



INDUSTRIAL WASTE MANAGEMENT ASSOCIATION



**15th Annual General Meeting
Annual Report
2016 – 2017**

IWMA ACCREDITED TO NABET - BMO

National Accreditation Board for Education and Training



CERTIFICATE OF ACCREDITATION



Industrial Waste Management Association (IWMA)

New No. 34, (Old No. 70) First floor, Brindavan Street,
West Mambalam, Chennai - 600033

*has been assessed and found to be complying
with NABET* requirement as per
Accreditation Standard for Business Membership Organisations
and has been accredited with "SILVER GRADE" at State Level*

Valid from : March 30, 2017

Certificate No. WS 1720 025

**Valid Thru : March 29, 2020

Dated : March 30, 2017


Chief Executive Officer
NABET


Secretary General
Quality Council of India

* NABET is a constituent Board of Quality Council of India (QCI)

** Subject to continued compliance with NABET criteria for Accreditation Standard for Business Membership Organisations

S.NO	TABLE OF CONTENTS	PAGE NO
1	Notice.....	2
2	Chairman’s Message.....	5
3	Secretary’s Message.....	6
4	Executive Committee.....	13
5	About IWMA.....	16
6	Membership Profile.....	18
7	IWMA Activities.....	22
8	CHWTSDF details.....	27
9	Auditor’s Report.....	32

NOTICE

Notice is hereby given that the 15th Annual General Body Meeting of the Members of Industrial Waste Management Association will be held in Hotel Green Park, Vadapalani, Chennai on 16th September (Saturday) at 3:00 PM to transact the following business brought by the Executive Committee.

I. AGENDA

1. To receive, consider and adopt the Secretary's report (Annual Report) of the Association for the year 2016 – 17.
2. To receive, consider and adopt audited Balance Sheet as on 31st March 2017 and Income & Expenditure Account for the Year ended as on date.
3. To appoint the auditor to hold office from the conclusion of the Annual General Meeting till the conclusion of the next Annual General Meeting.
4. To elect Chairman, Secretary, Treasurer and 3 Executive Committee Members as per the vacancy.
5. The Chairman to adjourn the Annual General Meeting.



Date: 21st August 2017
Place: Chennai

K. Baskaran
(Secretary)

II. ELECTION: The Following Office Bearers and Executive Members posts fall vacant (who retires by rotation / resignation):

1. OFFICE BEARERS:

- a. Post of Chairman – Vacant
Mr. S. Mani, retires.
- b. Post of Secretary – Vacant
Mr. K. Baskaran, retires.
- c. Post for Treasurer – Vacant
Mr. M. Balasubramanian, retires

2. EXECUTIVE COMMITTEE MEMBERS:

- a. Executive Committee Members **1 from Large Sector.**
- b. Executive Committee Members **1 from Medium Sector.**
- c. Executive Committee Members **1 from Small / Tiny Sector.**

PROCEDURE FOR NOMINATIONS FOR THE EXECUTIVE COMMITTEE :

- ❖ Form for Nominating Members for electing Chairman, Secretary, Treasurer and Three Committee Members (One from Large Sector, One from Medium Sector and One from Small & Tiny Sectors).
- ❖ Each Member Industry can nominate only one candidate; The Member industry should not have any dues to the Association as on 31st March 2017.
- ❖ Member Industry will have to give an undertaking to permit their representative to attend to the activities of the Association as and when required.
- ❖ Contestants for elections shall file their nomination papers duly authenticated by the Member Industry (by affixing the seal of the company) along with an Undertaking from the industry and bio-data with two passport size photographs.
- ❖ Nominations have to reach the Association on or before 9th of September 2017 (Saturday) before 1:30 PM
- ❖ The final eligible list of Nominations will be displayed on the Notice Board on 15th September 2017 (Friday) before 5:30 PM

PROCEDURE FOR ELECTION & ELIGIBILITY CRITERIA FOR MEMBERS TO PARTICIPATE IN AGM AND EXERCISE THEIR FRANCHISE :

- ❖ The 15th Annual General Meeting of Industrial Waste Management Association and Elections to the Executive Committee will be held on 16th September 2017 (Saturday) after AGM
- ❖ Members who are in arrears of payment to IWMA as on 31st March 2017 will have time till 10th September 2017 to clear their dues and become eligible to participate in the AGM and in Elections.
- ❖ Only Members who are in good standing as on 9th September 2017 (Saturday) and do not have any arrears of payment due to the Association will be eligible to participate in the General Body Meeting and exercise their franchise on the issues before the General Body.
- ❖ Eligible Members will get the Attendance Slip (cum Proxy Form).
- ❖ Those who wish to attend the AGM and exercise their franchise shall bring the Attendance Slip, duly affixed by the Seal of the Company and ID card of the Member Industry.
- ❖ Ballot papers will be issued on production of duly authenticated Attendance Slip and ID card.
- ❖ Election to the Executive Committee of IWMA for the year 2017-18 will be held by personal secret ballot only.

Date: 21st August 2017
Place: Chennai



K. Baskaran
(Secretary)

Chairman's Message



Dear Members,

I am very happy to connect with you on this occasion, when our organization, the IWMA, is conducting its 15th Annual General Body Meeting.

The world celebrated 'World Environment Day' on June 5, 2017, with the theme "Connecting People to Nature".

Nature's gifts are often hard to value in monetary terms. Like clean air, they are often taken for granted, at least until they become scarce.

And the cause of such scarcity is invariably the tendency of humans of recent generations to consume every resource at an alarming rate. This has led to conversion of natural resources to products that end up in waste-dumps or emissions into atmosphere or discharges into water bodies. Quite clearly, this has disturbed the balance that Nature has maintained for billions of years.

This is an occasion to pause and think how we are all part of Nature and how intimately and unequivocally we depend on Nature for survival and growth. It is time to find ways to re-discover the joy of connecting back with Nature.

As an organization caring for the environment, the IWMA is committed to responsible management of waste from member industries and aims to guide them on all environmental concerns. This is an ongoing journey on which I would like to thank the entire IWMA team and all members for being enthusiastic travellers.

With best wishes to all members,

S. Mani, Chairman, IWMA.

Secretary's Message



Dear members,

I am extremely pleased to greet all members of our association on this memorable occasion. The State Industries Promotion Corporation of Tamil Nadu (SIPCOT) has identified IWMA as a facilitator for establishing Common Hazardous Waste Treatment Storage and Disposal Facility (CHWTSDf) in the identified landfill sites in Tamil Nadu.

SIPCOT has allocated sites at Thoothukudi and Bargur, for which our Association is the process of obtaining the Clearance from Ministry of Environmental Forest. On August 23rd 2017 we have represented IWMA at MoEF, New Delhi, to obtain clearance from the Expert appraisal committee for Thoothukudi Project.

Our association has obtained Accreditation of Business Membership Organization (Industry Association) by the National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI).

Our co-ordination with Tamil Nadu Pollution Control Board (TNPCB) has been strengthened and we are proud to share with you that, IWMA is a part of the Water Quality Watch Centre. TNPCB has taken note of the high compliance level in the Gummidipoondi CHWTSDf and wishes IWMA to take lead in the area of Food Waste Management as well. TNPCB former officials like Mr. Atulya Misra, Chairman, TNPCB, Mr. Karthikeyan Member Secretary, TNPCB and Thiru. K. C. Karuppannan, the Honourable Minister for Environment and Pollution Control, Government of Tamil Nadu visited our site and expressed their appreciation and satisfaction for the efforts taken by IWMA in disposing the Industrial Waste in Scientific and Safe manner.

To comply with the updated regulations from Central Pollution Control Board and Tamilnadu Pollution Control Board, IWMA has made arrangements to make MOU to transfer and develop new technologies to IWMA member Industries from CSIR Research institutes like CLRI, CECRI, NEERI, Anna University, Indian Institute of Technology. IWMA is also in the process of making agreement with VIT and Satyabama University.

IWMA also conducts regular In house training courses and National level seminars to Member industries to handle the compliance from the regulatory bodies.

With Best Wishes,

K. Baskaran, Secretary

ACCREDITATION

Our association has obtained Accreditation of Business Membership Organization (Industry Association) from the National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI) in SILVER GRADE. This is an Accreditation standard like ISO systems.



Office Bearers Greeting NABET Auditor Mr. S.K. Verma during NABET - BMO Audit.

PROJECTS:

SIPCOT & IWMA PROJECTS

SIPCOT has identified IWMA as a nodal agency to implement TSDF at various industrial estates.

SIPCOT has identified Thoothukudi, Perundurai and Baragur locations to establish TSDF.

