RSC Workshop
On
Green Chemistry and Water Treatment

17th October, 2016
New Delhi, India

INTRODUCTION & INVITATION

Nearly one billion people do not have access to clean water today. Water is a major environmental stress issue that will be affected by global climate change in diverse ways. With the existing climate change scenario, almost half the world's population will be living in areas of high water stress by 2030. Cogent efforts will be required to find appropriate technical and management solutions in the coming decades. The source of the water crisis is simple but exceedingly difficult to address; water resources are finite; and the population that depends on those supplies is increasing relentlessly. Virtually all global environmental impacts are attributable to population growth and the resulting demand for cleaner water resources.

Among water issues facing the world today, land-based sources of water pollution are among the most pressing. Adequate supplies of satisfactory quality water are essential for the natural resources and ecological systems on which all life depends. Even the water used for agriculture has to be monitored for contaminants to assure it does not affect our food supply. An estimated 20 percent of the world's freshwater fish and 80 percent of estuarine-dependent species, for example, have been pushed to the brink of extinction by contaminated water and the loss of or damage to their habitat.

Green chemistry offers a scientifically based set of solutions for protecting water quality. In this workshop we will celebrate the silver anniversary of Green Chemistry and will discuss green chemistry solutions of water contamination.

It gives us immense pleasure to invite you to attend National Workshop on **"Green Chemistry and Water treatment"** to be held at Delhi on **17th October 2016**, sponsored by Royal Society of Chemistry London (North India Section). This event also coincides with the celebration of **"25th Anniversary of Green Chemistry"** by Green Chemistry Network Centre.

Organizers

Hindu College & Green Chemistry Network Centre,

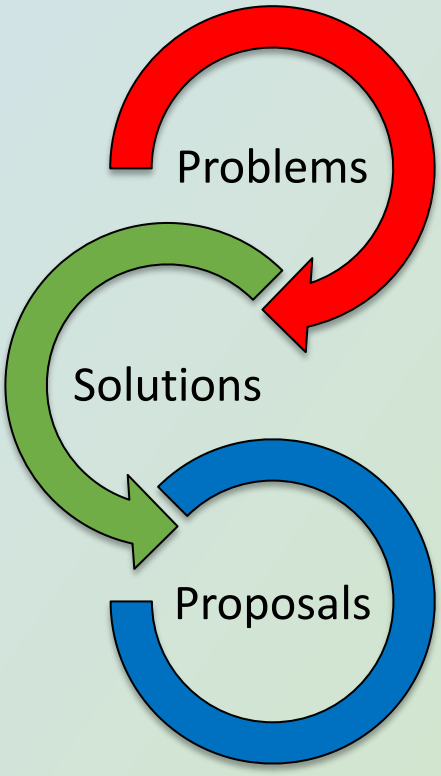
University of Delhi

Workshop Overview

Water pollution is an appalling problem and has enough capability to take the world on a path of destruction. Therefore, there is urgent need to find out the causes and their possible solutions required to eradicate the problem of water contamination by utilizing greener avenues. The main aim of this workshop is to discuss the challenges and opportunities associated with water pollution.

The workshop will revolve around the following three major themes:

1. **Problems:** Major water pollutants- **Heavy metals**, **Pesticides** and **Dyes and other organic pollutants.**
2. **Solutions:** Potential solutions that have been implemented so far.
3. **Proposals:** Suggestions utilizing green chemistry in order to eliminate the problem of water pollution completely.



Chairman

Dr. Satinder Ahuja
President
Ahuja Consulting, USA

Convenors

Dr. Anju Srivastava
Principal
Hindu College
University of Delhi

Prof. R. K. Sharma
Honorary Secretary,
Royal Society of Chemistry (LONDON)
North India Section
Co-ordinator,
Green Chemistry Network Centre,
Department of Chemistry, University of Delhi
Email: rksharmagreenchem@hotmail.com

About Chairman

Dr. Satinder Ahuja earned his Ph. D. from the University of the Sciences in Philadelphia. He worked at Novartis Corporation for 25 years in various leadership positions and simultaneously served as adjunct professor for several universities. In the last dozen years, he has been helping in solving arsenic contamination of groundwater problem in Bangladesh, India, and US. As a founder of Ahuja Academy of Water Quality at UNC Wilmington, he encourages research on various water quality issues.

Dr. Ahuja has given plenary lectures around the world. He has won a number of awards and has served on a distinguished panel for UN to address hunger problems in Africa and on the panel of AAAS for NSF review. He has published numerous papers which include various routes to Green Chemistry and over twenty books. His latest books are entitled *Global Water Challenges and Solutions* (ACS, 2015); *Water Reclamation and Sustainability* (Elsevier, 2014); *Food, Energy, and Water: The Chemistry Connection* (Elsevier, 2014); *Monitoring Water Quality: Pollution Assessment, Analysis, and Remediation* (Elsevier, 2013) and *Novel Solutions to Water Pollution* (ACS Symposium Volume, 2013).

He has served American Chemical Society (ACS) at the local, national, and international levels in various capacities. He was Chairman of both New York and East North Carolina Sections. He was also the Chairman of ACS; Chromatography and Separation Chemistry Subdivision; Environmental Committee, New York Section; Analytical Instrumentation Committee, IAC, ACS; Task Force on International Scientific Chapters, ACS; New York Chromatographic Society; Rockland Chemical Society; and Eastern Analytical Symposium Program Committee. He has received Distinguished Chemist Award of the Rockland Chemical Society and Outstanding Service Award of the New York Section of ACS. He has served on UN meeting on Hunger in Senegal and AAAS panel on evaluation of international grants by NSF. Currently, he is Councilor of East North Carolina Section of ACS and serves on Committee on Environmental Improvement. He chaired the subcommittee on Mini grants for Sustainability for several years.

