IWMA - Projects

By

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IWMA – Original Purpose (2002)

- To establish first Common Hazardous Waste Storage, Treatment and Disposal Facility (CHWSTDF) through a service provider for industries in Tamil Nadu.

- To supervise the operation of CHWSTDF.

After AGM2015 – Redefining Itself

IWMA - To assist its members in solving their environmental issues by becoming a

Knowledge Hub.

Knowledge Hub

By involving itself in solving environmental issues for:

- **Individual member units**
- **Sector issues**

Knowledge Hub

By associating itself with

- **Academic Institutions**
  - **IIT – Madras**
- **Research Institutions**
  - **CLRI, Chennai**
  - **NIOT, Chennai**
- **Consultants**
  - **WAPCOS, Chennai**
  - **Sartime, Chennai**

Completed Projects

A Chemical industry (IWMAP17)

Sector: Chemical Industry

Location: Chennai

Size: Medium (Turnover > 25 Crore)

Issue:

Improvement in wastewater treatment efficiency

A Chemical industry (IWMAP17)

Guidance:

- **Detailed study of existing ETP facilities and proposed for enhancing ZLD scheme**

Feedback:

- **Positive feedback received from the Industry**

Projects Under Execution

Project – I (IWMAP02)

Sector: Auto component Manufacturer

Location: Chennai

Size: Large (Turnover > 25 Crore)

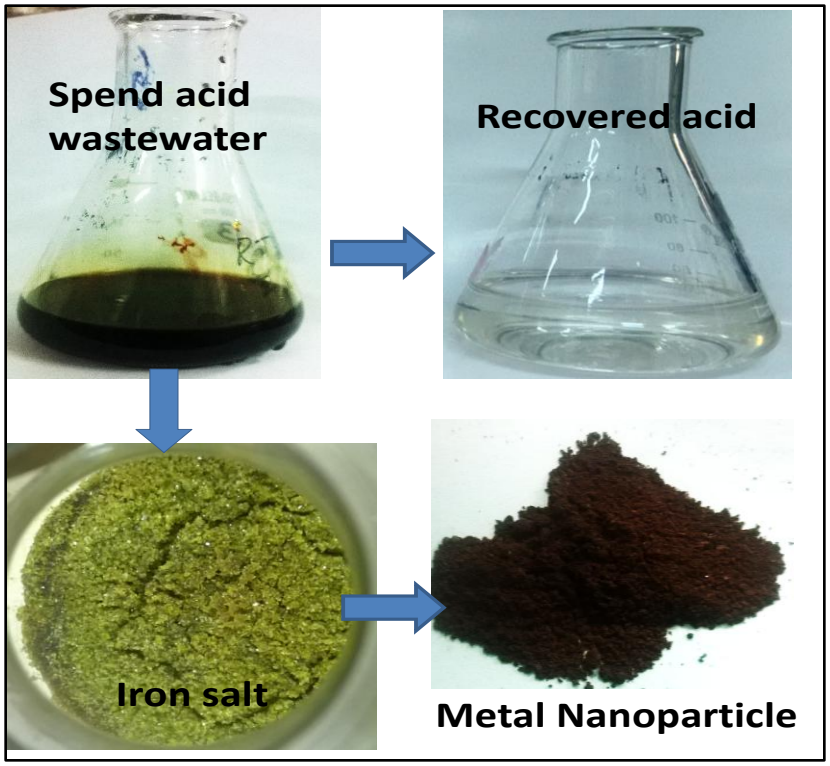
Problem Statement: Recovery of valve added product from Wastewater

Project – I (IWMAP02)

- Spent acid from the process disposed as waste.
- CSIR - CLRI studied the problem statement and come up with the solution with recovery of value added product.
- Recovery of acid and metal nanoparticle from Spent acid.

Project – I (IWMAP02)

- **Cost analysis for pilot plant is in process.**



Project – II (IWMAP04)

Sector: Textile

Location: Erode & Perundurai

Problem Statement: Disposal of wood ash from Boiler

Project – II (IWMAP04)

Month	Milestones	Status
May 2016	Meeting between CLRI, IWMA and Industry Member	Completed
Jun 2016	Site visit and effluent sample collection	Completed
Jun 2016	Two successive lab trials conducted at CLRI for the effluent sample	Completed
Jul 2016	Final reports with the proposed scheme for treatability of the effluent was submitted by CLRI	Completed
Feb 2017	Workshop at Erode with Govt Officials and Stake Holders	Completed
Feb 2017	Brief report sent to TNPCB Head Office through Erode –TNPCB, DEE.	Completed

Project – II (IWMAP04)

Project – III (IWMAP13)

- IIT team visited the Electroplating Industry and collected basic problem statement .
- Reuse of wastewater generated from process (Rinse & Passivation water)
- Designing a solar based integrated treatment.
- Received grant of Rs. 5 Lakhs for project study and prototype.