1. THOOTHUKUDI PROJECT

Terms of Reference has been obtained and EIA has also been conducted. IWMA has applied for TOR amendment. EAC meeting for amendment is held on August 2017.

2. PERUNDURAI PROJECT

Though the EIA was conducted and Public Hearing held, due to technical reasons, the project is shelved.

3. BARAGUR

SIPCOT has identified Baragur as another site. IWMA is following it up for necessary enter upon permission to take it to the next process

4. GUMMIDIPOONDI - ADDITIONAL LAND REQUIREMENT

The final/6th Cell landfill site is in progress. This will last long for another 6-9 months. IWMA has sought for additional land of 40 acres. SIPCOT has allotted 26 acres. IWMA is expecting official allotment order. Service Provider is coordinating with SIPCOT for the allotment.

TAMIL NADU POLLUTION CONTROL BOARD:

Co-ordination with TNPCB has been strengthened and I am glad to inform you that IWMA is part of the Consultative Committee for Online Monitoring of Hazardous Waste from the industries.

Our Chairman, Mr. S. Mani is a member of the Research & Development Committee of TNPCB.

IWMA is working closely with TNPCB on Residual Salt Disposal from Textile Industries.

TRAINING

In continuation of our efforts to conduct training programs on Environment Management for the member industries, our association has conducted number of in-house and out-houses training programs. IWMA has conducted 1 program in Hosur and 1 program in Coimbatore. Both the programs were well received. IWMA has conducted the following training programs during this period. These programs have focused on small groups to facilitate better understanding and involvement. As part of hazardous waste management programs all the participants were taken to CHWTSDF at Gummidipoondi for site visit.

IN-HOUSE TRAINING PROGRAMS

S. NO	DATE	TOPIC	LOCATION	NO OF PARTICIPANTS
1.	08.04.16	Regulatory Requirements & Online Consent Management & Monitoring Systems(OCMMS)	CPCL Resort, Alwarpet	30
2.	05.05.16 & 06.05.16	Regulatory Requirements & Online Consent Management & Monitoring Systems(OCMMS)	Sri Aarvee Hotel, Coimbatore	42
3.	24.05.16 & 25.05.16	Hazardous Waste Management & Disposal Techniques	Hotel Le Palace Chennai	35
4.	08.07.16	Environmental Awareness & Regulatory Requirements for Industries	IWMA Office	17
5.	12.08.16	Hazardous Waste Management & Regulatory Requirements	Hosur Industrial Center, Hosur	46
6.	24.09.16	Recent Trends in Environmental Management	Hotel Feathers Chennai	99
7.	10.11.16	Awareness to ISO 14001-2015 (Environmental Management System)	IWMA Office	22
8.	22.11.16	Statutory Requirements Compliances- Environmental	IWMA Office	11

9.	14.12.16	Basic Maintenance & Trouble Shooting	IWMA Office	08
10.	20.12.16	Problem Solving Techniques-7 QC Tools & 7 QC Stories	IWMA Office	24
11.	28.12.16	Statutory Requirements Compliances-Environmental	IWMA Office	23
12.	05.01.17	Environmental Awareness & Regulatory Requirements	IWMA Office	21
13.	24.01.17	Waste Management & Recent Amendments & Regulations	IWMA Office	06
14.	27.04.17	Waste Management & Recent Amendments in Waste Management	IWMA Office	14

CERTIFICATION PROGRAMS :

IWMA planned to conduct Operator Certification Program for various industries. Our association has decided to conduct a course on “Effluent Treatment Plant Operation & Maintenance” in partnership with SSM Polytechnic College, Erode. To this effect, MOU has been signed between SSM Polytechnic College and IWMA in this regard. Course module and syllabus are under preparation.

CSR ACTIVITIES :

ENVIRO - 2016

As part of our CSR Activities, ENVIRO Competitions in Partnership with Science Olympiad Foundation (SOF) was conducted on 23rd and 24th of July, 2016 at ICSR Auditorium in IIT, Madras. It has attracted more than 90 schools comprising about 250 students. Competitions like Pencil Sketching, Essay Writing & Quiz were held.

Chief Guest : Mr. Arun Krishnamurthy. Environmental activist.



Young Environmental Scientist - 2017 (YES)

YES Awards 2017, an innovation triggering event for schools, mentored by Prof. Natarajan of IIT Tirupathi was conducted from July 2016 to January 2017. Over 60 projects have been presented and the best projects were awarded on 29th January 2017 by the Chief Guest, *Thiru. K. Pandiarajan, B.E (Hons), MBA (XLRI), the former Education Minister, Government of Tamil Nadu and minister for Tamil Official Language and Tamil Culture and Archaeology now.*


CHWTSDF:

A High Level Team from Government of Bangladesh consisting of Environmental Ministry and Pollution Control Board Department visited the site on February, 13, 2017 and they expressed their happiness in the way waste is handled.

Other Important Visitors to CHWTSDF, Gummidipoondi:

S.NO	NAME OF THE VISITOR	DATE OF VISIT	DESIGNATION
1)	Mr. Karthikeyan, TNPCB Chairman	22/12/2016	TNPCB Chairman
2)	Hon. Mr.Karupannan, Environment Minister	01/06/2016	TNPCB Environment Minister
3)	Mr. Atulya Misra – IAS	22/12/2016	Chairman, TNPCB, Chennai
4)	Mr. M.D Masud Kariw	13/02/2017	Director – DOE
5)	Mr. Mohammad Shamsul Adafin	13/02/2017	National Expert WIZ-PSES
6)	Mr. Toshiyaki Takequoh	09/03/2017	Japan –Team (Mahendra World City)
7)	Prof. Ligy Philip	22/06/2016	Indian Institute of Technology Madras, Chennai
8)	Prof. Indumathi Nambi	18/03/2017	IIT Madras

EXECUTIVE COMMITTEE FOR THE YEAR 2016 -17

Chairman Mr.S. Mani President (SHE & CSR) Orchid Chemicals & Pharmaceuticals Ltd.	
Vice Chairman Mr. R. Jagannathan Director Sri Suryodhayaa Processing Pvt. Ltd.	
Secretary Mr. K. Baskaran Head, Aarthi Industries	
Joint Secretary Mr. N. Palanisamy Managing Director Aruna Textile Processing Mills	
Treasurer Mr. M. Balasubramanian Senior Manager (Environment) Hyundai Motor India Ltd.	

EXECUTIVE COMMITTEE MEMBERS FOR THE YEAR - 2016 -2017

<p>Mr. Gomathi Sankar I. K. AGM-HRM & Admin V.S.T Tillers Tractors Ltd.</p>	
<p>Mr. A.C. Saravanan Senior Manager Indian Additives Ltd</p>	
<p>Mr. K. Natarajan Proprietor Divya Engineering Works</p>	
<p>Mrs. S. Chellammal MTL Instruments Pvt. Ltd. Manager EHS</p>	
<p>Mr. B. Saravanan Deputy General Manager-Facilities, Super Auto Forge Pvt Ltd.</p>	

EXECUTIVE COMMITTEE MEMBERS FOR THE YEAR - 2016 - 2017

Mr. C. S. Rajan Vice President Iljin Automotive Private Limited	
Mr. Suresh Kandi Manoharan Executive Director Best Colour Solutions India Pvt. Ltd.	
Mr. R. Thirugnanam Dy. General Manager Maintenance Simpson & Co. Ltd.	
Mr. M. Thiyagarajan Asst. Manager - Utilities & Projects Brakes India Ltd. (Unit 36)	
Mr. P. E. Purushothaman Director SSM Processing Mills Limited	

Auditor : **Mr. H. Chandrasekaran.**

Secretariat:

General Manager - Operations	:	Mr. R. Venkatasubramanian
Technical Advisor	:	Mr. N. Ramadoss
Advisor - Projects	:	Mr. K. Sivaraman
IWMA Executive - Environment	:	Dr. C. Shankar
Assistant Manager - Programs	:	Dr. M. Anjali
Assistant Manager Resources	:	Mr. B. Hari Prakash
Trainee - Program & Training	:	Ms. R. Mridula
Accounts Executive / Admin	:	Ms. K. Lalitha
Admin / Accounts Officer	:	Mr. G. Ravi
Office Assistant	:	Mr. D. Murugan

ABOUT IWMA

The Environmental Protection Act, 1986 sets the onus of identifying the sites for Common Hazardous Waste Treatment Storage and Disposal Facility (CHWTSDF) to the State Governments as per the Hazardous Wastes / Management and Handling Rules, 1989. In Line with rules Honorable Supreme Court of India directed Government of Tamil Nadu, through Tamil Nadu Pollution Control Board (TNPCB), formed a core group of representatives from the industries in Tamil Nadu to coordinate the establishment of CHWTSDF in 1999.

