. Selva Ganesan, Mr. Suriya Prakash
   **Title:** Low cost simple Fluoride removal unit for Rural Community
   **Country patented in:** Government of India
   **Application No.** 28267/CHE/2016 – 36236

## Consultancy Projects

1) Dr.C.Sivapragasam had received a Water Sample Testing work from Executive Engineer, PWD/WRD,Environmental Cell Division,Madurai as a part of their Eco Restoration of Kowsiganadhi river project - On going.
2) Dr.S.Vanitha received Testing of bore water sample of Maharajapuram on 16.12.2022 worth 1400/-
3) Dr.C.Sivapragasam, Dr.Naresh Kumar Sharma, Dr.S.Vanitha, Testing and Analysis of Bore Water Sample, Executive Engineer, Public Works Department, Environmental Cell Division, Madurai worth 16166/-, for the academic year 2021-22
4) Dr.C.Sivapragasam, Dr.Naresh Kumar Sharma, Dr.S.Vanitha, Testing and Analysis of Bore Water Sample, Executive Engineer, Public Works Department, Tirunelveli worth, 12249/- for the academic year 2021-22
5) Dr.C.Sivapragasam, Dr.Naresh Kumar Sharma, Dr.S.Vanitha, Testing and analysis of waste water sample, Executive Engineer, Public Works Department, Environmental Cell Division, Madurai, worth 9345/- for the academic year 2020-2021
6) Dr.Naresh kumar Sharma had received a Water Hardness removal project from M/s Pathrakali Amman Modern Rice Mills (PAMRM), Thalaivaipuram during Sep 2017 - ongoing
7) Dr.V.Aruna Janani received "Exploring the conversion of Red Iron oxide into Black Iron oxide pigment and converting carbon black into hydrophilic form" worth 17,700/- for J.R.Associates, Kozhikode-673571, 2019
8) Dr. Naresh Kumar Sharma had received a Soak Pit construction project for Men's Hostel Wastewater from KARE during March 2017 - ongoing
9) Dr. Naresh Kumar Sharma had received a project of Sludge disposal from Neutralisation tank from TGK Textile Industry, Theni, Tamil nadu during May 2017 was completed in June 2017

## Products Developed

1) A Sustainable Mechanical Repellent to control Farmyard Housefly by Boligarla Vinay, S. Murugan , under the guidance of Dr. V. Aruna Janani.

2) A new software developed for Irrigation Scheduling for Native Crops in Sundarapandiam Village by A. Farjana Farveen, S. Sumila, S. Keerthi, G. Priyadharshni under the guidance of Dr. C.Sivapragasam and Prof. S.Vanitha

3) Virtual Lab is created for 2 Experiments in Fluid mechanics laboratory in LabVIEW platform by B. Archana, G.C. and Rithu Christy under the guidance of Dr. C.Sivapragasam

4) *Economically feasible fluoride removal unit is developed by* G.Selva Ganesan, V.Surya Prakash under the Guidance of Dr. C.Sivapragasam, Prof. S. Vanitha and Dr.T. Theivasanthi

## Extension Activities

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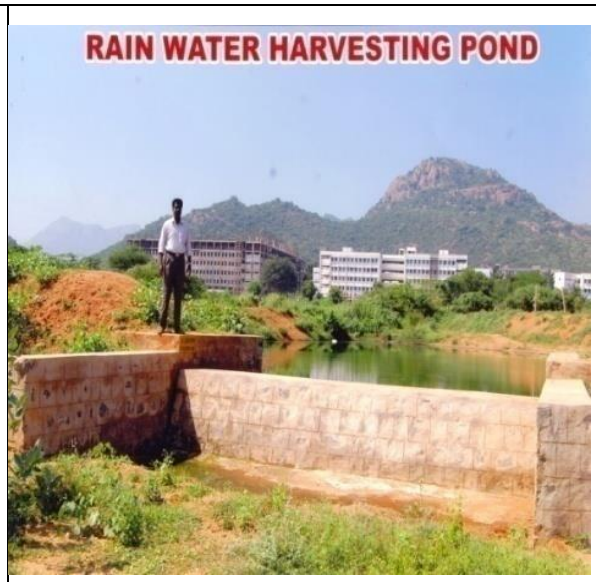
<td> 
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<tr>
<td>Mrs.S.Vanitha gave a lecture to the Industrialist on 24-04-2017 in the Industry institute interaction meet organized by Consultancy service centre of Kalasalingam University</td>
<td>Fluoride removal unit was developed and implemented in R. Patti</td>
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<td>Rain water Harvesting implemented in University campus & Conducting awareness motivation to nearby villages</td>
<td>Mr. T. Karthick has been involved as one of the trainers in the process of capacity building in village panchayath of Dindigul District organized by Trust for Education and Social Transformation (TEST), a Viruthunagar based NGO</td>
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<td>A project “Treatment of Textile dye Effluent from a Small Scale industry in Srivilliputtur”- by Ms. Sonia, Ms. Valar Rani, Ms.Yamini is selected as a best project and published in news paper</td>
<td>Dr.S.Vanitha gave a lecture on “Awareness on Rain water harvesting” on December 18, 2021 in associated with Nehru Yuva Kendra, Virdhunagar and jointly organized by Kansai Nanbargal Youth Club in the NSS Camp at Poovani.</td>
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## Visit of International facilities/Institutions by our faculties

