

Dear Water Warriors,

Responsibility of managing waste as per requirement of the ecosystem is gaining importance every day. With time focus will shift from COD, BOD and NH₃-N to Sludge as more and more Consent to Establish have a line – ZLD embedded in documents.



While Aktion does necessary support the current system, let's take you through some legal steps like EIA, CTE, CTO etc.

The issue of 'Wau^{ghter}', let's understand Government ideas.

Nidhi Jain – Civil Engineer

Environmental Compliance

Lists of internal processes and workflows to comply with emissions or storage and disposal of hazardous waste, materials, or substances.

It is also including permit renewals for annual emission reports, hazard waste reports, and permit renewal fees includes.



The above documents have necessary guidance and enough information to present a case perfectly.

Request us via mail if you wish to have them.

Environmental Compliance

Environmental compliance means conforming to environmental laws, regulations, standards, and other requirements such as site permits to operate. In recent years, environmental concerns have led to a significant increase in the number and scope of compliance imperatives across all global regulatory environments.

An environmental compliance report is prepared by management team, a third-party expert or an environmental regulator, and outlines compliance requirements with environmental laws, regulations, and standards applicable to company products or projects.

Environmental audits, surveys and reports published including Facilities or operations which have previously emitted, stored or disposed of hazardous materials or substances.

Importance of Compliance

The key drivers for meeting environmental compliance reporting requirements are to ensure that legal obligations are met and thus avoid unnecessary or unintentional negative impacts on the environment costly fines.

Positive Effect of Environmental Compliance

Increased economic efficiency and higher productivity because of modern technology and lower production and maintenance costs through cleaner water.

Lower consumption of primary material because of a more efficient use and higher levels of reuse and recycling.

Making earth a better place to live.



Purolite™ Ion Exchange Resins

C100EVCH - Strong Acid Cation Indicator Resin

This resin is dyed with a special pH indicator. **On exhaustion the resin colour changes from green to blue. The colour change gives an indication about when to replace or regenerate the resin.**

APPLICATION IN POWER PLANTS

- In all Power Plants there is a system in place called the SWAS Analyzer (Steam and water analysis system). **Cation Exchange resins are usually used in these SWAS analysers.**
- The Purolite C100EVCH resins change colour with the depletion of their exchange capacity, indicating a change in the resin column for higher efficiency.



*Our always-ready technical support and service teams at **Pure Water** go the extra step to be your most trusted resource. We're here for you.*

Contact us at:

Environmental Impact Assessment (EIA)

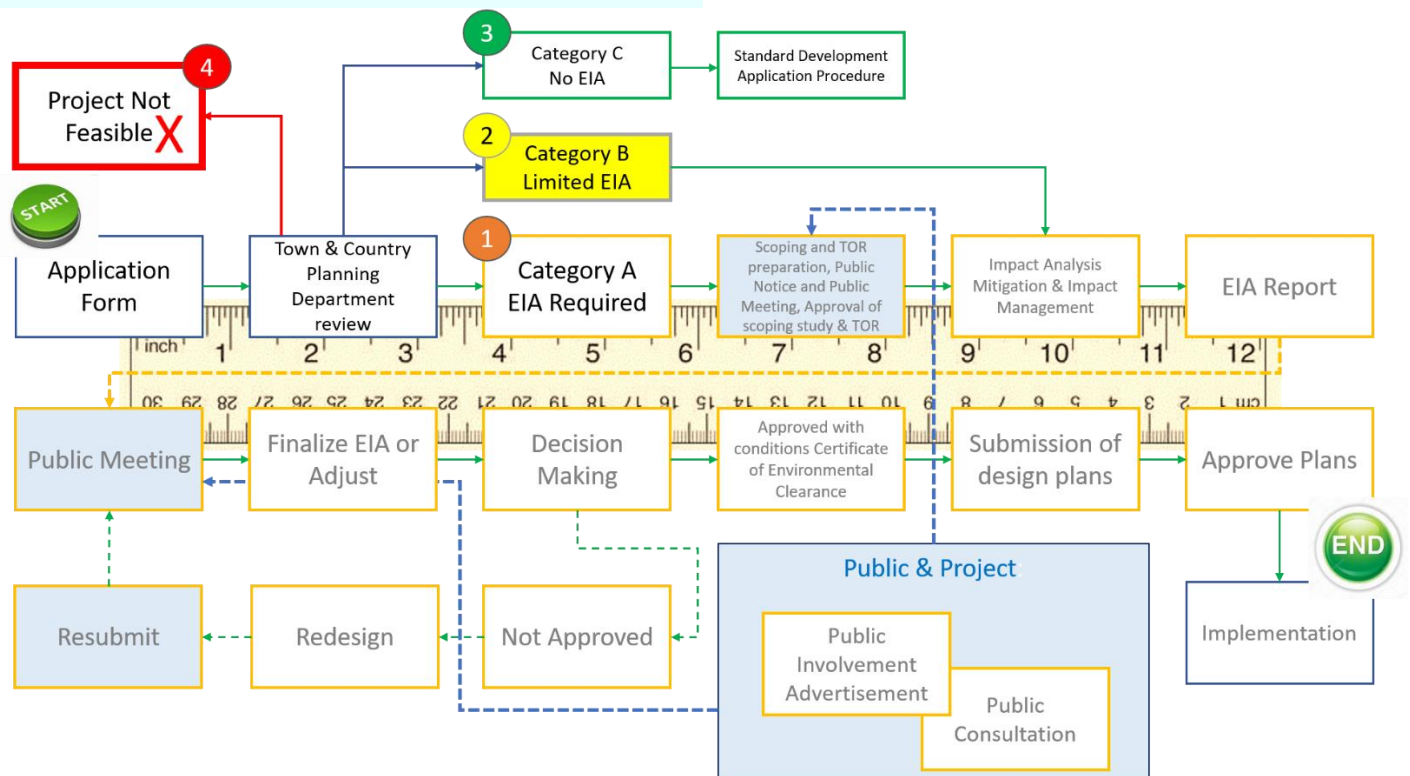
Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taken into account inter-related socio-economic, cultural, and human-health impacts, both beneficial and adverse.