In this context, at the behest of TNPCB, Industrial Waste Management Association (IWMA) was set up as a Not for Profit Organization in 2002, with initial strength of 35 members from various industries. From 2002 to 2007, the Association was coordinating the assessment and clearance of various sites along with the Government of Tamil Nadu. During this period, IWMA was functioning from the premises of Orchid Chemicals in Cathedral Road. An Executive Committee of nine members met on a monthly basis to build the framework of the Association.

The Govt. of Tamil Nadu, through SIPCOT leased 27 acres of land at Gummidipoondi to IWMA to establish a CHWTSDF. IWMA engaged Ramky group to establish and operate a CHWTSDF (first common hazardous waste landfill facility in the state) through Tamil Nadu Waste Management Ltd for industries in Tamil Nadu. The landfill facility is amongst the best maintained hazardous waste disposal sites in the country. With the establishment of CHWTSDF in Gummidipoondi Export Promotion zone in 27 acres by 2008, the membership increased to more than 100; the Association felt the need for an organized office. With prime focus on coordinating the operation of a secure landfill facility, a highly experienced scientist with industrial field experience was inducted as Executive Secretary along with an office assistant. The Registered Office was shifted to a rented premise in Ashok Nagar. Over a period of years, the Association registered a tremendous growth in membership to nearly 2450 at present.

At present, the Association functions at a new office premise in Brindavan Street, West Mambalam. However, IWMA should come out of the rental building and buy its own land/office. Search for a suitable place has already begun. Soon, we will occupy our own office.

The current strength of the Executive Committee is 16 with members from diverse industrial categories who have considerable expertise in the field of environment and/or practicing professionals. In addition, IWMA has experienced Advisors who guide and help, to the Association on technical and project areas.

Besides periodic review of the landfill site operation, IWMA conducts Seminars, training programs and offers consultancy services to industries/ industry clusters in partnership with institutions such as Central Leather Research Institute (CLRI), Chennai and IIT-Madras on environmental issues related to air, water and waste management. Our Training programs are

getting overwhelming support from our members. The number of participants is growing during this period.

CSR Activities :

IWMA has been actively involving in creating awareness among school children in areas of environment, renewable energy, recycling, climate change, water conservation and global warming.

IWMA conducts “ENVIRO” program in collaboration with Science Olympiad Foundation for school children. Competitive events like Collage Making, Just a minute, Debate, Poster Making, Best out of Waste are held to promote the importance of environment among school children. The Programme is successfully held for the past 8 years.

IWMA conducts “Young Environmental Scientist” (YES) program annually, under the guidance of Prof T. S. Natarajan (formerly Professor at IIT-Madras, now Professor at IIT-Tirupathi) for promoting the interest of scientific research among school children from 8th to 12th standard from private schools as well as Corporation of Chennai Schools.

Another initiative of IWMA is an “ECAP (E-Waste Collection and Awareness Program)” covering schools in the city has been taken up in partnership with CII-YI and Tes-Amm Recyclers.

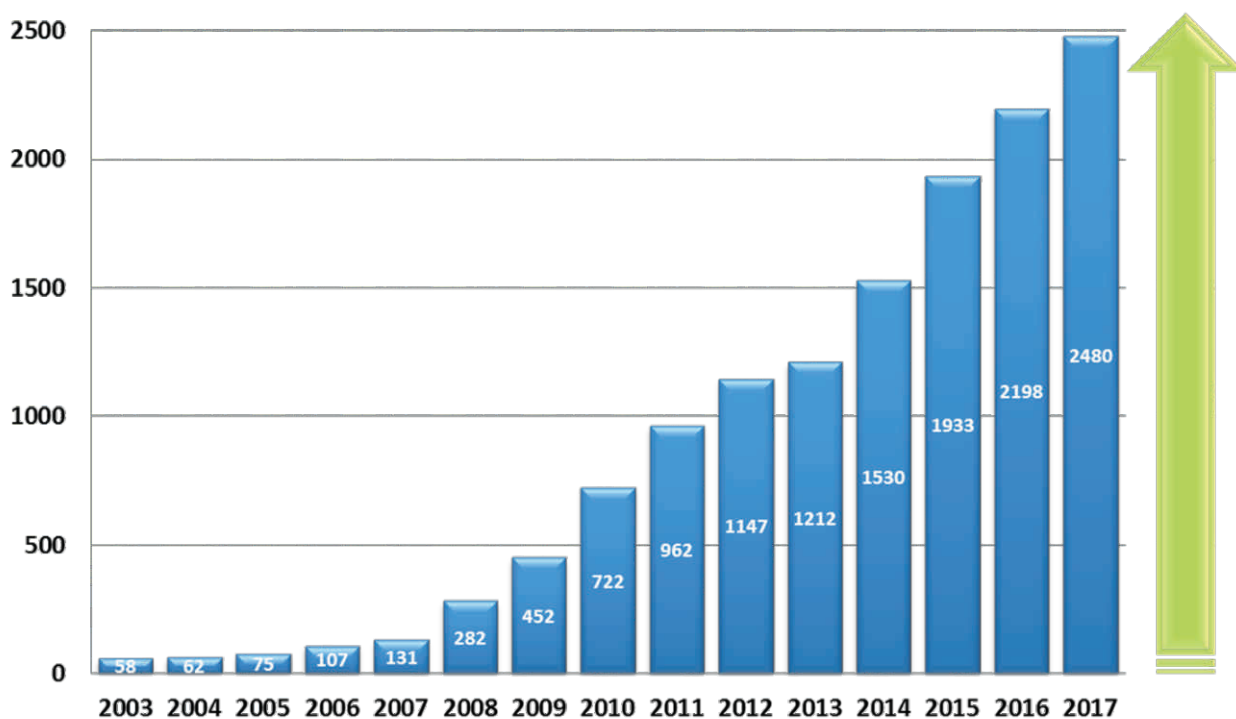
Besides the above, IWMA offers the following services:

- ❖ Technical clarifications to industries on disposal of Hazardous waste
- ❖ Providing updates on change in Environment regulations to members (through website and training programs)
- ❖ Guidance for submission of Consent order application to TNPCB
- ❖ Signed MOU with SSM polytechnic, Erode, to conduct ETP Operators and Technicians Courses.
- ❖ Working with Sathya Bama University and other institutions to establish Training Courses.
- ❖ Discussions are taking place with NCGJ (Regional Partner of National Skill Development Council) for conducting Skill Development Programmes and also working for signing MOU for a long term partnership.

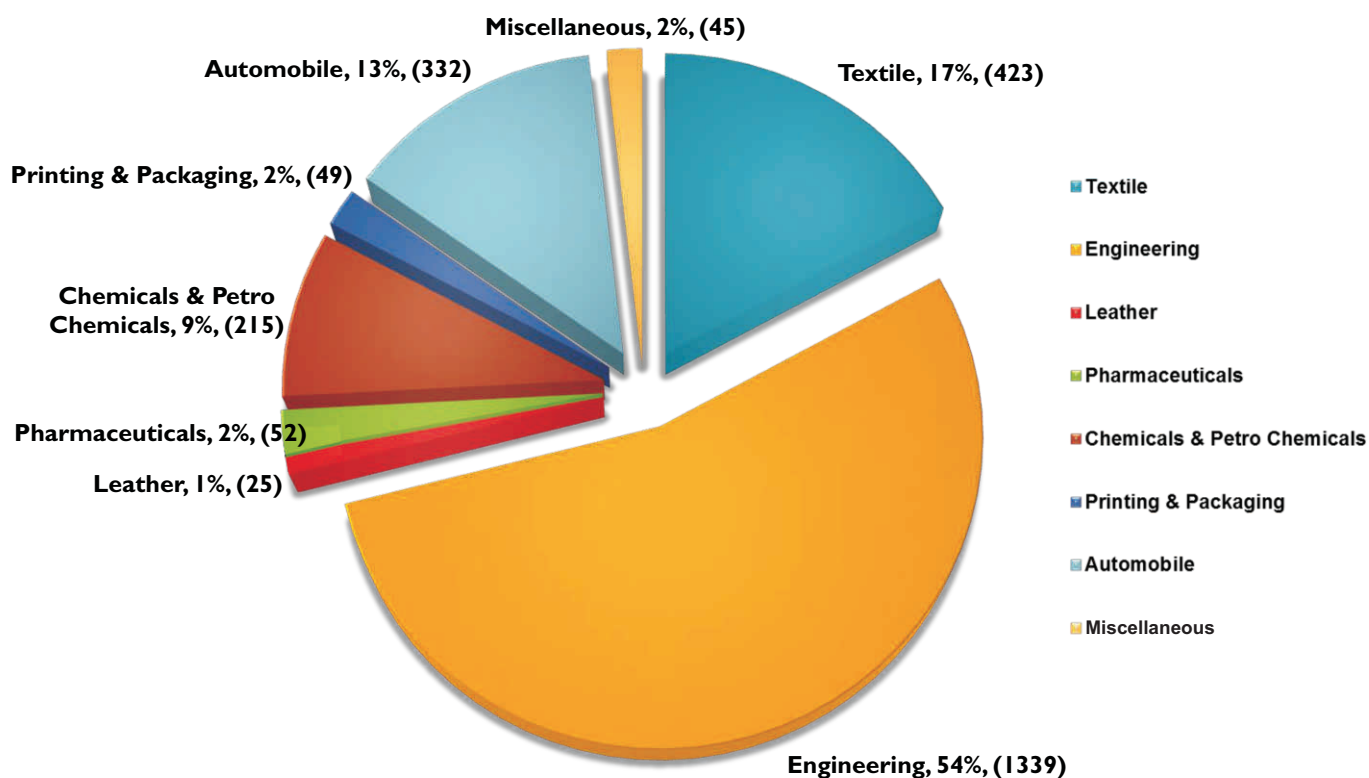
Registered Office	New No: 34 (Old No: 70), First Floor, Brindavan Street, West Mambalam, Chennai - 600 033 Phone: 044 - 45522655, 044 – 24728069
Common Hazardous Waste Treatment, Storage and Disposal Facility	Plot no: 5-15 & 28 – 33, SIPCOT Industrial Complex, Gummidipoondi, Thiruvallur District, Tamil Nadu Tel: 044-27923310

