

## **Planning, Designing, Monitoring and Inspection of Wastewater Treatment Systems of Industries**

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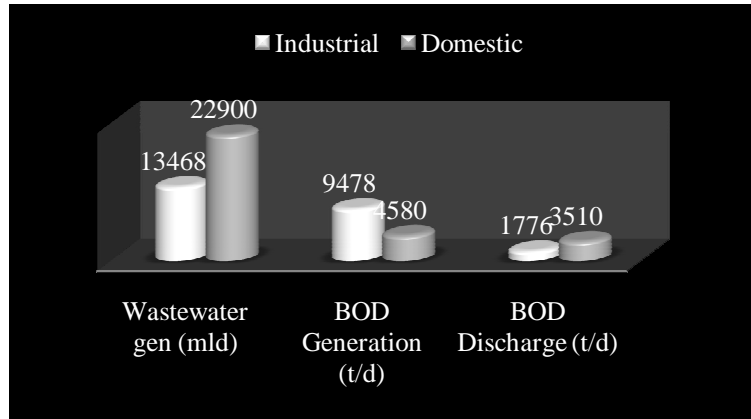
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### **Abstract**

The fast growing economy, rapid industrialisation and growing urban population in India along with increasing wastewater generation are reasons for concern and reiterate the need for appropriate water management practices. So there are various methods for estimating the amount of wastewater generated through industries. Given below are the estimated percentages of water that get consumed in industries and domestic purposes. In this paper we have researched on the topic of various sub heading and we have come up on some statistical data. We have also consider various topics and researched on all of these topics which are Introduction with the wastewater treatment and management such as construction and industrial projects (textile, refinery, power plant etc)., Treatment technologies of wastewater including advanced treatment options, Decentralized methods in treating urban wastewater (existing and emerging), Affair and consult with Common Effluent Treatment Plants, State of art practices for wastewater management. This paper mainly depend on the various Industrial Exposure and research done by us.

**Keywords:** Author details; example; headings; layout; title page.



Comparison of pollution load generation from domestic and industrial sources

Mean Hydraulic retention time

$Q_s = \frac{V_t}{t}$  Where  $V_t =$  volume of reactor + volume of s.s. tank,  $V_r =$  volume of reactor (aeration tank),  $V_s =$  volume of s.s tank,  $Q =$  influent flow rate

Mean hydraulics retention time

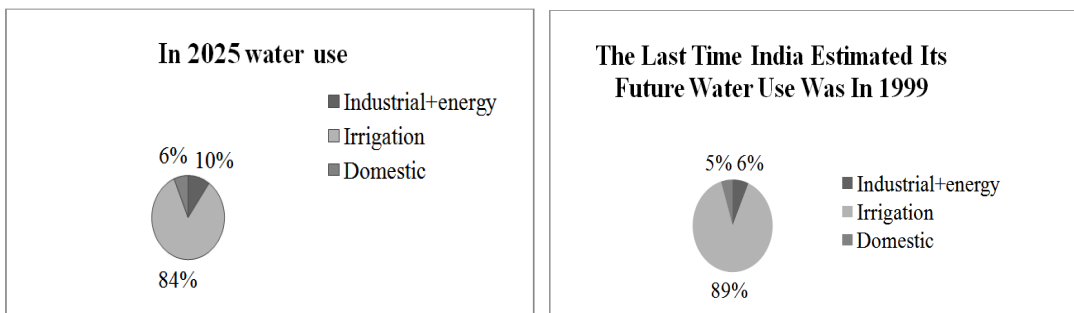
—Mean Cell residence time

$\frac{V_r X_e}{Q_w}$  where  $Q_w =$  Cell wasting rate from reactor,  $Q_e =$  Flow rate from S.S,  $X_e =$  Cell concentration in S.S effluent

Water Demand in 2025 for Industrial purposes

Category	1990 (BCM)	2025(BCM)
Irrigation	460	688
Domestic	25	52
Industry+energy	34	80
Total	519	942

Water demand



## **1. Industries Treatment**

Steel industries Contaminants include hydraulic oils, tallow and particulate solids. Final treatment of iron and steel products before onward sale into manufacturing includes pickling in strong mineral acid to remove rust and prepare the surface for tin or chromium plating or for other surface treatments such as galvanisation or painting. The two acids commonly used are hydrochloric acid and sulfuric acid. Wastewaters include acidic rinse waters together with waste acid. Although many plants operate acid recovery plants, (particularly those using Hydrochloric acid), where the mineral acid is boiled away from the iron salts, there remains a large volume of highly acid ferrous sulfate or ferrous chloride to be disposed of. Many steel industry wastewaters are contaminated by hydraulic oil also known as soluble oil.