Project – IV (IWMAP18)

Problem Statement:

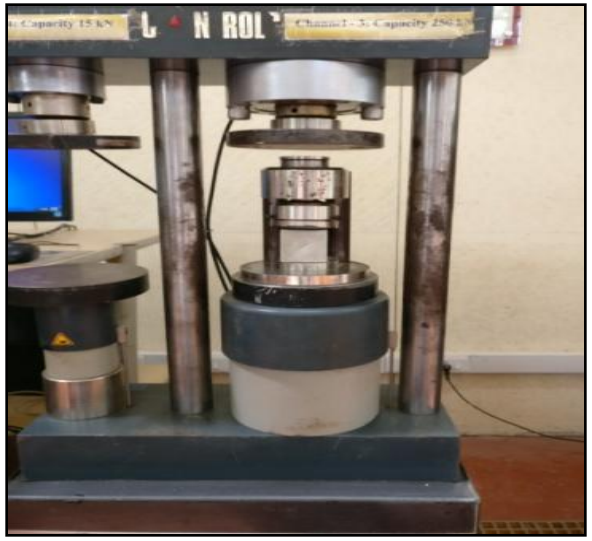
- **Disposal of reject foundry sand from foundry Industry**

Action Items:

- **IIT has collected samples from the foundry industry.**
- **Opportunity of making building blocks.**
  - TCLP, STLC studies
  - Strength Analysis

Project – IV (IWMAP18)

Substitute of sand in Brick, Mortar and Aerated concretes



- Different lot of foundry sand samples tested for meeting the standard limits

Project – V (IWMAP19)

Problem Statement:

- Graphite powder is generated from a forging industry.
- Storage and proper disposal of the Graphite powder is being problematic.

Action Items:

- IIT team have collected basic data and sample from industry

Project – VI (IWMAP19)

Research study carried out:

- 3 experimental Studies carried out for application of used graphite powder for
  - **treatment of textile** and **tannery wastewater**;
  - **microwave susceptor for pyrolysis of petroleum sludge**
- Results were not encouraging.

Project – VI (IWMAP19)

Study in progress:

- Synthesis of Graphene

- Intense Laser-matter interaction experiments to created hot plasma in graphite, emission of x-rays, electron & ions on various applications

- Activated carbon combination of adsorbent will be used for leachate treatment

Project – VI (IWMAP24)

Sector: Radiator Manufacturer

Location: Chennai

Size: Medium (Turnover < 1 Crore)

Problem Statement: Audit the site and provide guidance and recommendations on Environment Concern

Audited in coordination with Sartime

Marine Disposal of Residual Salts (IWMAP01)

Sector: Textile processing industries

Issue:

Non-reusable salt sludge can neither be sent to:

- **CHWTSDF because solubility is more than 20%**
- **Co-processing in cement klin because of high salt content.**

Marine Disposal of Residual Salts

IWMA approached IIT Madras.

Title: ***Feasibility study on marine disposal of salt generated from textile effluent treatment plants***

Resource Person:

Dr. Ligy Philip,

Professor, Department of Civil Engineering,

IIT Madras.

Marine Disposal of Residual Salts

Scope of Study:

Preparation of Feasibility Report to be submitted to Tamil Nadu Pollution Control Board (TNPCB)

- **Recommendation on feasibility of marine disposal of salts.**
- **Recommendation of possible pre-treatments for salts, if needed.**

Marine Disposal of Residual Salts

Study Result:

- **Marine disposal of the salts will not have any significant toxic effect on the marine ecological systems.**

- **Moreover, the concentrations available will be many fold lower than that employed in the studies due to enormous dilution that can occur during the disposal.**

Marine Disposal of Residual Salts

Stake holder Meetings:

Marine Disposal of Residual Salts

Month	Milestones	Status
Nov 2015	Completion of Feasibility Report by Prof. Dr. Ligy Philip, IIT Madras	Completed
Feb 2016	Meeting with TNPCB Chairman, Member Secretary, JCEEs along with Prof Ligy Philip at TNPCB-Head Office.	Completed
Mar 2016	Meeting with National Institute of Ocean Technology, Chennai	Completed
Mar 2016	Meeting with WAPCOS	Completed
Apr 2016	Meeting with TNPCB Chairman to brief the project progress	Completed

Marine Disposal of Residual Salts

Month	Milestones	Status
Jun 2016	Proposal submission by WAPCOS	Completed
Sep 2016	Order issued to WAPCOS for PFS	Completed
Feb 2017	WAPCOS requested residual salt quantity from textile Industries	Completed
Mar 2017	Meeting JCEE at TNPCB Head Office – Guindy	Completed
Apr 2017	Letter sent to TNPCB officials and Stake holders on request of salt quantities	Completed