MEMBERSHIP PROFILE

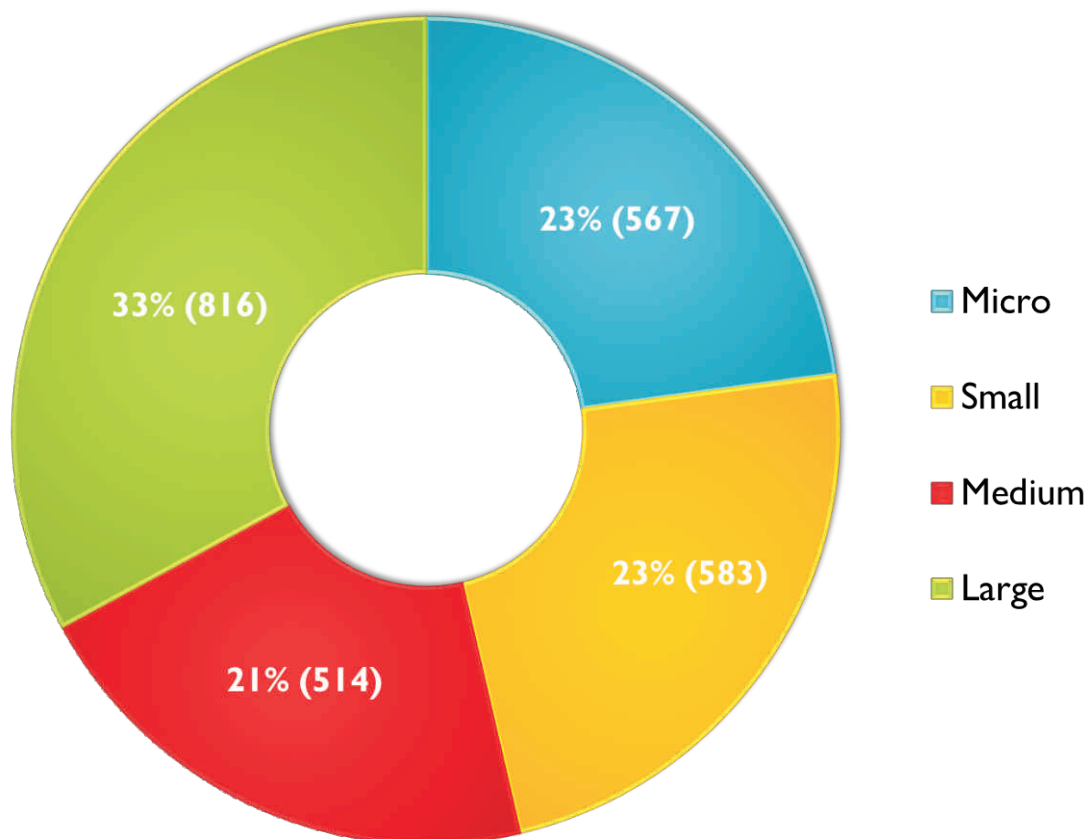
MEMBERSHIP GROWTH



INDUSTRIAL MEMBERS - CATEGORY WISE (As on March, 2017)



INDUSTRIAL MEMBERS - SECTOR WISE (As on March, 2017)



SUBSCRIPTION STATUS (EFFECTIVE MEMBERS (AS ON 31st MARCH, 2016)

Active Members	Subscription Received	Pending
2480	1570	910

COMMON HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITY (CHWTSDF) ESTABLISHMENT & OPERATION

<p>Common Hazardous Waste Treatment, Storage and Disposal Facility:</p>	<p>Location:</p> <p>SIPCOT, Gummidipoondi Thiruvallur District, Tamil Nadu</p> <p>Land Area: ~ 27 Acres</p> <p>Facilities:</p> <ul style="list-style-type: none"> Landfill - Phase I, Disposed quantity: ~3.25 Lakh MT Cell 1 Completed - 65,691 MT Cell 2 Completed - 75,900 MT Cell 3 Completed - 68,000 MT Cell 4 Completed - 60,900 MT Cell 5 Completed - 59,562 MT Cell 6 in Progress (55,847MT) Incinerator Disposed quantity: ~23, 200 MT <p>Capacity: 100,000 TPA for Landfill 1.5 Tons/Hour for Incinerator</p> <p>Project Promoter: IWMA</p> <p>Service Provider: TNWML Chennai (Group of Ramky Industries)</p>
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IWMA ACTIVITIES

TRAINING PROGRAMS

IWMA, as an awareness initiative, conducts training programs to its member industries in order to make its members aware of the environment and the regulations that precede it. The training initiative of IWMA caters the needs of industries by bridging the gap between industries, consultants, academicians and Government. The training programs are conducted at a “No-profit/No- loss” basis for the expenses incidental to each program including hall booking, travel, hand-outs, literature, trainer fee etc.

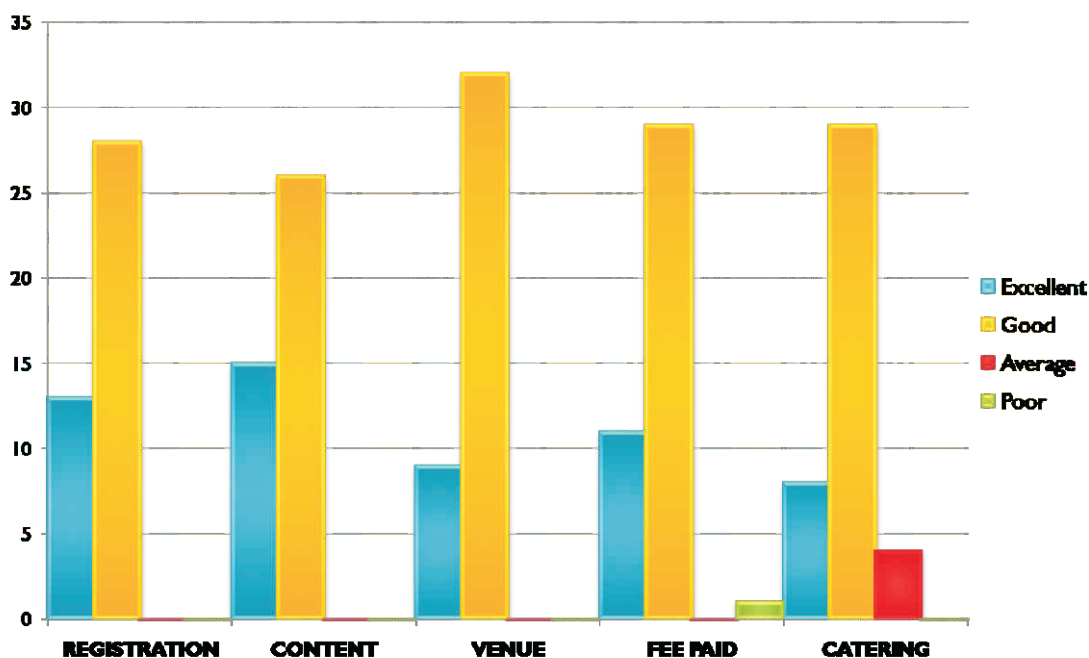
IWMA is in the process of developing training modules. During the previous financial year (2016-2017), 2 such programs were conducted and respective modules have been developed.

