

Dear Water Warriors,

MOEF in year 1991 issued directions to install Common Effluent Treatment Plants in Industrial Clusters to allow a Collaborative approach towards environment Management.

Most “CETPs” fail to comply to “Guidelines” defined by “Authority”, India is actually doing far better than the nearby counties and setting global vision for developing nations, we better ourselves every-day.



This issue of ‘**Waughter**’, we discuss how to succeed in a CETP implementation and Management.

Nidhi Jain – Civil Engineer

Why CETP?

Simply Putting, because I can’t afford my Private Jet !

Several small industries known as MSMEs in India to have disposal issues:

- No space in Factory for ETP
- Very Low Effluent Volumes
- Low inhouse Subject Matter Expertise
- Very Small Business
- Testing & Compliance staffing & Monitoring needs.

Such many businesses in defined Location if collaborate together, can have economy of scale and can perform towards their environmental obligations and thus came MOEF guidelines on ECTP in year 1991.

A master stroke that has helped growth of MSMEs in India.

Disclaimer

The information, text, table, graphs and pictures etc. used in this magazine are for “Training” and “Awareness” Purpose and no way either points efficiency or deficiency of Govt Authorities or ETP Management.

The experience of Sanjeev Srivastava is collected here and his view points are his accumulations and suggestions. Readers are free to use it or just leave it as an idea that they do not wish to agree. He has here an attempt to facilitate the common objective to “Control Pollution” and not just satisfy some numbers; Cod level, Colour, DO, TDS etc. Certain information presented from Public Domain may be out dated.

For any further query on the CETP implementation strategies, one can approach him at srivastava@aktionindiaa.com or +91 9558555227.

Understanding CETP Advantage?

CETP is concept of treating effluents by means of a collective effort. Concept is similar to the Municipal Corporation of cities and towns treating sewage of all the individual houses.

But Big Difference as different industries have varying characteristics with respect to pollutant, biodegradability, Colour and Toxicity.

Increasingly, New Industrial Development Corporations and Infrastructure Companies who are creating Mega Industrial hubs are promoting:

- Industrial grade water &
- Treatment of Effluent

as an add on incentive to encourage investors and help entrepreneurs focus on core business and “Out-Source” pollution management concerns.

VEOLIA NANOFILTRATION MEMBRANES - GREEN CHEMISTRY AT WORK



HOW DOES IT WORK?

Nanofiltration membranes are commonly used in product recovery & concentration applications in various industries. By leveraging NF technology, industries can align themselves with the principles of green chemistry, enabling the reduction of hazardous waste, energy consumption, and use of harmful solvents, ultimately leading to a more sustainable and economically viable approach to industries.

PROCESS EFFICIENCY IMPROVEMENTS



Selective Separation:

Defined pore sizes allows for the separation of specific components based on their **molecular size and charge**.



Sustainable Production Processes:

Replaces/reduces energy-intensive separation techniques, such as distillation or evaporation - **Resulting in Huge Energy savings**.



Process Intensification/Bypass:

Offers potential for process intensification - **Multiple separation steps can be combined into single unit operation**.



Energy Efficiency:

Nanofiltration operates at lower pressures and temperatures, resulting in reduced energy requirements - **Overall reduced energy costs**.



Water Recycling and Reuse:

Removes pollutants, organic compounds, and multivalent ions from wastewater - **Allows water reuse in industrial processes**.

ENABLING YOU TO BECOME SUSTAINABILITY LEADERS



IMPROVES PROCESS EFFICIENCIES



REDUCTION OF HAZARDOUS WASTE



ENHANCED SUSTAINABILITY AND COST SAVINGS

Compliance & Objectives

Gazette of India : Extraordinary (Draft Notification) dated 4th January, 2023 at New Delhi

[cetprules.pdf \(indiaenvironmentportal.org.in\)](#) is a step forward and aims at:

- Allows SME to focus on his core business.
- Achieve 'Economy of scale' in waste treatment.
- Solve problem of space/land.
- Homogenization of wastewater for heterogeneous industrial cluster.
- Organizing proper centralized disposal of treated effluent & sludge.

Thus, Comply to MOEF Guidelines. It's a good documents and advocates focus on the core parameters, namely, pH, BOD, COD, TSS.

It's however time in India to define: Good COD and Bad COD, thus to me "Toxicity" and "Fish Bioassay" shall be better indicators of the Performance and true indicators that can define suitability to existing water body discharges.

Role of CPCB & PCs

Provide Guidelines and give consent to establish & operate.

Review & Monitor if performance is in line with consent or not.

Role of NGT?

Public outcry of nonperformance & thus degradation to environment led to creation of National Green Tribunal . Simple understanding for us it's a technical court that evaluates a case.

NGT now issues directives, and even has power to give closure notice. NGT may also impose a Fine (Temporary Money to be deposited) till assessment is completed on a hearing of environmental degradation.

Legal Framework

As a developing nation, we evolved with time. Different agencies did their bit to frame regulations and guidance some of the important environmental laws related to CETPs are:

- The Water (Prevention and Control of Pollution) Act, 1974
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment (Protection) Act, 1986 and the Environmental (Protection) Rules, 1986; and
- The Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008
- Etc.

Additionally, some State Governments have additional guidelines and expectations in performance, Management & Transparency from the CETP operations via SPVs or Trusts.