UNEP defines Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social, and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

Salient Features of 2006 Amendments to EIA Notification

Environment Impact Assessment Notification of 2006 has decentralized the environmental clearance projects by categorizing the developmental projects in two categories:

1. Category A projects are appraised at national level by Impact Assessment Agency (IAA) and the Expert Appraisal Committee (EAC), and Category B projects are appraised at state level.
2. State Level Environment Impact Assessment Authority (SEIAA) and State Level Expert Appraisal Committee (SEAC) are constituted to provide clearance to Category B process.



EIA Process

After 2006 Amendment the EIA cycle comprises of four stages:

Screening → Scoping → Public Hearing → Appraisal

Category A projects require mandatory Environmental Clearance and thus they do not undergo the screening process.

Category B Projects undergoes screening process, and they are classified into two types.

Category B1 projects (Mandatorily requires EIA).

Category B2 projects (Do not require EIA).

EIA Process Detailing

1. Screening

To decide whether an EIA is required and focus resources on projects most likely to have significant impacts, those where impacts are uncertain and those where environmental management input is likely to be required.

2. Scoping

The project's potential impacts, zone of impacts, mitigation possibilities and need for monitoring.

Collection of baseline data: Baseline data is the environmental status of study area.

Impact prediction: Positive and negative, reversible, and irreversible and temporary and permanent impacts need to be predicted which presupposes a good understanding of the project by the assessment agency.

Mitigation measures and EIA report: The EIA report should include the actions and steps for preventing, minimizing or by passing the impacts or else the level of compensation for probable environmental damage or loss.

3. Public Consultation

Public Consultation refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate.

4. Appraisal

Appraisal means the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, outcome of the public consultations including public hearing proceedings, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance.

PARIVESH is a single Window integrated system for environment, forest, wildlife and CRZ clearances.

On below website, once can find the useful information concerning EIA for your project.



Importance of EIA

1. EIA links environment with development for environmentally safe and sustainable development.
2. EIA provides a cost-effective method to eliminate or minimize the adverse impact of developmental projects.
3. EIA enables the decision makers to analyse the effect of developmental activities on the environment well before the developmental project is implemented.
4. EIA encourages the adaptation of mitigation strategies in the developmental plan.
5. EIA makes sure that the developmental plan is environmentally sound and within the limits of the capacity of assimilation and regeneration of the ecosystem.
6. And many more..