Hazardous Waste Management on 05.05.2016 & Regulatory Requirements & Online Consent Management & Monitoring System on 06.05.2016 @ Sri Aarvee Hotels, Coimbatore.



A two day program was held on “Hazardous Waste Management” & Online Consent Management & Monitoring System on 5th and 6th of May. Participants were given a chance to attend any one of the above program. 42 delegates from various industries participated.

The feedback obtained is as follows:

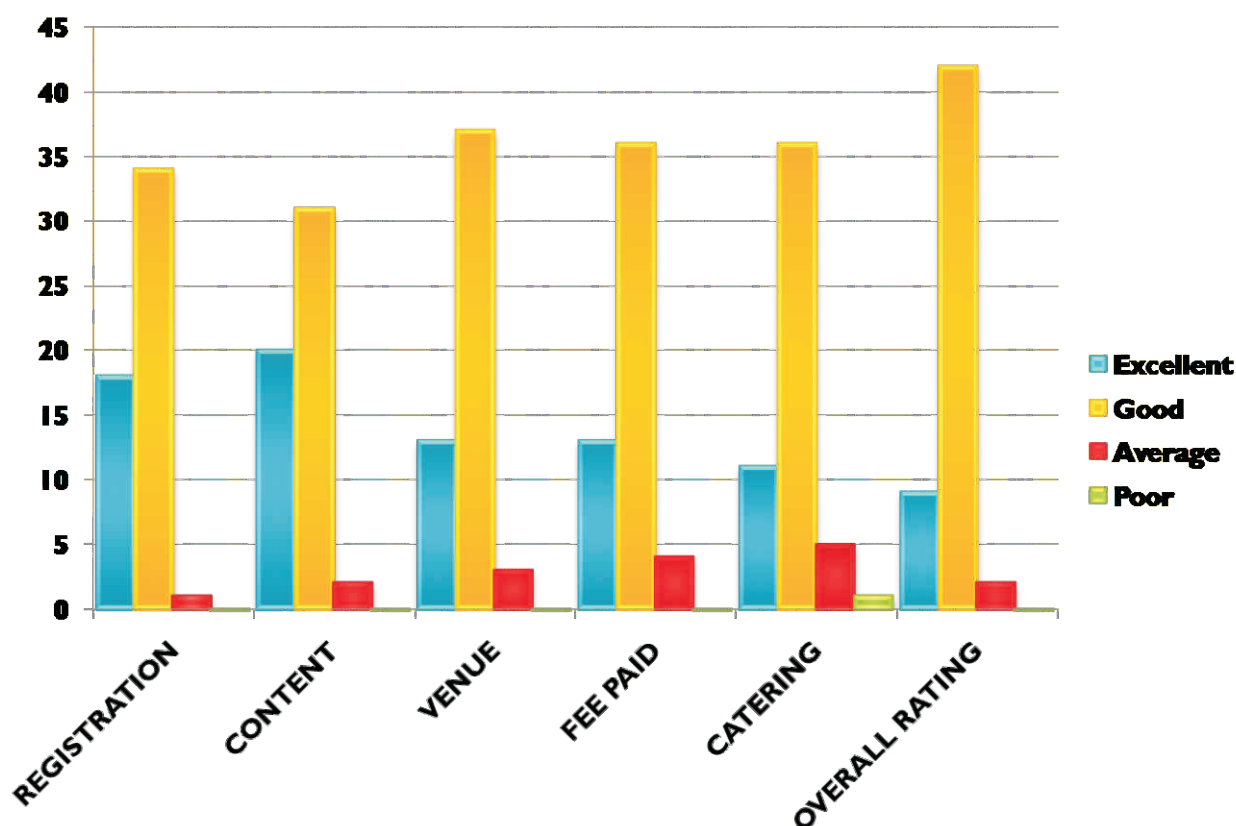


HAZARDOUS WASTE MANAGEMENT & REGULATORY REQUIREMENTS @ HOSUR- 12.08.2016



IWMA conducted training program on the topic “Hazardous Waste Management & Regulatory Requirements” at Hosur Industries Association. 46 delegates from industries participated in the program. The program turned out to be successful.

The feedback obtained is as follows:



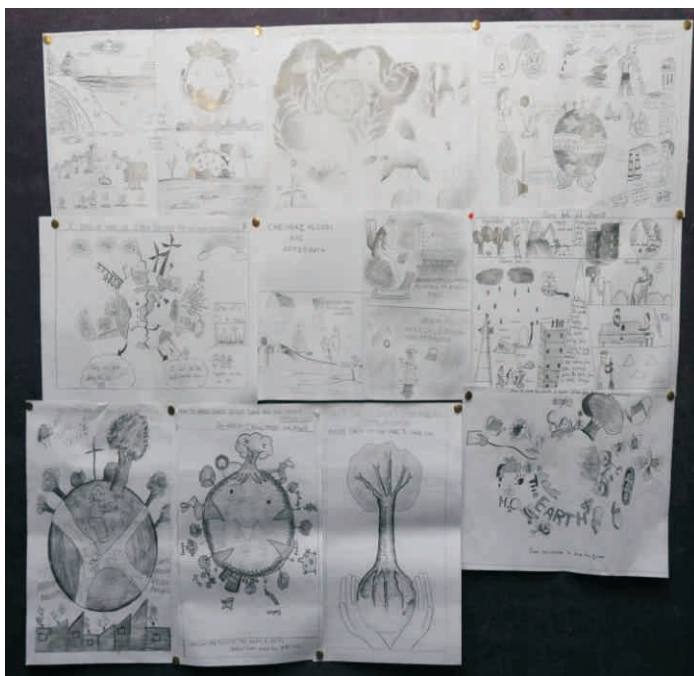
ENVIRO 2016

Every year, IWMA, in collaboration with Science Olympiad Foundation (SOF), conducts ENVIRO-a two day environmental awareness program for school children. Competitive events like Pencil Sketching with a caption, Essay Writing & Quiz were held to promote the importance of environment among school children. Arun Krishnamurthy Founder, Environmentalist Foundation of India (EFI) was invited as Chief Guest for the event.

ENVIRO 2016 was conducted at IIT Madrs on 23rd & 24th July 2016. Around 90 schools, in and around Chennai, participated in the following topics related to the environment.

Pencil Sketching with a caption	-	Junior
Essay Writing	-	Middle
Quiz	-	Senior

A Science Awareness Workshop for the YES 2017 (Young Environmental Scientist) program was also conducted. Dr.T.S.Natarajan, IIT-Tirupathi, demonstrated interesting science experiments during the workshop.



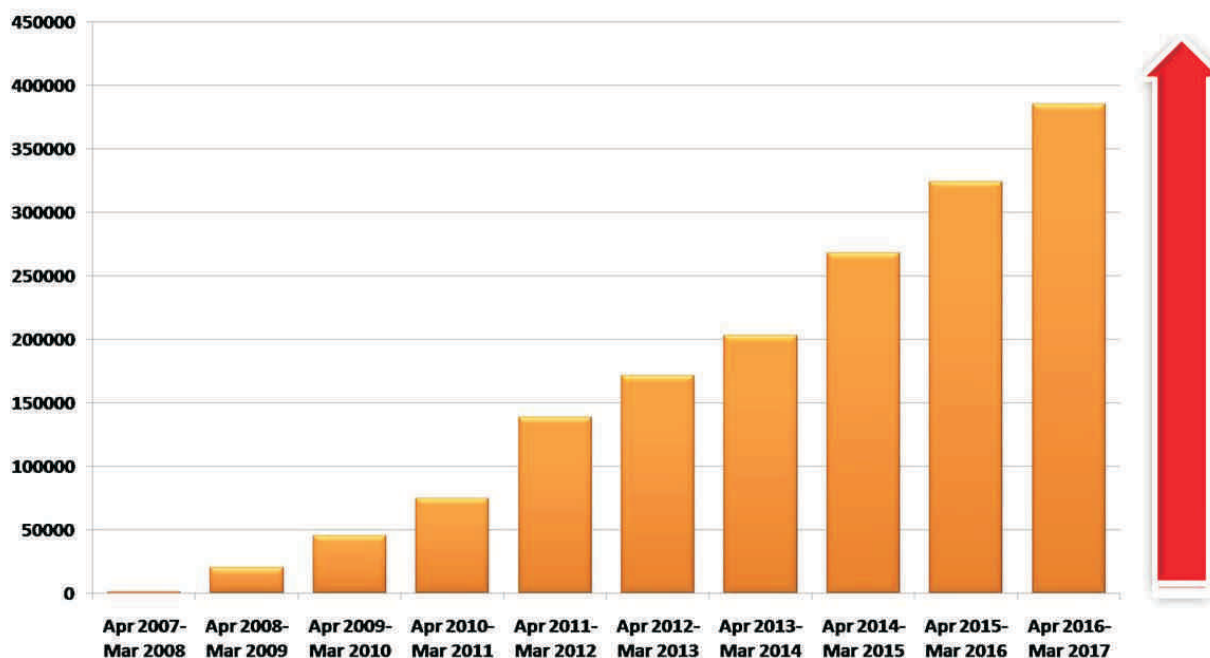
YOUNG ENVIRONMENTAL SCIENTISTS AWARDS - YES 2017

IWMA conducts an inter-school (Classes 8 to 12) research oriented competition for school children, since 2012, called YOUNG ENVIRONMENTAL SCIENTIST (YES). This is a Quest for young minds, who are intent on shaping tomorrow. Prof. Natarajan of IIT (T) mentors the students and their guides on the modality of Research, viz. Observation, Experimentation, Data Collection & Analysis. The program is run over 6 months from the selection of the project through experiment and data analysis to demonstration. Besides the students, their mentors are also recognized for their contribution.