Iron industries The iron production from its ores involves powerful reduction reactions in blast furnaces. Cooling waters are inevitably contaminated with products especially ammonia and cyanide. Production of coke from coal in coking plants also requires water cooling and the use of water in by-products separation.

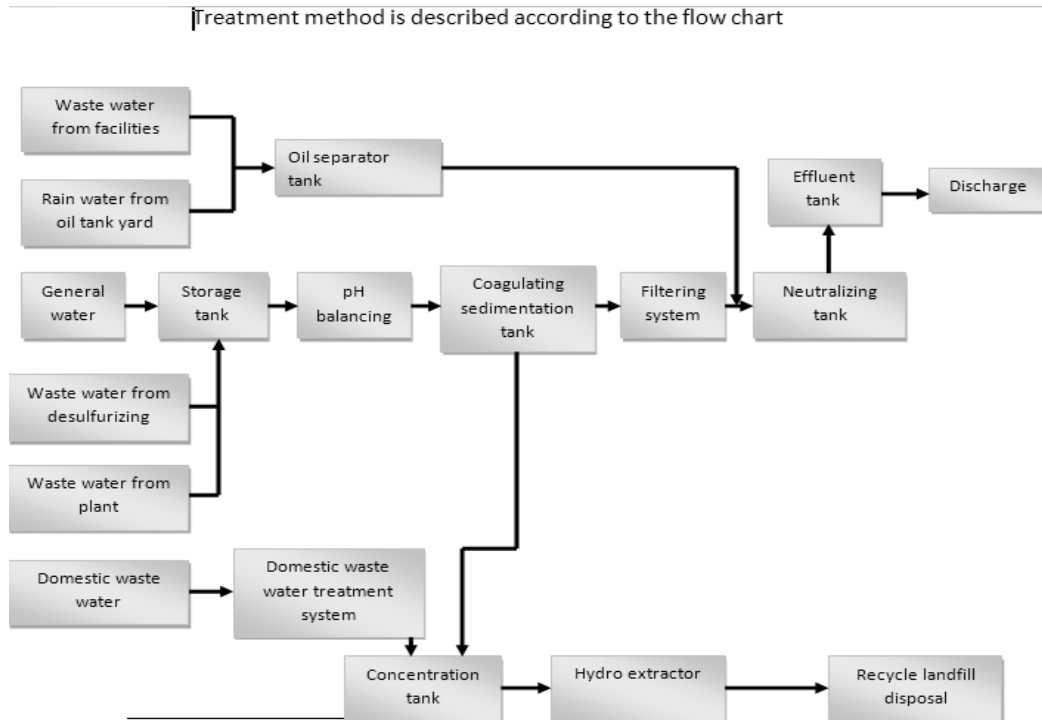
Food industry Wastewater generated from agricultural and food operations has distinctive characteristics that set it apart from common municipal wastewater managed by public or private sewage treatment plants throughout the world: it is biodegradable and nontoxic, but that has high concentrations of biochemical oxygen demand (BOD) and suspended solids (SS).<sup>[1]</sup> The constituents of food and agriculture wastewater are often complex to predict due to the differences in BOD and pH in effluents from vegetable, fruit, and meat products and due to the seasonal nature of food processing and postharvesting.

Thermal power plant Waste water from thermal power plants includes waste water from water purifiers, waste water from fuel oil pump rooms which is likely to contain oil, water from flue gas desulfurizing facility, domestic waste water from kitchen and sanitation. The major ingredients of such waste water range from acidic and alkaline substances to suspended solids, oil, and soluble iron. It is very rare that waste water contains harmful substances. In thermal power plants, waste water from all equipment is collected at one place and subjected to treatment by high-performance oil separator and coagulating sedimentation. Waste water treatment system in thermal power plants is thus integrated.

