INDIA-UK WORKSHOP ON

SOCIO-ECONOMIC ANALYSIS OF TEXTILE EFFLUENT POLLUTION IMPACTS IN THE NOYYAL RIVER AND EXPLORATION OF REMEDIATION THROUGH ALGAE AND GRAPHENE MEMBRANE

Ministry of Human Resource Development
Government of India

सत्यमेव जयते

SPARC
Scheme for Promotion of Academic and Research Collaboration

Sponsored By

THE MINISTRY OF HUMAN RESOURCE DEVELOPMENT (MHRD), UNDER SPARC, GOVERNMENT OF INDIA.

In Association With

Kongunadu Arts and Science College
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Estd 1973

University of Exeter
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Teesside University

1973-2023
Golden Jubilee

Jointly Organised by

Department of Tamil (Aided) and Department of Biotechnology

Kongunadu Arts and Science College, Coimbatore, India.

Venue: Conference Hall, Kongunadu Arts and Science College
Date: 13th – 14th December 2023

About SPARC:-

MHRD SPARC (Scheme for Promotion of Academic and Research Collaboration) is an initiative by the Indian Ministry of Human Resource Development (MHRD) that aims to promote research collaboration between Indian institutions and top global educational institutions.

The SPARC scheme will improve the research ecosystem of India's higher educational institutions by facilitating academic and research collaborations between Indian Institutions (overall top-100 or category-wise top-100 in NIRF) and the best institutions in the world (top-500 overall and top-200 subject-wise institutions listed in QS World University Ranking) from 28 selected nations to jointly solve problems of national and international relevance.

Our research proposal, titled **Socio-economic Analysis of textile effluent pollution impacts in the Noyyal River and Exploration of Remediation through Algae and Graphene Membrane** (SPARC Project-P2569),' has been approved in the Humanities and Social Sciences domain, specifically in the Environmental Humanities subfield.

About the Workshop:-

The Noyyal River, a tributary of Kaveri River originates in Velliangiri Hills in the Western Ghats, Tamil Nadu. This region is surrounded by major textile-oriented industries in Coimbatore and a major global knitwear center in Tirupur, constituting one-third of apparel exports from India. Small scale dyeing and bleaching industries situated in these areas discharge untreated toxic effluents such as dyes, bleaching liquids, directly into the Noyyal River. Which threatens water resources in Kongu region of Tamil Nadu, impacting densely populated urban centers and hindering socio-economic development.

The Orathupalayam dam, meant to serve as a reservoir for the waters of the Noyyal river, had turned into a cesspool of effluents from textile dyeing units in upstream Tirupur district within years of its commissioning in 1992. Contamination of water sources therefore significantly constrains the socio-economic development of several million people. In and around the Orathupalayam dam, ground water is contaminated because of untreated water stored previously in the dam before 2011. Now the contaminated ground water near Orathupalayam dam still persists and the water is unsuitable for irrigation purpose.

The proposed research led experienced investigators from India and the United Kingdom under the SPARC Project-P2569, aims to provide a **Socio-economic Analysis of textile effluent pollution impacts in the Noyyal River and Exploration of Remediation through Algae and Graphene membrane**. For the last five years, six Indo-UK workshops in different parts of India were organized by the applicants in analyzing the problems of the Noyyal River pollution and possible solutions for the textile dye industrial effluent treatment

process using integrated aerobic digestion, algal bioremediation and graphene technologies, which have particular relevance to the treatment of dye effluent. Meeting this aim will be undertaken through attaining the following three objectives:

- To synthesise existing research on the economic, social and environmental benefits of innovative wastewater remediation technologies developed by the applicants;
- To feedback findings on the sustainability benefits to industry, policy makers and other stakeholders via workshop and field visits;
- To develop recommendations for industrial scaling up of these technologies, in conjunction with industry and governmental actors.

About the International Collaborators

Prof. David Ian Benson, University of Exeter, UK.
Principal Investigator - (SPARC Project-P2569)

Prof. Benson is currently an Associate Professor at the Department of Humanities and Social Sciences, University of Exeter, Cornwall. After receiving his doctoral degree at the University of East Anglia (UEA) in 2007, he undertook an ESRC Post-Doctoral Fellowship that examined the allocation of environmental powers across EU multi-level governance. He is also an interdisciplinary environmental and social scientist and faculty member of the Environment and Sustainability Institute (ESI) at the University of Exeter, a globally leading establishment for research into sustainable development. His research, based at the Environment and Sustainability Institute (ESI) in Penryn, encompasses a range of issue areas at the interface between political and environmental sciences, most notably EU environmental and energy policy, comparative environmental politics and governance, federalism, and public participation in environmental decision-making.

