

Quality Improvement Program
On
Sensitization in Industrial Waste Water
Treatment Processes and Cleaner Technology



Organized by

Department of Environmental Science & Engineering
MARWADI FOUNDATION'S GROUP OF INSTITUTIONS

Rajkot-Morbi Road, At & PO: Gauridad

Rajkot 360 003. Gujarat

Minutes of QIP
on
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and Cleaner Technology

4th to 6th Dec. 2014

Pollution due to urbanization and Industrialization is big area of concern today. Department of Environmental Science & Engineering has strength of expertise of different field of environmental studies and research. The program has provided technical knowledge to participants in various fields. Further, it intends to promote high standards in colleges by way of extending facilities to teachers & researchers by providing a forum for sharing their knowledge, experience & research. The basic objective of this program:

- To focus on the effects of Urbanization and Industrial activities in Environment.
- To Identify the Industry based problems and their probable solutions with recent emerging Technologies.
- To bring together academicians & experts from different regions in a single platform to exchange their valuable knowledge & ideas.
- To provide an in depth analysis of subjects & update the knowledge of the participants from academic as well as research institute.

Various eminent speakers presented / discussed on various aspects, viz. International Scenario on Wastewater Management, Waste-to-Energy Solutions, Cleaner Technologies – Indian Perspective, Experience & Best Practices in W/w Management in Indian Scenario on Environment Management along with Expertise Consultation for Network Establishment. With reference to Introductory Remarks by Session Chairman, a discussion on Advances in Wastewater Treatment, Advances in Water Treatment, Managing Water Uncertainty and Risk : An Approach for Industry, Future Water Resource Management through Integrated Modeling and Real-time Decision Support Systems, Water Cost Economics; along with co-speakers were being organized. At the end of the day, the session was mainly focused upon Integrated Waste

Management Know-How & Technologies along with concluding discussion on various issues in Industrial W/w and Land Remediation Management to be implemented.

Abstracts of Guest Speakers

Industrial Waste Management – Scenario of Gujarat

Dr. Bharat Jain

Industrialization in India began by the 17th century, which has only ever increased. Back then, the smell of pollution was considered as a fragrance towards prosperity. Industrial revolution and urbanization has given the human civilization an easy and a luxurious lifestyle at the cost of environment, as it has led to manifold problems including the massive generation of hazardous waste and their disposal. The 1984 incident came as an eye opener, which shook off the Indian people and its government. After that more stringent rules and regulations were made mandatorily followed by the industries. To overcome this aftermath, 'End of Pipe' treatment was followed. As a result in Gujarat we have 8 TSDF sites, 28 CETPS and 6 common incinerators in operational condition. EoP does not help in curbing pollution it only helps in reducing the toxic effect of pollution. Other than following the preventive steps one must follow reactive or proactive methodology. CP is a method and tool to identify where and why a company are losing resources in the form of waste and pollution, and how these losses can be minimized. Our centre GCPC, with the technical support of UNIDO is promoting CP/CT in industries and colleges through orientation programs that include Concepts, Methodology, Tools of CP, IC policies, CP awards, case studies of all sectors which shows the environmental and economic gains by implementing CP/CT options in industries. It can be concluded that the Gujarat is leading in industrial waste management through EoP and CP.

Geoenvironmental Engineering: Need for Monitoring and Simulation

Prof. (Dr.) D. N. Singh

Various laboratory and field instrumentation techniques have been developed, and are being employed, to characterize soil, rock mass and ground water (i.e., geomaterials) for safe execution of civil, environmental and geotechnical engineering projects. However, these techniques have limitations in capturing the characteristics of geomaterials when they interact with toxic and hazardous wastes coming out from industries, thermal and atomic power stations and research facilities. These wastes inherently contain heavy metals (read contaminants), which leach out of the waste matrix in due course of time, due to their interaction with rain or ground water, and hence contaminate the geoenvironment (i.e., the subsurface). This necessitates development of appropriate instrumentation techniques, which will be helpful in simulating and monitoring the spread of contaminants in the geoenvironment. These issues are multi-faceted and multi-disciplinary, mainly due to the peculiar attributes of contaminants (viz., chemical activity, higher temperatures and the presence of radionuclides). In this context, author's association with the agencies responsible for generating such wastes has resulted in development of several instrumentation techniques, which are indigenous, need based, economical and ingenious. Details of a few such techniques would be discussed during my talk.

Industrial Waste Management Practices

and

Industrial Wastewater Treatment Plants

Dr. Akepati S. Reddy

Wastes from industries are customarily classified as Wastewater/effluent (trade and domestic effluent), Gaseous emissions (polluting, toxic or hazardous), Solid wastes (hazardous or non-hazardous), Waste heat, radiation, noise and vibrations. Often these wastes are managed by different people or departments. The separate categories are regulated by separate and distinct bodies of laws and regulations, and historically, public and governmental emphasis has moved from one category to another from one time period to another. The fact is, however, that all the above categories of wastes are closely interrelated and these wastes are not the wastes in real sense but are actually the lost resources. Waste is waste only in the context of the process by which it is generated—otherwise it is a resource. Either directly or after requisite pre-treatment it can be used as input for some process, for resources and by products recovery, or can be of economic value and used by human beings.

Emphasis on management rather than treatment and disposal can result in source reduction of volume and strength of wastewater through recycling and reuse of wastewaters, resources recovery from wastewaters and treatment of only the unavoidable wastewaters. An integrated approach to waste management and disposal will minimize damage to the environment and will lead to a sustainable future.

Impact of Environmental Pollution on Human Future

Dr. P.J. Vachhani

Population growth, rapid industrial and technological development, urbanization and injudicious planning without due regard to sustainable development, there have been induced a variety of changes in the environment. Human activities induce such changes in the environment in the form of pollution and perturbation that cause widespread damage to the living organisms in the biosphere. The result is the disruption of ecological balance, a growing threat to the entire life support system which is rapidly facing extinction.







Major Learnings:

All the researchers / participants at MEFGI could learn in-depth understanding on wide variety of environmental management approach to evaluate the environmental impacts associated by sensitization through natural resources consumption as well as pollution control technologies to wastes released into the environment. Following discussion, practical hearings and interaction have created a holistic understanding of the team of Dept. of Env. Sci. and Engg., MEFGI:

- There is an ever increasing need for information to guide environmental decision.
- Research should be realistic, holistic and comprehensive.
- Research in technological advancement provides business decision support in the context of sustainable consumption and production of natural resources.
- Sensitization in prospective assessments for policy making, is an effective tool to support multiple types of sustainability to the environment.

The research team of Dept. of Environmental Science and Engineering, Faculty of Engineering, MEFGI; be pleased to initiate the opportunity for research collaboration with various participating organization through this event. Along with research initiation, one of the major tasks were to popularize the departmental activities like Environmental Audit Cell, Quality Improvement Program for Faculties and Industrialists, Celebration of various Environmental Sensitization Days, Students' Training and Placement. All the participating organizations were being contacted and all the above characteristics were being conversed.

As outcome of these, it is proudly be noted that majority of organizations have permitted for Innovative Project, Research Collaboration, Training and Placement, Participation into various activities, Study Exposure Tour Visits for students as well as for faculties etc. This great range of integrated academics, research and outreach programs will be a unique feature which greatly strengthens the academic creativities at MEFGI.

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Sincerely,

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