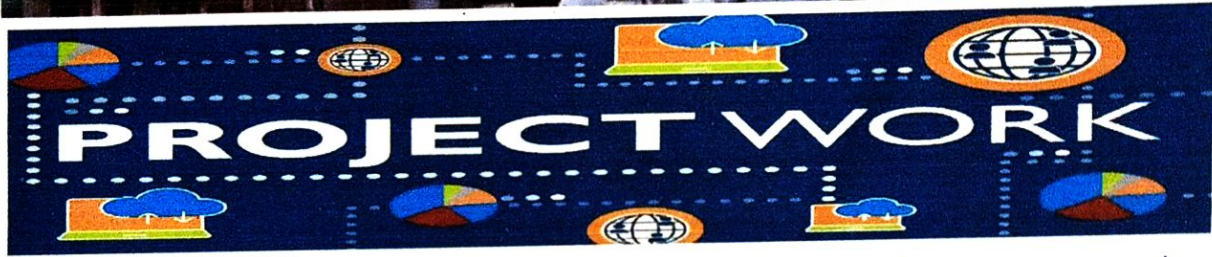
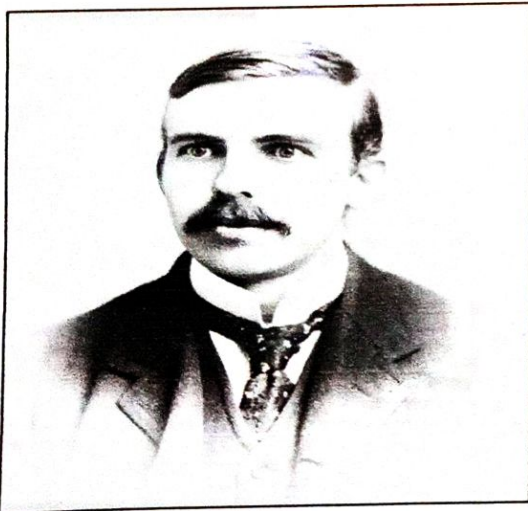




V.C.G. Govt.
College Pussore
Raigarh (C.G.)



Bsc III bio session - 2020-22



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Topic – Water treatment plant study in nagar panchayat pussore .



V.K.K.
30.08.22
Guided by – professor Vijay Kumar kante .

(assistant professor of zoology)

GROUP MEMBERS –



Amrita mehar

Amrita



Anita gupta

Anita



Anita lahre



Anita dansena



Anjali sidar

Anjali



Anshu prahan



Anupama
thanapati



Pitamber mehar



Chaiban malakar

OUTERLINE –

- (1) *Introduction*
- (2) *Source of water*
- (3) *Importance of water treatment plant*
- (4) *Method of water treatment in plant*
- (5) *Advantages of water treatment plant*
- (6) *Disadvantages of water treatment plant*
- (7) *Conclusion*

- (1) **INTRODUCTION** - Clean and safe water is vital for everyday life. Water is essential for health and the productivity of our community.

Water treatment is any process that makes water more acceptable for a specific end-use. The end use may be drinking, industrial water supply, irrigation, river flow maintenance, water recreation or many other uses including being safely returned to the environment. Water treatment removes contaminants or reduces their concentration so that the water becomes fit for its desired end-use.

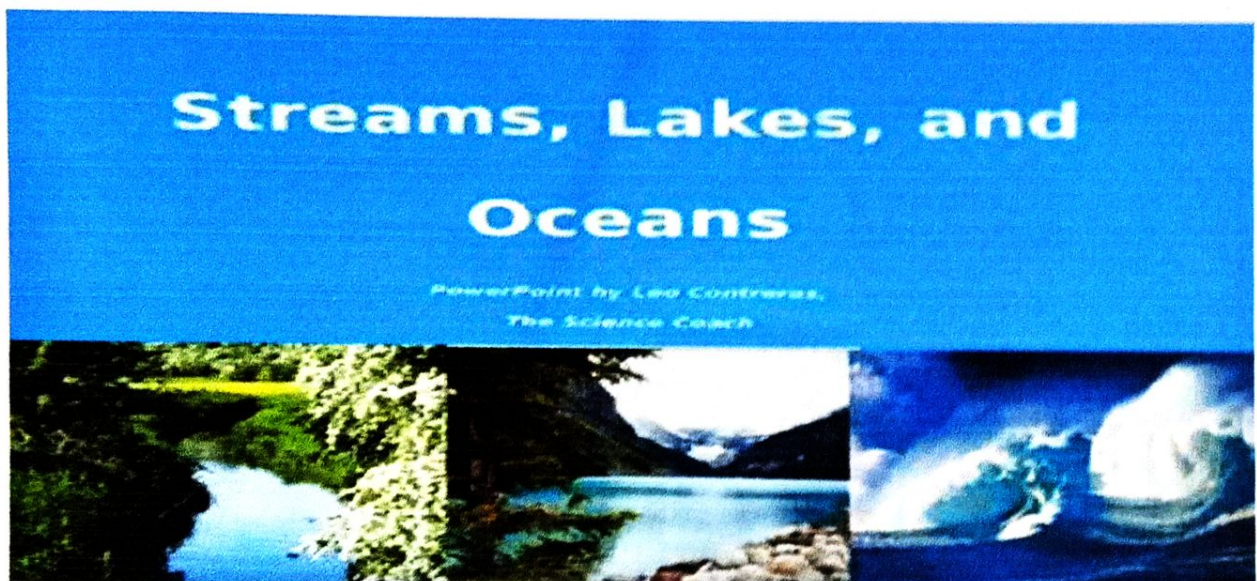
The water treatment process may vary slightly at different locations, depending on the technology of the plant and the water it needs to process, but the basic principles are largely the same. This section describes standard water treatment