Prof. Senthilarasu Sundaram, Teesside University, UK.
Co- Principal Investigator - (SPARC Project-P2569)

Prof. Senthilarasu Sundaram is a Professor in the School of Computing, Engineering and Digital Technologies at Teesside University. His passion towards energy and sustainability in the energy sector has started during his pre-doctoral research course (M.Phil in Applied Physics) which leads to Ph.D in organic solar cells materials. He currently leads the sustainable energy material themed research in the Teesside University. Prior to joining in the Teesside, he was an Associate Professor in Electrical and Electronic Engineering and as Lecturer and senior lecturer in the University of Exeter. His key research focus is sustainable energy vectors in through renewable energy especially in solar energy. He is leading an Impact Programme in the "Textile wastewater treatment and remediation using carbon materials" for developing countries to effectively recycle their textile wastewater.

About the National Collaborators

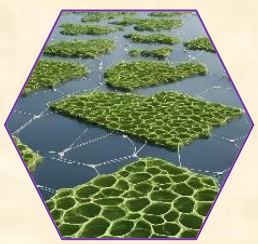
Dr. K. Muthukumar, Kongunadu Arts and Science College, India.
Principal Investigator - (SPARC Project-P2569)

Dr. K. Muthukumar is an Assistant Professor in the Department of Tamil at Kongunadu Arts and Science College (Autonomous) in Coimbatore, Tamil Nadu, India. He holds a diverse educational background, specializing in Anthropology, Sociology and Modern Literature. He has showcased his expertise through extensive publications in various reputed journals and scholarly presentations in both National and International conferences. Beyond academic engagements, he actively participates in various professional bodies and memberships, promoting Tamil literature and cultural heritage. He has organized and been a resource person for multiple workshops and conferences focusing on sustainable wastewater treatment technologies, highlighting socio-economic and environmental concerns.

Dr. V. Bhuvaneshwari, PSGR Krishnammal College for Women, India
Co-Principal Investigator - (SPARC Project-P2569)

Dr. V. Bhuvaneshwari is an Associate Professor, Department of Biotechnology at PSGR Krishnammal College for Women with an extensive background in Biotechnology and Applied Microbiology, specializing in Molecular Biology. Earlier she served as Associate Professor of Department of Biotechnology at Kongunadu Arts and Science College and she contributed her research findings in the area of waste water treatment. She is a life member in the Indian Science Congress Association, and an annual member in the Tamilnadu Science Forum. She serves as an editorial member in reputed journals such as Journal of Microbiology and Biotechnology Reports, SF Journal of Biotechnology and Biomedical Engineering, and Stem Cell Research & Therapeutics which in turn solidify her contribution to academic research. Her significant involvement in organizing international conferences and workshops focusing on diverse themes like phyllosphere biology, wastewater treatment technologies, materials for energy and biological applications, and biomarkers for cancer diagnostics, showcases her leadership and commitment to knowledge dissemination.






About the Resource Persons

Dr.R. Ilangovan, Former Vice-Chairman,
Tamil Nadu Water Resources Development Cell, PWD, WRD, Chennai.
Topic: Sustainable Water Management in Noyyal River Basin

Dr. R. Ilangovan is a distinguished individual renowned for his extensive expertise in water resource management and environmental conservation. With a background in Civil Engineering and a Doctorate in the Restoration of Polluted Lakes using both structural and non-structural measures, Dr. Ilangovan has been a pivotal figure in addressing water quality issues in lakes. He served as the Former Chief Engineer, overseeing various sectors such as water management, wastewater treatment, organic farming, and lake cleaning. His academic pursuits have been focused on the multidisciplinary aspects of water and wastewater management, recycling wastewater, lake cleaning and management, and the promotion of organic farming and the Slow Food movement. He has actively engaged with diverse groups including farmers, students, industrial personnel, NGOs, and government officials, fostering collaboration and knowledge dissemination.