Generic Structure of Environmental Impact Assessment Document:

| Sr. No. | EIA Structure | Contents |
|--|---|--|
| 1 | Introduction | 1 Purpose of the report/Identification of project & project proponent |
| | | 2 Brief description of nature, size, location of the project and its importance to the country, region |
| | | 3 Scope of the study – details of regulatory scoping carried out (As per Terms of Reference) |
| 2 | Project Description | <i>Condensed description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. Details should be provided to give clear picture of the following:</i> |
| | | 1 Type of project |
| | | 2 Need for the project |
| | | 3 Location (maps showing general location, specific location, project boundary & project site layout) |
| | | 4 Size or magnitude of operation (incl. Associated activities required by or for the project) |
| | | 5 Proposed schedule for approval and implementation |
| | | 6 Technology and process description |
| | | 7 Project description. Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose |
| | | 8 Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope) |
| 9 Assessment of New & untested technology for the risk Assessment of New & untested technology for the risk of technological failure | | |
| 3 | Description of the Environment | 1 Study area, period, components & methodology |
| | | 2 Establishment of baseline for valued environmental components, as identified in the scope |
| | | 3 Base maps of all environmental components |
| 4 | Anticipated Environmental Impacts & Mitigation Measures | 1 Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project |
| | | 2 Measures for minimizing and / or offsetting adverse impacts identified |
| | | 3 Irreversible and Irrecoverable commitments of environmental components |
| | | 4 Assessment of significance of impacts (Criteria for determining significance, Assigning significance) |
| | | 5 Mitigation measures |
| 5 | Analysis of Alternatives (Technology & Site) | In case, the scoping exercise results in need for alternatives: |
| | | 1 Description of each alternative |
| | | 2 Summary of adverse impacts of each alternative |
| | | 3 Mitigation measures proposed for each alternative and |
| 6 | Environmental Monitoring Program | 4 Selection of alternative |
| | | Technical aspects of monitoring the effectiveness of mitigation measures (incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules) |
| | | 1 Public Consultation |
| | | 2 Risk assessment |
| 7 | Additional Studies | 3 Social Impact Assessment. R&R Action Plans |
| | | 1 Improvements in the physical infrastructure |
| | | 2 Improvements in the social infrastructure |
| 8 | Project Benefits | 3 Employment potential – skilled; semi-skilled and unskilled |
| | | 4 Other tangible benefits |
| | | 9 Environmental Cost Benefit Analysis |
| | | If recommended at the Scoping stage |
| 10 | EMP | Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA |
| 11 | Summary & Conclusion (This will constitute the summary of the EIA Report) | 1 Overall justification for implementation of the project |
| | | 2 Explanation of how, adverse effects have been mitigated |
| 12 | Disclosure of Consultants engaged | The names of the Consultants engaged with their brief resume and nature of Consultancy rendered |

For EIA one has to go through above process through a NABET accredited Environmental Consultant.

Consent to Establish (CTE)

The Consent to Establish is the primary clearance. This consent is required to be obtained before establishing any Industry, Plant, or Process.

Generally, Consent to Establish is a one-time activity. The State Pollution Control Board issues it for 3 to 5 years.

In case the project proponent required an extension of the period, the entrepreneur can apply for an extension basis the requirement.

As per government notification, Water Act, 1974 and Air Act, 1981 a company should obtain consent to establish before establishing (before starting construction of site) from the pollution control board.

Procedure to obtain Consent

All the industrial sectors/projects have been categorized under Red, Orange, Green and White categories based upon their pollution potential and range of pollution index for the purpose of consent management under Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981.

The process for obtaining Consent to Establish and to Operate involves making an application to the respective

State Pollution Control Board along with required documents and scrutiny fees using the online portal of the State pollution control Board (Online Consent Management).

It's followed by physical scrutiny of the location and assessment of the environmental management system planned to meet with the mandatory requirement prescribed by the State Pollution Control Board.



Documents required to get the MPCB Consent to Establish Certificate

While every state has its specific requirement, the following set of documents are usually required across every state for seeking consent under Water Act, 1974 and Air Act, 1981.

1. Site Plan/Location Plan of the industry
2. Geographical Map
3. Land documents such as Registration deed/ Rent deed/Lease deed
4. Consent fees in the form of DD drawn in the favour of Pollution control board.
5. Undertaking on Rs. 20 stamp paper or Chartered Accountant certificate about projected Capital Investment (Land, building, and other types of machinery).
6. Water Budget calculations
7. Details of Water Pollution Control/Air Pollution Control instruments
8. NOC from Local body
9. MOA /partnership Deed
10. Ambient Air Quality Report
11. Site Visit for Consent to Establish

After submitting the form to the Pollution control board, government officials visit the site to verify compliance and implementation of the conditions of the Consent to Establish (NOC) issued by the State Pollution Control Board and take necessary actions.