छत्तीसगढ़ शासन
लोक स्वास्थ्य यांत्रिकी खंड रायगढ़
आवर्धन जल प्रदाय योजना पुरौर
(लागत राशि रु 7.930 करोड़)

“लोकार्पण”
श्री भूपेश बघेल
माननीय मुख्यमंत्री, छ.ग. शासन के मुख्य आतिथ्य में
श्री रविन्द्र चौबे
माननीय प्रभारी मंत्री जिला रायगढ़ एवं मंत्री छ.ग. शासन
संसदीय कार्य विधि एवं विधायी कार्य, कृषि एवं जैव प्रौद्योगिकी, पशुधन विकास,
मछली पालन जल संसाधन एवं आयाकट, की अध्यक्षता तथा
श्री गुरु रुद्र कुमार
माननीय मंत्री लोक स्वास्थ्य यांत्रिकी एवं ग्रामोद्योग
श्री उमेश नंदकुमार पटेल
माननीय मंत्री छ.ग. शासन उच्च शिक्षा कौशल विकास तकनीकी शिक्षा एवं
रोजगार विज्ञान और प्रौद्योगिकी खेल एवं युवा कल्याण
श्रीमती गोमती साय
माननीय सांसद रायगढ़
श्री प्रकाश शक्राजीत नायक
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श्री ऋतेश थवाईत
माननीय अध्यक्ष नगर पंचायत पुरौर
की गरिमामय उपस्थिति में आज दिनांक 02 जनवरी 2021 को सम्पन्न हुआ।

processes. Treatment for drinking water production involves the removal of contaminants from raw water to produce water that is pure enough for human consumption without any short term or long term risk of any adverse health effect. Substances that are removed during the process of drinking water treatment include suspended solids.

(2) Source of water – water is a natural resource which is necessary for life. It is available in various sources like rivers , streams , lakes and oceans . Through the last century, fresh water has been depleted enormously due to the explosion of human population and eco-unfriendly activities. The disposal of human waste in water bodies causes severe threats to the environment which affects all kinds of living organisms. In order to save water bodies, we need to understand the sources of wastewater and its polluting components.



(3) Importance of water treatment plant – water treatment facility are designed to speed up natural process of purifying water . With billions of people and even more wastewater ,the natural process is overloaded. Without waste water treatment , the amount of wastewater would cause devastation as it still does today in developing countries. Globally, Over 80% of all wastewater with discharge without treatment . in the countries that do have Water treatment facilities ,they used various methods to treat water with one common goal : purify water as much as possible and send it back into the environment to keep humans and the Earth safe and thriving.

(4) Methods of water treatment in plant -

- (1) **Flocculation** - After rapid mixing, the water flows into flocculation basins, where the flow of water is slowed and the floc has time to grow bigger.
- (2) **Sedimentation** - Next, the water flows into sedimentation basins,



where the heavy floc particles sink to the bottom and are removed. These are also called Clarifiers. There were 3 Clarifiers at KWSB. Scrappers are moved once a day used to remove the settled down sediments.



(3) **Filtration** - The water travels through large filters made of sand, gravel, and anthracite. Filtration removes any remaining microscopic particles and microorganisms. Upper part of filter bed is Sand Filled/Fine Grained particles, and Lower part comprises of Rock particles. They are used to filter impurities. At the base there are receivers in which filtered water is collected.

(4) **Chlorination / Disinfection** -i Finally, the water is



disinfected to protect it against bacteria. Charleston Water System uses chlorine dioxide and a combination of chlorine and ammonia called chloramines to disinfect the water. Fluoride is also added support good dental health.