Mr. Ka.Su.Velayuthan, Writer – (Author of the Book 'Noyyal Indru')
Topic: History and the present position of Noyyal River

Ka.Su.Velayuthan is a multi-faceted professional with a diverse background spanning engineering and journalism. Over these years he served as a reporter, senior reporter, and chief news editor in leading newspapers. With a remarkable writing portfolio encompassing over 300 short stories, 2 novels, and an impressive tally of 7,000 articles, his notable literary achievement includes a comprehensive book chronicling wildlife encounters and stories about elephants for 25 years, earning him the prestigious Vijaya Vaakar Award for Innovation in 2022. His writing perspective resonates deeply with advocating for human rights and recognising the invaluable contributions of individuals across diverse fields within society.

Dr. K. Kadirvel, Scientist 'F', DRDO-Bharathiar University
Topic: Impact of Water Quality on Public Health and Remedial Measures

Dr. K. Kadirvelu, a distinguished Scientist 'F' at the Defence Research and Development Organisation (DRDO) Bharathiar University Centre for Life Sciences, has been recognized with the prestigious 'Tamil Nadu Scientist Award' for 2021. This accolade acknowledges his remarkable contributions in the domain of Environmental Sciences. His career has been highlighted by his extensive expertise and profound knowledge in life sciences. His dedication to research and innovation is evident through a prolific publication record, boasting over 185 publications. His scholarly work and scientific contributions have significantly helped to advance the field of Environmental Sciences.

Mr. P Gandhirajan, President, Dyers Association, Tirupur.

Topic: Best Possible Water Treatment by Dyeing Industry

Mr. P. Gandhirajan has been Managing director of the Veerapandi Common Effluent Treatment Plant since 2011. Initially, he started with a small dyeing unit back in 1991, and over these years, he has owned a prominent dyeing unit. He has held pivotal roles, including Vice President of the Dyers Association from 2011 to 2017, Treasurer from 2017 to 2021, and currently serves as the esteemed President. He is one among the social activist, who is keenly cautious in preserving National resource of Noyyal River.

Er. C Chinnasamy, Chief Coordinator, Siruthuli, Coimbatore.

Topic: Contribution of Siruthuli to Noyyal in Coimbatore

Er. C. Chinnasamy is a distinguished professional in the development sector, boasting over 15 years of expertise. Proficient in Natural Resource Management, his extensive experience spans Microfinance, Rural Enterprise Development, Watershed Development, Tribal Projects, Organic Farming, Dryland Horticulture, and Rainwater Harvesting. Notably, he has organised the restoration of water bodies, erected multiple check dams, and implemented bore well recharge systems in farmers' lands. His comprehensive expertise in organic farming, from production to marketing, is complemented by his collaboration with organic farming producer companies and district-level associations, underscoring his dedication to sustainable agricultural practices and holistic community advancement.

Mr. K. Kalidass, President, OSAI, Coimbatore.

Topic: Noyyal River-catchment area of Western Ghats

Mr. K. Kalidasan is a prominent figure known for his significant role as the President of OSAI, an esteemed Non-Governmental Organization (NGO) dedicated to environmental issues and wildlife protection based in Coimbatore. His leadership and commitment to environmental causes have made a substantial impact in the region, with a keen focus on environmental conservation and wildlife protection. He has been actively involved in advocating and implementing initiatives aimed at preserving natural habitats, biodiversity, and ecosystems. Through OSAI, he has spearheaded various campaigns, projects, and awareness programs geared towards fostering a sustainable environment and safeguarding wildlife species.

Prof S Karthikeyan, Head Cum Quality Manager, Food Quality Testing Laboratory, Tamil Nadu Agricultural University, Coimbatore.

Topic: ***Wastewater grown algal biomass as fuel Resources***

Prof. Karthikeyan Subburamu is a distinguished figure in the field of Food Science and Technology, holding the esteemed position of Professor and Head of Quality Manager at the Food Quality Testing Laboratory (NABL-accredited) within the Centre for Post-Harvest Technology at Tamil Nadu Agricultural University. His expertise spans across several domains, including Food Science and Technology, Fermentation Technology for foods and fuels, Environmental Biotechnology, and Carbon Sequestration. His dedicated contributions to these areas have earned him numerous honours and awards, showcasing his excellence and commitment towards his research in the fields of Food Science, Environmental Biotechnology, and Microbiology.