Marine Disposal of Residual Salts

Month	Milestones	Status
Apr 2017	IETPs, CETPs visit and meeting with TNPCB Officials, Stake holders along with WAPCOS	Completed
Apr 2017	Quantity of residual salt received from TNPCB – DEE	Completed
May 2017	Meeting JCEE at TNPCB Head Office – Guindy	Completed
Jul 2017	Stake holder meeting with Namakkal	Completed
Sep 2017	Draft report from WAPCOS	Completed

Carbon Zero Challenge

Carbon Zero Challenge Competition

in collaboration with

SHAASTRA2018

- **A renewable energy innovation competition for college students, early stage entrepreneurs, innovators and researchers.**

- From Tamil Nadu, Kerala, Karnataka, Puducherry, and Andaman and Nicobar Islands

Carbon Zero Challenge Competition

in collaboration with

SHAASTRA2018

Pioneering initiative by **IIT-Madras,** in collaboration with

- **Industrial Waste Management Association (IWMA),**
- **U.S. Consulate General Chennai,**
- **POLARIS – A Virtusa company**

Carbon Zero Challenge Competition

- Prototype funding & prize money of Rs1.5 Crores
- Prototype funding maximum upto Rs.5 Lakhs per project
- Mentorship from US and Indian Experts

Carbon Zero Challenge Competition

- **Top 26 short listed ideas (teams)**

Carbon Zero Challenge Competition

in collaboration with

SHAASTRA2018
THE SPIRIT OF ENGINEERING

- **Media Coverage**

IIT Madras launches Carbon Zero Challenge

DECCAN CHRONICLE.
Published Mar 10, 2017, 6:51 am IST Updated Mar 10, 2017, 9:01 am IST

The idea behind the innovation challenge is to encourage new ideas for minimising carbon emissions.

IIT-Madras, along with Industrial Waste Management Association and US Consulate General in Chennai, has launched the Carbon Zero Challenge, a renewable energy innovation competition on Thursday.

CHENNAI: IIT-Madras, along with Industrial Waste Management Association and US Consulate General in Chennai, has launched the Carbon Zero Challenge, a renewable energy innovation competition on Thursday. The idea behind the innovation challenge is to encourage new ideas for minimising carbon emissions. While launching the competition, Tamil Nadu Energy Development Agency (TEDA) chairman Jagmohan Singh Raju said, "We have to wisely utilise the locally available energy sources like solar and wind for reducing the dependency on non renewable energy resources. We need technology innovation to make our villages habitable. Currently, TEDA is working towards a hybrid model where all energy resources can be mixed to power the villages," he said.

Industrial Waste Managment Association chairman S.Mani said, "If we have a triangular relationship that is between government industry and institute like IITs, it will give a solution for the carbon zero challenge." IIT Madras director Bhaskar Ramamurthi said, "In early stages of innovation, students will not be sure of whether to pursue their ideas. So participating in competitions and getting their ideas validated by experienced people is important. Many important solutions have come out from such challenges."

Aerial Pollock, Public Affairs Officer, US Consulate General, Chennai expressed hope that India and US collaboration can provide insights in the field of renewable energy. The participants have to develop a renewable energy system for any of the five thematic areas - agriculture, urban housing, transport, industries, water and wastewater - using a combination of one or more renewable energy sources (solar, wind, biogas, geothermal, ocean, and hydro). They can submit their proposals on or before April 30. For more details, they can visit http://www.carbonzerochallenge.org/

Tags: iit-madras
Location: India, Tamil Nadu, Chennai (Madras)

ENERGY EFFICIENT GOALS

STUDENT TEAMS FROM VARIOUS CITY COLLEGES HAVE COME UP WITH LOW-CARBON SOLUTIONS FOR A GREENER INDIA

The US Consulate and IIT (M) have jointly introduced a revolutionary student programme — Carbon Zero challenge. Among about 500 applications, 26 teams were shortlisted out of which 19 are college teams. The challenge invited students from Tamil Nadu, Kerala, Karnataka, Puducherry and the Andaman and Nicobar Islands. The objective is to isolate problems in five thematic areas like agriculture, urban areas, transportation, industrial processes and water and waste management and find solutions to the same.

Elaborating more about the competition, professor Indumathi from IIT (M) shares, "Youngsters are always full of enthusiastic ideas. Their dedication to the environment is more nowadays than older generations. We have got excellent projects which deserve a grant of five lakh rupees for the development of the prototype."

Adding to her statement, Sivaraman from Industrial Waste Management Association (IWMA), states, "The students have come up with carbon mitigation solutions which benefit our ecosystem. They get to interact with researchers, investors and potential companies who want to launch their product as a start-up."