About Hindu College

Hindu College started with a humble beginning in 1899. Since then it has seen enviable growth over the years. Currently, it is not only one of the most distinguished co-educational institution of our country, but, is also the college of first choice in Delhi. It aims to deliver a perfect platform for academics, management, sports, ethics, and politics.

Chemistry Department

If Hindu College is one gargantuan establishment, this very high profile Chemistry Department is its very foundation. Ever since the birth of this premier establishment, the chemistry department has always helped enhance tits ever growing stature by providing meritorious students and well groomed citizens shining in almost every aspect of life. Complementing the Department's academic excellence is the Chemistry society of Hindu College, popularly known as TATVA. With a clan of devoted educators and spirited students, the society has always striven to live up to its motto of 'The Bond of Togetherness'. It provides a perfect platform to young scientific minds for outshining in not only academics but equally well in co-curricular activities.

Apart from classroom teaching, several of the faculty members are actively involved in research work and book publishing. The Department of Chemistry takes pride in housing four **DU sponsored Innovation Projects** in collaboration with the Departments of Botany, Physics and Zoology. Each project has ten under-graduate students actively involved in research work.

About GCNC

Green Chemistry Network Centre (GCNC) was established in the Department of Chemistry, University of Delhi under the recommendation of World Leaders in Green Chemistry headed by Professor Paul Anastas (known as the father of Green Chemistry) with the following aims and objectives:

- Build a Network for exchange of expertise, discussion and knowledge between industrialists and academics and between chemists and engineers with interests and expertise relevant to Green Chemistry.
- Prepare and disseminate the teaching materials on Green Chemistry for school, college and university levels, with the simultaneous design of laboratory experiments for these levels as well.
- Design trainings not just to expose the chemists to the concepts, principles and methodologies of Green Chemistry but also to empower them to bring this new knowledge back to their institution or industries.
- Promoting research by taking up Green Chemistry Research Projects from Industry and Government agencies.

GCNC received prestigious IUPAC CHEMRAWN GCI-DEN Grant Award for Green Chemistry Networking in India.

GCNC is well-known for its work in the area of green chemistry in India. GCNC has been actively involved in organizing several international conferences and workshops on crucial issues related to green chemistry. In fact, two International Workshops on Sustainability and Water Quality hosted by: ACS-Global Innovation Imperatives Gii were also organized in the years 2011 and 2014 aimed at finding sustainable and cost-effective solutions to global water quality challenges (https://www.acs.org/content/dam/acsorg/global/international/ACS-Gii%20Workshop%20Programme%20India%20January%202014.pdf) Prof. Sharma's (Coordinator GCNC) sincere efforts to popularize green chemistry have won him international fame and recognition. He has published numerous articles (papers as well as reviews) in some of the most reputed international journals such as Coordination Chemistry Reviews (Impact factor: 13.174), Green Chemistry (impact factor of 8.506), Catalysis Science & technology (Impact factor: 5.287), ChemCatChem (Impact factor: 4.734), Dalton Transactions (Impact factor: 4.197), ACS Sustainable Chemistry & Engineering (Impact factor: 5.26) and many more. In fact, GCNC has previously written several chapters on Green Chemistry Solutions to Water Pollution, Water Quality Issues and Solutions in India, Green Materials for Metal Remediation in Water etc. in RSC Green Chemistry Series and Elsevier Publications. Recently, Professor Sharma's review article entitled "Silica-nanosphere based organic-inorganic hybrid nanomaterials: synthesis, functionalization and applications in catalysis" was included in the themed online collection of Green Chemistry journal that features among the most downloaded articles in Green Chemistry in 2015.

The GCNC has been continuously working for sustainable and socio-economic solutions for the problems associated with metal contaminated wastewater. The integration of sustainability and solid phase extraction methodology has already been implemented in the form of silica based organic-inorganic hybrid materials for the recovery of heavy metals from different charged wastewaters. Moreover, a newly designed reactor with full automated modes has been developed for large scale, online, efficient and fast extraction of chromium from tannery waste using metal specific chelating polymer. Such technologies would certainly minimize water pollution and increasing its quality as industrial wastes containing organic solvents and metal contaminants make the water sources unfit for drinking and other human uses. Recently, Prof. Sharma's group jointly with TERI developed a technology for metal remediation. This technology was demonstrated before US experts who visited during last 'Water Quality workshop' and it was well reported by 'Times of India' News Paper.

REGISTRATION

Registration Fee (non-refundable): Applicants are required to pay the registration fee via demand draft drawn in favor of **Royal Society of Chemistry, London** payable at Delhi.

Registration Fees	**Up-to** 10th October 2016	On the **Spot**
Students	**2000**	**2500**
Academicians	**2500**	**3000**
Industries	**5000**	**5500**

Electronic transfer details
Account number: 10851295456
Name of the account: Royal Society of Chemistry London
Bank: State Bank of India
Branch: North Campus, University of Delhi
City: Delhi
Country: India
IFSC Code: SBIN0001067

DEADLINES (For abstract submission)

Submissions of Abstract (Poster) may be made from 31st August, 2016 onwards till 10th October, 2016.

IMPORTANT FORMS

Registration form and Abstract submission form will be available on workshop official website (http://greenchem.du.ac.in) for download.