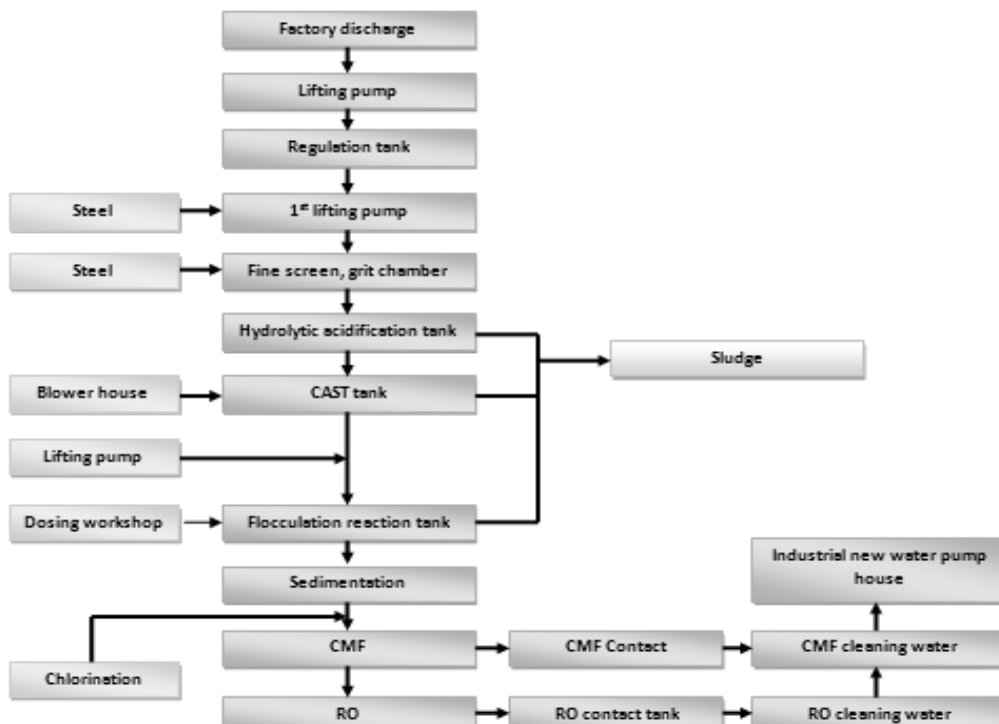
## **2. Introduction with the Wastewater Treatment and Management Such as Construction and Industrial Projects (Textile, Refinery, Power Plant etc).**

### **2.1 Treatment technologies of wastewater including advanced treatment options**

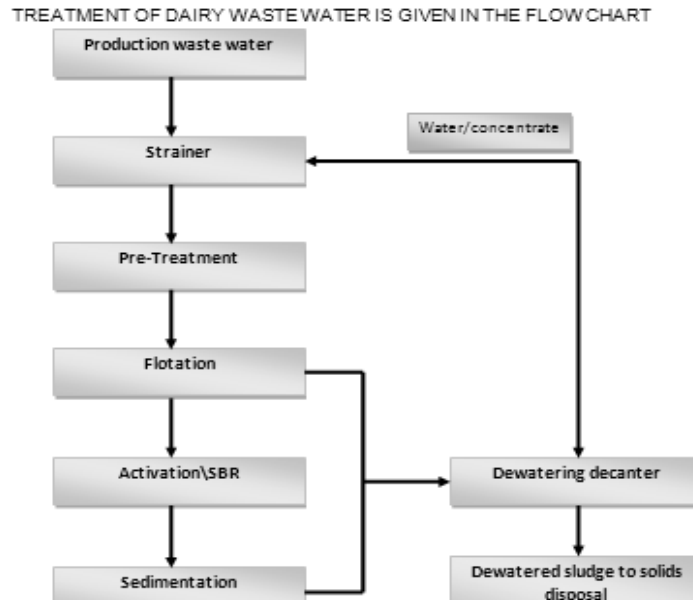
1. Thermal powerplant



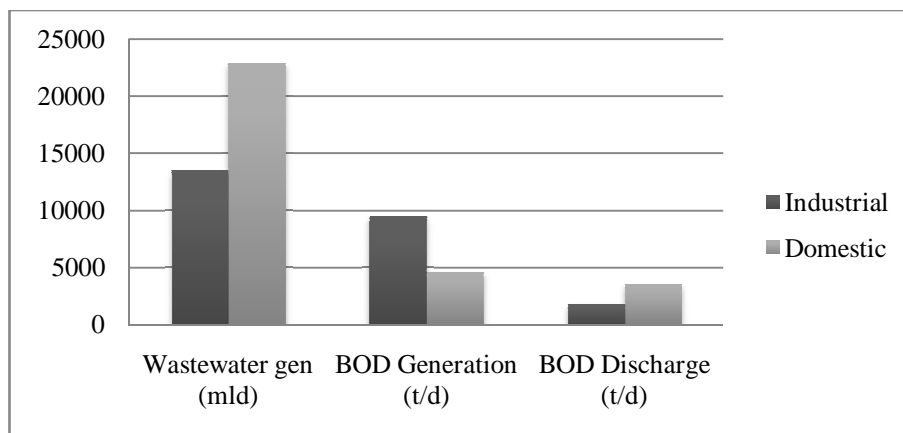
### 3. Steel Industry Treatment of Water



### 4. Dairy Industry



ZERO discharge with case studies in wastewater



### 5. Affair and Consult with Common Effluent Treatment Plants

Small-scale industries (SSIs) have a very important role in overall industrial development in India and growth of SSI units has been actively promoted by Government of India to induce balanced economic growth and to distribute the benefits of industrial development in an equitable manner.

## References

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