Dr. Ganapathy Arumugam, MD & CEO, Enhanced Biofuel and Technologies,India Ltd,

Topic: Phyto- remediation of Wastewater using Microalge to support Net-Zero 2070

Dr Ganapathy Arumugam- Managing Director, CEO & Group Science Director, Founder, owns experience extending over a period of 30 years, including both academic and commercial appointments. As the founding member of the Green World Biotech, his works include fundamental research into all aspects of Jatropha curcas Linn and Micro algae as a source of non-edible feedstock to National and International Energy security. His expertise includes the development of new varieties, plant tissue culture, bio fertilizers, bio control agents etc. He has developed high yield, high quality and pest resistant types of various crops in the domain of agriculture, horticulture, forestry and energy.

Mr. K. Balasanthanam, MD, Kongoor processing, EC Member, Common Effluent Treatment Plan, Tirupur

Topic: Textile Wastewater treatment through Zero Liquid Discharge (ZLD)

K. Balasanthanam, an accomplished professional in the realm of synthetic organic chemistry and textile processing, boasts a rich history of contributions and expertise within the industry. With a profound educational background and extensive hands-on experience, he has demonstrated remarkable skills in research, innovation, and sustainable practices, particularly in environmental aspects related to processing effluent recycling in the textile sector.

Dr. V.T.Balamurugan, Professor of Biomedical Engineering
Bannari Amman Institute of Technology, Sathyamangalam

Topic: Deduction and remediation of textile effluent using AI technologies

Dr. V.T Balamurugan, Bannari Amman Institute of Technology, Sathyamangalam, who is specialized in Bio-Medical Engineering, Bio-Analytical Instrumentation, Capacitive Transducers, Sensors - Characterization and Optimization, and Machine Olfaction. With a wealth of knowledge and expertise in these areas, he has showcased his proficiency through around 16 publications and has actively participated in 14 National and International conferences. His contributions have significantly impacted the fields of biomedical engineering, sensor technology, and analytical instrumentation. He is currently making use of Artificial Intelligence for his research findings in various research domains. He has signed an MoU with the Department of Tamil, Kongunadu Arts and Science College to read the palm scripts in Tamil language using Artificial Intelligence.

Mr. Subrabharathimanian
Writer and Author of the famous Novels 'Sayathirai' and 'Siluvai'

Mr. Subrabharathimanian is a celebrated Tamil writer, for his excellce in short stories, novels, essays, and poetry for the past three decades. Though he was a Bureau Engineer by profession and he actively engaged in addressing societal issues like child labour abolition and women's exploitation. He serving as an editor of "Kanaam" magazine for 27 years. His notable works include "Appa", "Azham", "Vazhithunnaigal," and "Olaykeertu". For his remarkable writing career, he has been recognised with accolades like the Katha Award and the Tamil Nadu Government's Best Novel Author Award. His impactful contributions resonate in literature, social causes, and environmental activism.

Dr. K. Chandrakumar, Associate Professor of Renewable Energy Engineering,
Tamil Nadu Agricultural University, Coimbatore.

Topic: Hands-on Training for Water Treatment

Dr. K. Chandrakumar, Associate Professor of Renewable Energy Engineering, Tamil Nadu Agricultural University, Coimbatore, who is specialised in Plant Sciences with a focus on Plant Biochemistry and Molecular Biology. His expertise extends to areas such as liquid biofuels and the pre-treatment of biomass. With a dedicated focus on advancing knowledge in these fields, he contributes significantly to research and academia, contributing valuable insights in the realm of plant sciences and biofuels.

Dr. T. Anitha, Assistant Professor of Post-Harvest Technology, Horticultural College and Research Institute (TNAU), Periyakulam.

Topic: Heavy metal removal from the Water using plants.

Dr. T. Anitha, Assistant Professor of Post-Harvest Technology, Horticultural College and Research Institute (TNAU), who is specialized in Biochemistry within the domain of Post-Harvest Technology. Her primary area of expertise lies in the field of Medicinal Plants as Therapeutics. Her research focuses on the biochemical aspects of medicinal plants and their potential therapeutic applications. Her work involves exploring the bioactive compounds present in these plants, elucidating their mechanisms of action, and studying their efficacy in addressing various health conditions.

Ms. M. Nila Nandhini, Assistant Professor of Biomedical Engineering, School of Engineering, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore.