Important Links

[The Official Website of Ministry of Environment, Forest and Climate Change, Government of India \(moef.gov.in\)](#)

[CPCB | Central Pollution Control Board](#)

[Water \(Prevention and Control of Pollution\) Act, 1974 \(indiacode.nic.in\)](#)

[ep_act_1986.pdf \(indiacode.nic.in\)](#)

[593E-21July2022.pdf \(moef.gov.in\)](#)

Let's Do a CETP, so what we need?

The success of a CETP depends mainly on 5 verticals that shall be address adequately:

1. Management

Due to involvement of multiple stake holders (Members), Authorities, Public, the management role is very important. Most CETPs operate professionally and appoint a CEO/Structure that has complete responsibility to perform and authority to penalize defaulters. These days Role of Government official on board to facility management is being discussed with Pros & Cons.

2. Money (Funds, Grant, Capital, Operating, Revenue etc.)

Nothing can be achieved if management does not have a Good Balance sheet. We strongly advocate "Profitability" in CETPs Management and not "Not for Profit" tag as sustainability, future reediness to tougher norms, maximize recycle potential, upgrade men, machine, method need Money. Not GRANT or Charity.

3. Land – Location

Good enough to have current focus and future expansion as members of CETP have growth plans.

4. Technicalities – Technology, Process, Consultant, Vendor, Training

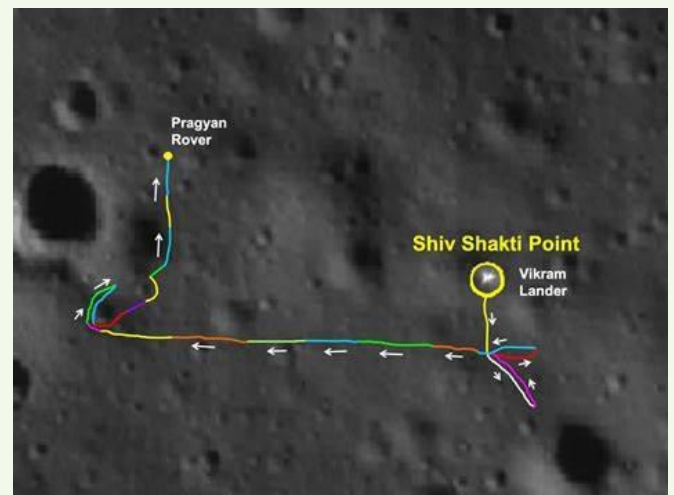
5. Incoming Effluent System – Outfall System, Sludge Disposal Area etc.

With an understanding that "Pollution" load in Kg per day (not only flow), BOD/COD ratio (Difficulty to treat) and TDS shall be tested and user feed collected accordingly. These days several CETPs have started advocating "Partial Treatment" before forwarding to CETP. This beats the "Original Idea" of "Out Sourcing", responsibility but is necessary to ensure performance.

6. Validation Authority – Consent to operate, Performance Monitoring etc.

Integrated Influent System? Member's Role

Science & Technology today has answer for all the problems, reminder we successfully landed on on the South Pole of Moon



So what makes CETP a performing CETP is in knowing and controlling Influent. We should know "What we are receiving", so different member units must be monitored wrt to:

Discharge Flow	10 m3/d
Discharge Duration	25 mins
Discharge Time Slot	2.30 AM to 3.00 AM
COD In	740 mg/l
BOD In	230 mg/l
TSS In	190 mg/l
TDS In	8000 mg/l

The above will benefit in planning:

Hominization of Feed Flow & Feed Parameters
Raise Bills based on "Pollutant" & Keep Records

We need following infrastructure to achieve above

- Sumps & Pumping Stations
- Auto Samplers to collect sample
- Auto On/Off Valves to receive effluent in specific time & quantity
- Laboratory
- Penalty Rules for default on any of above

CETPs Up-Grade & Innovation

To our readers, we share the good news that “Aktion Waughter Private Limited” is willing to support the existing CETPs . Some issues are:

- nbCOD Management
- Sludge Volume Reduction
- Increase in Flow
- Condition Assessment, Modification & Retrofit

Addition of MBR in most cases can improve Disposal COD by 10-12%. If performance levels are below these levels, the use of Fenton Process – Up-flow Reactor or CSTR both provide additional options to reduce the COD and colour to desired levels. The process is sequel to Pellet Softening with a little difference.

In pellet softening Crystal growth is due to Ca & Mg Deposition on Carrier and in Fenton Process the aim is grow crystal with oxides of Fe.

If CETPs are stressed with higher flow, roughing with help of “Ballasted Sand Flocculation Technique” upstream of Aeration Tank improve performance as well as higher volumetric loads.

Sludge drying with low temperature drying using heat pump with cycle air or other energy recycle methods can result in sludge volume reduction up-to 1/4th of current levels.

The MSME sector comprises nearly 63 million enterprises, which contribute 30 per cent to India’s GDP, 45 per cent to manufacturing, 40 per cent to exports, and provides employment to over 113 million people, it is therefore essential to continue to invest in CETPs for next level growth of Indian Industry.



जल जीवन जननी !!



Our World is Waughter

The technical knowledge share attempt of Aktion Consultancy and the contents in the magazine shall be qualified by Sanjeev Srivastava our Technology Lead.

Our next edition focuses on: “Total Water Management in Ultra High Purity Water”

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