Sivagami, a post-doctoral research scholar from one of the final teams selected from IIT (M) reveals, "My team of five has created a solution to plastics by solar panels. The amount of plastics generated by us will soon be equal to the weight of the fish in the ocean! We worked on solar's energy efficient solution. If supplied to malls and big institutions that give out a lot of plastic, then they can be treated before disposal causing no harm to nature."

The five lakh grant is not only a great boost, but a wonderful 'paper to prototype' initiative
– DIVYA PRIYA

Stating that the grant from Polaris, Virtusa was a much needed support, Divya Priya another PhD student concludes, "We have many ideas that can't be put into use because of the lack of funds. The five lakh grant is not only a great boost, but a wonderful 'paper to prototype' initiative. It is a form of encouragement that makes us work harder to launch our product soon."

The demo day of all the prototypes will happen in January 2018.

—PS

Students displaying their prototype designs to the panelists

Caring for the Environment
IWMA

Petroleum Conservation Research Association

Petroleum Conservation Research Association

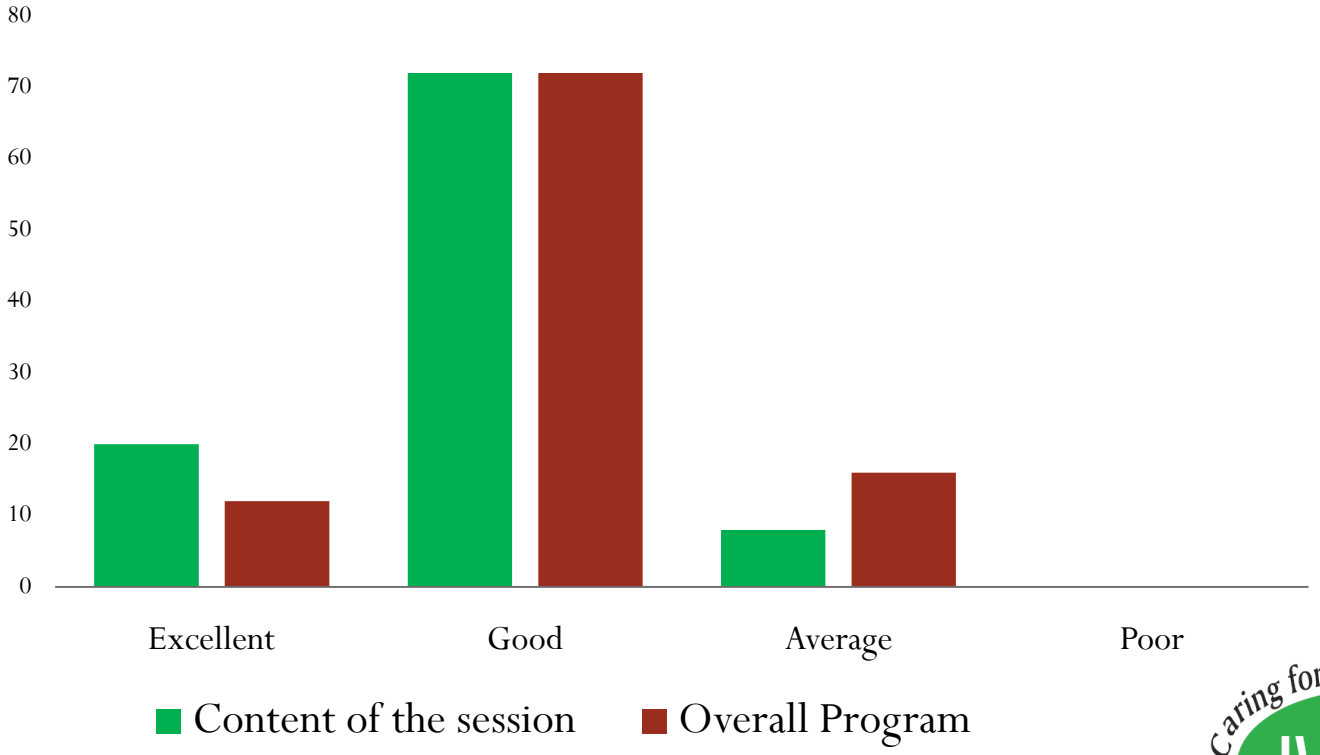
Working together with PCRA

- **Energy audits to Industries by accredited Energy auditors**

- **Successful Program on Energy Management to member Industries**

Petroleum Conservation Research Association

Feedback from Participants



Caring for the Environment
IWMA

Conclusion

Conclusion

- IWMA
- Member Industries
- Industry Sector Champions
- Academic Institutions
- Research Institutions
- Consultants

If we can put our minds and heart together, definitely we can make IWMA, a *Knowledge Hub*.

Thank You !