Topic: Remediation of pollutant water using Graphene Membrane

Ms. M. Nila Nandhini, Assistant Professor at Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore. Her expertise lies in the fields of Biomedical Engineering, Nanotechnology, and Biosensors. In 2018, she earned her M.Tech degree from Amrita Vishwa Vidyapeetham University, Coimbatore, showcasing her dedication to higher education and specialization in these domains. With her academic background and focus on interdisciplinary subjects such as Biomedical Engineering and Nanotechnology, she contributes significantly to research and education, particularly in Graphene based domains.

Thiru. Noyyal Ramasamy, Karur.

Topic: Socio-economic and Health issues in Noyyal river basin at Orathupalayam

Thiru. Noyyal Ramasamy is a professional who served as the Vice President of Athipalayam Panchayat, Karur from 1996 to 2001. He holds the privilege of being a farmer association president and has been actively involved in public interest cases presented in both the High Court and Supreme Court. His dedication to public service and commitment to addressing environmental concerns underscore his contributions within the legal and community advocacy spheres.

Mr. R. Manikandan, Kovai Kulangal Padhukaapu Amaippu.

Topic: Present Scenario of Noyyal River and Various Ponds in Coimbatore

Mr. R. Manikandan, is a dedicated environmental activist and the recipient of the prestigious "Best Water Warrior award". As the founder of Kovai Kulangal Padhukaapu Amaippu, an NGO committed to preserving and restoring the region's water bodies, Manikandan has been instrumental in spearheading initiatives to rejuvenate canals, rivers, and lakes in the city. Over these years, he has led his team in extensive efforts, successfully cleaning six lakes, two canals, and four check-dams. Notably, he established a flourishing Miyawaki forest comprising 7,500 indigenous trees along the Vellalore tank bunds.

Research Scholars and Students

Ms. A V Sreelakshmy and Ms. S L Vidya, Research Scholars in Biotechnology, KASC

Topic: Phycoremediation of effluent and RO reject water through algal cultivation

Ms. A V Sreelakshmy is a devoted Ph.D Research Scholar, Department of Biotechnology at Kongunadu Arts and Science College. He has been actively engaged in the SPARC-MHRD Project. This collaborative research initiative, conducted in partnership with Exeter University, UK, focuses on examining the socio-economic impact of textile effluents in the Noyyal River. She contributes her findings in exploring and implementing innovative techniques such as phytoremediation and Graphene technology to address the environmental challenges posed by textile effluents. Additionally, she possesses proficiency in bioinformatic tools, tissue engineering, regeneration biology, and medical microbiology.

Ms. S L Vidya is a dedicated Ph.D Research Scholar, Department of Biotechnology at Kongunadu Arts and Science College. She is currently engaged in the SPARC-MHRD project, supported by the Ministry of Health and Research Department, in collaboration with Exeter University, UK. This collaborative endeavour aims to delve into the socio-economic implications of textile effluents in the Noyyal River. Her professional journey includes a prior role as an Assistant Professor at KSG College of Arts and Science from December 2018 to October 2019. Her expertise spans various domains, encompassing microbiology, bioinformatics, nanotechnology, phytopharmaceuticals, phytoremediation, dye degradation, and effluent treatment.

Mr. Jegadheesh, Research Scholar, Dept of Social works, Bharathiar University

Topic: Socio-economic Analysis of Noyyal River basin at Orathupalayam

Mr. Jegadheesh, is full time Research Scholar at the Department of Social Works, Bharathiar University, possesses a rich background in community-oriented roles with a focus on child welfare and public health initiatives. Prior to this, at EKAM Foundation in Coimbatore, Tamil Nadu, India, where he served as a full-time Social Worker from April 2021 to January 2022, he demonstrated proficiency in health education, youth mentoring, community health, and public health education. His experiences and expertise in advocating for children's rights, coupled with his comprehensive understanding of community health and development, make him a compassionate and dedicated professional committed to making a meaningful difference in society.

Ms. R. Manjula & Ms. S.N.Indhu, II M.Sc Biotechnology,
PSGR Krishnammal College for Women, Coimbatore.

Topic: Transforming Textile Effluent Treatment Plant Sludge into Eco-friendly Bricks

Ms. R. Manjula and Ms. S.N. Indhu, both pursuing their second year of M.Sc in Biotechnology at PSGR Krishnammal College for Women in Coimbatore, have embarked on a commendable project titled "Transforming Textile Effluent Treatment Plant Sludge into Eco-friendly Bricks". Their innovative approach towards addressing environmental challenges by repurposing textile effluent treatment plant sludge, an environmental pollutant, into eco-friendly bricks. This initiative showcases their commitment to sustainable practices and demonstrates their adeptness in applying biotechnological principles to address real-world environmental issues.