The purpose of this magazine is to spread knowledge and the content given here are as per our understanding of MPCB.

Other state board may have procedures that is different to the one stated above and one can check with nominated agencies on the website of concerned PCB.

Consent to Operate (CTO)

Consent to Operate is the Once the Industry, Plant, or Process being established according to mandatory pollution control systems, the units are required to obtain consent to operate.

Documents required for Consent to Operate or Renewal Certificate:

1. Copy of last consent issued
2. Layout plan showing the details of all manufacturing processes
3. Latest analysis report of solid waste, effluent, hazardous wastes, and fuel gases
4. Copy of balance sheet duly attested by CA or CA certificate
5. Detail of land in case the effluent is discharged on land for percolation
6. Occupation certificate issued by Town & Country Planning Department, in case of Building & construction projects/area development projects.
7. MOA /partnership Deed
8. Consent fees in the form of DD drawn in the favour of the Pollution Control Board.
9. Xerox copy of previous consent (for renewal only).
10. NOC from Directorate of Industries Government of Maharashtra or SSI Certificate Maharashtra.

Consent to operate remains valid for a period of 5, 10, and 15 years according to the red, orange, and green category of the industry respectively.

The industry/project proponent intending for renewal of the Consent to Operate shall apply through OCMMS (Online Consent Management & Monitoring System) before the expiry of the period of previous Consent to Operate permitted by the State Pollution Control Board.

| Sr. No. | MPCB Consent to Establish | MPCB Consent to Operate | MPCB Renewal of Consent to Operate |
|---------|---|--|--------------------------------------|
| 1 | Preparation of Application | Preparation of Application | Preparation of Application |
| 2 | MPCB online consent application | MPCB consent to operate online application | MPCB online consent renewal |
| 3 | Classification of Industry (Red / Orange / Green) | Evaluate existing Consent to Establish | Evaluate existing Consent to Operate |
| 4 | Analysis of the Case | Analysis of the Case | Analysis of the Case |
| 5 | Filing of Case with MPCB | Filing of Case with MPCB | Filing of Case with MPCB |
| 6 | Obtain Consent to Establishment | Obtain Consent to Operate | Obtain Renewed Consent to Operate |

Exemption

The industrial units/projects covered under the white Category are exempted from Consent Management for obtaining CTE and CTO under Water Act, 1974 and Air Act, 1981 and any other units not covered under Red, Orange and Green category.

Penalty

If any Industry / Plant / project operates without obtaining Consent, the entrepreneur shall be liable for imprisonment for a term which may extend to three (3) months or with a fine which may extend to ten thousand rupees (INR 10,000) or with both.

Application for MPCB Consent to Operate (Renewal)

It is to be submitted in the 4th month before the expiry of the Consent Order. If the application is made after the expiry of the validity period action is to be taken as per Section 25/26 of the Water Act & Section 21 of the Air Act.

The MPCB application form for Consent to Operate (Renewal) under the Water Act and Air Act is Schedule-I should be submitted in triplicate.

Post EC Compliance / Six Monthly Compliance Report / Half Yearly Compliance Report

It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions to the regulatory authority concerned, on 1st June and 1st December of each calendar year.

All such compliance reports submitted by the project management shall be public documents. Copies of the same shall be given to any person on application to the concerned regulatory authority. The latest such compliance report shall also be displayed on the web site of the concerned regulatory authority.

Six Monthly Compliance Reports on the status of Compliance of Stipulated Environmental Conditions including results of monitored data in hard copies and mail to Regional Office of MoEFCC and Zonal Office of CPCB/SPCB.

Wastewater

Wastewater refers to any liquid waste or sewage that comes from homes, hospitals, factories, and any other building that uses water in its facilities. From flushing the toilet to the vast amount of wastewater that flows out of industrial plants, we all contribute to it. Unless wastewater is properly treated, it can harm public health and the environment.

Sources of wastewater include homes, shops, offices and factories, farms, transport and fuel depots, vessels, quarries, and mines. Water used in toilets, showers, baths, kitchen sinks and laundries in homes and offices is domestic wastewater.