YES Awards-2017 was conducted on 29th January 2017 at IC & SR Conference Hall, IIT Madras. Over 60 projects were presented. Prof. Natrajan, Professor Krishnamurthy, Department of Physics, IIT-M, Thiru Thirugnanam from IWMA & 2 other Professors from IIT-M evaluated the projects. Thiru. K. Pandiarajan, B.E (Hons), MBA (XLRI) minister was the ChiefGuest for the program, distributed the prizes to the winners.



HAZARDOUS WASTE DISPOSAL QUANTITY AT CHWTSDF



❖ LANDFILL - PHASE I, DISPOSED QUANTITY: ~3.25 LAKH MT

- Cell 1 Completed - 65,691 MT
- Cell 2 Completed - 75,900 MT
- Cell 3 Completed - 68,000 MT
- Cell 4 Completed - 60,900 MT
- Cell 5 Completed - 59,562 MT
- Cell 6 (In Progress) (55,847 MT)

❖ INCINERATOR

- Disposed quantity: ~23, 200 MT

ONGOING PROJECTS

1. MARINE DISPOSAL OF RESIDUAL SALTS FROM TEXTILE INDUSTRIES

IWMA member industries from Textile sector requested IWMA to find out a feasible solution for marine disposal of salts generated from effluent treatment plants of IETPs and CETPs.

The salts generated from effluent treatment plants of textile dyeing industry are mainly a mixture of sodium, calcium, magnesium, chloride, sulfate and carbonate. Since the solubility of salts is very high, it is normally not disposed on hazardous waste landfills. Since the salts are mixed salts generated after several earlier stages of recovery and recycling, it is not economically feasible to recover any pure salts at this final stage.

IWMA approached IIT Madras for taking up feasibility study on Marine Disposal of Salts Generated from Effluent Treatment Plants of Textile Dyeing Units. After completion of the study in Nov 2015, IWMA organized meeting with Chairman, Member Secretary and Senior Officials of TNPCB in Feb 2016 on the subject along with IIT Madras. Further at the behest of TNPCB, IWMA approached National Institute of Ocean Technology (NIOT) for further studies. NIOT suggested that WAPCOS (Govt of India Undertaking, Ministry of Water Resources, River Development and Ganga Rejuvenation) take up the study.

Prefeasibility study is now under progress with WAPCOS. Several meetings were setup with Member Secretary and Joint Chief Environment Engineer (JCEE) of TNPCB – Head Office, Guindy in the last 6 months. Further, IWMA jointly with WAPCOS organized meetings of Erode, Perundurai and Tiruppur District TNPCB officials with textile industries and textile associations. IWMA has invested around Rupees ten lakh in this project towards finding a lasting solution to this environmental concern of textile industries.

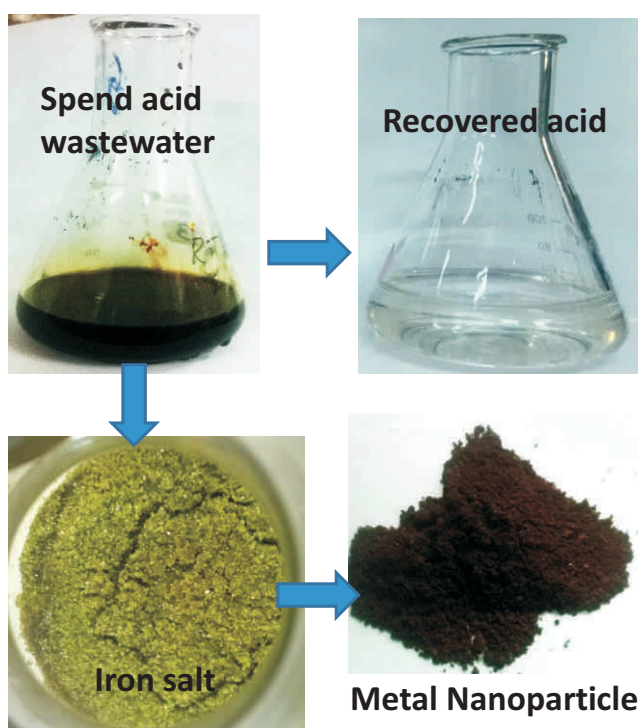


After completion of Prefeasibility study by WAPCOS, IWMA proposes to work along with WAPCOS in the preparation of EIA report and for obtaining Environment/CRZ Clearance.

2. CONVERSION OF VALUE ADDED PRODUCTS FROM SPENT ACID EFFLUENT

An auto component manufacturing industry has approached IWMA for management of liquid waste generated in the industry. IWMA in turn started working with CSIR-CLRI, Chennai to develop a suitable solution for this industry.

After months of extensive research and assessment of different options, CSIR-CLRI has developed a technology at lab scale to recover the salt and spent acid using distillation and acid mediated distillation method. The recovered salt is further converted into valuable metal oxide (nanoparticle).



Initial study on cost analysis for the process showed higher operational cost, now CSIR-CLRI is carrying out optimization studies for minimizing the cost. IWMA strongly believes that projects such as this would address the national need to convert waste into value added products.

3. FEASIBILITY OF MAKING BRICK FROM BOTTOM WOOD ASH

Textile industries from Erode belt approached IWMA for management of wood ash generated from the boiler in their industry. CSIR-CLRI has taken up the study and worked on making bricks from the wood ash. A successful feasibility study on preparation of solid block using Boiler ash was completed and a demonstration was organized at Erode in presence of Government Officials, TNPCB officials, textile industries in February, 2017. Thereafter, IWMA has prepared a report for Chairman / Mem Secretary, TNPCB for forwarding through DEE, TNPCB Erode District. IWMA believes that applied research such as this will promote brick making from the waste boiler wood ash of the industries.



Dr. G. Sekaran, Rtd Scientist, CSIR - CLRI, Demonstration

BRICKS MADE FROM WOOD ASH

4. INDUSTRY PROJECTS

IWMA is also committed in solving short term problems for the member industries. So we engage with experts in the specific sectors and jointly provide our support for the betterment of industries.

- a. A Chemical industry required improvisation on their waste water treatment scheme, has approached IWMA and given its positive feedback about the IWMA service towards their environment concern. Industrial site study on their effluent treatment system was carried out by our consulting partner and given a substantial improvement study report to the industry. Based on which, industry is highly satisfied about the IWMA's service.
- b. An industry from electroplating sector is working with IWMA for the reuse of rinse water from their process. IIT- Madras has taken up the study and is extensively working for recovery of demineralised water from the waste water, for which Grant of Rupees Five lakhs has been received as prototype funding. Technical feasibility study is in progress.
- c. A similar electroplating industry has approached IWMA for improving their treatment feasibility of ETP. Based on multiple visits to the industry, our consulting partner is working on the improvisation of the respective ETP.
- d. A Welding Component Manufacturing industry approached IWMA to solve their concern of high sludge generation in their etp. While IWMA worked on this concern, the first solution proposed did not reduce the sludge generation to desired extent. Hence IWMA decided to try an alternative approach to address the subject. Work is actively under progress.

IWMA is continuously supporting member industries on their environment concern. Over 20 environmental queries from industries have been solved successfully so far.

5. INTERN PROJECTS

- a. IWMA has identified an academic student from top class educational institutes and sent them for taking up intern projects with member industries. A leading automobile sub-component manufacturing industry in Chennai, have given an appreciation certificate for the student who undertaken the project on converting three stage grinding process to two stage grinding process.