Dr.Sivapragasam, Dr.Nareshkumar Sharma, Dr.PL.Meyyappan, and Mr. P.Saravanan visited Universiti Teknologi PETRONOS UTP Visit, Malaysia, August 2018


Dr.Sivapragasam, Dr.Nareshkumar Sharma, Dr.PL.Meyyappan, and Mr. P.Saravanan visited Integrated Treatment Unit, Malaysia, August 2018

## Visit of National facilities/Institutions by our faculties

1. Dr.Sivapragasam and Mr. P.Saravanan visited IIT Madras to share Research experience with Research scholars of Prof.S.Mohan of IIT M and understand the ongoing research of them
2. Cross Regulator cum Canal Syphon across River Sabarmathi was visited by Mr.P.Saravanan

## Noteworthy Students Achievements


M. Priyanka Mahalakshmi, M.Dhivya Praba and Swetha Saravanan. AICTE- CHHATRA VISHWAKARMA AWARDS, 2018 (NATIONAL LEVEL).WON First Prize

Appreciation of G.Karthik, a B.Tech (Civil) of 2011-2015 batch has got “Project

Excellence“Hydro-Asia 2015” Project held at Korea

.

a) Ramguhan, Rubanraj, Nishanthkumar, Gowtham received TNSCST project worth Rs.10,000 on Studies on Arriving effective disposal methods for firecrackers in and around of Sivakasi region guided by Dr.PL.Meyyappan in the academic year 2022-23

b) Boligarla Vinay,Prabu received TNSCST project worth Rs.10,000 on A novel jacketed tumbling homogeneous powder mixer for hazard guided by Dr.V.Aruna Janani on 2022-23

c) Kowsiga, Lidwin Joan Jeraldine in published entitled “Method of preparation of organic manure to promote plant growth and crop yield” guided by S.Vanitha, K.Selvarani, C.Sivapragasam, Meyyappan.P L

d) Y. Robin Dhanaraj., D. Gokul patent published entitled “Apparatus and Method For Production Of Conductive Ink from Combustion Gas, Government of India guided by Aruna Janani V, 2022

e) D. Gokul., E.Karthikeyan., Keerthana., Satheesh Patent published entiled “Method of Preparing Herbal Sanitation Kit” guided by Aruna Janani V, 2022

f) Balakumar. R., Moorthy. S., Kapilan. Patent published entiled “Apparatus And Method For Mixing Firework Chemicals” guided by Aruna Janani V, 2021

g) M. Priyanka Mahalakshmi, M.Dhivya Praba and Swetha Saravanan. AICTE-CHHATRA VISHWAKARMA AWARDS, 2018 (NATIONAL LEVEL). Won 1 st prize from Honourable Vice President of India, Shri Venkaiah Naidu on 22.01.2019

h) Mahalakshmi RamKumar of M.Tech (EE) published a paper in impact factor jounal. Hence she decided to do PhD in Australia,

i) M.Vinotha won Third prize in the NI –Lab view competition held at KARE in 17 th March 2018

j) M. Muthu Priya, B.Tech (Civil) of 2012-2016 batch has published a research paper entitled “Analysis of variations of Trend in precipitation in Vellar river basin, Tamil-Nadu, India” in the 1st International Conference on Disaster Mitigation and Management for Sustainable Development and Risk Detection" held at NIT- Trichy in February 2016 under the guidance of Dr. C. Sivapragasam and Mr. P. Saravanan. This paper is also awarded University Best Project

k) G.Karthik, a B.Tech (Civil) of 2011-2015 batch has got “Project Excellence Award” in the International Student Research event “Hydro-Asia 2015” Project held at Korea in August 2015 under the guidance of Dr. C. Sivapragasam.

l) Mr. N. Ramkumar, Mr. S. Ramprasath secured Second Prize in the Student Project Sponsored by Tamil Nadu State Council for Science and Technology held at Kongu Engineering College,

m) Perundurai on the topic of "Experimental study of tsunami wave loading on different dwelling units along coastal Tamilnadu regions" during 2014.

n) An EPANET User Manual with sample calculation was prepared by S.Aishwarya & R.Uma (B.Tech ,Civil 3rd year) in 2013.

o) Mr. M.Deepak of B.Tech Civil Engineering published a research article entitled "Trends in rainfall patterns over the Tamarabarani basin in Tamil Nadu ,India" research work in MODSIM International Conference, Australia, 2013.

p) Ms. Catherin Jesilia of B.Tech (Civil) Engineering was selected as JRF in BARC Sponsored project at NIT Surathkal, 2012.

q) A project entitled '*Improving rainfall measurement in a river basin to reflect climate change*' by A.Jayasudha , V.Komala , M.Pushpa, B.Saranya won Third Prize in the essay competition organized by the Indian Society of Hydraulics, June 2010.