Wastewater from manufacturing and industrial operations such as food processing or metal refining is industrial or trade waste. This includes liquid waste from any process (e.g., water used to cool machinery or clean plant and equipment).

The department also advises industries on how to manage wastewater effectively. For example, industry can:

1. Avoid generating unnecessary wastewater
2. Minimise the amount of water used,
3. Minimise the strength of contaminants,
4. Treat and re-use wastewater,
5. Use evaporation ponds,
6. Dispose of wastewater to the sewerage system (with local government approval)

Wastewater is treated to remove pollutants (contaminants). Wastewater treatment is a process to improve and purify the water, removing some or all the contaminants, making it fit for reuse or discharge back to the environment.

Discharge may be to surface water, such as rivers or the ocean, or to groundwater that lies beneath the land surface of the earth. Properly treating wastewater assures that acceptable overall water quality is maintained.

Impact on Environment of Wastewater

Untreated wastewater can have a severely detrimental impact on the environment.

The most immediate effect of wastewater on the environment is when it contributes toward the contamination and destruction of natural habitats and the wildlife that live in those habitats by exposing them to harmful chemicals that would otherwise not be present over the natural course of things.

The impacts of such degradation may result in decreased levels of dissolved oxygen, physical changes to receiving waters, release of toxic substances, bioaccumulation or biomagnifications in aquatic life, and increased nutrient loads.

Wastewater is a complex resource, with both advantages and inconveniences for its use.

Wastewater and its nutrient contents can be used for crop production, thus providing significant benefits to the farming communities and society in general.

However, wastewater use can also impose negative impacts on communities and on ecosystems.

General Standards for Discharge of Environmental Pollution

<https://www.cpcb.nic.in/GeneralStandards.pdf>

The Environment (Protection) Rules, 1986 549

| WASTE WATER GENERATION STANDARDS - PART-B | | |
|---|--------------------------------------|--|
| S.No. | Industry | Quantum |
| 1. | Integrated Iron & Steel | 16 m ³ /tonne of finished steel |
| 2. | Sugar | 0.4 m ³ /tonne of cane crushed |
| 3. | Pulp & Paper Industries | |
| (a) | Larger pulp & paper | |
| (i) | Pulp & Paper | 175 m ³ /tonne of paper produced |
| (ii) | Viscose Staple Fibre | 150 m ³ /tonne of product |
| (iii) | Viscose Filament Yarn | 500 m ³ /tonne of product |
| (b) | Small Pulp & Paper : | |
| (i) | Agro residue based | 150 m ³ /tonne of paper produced |
| (ii) | Waste paper based | 50 m ³ /tonne of paper produced |
| 4. | Fermentation Industries : | |
| (a) | Malty | 3.5 m ³ /tonne of grain produced |
| (b) | Brewery | 0.25 m ³ /KL of beer produced |
| (c) | Distillery | 12 m ³ /KL of alcohol produced |
| 5. | Caustic Soda | |
| (a) | Membrane cell process | 1 m ³ /tonne of caustic soda produced excluding cooling tower blowdown |
| (b) | Mercury cell process | 4 m ³ /tonne of caustic soda produced (mercury bearing) 10% blowdown permitted for cooling tower |
| 6. | Textile Industries : | |
| | Man-made Fibre | |
| (i) | Nylon & Polyester | 120 m ³ /tonne of fibre produced |
| (ii) | Viscose rayon | 150 m ³ /tonne of product |
| 7. | Tanneries | 28 m ³ /tonne of raw hide |
| 8. | Starch, Glucose and related products | 8 m ³ /tonne of maize crushed |
| 9. | Dairy | 3 m ³ /KL of Milk |

Sludge Management Protocol

Sludge is a hazardous material that harms human health and the environment including soil, air, and aquatic systems. Besides, sludge is a complex material with heterogeneous toxic substances that it inherits from a variety of origin/ sources and products.

Wastewater Sludge Treatment Process

Sludge Thickening

In this step, the sewage sludge is thickened in a gravity thickener to reduce its overall volume, thus enabling the easy handling of the sludge. Dissolved air flotation is another alternative that can be used to effectively to thicken the sludge by using air bubbles to allow the solid mass to float to the top.

Sludge Digestion

After amassing all the solids from the sewage sludge begins the sludge digestion process. This is a biological process in which the organic solids present in the sludge are decomposed into stable substances.

This process also helps reduce the total mass of solids, while destroying any present pathogens to enable easy dewatering.