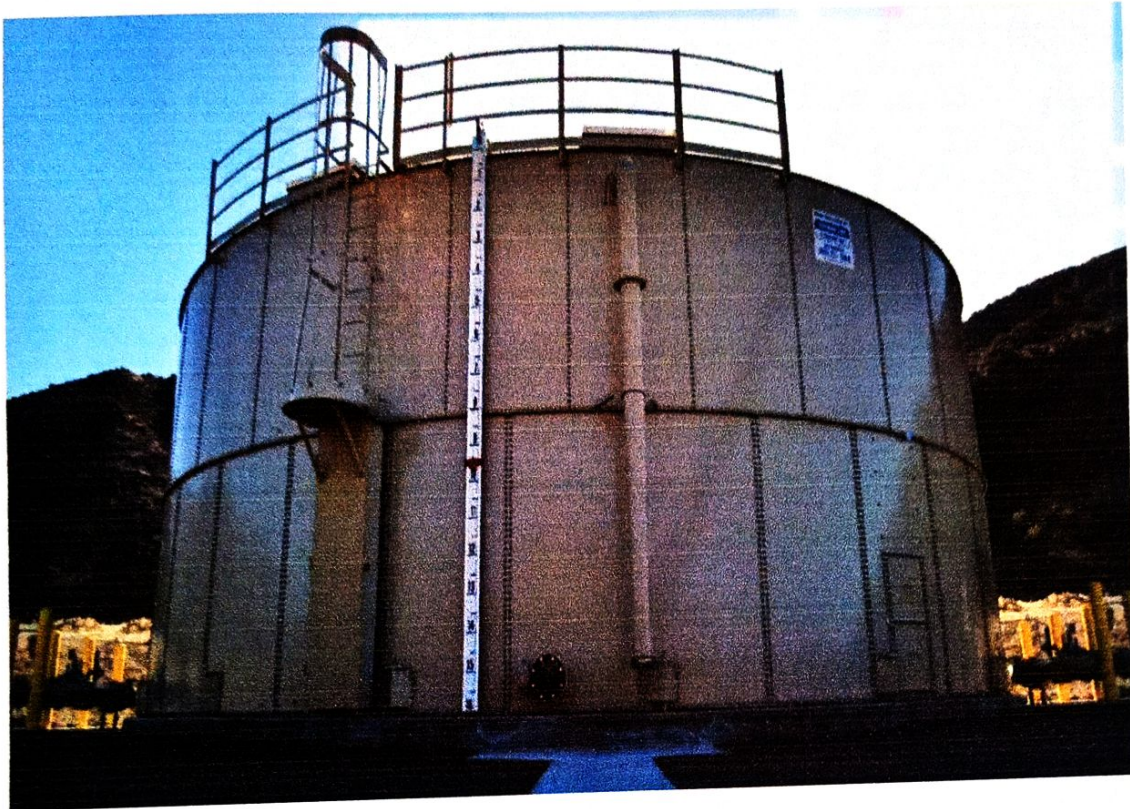
In COD water treatment plant gaseous Chlorine is used. The cylinders contain 1/3-part infused pressure, and 2/3-part Liquid Chlorine. 500-600kg is the empty weight and 1100kg is the cylinder weight when Chlorine is filled. The cylinders are refilled and operated manually to mix Chlorine with impure water. Since Chlorine will evaporate while mixing in water, hence it is already mixed with water to reduce the loss of Chlorine while mixing.



(5) Storage And distribution - After the water is treated, it is stored in an underground reservoir at the plant. The clean water is then pumped into pipes that deliver it to more than 110,000 homes and businesses in Karachi City.

(5) Advantages of water treatment plant -

- (1) Capable of removing 97% of suspended solids.
- (2) Biological nitrification Without adding chemicals .
- (3) Oxidation and nitration achieved .
- (4) Biological phosphorus removal .
- (5) Solids and liquid separation.
- (6) Removes Organics.
- (7) Cost effective.
- (8) Easily maintained Mechanical work .
- (9) Self sustaining System.



(6) Disadvantages of water treatment plant -

- (1) Cleaning Is a hassle.
- (2) Most plants need at least three tanks .
- (3) Temperature Changes affects the tanks greatly.

- Activated sludge is a suspended process , and a suspended process is when the biomass is mixed with the sewage . The other secondary process is a fixed film process . This is when the biomass grows on the media and the sewage passed over the surface . Types of system include Trickling Filters and rotating biological contractor .

(7) Conclusion-

It is expected:

- That the water treatment plant total removal reaches about 85% of contaminants (DBO5, DQO y SST) and together with the tertiary system up to a 95%.
- Meat production increase.
- Sub product production increase.
- Better quality products .
- Health concerns diminishes.
- Food security guaranteed and sustainability.
- Contributions to cope with climate changes (aquifer recharge) and *treatment* of residues.
- Cattle farmers will strengthen their technological capacities as well as business and *organizational*.
- Water will meet standards to be used in farm land.
- Less volatile substances to produce safety concerns.
- Project with few residues and more cleaner production
Emmployment generation.