Day 1: 13.12.2023

Venue: Conference Hall

Agenda:

(i) Presentations on water pollution issues in the Noyyal River basin and national and state level pollution policy.

(ii) Presentation on integrated anaerobic digestion, hydrothermal carbonization and algal bioremediation technologies, plus their socio-economic benefits (research applicants, academic experts).

(iii) Co-production of potential measures for supporting scaling up of wastewater pollution remediation technology through industry-led initiatives and government policy intervention (industry, government officials, academic experts, research applicants).

(iv) Summarising of discussions and recommendations for policy (research applicants).

Inauguration		
8.30 am	Arrival/Registration	
9.00 am	Invocation	
9.05 am	Welcome Address	**Dr.K.Muthukumar,** Principal Investigator, SPARC Project -P2569
9.15 am	Presidential Address	**Dr.C.A.Vasuki,** Secretary and Director, KASC.
9.30 am	Keynote Address	**Prof. Senthilarasu Sundaram,** Teesside University, United Kingdom.
9.40 am	About the Workshop	**Prof. David Ian Benson,** University of Exeter, United Kingdom.
9.50 am	Felicitation	**Dr.M.Lekeshmanaswamy**, Principal, KASC. **Dr.S.Paulsamy**, Dean, R&D, KASC.
Session I		
10.00 am	**Dr. R. Ilangovan**, Former Vice-Chairman, Tamil Nadu Water Resources Development Cell, PWD, WRD, Chennai. ***Topic: Sustainable Water Management in Noyyal River Basin***	
10.15 am	**Mr. Ka. Su. Velayuthan,** Writer – (Author of the Book 'Noyyal Indru'). ***Topic: History and the present position of Noyyal River***	
10.30 am	**Dr. K. Kadirvel**, Scientist, DRDO- Bharathiar University. ***Topic: Impact of Water Quality on Public Health and Remedial Measures***	
10.45 am	**Mr. Gandhi Rajan**, President, Dyers Association, Tirupur. ***Topic: Best Possible Water Treatment by Dyeing Industry***	
11.00 am	Refreshment	
Session II		
11.10 am	**Er.C. Chinnasamy**, Chief Coordinator, Siruthuli, Coimbatore. ***Topic: Contribution of Siruthuli to Noyyal in Coimbatore***	
11.25 am	**Mr. K. Kalidass**, President, OSAI, Coimbatore. ***Topic: Noyyal River-catchment area of Western Ghats***	

11.40 am	**Prof. S Karthikeyan**, Head cum Quality Manager, Food Quality testing Laboratory, TNAU, Coimbatore. ***Topic: Water quality and management in the Noyyal river***
11.55 am	**Dr.Ganapathy Arumugam**, MD & CEO, Enhanced Biofuel and Technologies India Ltd, Coimbatore. ***Topic: Phytoremediation of Wastewater using Microalgae to support Net-Zero2070***
	Session III
12.10 pm	**Dr.V. Bhuvaneshwari**, Associate Professor of Biotechnology, PSGR Krishnammal College for Women, Coimbatore. ***Topic: Green Technologies for Textile Industry effluent treatment plant waste Utilization***
12.25 pm	**Ms.M.Nila Nandhini**, Assistant Professor of Biomedical Engineering, School of Engineering, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore. ***Topic: Remediation of pollutant water using Graphene membrane***
12.40 pm	**Mr.K. Balasanthanam**, Managing Director, Kongoor Processing, EC Member, Common Effluent Treatment Plant, Tirupur. ***Topic: Textile Wastewater treatment through Zero Liquid Discharge (ZLD)***
12.55 pm	**Dr.T. Anitha,** Assistant Professor of Post-Harvest Technology, Horticultural College and Research Institute (TNAU), Periyakulam. ***Topic: Heavy metal removal from the Water using plants.***
1.05 pm	**Ms. R. Manjula & Ms. S.N.Indhu**, II MSc Biotechnology, PSGR Krishnammal College for Women, Coimbatore. ***Topic: Transforming Textile Effluent Treatment Plant Sludge into Eco-friendly Bricks***
1.15 -2 .00 pm	Lunch
	Session IV
2.00 pm	**Mr.Noyyal Ramasamy**, Farmer Noyyal village, Karur. ***Topic: Socio-economic and Health issues in Noyyal River Basin at Orathupalayam***
2.15 pm	**Mr.R.Manikandan**, Kovai Kulangal Padhukaapu Amaippu ***Topic: Present Scenario of Noyyal River and Various Ponds in Coimbatore***
2.30 pm	**Dr. V.T.Balamurugan**, Professor of Biomedical Engineering Bannari Amman Institute of Technology, Sathyamangalam. ***Topic: Deduction and remediation of textile effluent using AI technologies***
2.45 pm	**Ms.A.V. Sree Lakshmy&Ms. S.L.Vidya**, Research Scholars in Biotechnology, Kongunadu Arts and Science College (Autonomous), Coimbatore. ***Topic: Chytoremediation of effluent and RO reject water through algal cultivation***
3.00 pm	**Mr.R. Jegadheesh**, Research Scholar, Dept of Social Works, Bharathiar University, Coimbatore. ***Topic: Socio-economic Analysis of Noyyal River Basin at Orathupalayam***
3.15 pm	Refreshment
	Session V
3.30 – 4.15 pm	Round Table Discussion
4.15 – 4.30 pm	Summary and Further Actions