The sludge digestion process is a two-phase process. In the first stage, the dry solid sludge is heated and mixed in a closed tank to enable anaerobic digestion by acid-forming bacteria.

These bacteria hydrolyse the large molecules of proteins and lipids present in the sludge and break them down into smaller water-soluble molecules, which they then ferment into various fatty acids.

The sludge then flows into the second tank where it is converted by other bacteria to produce a mixture of carbon dioxide (CO₂) and methane, after which the methane is collected and reused to power the digestion tank and generate power (depending on the quantity retrieved)

Sludge Management Protocol

Dewatering

After retrieving useful gases and other by-products, the remaining sludge is then dewatered before final disposal. In most cases, dewatered sludge usually contains a significant amount of water, as much as 70 percent, despite its solidified state.

Therefore, it is important to dry and dewater the sludge beforehand. While using sludge-drying beds is the most common way to carry out this process, it is extremely time-consuming and may take weeks before the process is complete.

To quicken these processes, waste management plans are also employing solid-liquid separation devices to carry out this process. In fact, centrifugation is slowly becoming one of the most preferred methods of dewatering sludge.

By passing the sludge through a centrifuge, it becomes easier to retrieve all the water and enable easier handling of the solid waste in shorter durations at reduced costs. Other alternatives include the rotary drum vacuum filter and the belt filter press.

Disposal

Once the sludge has been effectively dewatered, it can be buried underground in a sanitary landfill or can be used as a fertilizer, depending on its chemical composition. In cases where the sludge is too toxic to be reused or buried, you can simply incinerate the sludge and convert it into ash.

While sewage sludge is usually treated using a standard plan of action, it is extremely important to factor in aspects like the origin of the sewage, the treatment process used to reduce the sewage to sludge, as well as the possible by-products that can be retrieved from it for further use before choosing a sludge treatment plan.

This will not only help you optimize your overall output but will also help you reduce costs by salvaging useful materials for secondary use before ultimate disposal.

Hazardous Waste Protocol

Hazardous Waste Policy Framework

Hazardous waste was first regulated in 1989 through Hazardous Waste (Management & Handling) Rules, 1989, which subsequently were amended in 2008 to incorporate Basel Convention provisions and lastly recently again in 2016.

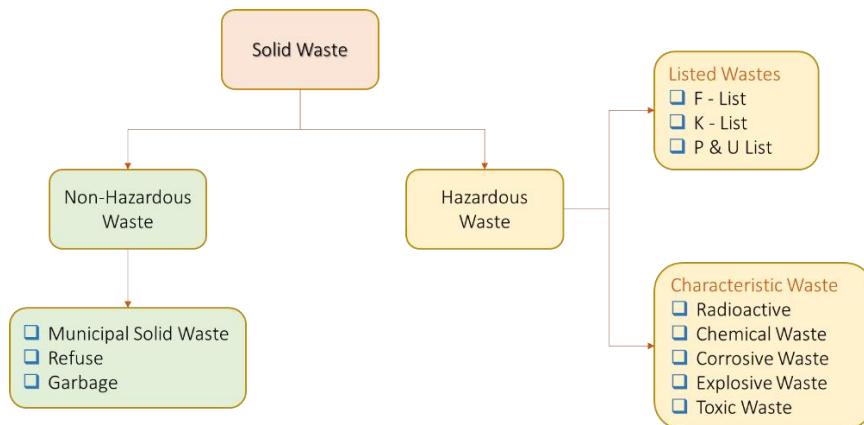
The Hazardous Waste Management regulations have undergone sea change since its first promulgation in 1989 to take care of requirements of various stakeholders from time to time.

Hazardous Waste Policy Framework

Hazardous waste is regulated by the following agencies in India,

1. Ministry of Environment, Forest & Climate Change,
2. Government of India,
3. Central Pollution Control Board,
4. State Pollution Control Boards and
5. Pollution Control Committees