1. Renewable Energy Competition

Carbon Zero Challenge:

Carbon Zero Challenge (CZC) is a renewable energy competition organized by *IIT Madras* and *IWMA*, in collaboration with *U.S. Consulate General Chennai* and *Polaris - A Virtusa Company*, to encourage startups and students of colleges from South India to come up with innovative solutions to India's unique energy problems and enable them to reach a stage of market scalability. The challenge has invited students and early stage entrepreneurs from South India, to isolate problems in five thematic areas and develop solutions to the same. The areas chosen are Agriculture, Urban Areas/Cities, Transportation, Industrial Processes and Water and Waste Management.

We have approached colleges and start ups all over South India and we have 530 teams who will be submitting a proof-of-concept solution in the form of a video or presentation along with a 2-page abstract, out of which 57 belonged to Agriculture, 149 to Industries, 73 to Transportation, 125 to Urban Areas/Cities and 126 to Water & Waste Management. During Phase 1, these applications will be screened by a panel of experts from the renewable energy and clean technology fields and top teams will be selected to the next phase. During Phase 2, the shortlisted teams will pitch their project presentation to a panel of experts, followed by a Q&A session. From this, top 26 teams will be shortlisted and will be receiving up to Rs. 5 lakhs each, in prototype funding. These teams will also be paired with mentors from India and the US, who will guide and motivate them in building a prototype of their idea over a period of 6 months and will also help them prepare a business model. The challenge will culminate in a 'Demo Day' in 2018, which will see attendance by experts from industry and academia. The best solutions will receive prizes in cash and kind, and all the teams will be provided with opportunities to interact with investors and researchers to further develop their ideas.

IIT Madras launches Carbon Zero Challenge

DECCAN CHRONICLE
Published: Mar 10, 2017, 6:51 am IST

Updated: Mar 10, 2017, 6:01 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 Management Association chairman S.Manu 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 \(Madras\)](#)

Media Coverage : Deccan Chronicle, March 10, 2017.

AUDIT REPORT

We have examined the statement of Affairs of **INDUSTRIAL WASTE MANAGEMENT ASSOCIATION, OLD NO 70, NEW NO 34, FIRST FLOOR, BRINDHAVAN STREET, WEST MAMBALAM, CHENNAI-600033**, as at **31.03.2017**, the Receipts and Payments and the Income and Expenditure Account the year ended on that date which are in agreement with the books of accounts maintained by the said Association.

We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of Audit. In our opinion proper books of accounts have been kept by the Association.

In our opinion and to the best of our information and according to explanation given to us the said accounts give a true and fair view

(a) In the case off the Statement of Affairs, the state of the above named Association as at 31.03.2017.

And

(b) In the case of Income and Expenditure account, Excess of Income over Expenditure for the year ending on 31.03.2017.

The prescribed particulars are annexed hereto.

Place : Chennai

Date : 24.08.2017

For VARADARAJAN & CO.,
Chartered Accountants.



(H.CHANDRASEKARAN)
Partner



ANNEXURE TO AUDITOR'S REPORT

We have examined the annexed Receipts and Payment account, Income & Expenditure Account for the year ending 31.03.2017 and the Balance Sheet as at the above date of 31.03.2017, of Industrial waste management Association, Registration No.256/2002 with the Books of Account and vouchers relating thereto and report that:

- a) Accounts are maintained regularly and in accordance with the provisions of the Act and rules ;
- b) Receipts and disbursements are properly and correctly shown in the accounts ;
- c) The Cash balance and vouchers in the custody of the Association on the date of the audit were in agreement with the accounts ;
- d) All books, deeds, accounts, vouchers and other documents or records required by us were produced before us ;
- e) The Accountant appeared before us and furnished necessary information required by us;
- f) No property or funds of the association are applied for any object or purpose other than the objects of the Association;
- g) No money of the Association has been invested contrary to the provisions of Section 11(2)
- h) No alienation of the immovable properties is made.

Place : Chennai

Date : 24.08.2017



For VARADARAJAN & Co.
CHARTERED ACCOUNTANT


H.CHANDRASEKARAN
PARTNER

INDUSTRIAL WASTE MANAGEMENT ASSOCIATION
No 34, First Floor, Brindhavan Street,
West Mambalam, Chennai-600 033.

STATEMENT OF AFFAIRS AS ON 31.03.2017

31.03.2016	LIABILITIES	31.03.2017	31.03.2016	ASSETS	31.03.2017
1,09,51,682	Infrastructure Fund	1,40,23,248	7,10,608	Fixed Assets	9,04,774
30,95,080	Add: Additions during the year	40,61,118			
1,40,46,762	Less: Deletions During the Year	1,80,84,366			
23,514	Surplus o/b.	95,95,541	1,37,74,269	Fixed Deposit	1,75,28,370
88,22,749	Add: Excess of Income over Expenditure	30,79,588	25,00,000	Add: Additions during the year	80,00,000
7,72,792	Current Liabilities		1,62,74,269	Less: Matured during the year	2,55,28,370
	HR Consultancy		1,62,74,269	Add: Accrued Interest	2,55,28,370
	TDS	47,250	12,94,101	Less: Interest received	14,52,445
39,485	Rent	20,026	1,75,28,370		2,69,80,815
	Audit fees	81,000		Rental Advance	
	Consultation fees	59,000		Add: Advance given	10,62,000
		59,000	8,10,000		
			2,52,000	TDS	10,62,000
				Subscription Receivable	2,43,428
				Cash in Hand	-
				Cash at Bank	-
				- SBI (Admin)	18,20,915
				- SBI (Infra)	8,839
				- Indian Bank	5,000
					3,10,25,771
2,36,58,274			2,36,58,274		3,10,25,771

For Varadarejan & Co.
Chartered Accountants

H. Chandrasekaran
Partner.

Date: 24.08.2016
Place: Chennai

For Industrial Waste Management Association

Chairman

Secretary

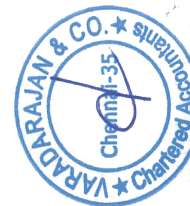
Treasurer



INDUSTRIAL WASTE MANAGEMENT ASSOCIATION
No 34, First Floor, Brindhavan Street,
West Mambalam, Chennai-600 033.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2017

31.03.2016	EXPENDITURE	31.03.2017	31.03.2016	INCOME	31.03.2017
8,55,622	To Enviro Programme Expenses	3,89,320	-	By Membership Fees	1,44,250
-	To Special site visit expenses	-	1,03,500	By Seminar Income	-
1,00,000	To Sponsorship Expenses	1,15,000	900	-Sale of Old Newspapers	-
7,24,130	To CLRI Expenses	3,140	1,39,350	By TDS on Accrued Interest	44,282
-	To Coprocessing Seminar expenses	-	63,464	By Miscellaneous income	45,312
1,64,775	To Seminar Expenses	3,248	67,500	By Training Fees Received	3,32,088
34,175	To Membership Fees	-	7,500	By Enviro Programme Income	-
-	-Confederation of Indian Industries	-	-	By TDS on Enviro Programme Expenses	50,000
30,618	-Madras Chamber of Commerce	5,955	12,54,101	By Sponsorship Income	14,52,445
-	To Young Environmental Scientists	3,03,963	69,52,553	By Accrued Interest on FD	80,04,131
1,33,015	To Consultancy Fees	3,93,443	12,12,963	By Subscription Income	17,80,060
-	To Land allotment fees	2,06,000	8,02,438	-Large	12,77,258
3,21,119	To Depreciation	3,26,153	2,95,452	-Medium	-
4,400	To Bank Charges	5,856	-	-Small	-
-	To E C Meeting Expenses	3,41,495	-	-Tiny	-
6,27,346	To AGM Expenses	5,51,606	-	-	-
2,34,871	To Project Expenses	2,72,887	-	-	-
14,616	To AMC for Tally ,Desktops & La	27,000	-	-	-
17,000	To Consultation Fees	57,500	-	-	-
57,000	To Audit Fee	57,500	-	-	-
-	To Provision for Audit fees	59,000	-	-	-
-	To Provision for Consultation fee	59,000	-	-	-
10,93,532	To Professional Fees	-	-	-	-
3,66,230	To Conveyance Expenses	33,498	-	-	-
2,04,791	To Courier Expenses	3,01,341	-	-	-
56,940	To Electricity Charges	1,01,490	-	-	-
7,80,336	To Honorarium Expenses	13,07,862	-	-	-
2,00,000	To Legal Charges	7,500	-	-	-
18,604	To Staff Insurance	26,703	-	-	-
95,806	To Miscellaneous Expenses	1,25,335	-	-	-
4,705	To Newspaper Charges	-	-	-	-
1,44,120	To Office maintenance charges	53,346	-	-	-
4,475	To Advertising Expenses	9,500	-	-	-
13,582	To Pooja Expenses	2,146	-	-	-
-	To Office Requirements-Comput	11,822	-	-	-
-	To Printer rent	28,598	-	-	-
-	To Printing Charges	1,91,439	-	-	-
1,74,350	To Property Tax	1,74,350	-	-	-