Day 2: 14.12.2023

Group I	Field Visit to **Orathupalayam Dam** and **Tirupur** Dyeing effluent Treatment Plant. Interaction with **Mr. Subrabharathimanian** Writer and Author of the Books 'Sayathirai' and 'Siluvai'.
Group II	**Venue: PG Biotechnology Lab,** Kongunadu Arts and Science College. **Dr.K.Chandrakumar**, Associate Professor of Renewable Energy Engineering, Tamil Nadu Agricultural University, Coimbatore. ***Hands-on Training for Water Treatment***

Organizing Committee: -

Chief Patron	:	**Dr. C. A. Vasuki** Secretary & Director, Kongunadu Arts and Science College(Autonomous), Coimbatore, India.
Patron	:	**Dr. M. Lekeshmanaswamy** Principal, KASC, Coimbatore.
Convenor		**Dr.S. Paulsamy** Dean, R&D, and Convenor ISCA, Coimbatore Chapter
Indian Principal Investigator of SPARC Project- P2569 & Organizing Secretary	:	**Dr. K. Muthukumar** Assistant Professor of Tamil Kongunadu Arts and Science College (Autonomous), Coimbatore, India.
International Principal Investigator of SPARC Project - P2569	:	**Prof. David Ian Benson** Associate Professor of Politics University of Exeter, United Kingdom.
International Co- Principal Investigator of SPARC Project - P2569	:	**Prof. Senthilarasu Sundaram** Professor of Sustainable Energy Materials Teesside University, United Kingdom.
Indian Co- Principal Investigator of SPARC Project - P2569	:	**Dr. V. Bhuvaneshwari** Associate Professor of Biotechnology, PSGR Krishnammal College for Women, Coimbatore.
Research Scholars of SPARC Project P2569	:	**Ms. Sasirekha Velusamy** Department of Renewable Energy, University of Exeter, United Kingdom. **Ms. A.V.Sreelakshmy** Department of Biotechnology, KASC, Coimbatore. **Ms. S. L.Vidya** Department of Biotechnology, KASC, Coimbator
Institute Coordinator for SPARC	:	**Dr. V. Meiyalagan** Assistant Professor of Zoology, KASC.

Research Coordinators	:	**Dr. R. Sathishkumar** Assistant Professor of Biotechnology, KASC. **Dr. V. Elakkiya** Assistant Professor of Biotechnology,KASC.
Workshop Coordinators	:	**Dr. K. Murugesan** Assistant Professor & Head, Department of Tamil **Dr. A. U. Thangavelu** Assistant Professor & Head(i/c), Department of Biotechnology
Members	:	**Dr. R. Manimegalai** Associate Professor of Tamil **Dr. M. Rukmani** Assistant Professor of Tamil **Dr. S.Sathishkumar** Assistant Professor of Tamil **Dr. S. Arichandran** Assistant Professor & Head, Dept. of Tamil (UA) **Ms. S. Mohanapriya** Assistant Professor of Tamil **Dr. B. Vishnu Priya** Assistant Professor of Biotechnology **Dr. S. Bhargavi** Assistant Professor of Biotechnology **Dr. R. Arvindganth** Assistant Professor of Biotechnology **Dr. G.T. Iswariya** Assistant Professor of Biotechnology