Classification of Solid Waste



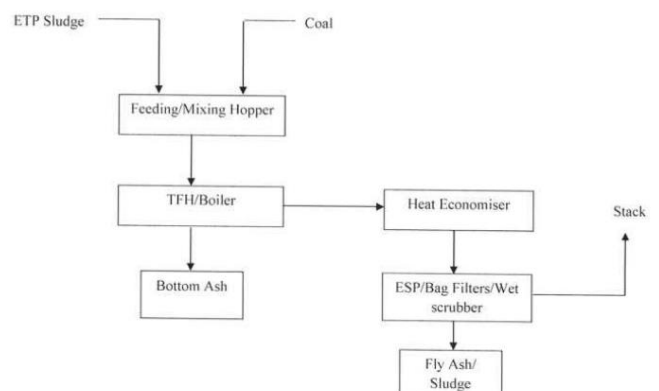
Hazardous Waste

Hazardous waste means any waste, which by reason of characteristics, such as physical, chemical, biological, reactive, toxic, flammable, explosive, or corrosive, causes danger to health, or environment. It comprises the waste generated during the manufacturing processes of the commercial products such as industries involved in petroleum refining, production of pharmaceuticals, petroleum, paint, aluminium, electronic products etc.

Hazardous Waste Management Rules are notified to ensure safe handling, generation, processing, treatment, package, storage, transportation, use reprocessing, collection, conversion, and offering for sale, destruction, and disposal of Hazardous Waste.

What I do with my ETP Sludge?

CPCB allows for utilization of ETP sludge generated from Industries (e.g., Textile) to use as supplementary fuel with coal in Thermic Fluid Heater (TFH)/ Boiler.



Welcome ...Mrs. Neha Deshpande

At Aktion we believe in adding competence that can enhance our delivery. With her Master's Degree in Environmental Science and knowledge of Microbiology at Graduation level provides new knowledge base to our organization.



She happens to be the first experienced person on board with unique competence of understanding and practicing EIA, CTE & CTO process along with other legal compliances.

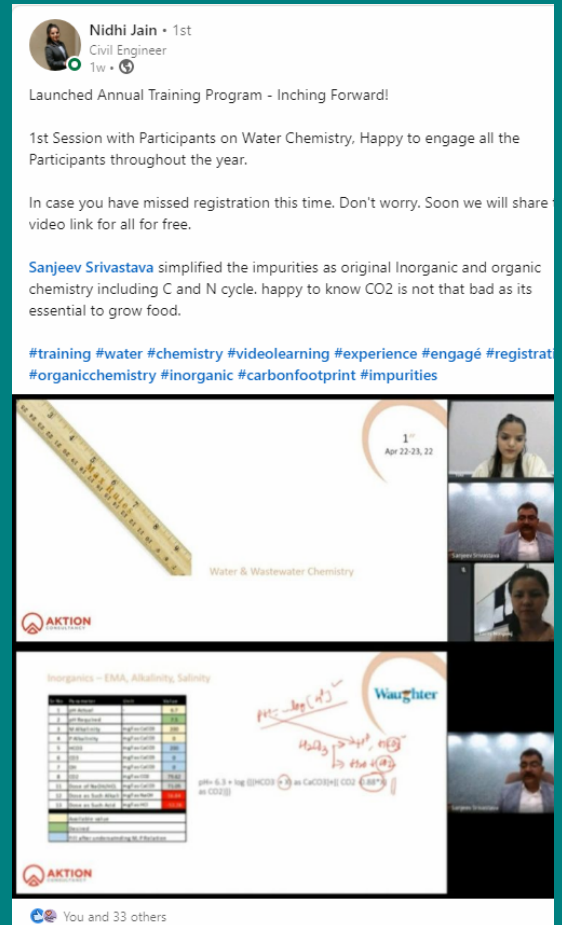
While we have no current plans to get into PCB premises and wish other agencies continue the good work, her experience will benefit us developing technical solutions that are legally perfect.



All Angels team welcomes Mrs. Deshpande on Board.

Rise & Shine!

जल जीवन जननी !!



Nidhi Jain • 1st
Civil Engineer
1w • 🌐

Launched Annual Training Program - Inching Forward!

1st Session with Participants on Water Chemistry. Happy to engage all the Participants throughout the year.

In case you have missed registration this time. Don't worry. Soon we will share video link for all for free.

Sanjeev Srivastava simplified the impurities as original Inorganic and organic chemistry including C and N cycle. happy to know CO2 is not that bad as its essential to grow food.

#training #water #chemistry #videolearning #experience #engagé #registrat
#organicchemistry #inorganic #carbonfootprint #impurities

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: "Softening & Dealkalization for Ca, Mg Removal and Metal Removal"

Please feel free to write or contact Mrs. Neha Deshpande - 95129 55227 environment@aktionindiaa.com

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