



# NEWSLETTER ISSUE 2, APRIL 2019



**INTERNATIONAL CENTRE FOR CLEAN WATER**

**IIT MADRAS**

## ICCW – A VISION FOR THE FUTURE

The International Centre for Clean Water (ICCW) aims to be one of the best ecosystems of its kind in the world to ideate, nurture and translate disruptive technologies for sustainable clean water, with collective participation of the global community, delivering first rate science, leading to wealth and social good simultaneously, in the process of building water professionals of tomorrow. ICCW is an IIT Madras initiative aiming to conduct research and develop technology to ensure clean water for each individual on the planet.



ICCW is located on 2<sup>nd</sup> floor of B-block, at IITM Research Park.

ICCW team with Prof Bhaskar Ramamurthi, Director, IITM during the soft launch on 18<sup>th</sup> March 2019.

IITM is emerging a national leader in providing clean water. Mechanism to nurture water technologies and translate it into the field has happened seamlessly over a decade at IITM. ICCW is a promising culmination in that direction. The inauguration of ICCW is scheduled on 22<sup>nd</sup> April 2019.



## PARTICIPATION

- ICCW members participated and helped organize a workshop by **Ministry of Drinking water & Sanitation, Government of India (MDWS), UNICEF and IITM** on **MANAGING WATER: Grey to Clean.**



The 2-day workshop was successfully conducted on 22<sup>nd</sup>-23<sup>rd</sup> March 2019 at the IITM Research Park, with key takeaways for plan of action on water and related issues.

- **Demo Day** held by **IIT Incubation Cell** on 16<sup>th</sup> Feb 2019 – ICCW participated, showcasing **‘the atmospheric water generator - VAYUJAL’**. The stall attracted a lot of interest from visitors and media.
- **Participation in Challenges & Gaps in Water & Wastewater Management event** by Mr E Nandakumar, CEO (ICCW). He presented the key note address for **“Ideas to Profitable Business”** at a Brainstorming Session held at National Environmental Engineering Research Institute (NEERI), Nagpur on 11<sup>th</sup> – 12<sup>th</sup> February 2019.





## VISITORS

- **Wheels India, Chennai**

Mr Srivats Ram (MD, Wheels India) met Prof Pradeep and Mr E Nandakumar on 14<sup>th</sup> Feb 2019, along with Mr B Vaidyanathan.

Mr Ram explained the water scarcity challenge faced by TVS Group companies in Padi, Chennai. What started as a remote industrial area is now mushroomed with residential occupancies leading to severe lack of water. One of the ways forward is to maximize recycling effluents- for which different technologies need to be explored. Since ground water extraction is not allowed in many parts of Chennai, atmospheric water generation could be one of the good options.

Water audit of the Wheels India factory was conducted on 12<sup>th</sup> – 13<sup>th</sup> March and the audit report submitted.

- **Marmon Water, Inc**

M/s Frank Brigano and Malcolm Kahn from Marmon Water, Inc – a Warren Buffet company, visited ICCW on 9<sup>th</sup> April. To explore collaborative opportunities they expressed keen willingness to start utilising the facilities of ICCW and IITM within the next few months.

- **L&T Construction**

A 5-member team from L&T Construction led by Mr J Venkatesh – Head Water Management, visited IITM to explore solutions to the challenges they faced in implementing large infrastructure projects. The meeting had many fruitful outcomes that are being pursued

## OPPORTUNITIES

ICCW has initiated discussions with state governments, corporate and philanthropic organisations to identify projects and initiatives.

The participants are:

*ITC Agribusiness, Foods and Paperboards Division*

*Wheels India*

*Tata Trusts*

*NSE Foundation*

*IIT Bombay*

*Andhra University*

*Aga Khan Foundation*

*Odisha Government*

*Piramal Group*

*Tata Chemicals*

*L&T*

*Marmon Water, Inc*

## WATER TECHNOLOGIES OFFERED



**AMRIT (Arsenic and Metal Removal from Indian Technology):** Arsenic species removal from natural water – it has enhanced kinetics enabling fast delivery of clean water. This is green and causes no additional environmental impact.



**CDI - Capacitive deionization based on graphene electrodes** remove ionic contamination, providing clean water from brackish water. The technology uses much less energy compared to Reverse Osmosis (RO) process and retains more than 80% of the inlet water. Moreover, essential minerals are retained making the water healthier for consumption



### ATMOSPHERIC WATER CAPTURE DEVICE

**Vayujal – Atmospheric water generators,** aim to provide clean water anytime, anywhere. Advanced nano-engineering and bio-mimetic sciences are used for making the evaporator and condenser in this technology.



## FACILITY AT ICCW

It is a state-of-the-art facility in the world for research and incubation of technologies for clean water.

### PROPOSED INSTRUMENTAL FACILITIES / SERVICES

High resolution transmission electron microscopy | High resolution scanning electron microscopy | Scanning electron microscopy | Atomic force microscopy | Confocal Raman microscopy | Inductively coupled plasma mass spectrometry | High performance liquid chromatography | X-ray photoelectron spectroscopy | Ion chromatography | GC and GC-MS | Dynamic light scattering | Isothermal calorimetry | Electrospray ionization mass spectrometry | Matrix assisted laser desorption ionization mass spectrometry | Mass spectrometry imaging | Fluorescence spectroscopy | Test skid for membrane filtration | Pilot scale production | Prototyping | Field testing and validation | Consultancy

## ICCW - WORLDWIDE COLLABORATORS



**Prof. R Graham Cooks**  
Purdue University,  
West Lafayette



**Prof. Marc Anderson**  
University of Wisconsin,  
Madison



**Prof. Thomas Thundat**  
University of Alberta,  
Edmonton



**Prof. Alok Dhawan**  
Indian institute of  
Toxicology Research



**Prof. Andrea Iris Schäfer**  
Karlsruhe Institute of Technology,  
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**Prof. P M Ajayan**  
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**Prof. Seeram Ramakrishna**  
National University  
of Singapore



**Prof. A K Ghosh**  
Bhabha Atomic  
Research Centre



**Prof. Haiwon Lee**  
Hanyang University,  
Korea



**Prof. Tony Cass**  
Imperial College,  
London



**Prof. Jane Catherine Ngila**  
University of Johannesburg



### KEY PEOPLE

The following people are the participants of ICCW Society



● Prof. Bhaskar Ramamurthi  
Dept. of Electrical Engg., IITM



● Prof. T Pradeep  
Dept. of Chemistry, IITM



● Prof. Tiju Thomas  
Dept. of MME, IITM



● Prof. Rajnish Kumar  
Dept. of Chemical Engg., IITM



● Prof. Ashoh Jhunjhunwala  
Dept. of Electrical Engg., IITM



● Prof. Ligy Philip  
Dept. of Civil Engg., IITM



● Prof. Ravindra Gettu  
Dept. of Civil Engg., IITM

### ICCW - PARTICIPATING INVESTIGATORS



Prof. C. Vijayan  
Dept. of Physics  
IITM



Prof. Sarit Kumar Das  
Dept. of Mechanical Engg.  
IITM



Prof. Prasad Edamana  
Dept. of Chemistry  
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Prof. Manu Santhanam  
Dept. of Civil Engg.  
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### REACH US

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