71,491	To Refreshment Charges	31,026			
3,30,958	To Rent	14,39,062			
22,463	To Manpower Consultancy	1,80,391			
18,94,212	To Salary paid	15,98,544			
31,024	To Staff Welfare expenses	50,432			
2,17,462	To Bag for Training And meeting				
3,39,925	To Stationery Expenses	67,269			
65,467	To Food Expenses				
66,313	To Telephone Expenses	1,39,602			
30,108	To Travelling Expenses	1,22,518			
1,58,893	To Training Expenses	2,65,259			
9,386	To Water charges	7,640			
3,43,469	To TNWML Meeting Charges	3,386			
-	To Technical charges	1,74,279			
-	To State level accreditation fee	1,26,500			
-	To Donation	2,500			
-	To Erode Chemical expenses	1,953			
-	To General expense	3,90,576			
-	To House keeping expenses	48,998			
-	To Subscription fees paid	28,635			
69,600	To Website Updation Expenses	-			
7,72,792	To Excess of Income over Exp	30,79,588			
1,08,99,721		1,33,11,153	1,08,99,721		1,33,11,153

For Valadarajan & Co.
Chartered Accountants

H. Chandrasekaran
Partner.

Date: 24.08.2016
Place: Chennai

For Industrial Waste Management Association

Chairman

Secretary

Treasurer



INDUSTRIAL WASTE MANAGEMENT ASSOCIATION
No 34, First Floor, Brindhavan Street,
West Mambalam, Chennai-600 033.

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31.03.2017

31.03.2016	RECEIPTS	31.03.2017	31.03.2016	PAYMENTS	31.03.2017
36,499	Opening balance	35,980	7,97,754	Enviro Programme Expenses	3,89,320
53,49,390	- Cash in Hand	41,20,784	1,64,775	District Seminar expenses	3,248
8,839	- Cash at Bank (SBI - Admin)	8,839	64,793	Seminar & Conference Expenses	-
30,71,566	- Cash at Bank (SBI - Infra)			-Confederation of Indian Industries	5,955
	Infrastructure Fund			-Madras Chamber of Commerce	
	-Large	26,60,415		User charges revision expenses	26,703
	-Medium	5,75,560	18,604	Mediclinam Insurance	28,635
	-Small	4,37,330		Subscription fees paid	1,15,000
	-Tiny	3,87,813	1,00,000	Sponsorship Expenses	3,140
	Membership Fees	1,44,250	37,394	CLRI Expenses	
1,03,500	- Seminar Income		6,86,736	CLRI Renewal Expenses	
		3,32,088	2,34,871	Project Expenses	2,72,887
63,464	-Training Fees Received		1,33,015	Consultancy Fees	3,93,443
900	-Sale of Old Newspapers	45,312	4,400	Bank Charges	5,856
	Miscellaneous Income		25,00,000	Fixed Deposit	80,00,000
	Subscription Income				
69,52,553	-Large	79,97,928	6,27,346	AGM Expenses	5,51,606
12,12,963	-Medium	17,80,050		EC Meeting Expenses	3,41,495
8,02,438	-Small	12,77,258	14,616	AMC for Desktop & Laptops	27,000
2,94,392	-Tiny	1,82,328	57,000	Audit Fee	57,500
	Enviro Programme Income	50,000	57,000	Consultation Fees	57,500
			3,66,230	Conveyance Expenses	33,498
			2,16,186	Courier Expenses	3,00,858
				Computer accessories	11,822
			56,940	Electricity Charges	1,01,490
			7,54,336	Honorarium Expenses	13,07,862
			1,98,000	Legal Charges	7,500
			1,44,120	Office Maintenance charges	53,346
			95,806	Miscellaneous Expenses	1,25,335
			4,705	Newspaper Charges	
				Land allotment fees	2,06,000
			4,475	Advertising Expenses	9,500
			10,93,532	Professional Fees	
			13,582	Pooja Expenses	2,146
				Printer Rent	28,598



15th Annual General Meeting - Report

3,43,459	TNWML Meeting Expenses	3,386
1,58,893	Training Expenses	2,65,259
8,10,000	Rental Deposit	-
-	Printing Charges	1,91,439
1,74,350	Property Tax	1,74,350
	Purchase of Fixed Assets	
8,300	- A/C	1,83,888
7,590	- Name Board	14,698
45,800	- Projector	54,865
31,471	- Fire extinguisher	9,397
1,98,826	- Computer	87,033
54,650	- Furniture	1,61,726
3,42,000	- Software	-
6,527	- Camera	-
30,900	- CCTV	8,713
71,491	Refreshment Charges	31,015
3,21,958	Rent	13,58,062
18,94,212	Salary paid	15,98,544
-	Donation	2,500
31,024	Staff Welfare	50,432
2,17,462	Masce Bag House	-
3,39,925	Stationery Expenses	67,269
65,467	Food expenses	-
66,313	Telephone Expenses	1,39,602
30,108	Travelling Expenses	1,22,518
9,386	Water charges	7,640
69,600	Website Updation Expenses	-
22,463	Manpower Consultancy	1,28,641
-	State level accreditation fees	1,26,500
-	Technical charges	1,74,279
-	Staff Insurance	26,703
-	YES Program expenses	3,03,963
-	General expense	3,90,576
-	Erode ADTA	1,953
-	House keeping expenses	48,998
35,980	Closing Balance	-
41,20,784	- Cash	-
8,839	- Cash at Bank (SBI - Admin)	18,20,915
	- Cash at Bank (SBI - Infra)	8,839
	- Cash at Indian Bank	5,000
1,79,64,004		2,00,35,945

For Valadarajan & Co.
Chartered Accountants

H. Chandrasekaran
Partner.

Date: 24.08.2016
Place: Chennai



For Industrial Waste Management Association

Chairman

Secretary

Treasurer

INDUSTRIAL WASTE MANAGEMENT ASSOCIATION

DEPRECIATION SCHEDULE AS PER INCOME TAX ACT

PARTICULARS	AS ON 01.04.2016	ADDITIONS >180DAYS	ADDITIONS <180DAYS	DELETIONS	TOTAL	%	DEPN	AS ON 31.03.2017
Airconditioner	26,871	1,83,888		-	2,10,759	10%	21,076	1,89,683
Camera	16,805			-	16,805	15%	2,521	14,284
Computer	1,39,918	6,775	80,258	-	2,26,951	60%	1,12,093	1,14,858
CCTV Camera	9,692	8,713		-	18,405	60%	11,043	7,362
Cordless Phone	1,748			-	1,748	15%	262	1,486
UPS	85			-	85	60%	51	34
Fire extinguisher	-		9,397	-	9,397	15%	705	8,692
Furniture & Fittings	1,58,394	1,36,333	25,393	-	3,20,120	10%	30,742	2,89,378
Inverter	49,184			-	49,184	15%	7,378	41,806
Laptop	27,514			-	27,514	60%	16,508	11,006
Name Board	-	14,698		-	14,698	15%	2,205	12,493
Printer	19,950			-	19,950	15%	2,993	16,958
Water Dispenser	12,836			-	12,836	15%	1,925	10,911
Projector	13,747	54,865		-	68,612	15%	10,292	58,320
Xerox Machine	27,577			-	27,577	15%	4,137	23,440
Safety Locker	40,865			-	40,865	15%	6,130	34,735
Software	1,58,400			-	1,58,400	60%	95,040	63,360
Mobile	7,021			-	7,021	15%	1,053	5,968
TOTAL	7,10,607	4,05,272	1,15,048	-	12,30,927		3,26,153	9,04,774
Previous year	3,05,663	2,90,000	4,36,064	-	10,31,727		3,21,119	7,10,608





National Accreditation Board For Education And Training Award – 2017



**Award Received by
Mr. K. Baskaran, Secretary & Mr. M. Balasubramanian, Treasurer**

CHWTSDF, Gummidipundi



Incenerator



Landfill



INDUSTRIAL WASTE MANAGEMENT ASSOCIATION

New No. 34, Old No. 70, (First Floor),
Brindavan Street, West Mambalam,
Chennai - 600 033.

Ph: 044-45522655 / 24728069

E-mail : technical@iwma.in / environment@iwma.in



Recycling



Rainwater harvesting



Waste Management



Water Conservation



Climate Change



Renewable Energy



Global Warming



Waste Reduction