

Automatic Wastewater treatment process to reduce global warming

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ABSTRACT

The present project deals with the automatic cleaning of waste water in order to prevent global warming and melting of glaciers. The statistical data on rivers clear indication of day by day increasing pollution level of the Rivers, which is creating negative environmental impact on biological life of the rivers and increasing global warming which leads melting of glaciers. The results emphasize the need of waste water treatment plants, through which the water is treated before suspending in rivers. In our project there will be no need of external power supply, firstly the power is generated and this generated power is used for waste water cleaning process. The process performs the cleaning of water in 4 different stages; the water cleaned through this process will be capable of discharging in rivers or else can be used for agriculture purpose and clean water will reduce the effect of global warming and it prevents the melting of glaciers.

1. INTRODUCTION

In water resource engineering, sewage treatment is the process of removing contaminants from waste water, household sewage, domestic, commercial and institutional sewage it includes physical, chemical and biological process to remove physical, chemical and biological contaminants from sewage water.

Our research and proposals includes many aspects of water resource engineering which have direct effect on the environment and national development they can be listed as follows:

1. Hydropower development to provide renewable energy in order to support economic development.
2. Adaptation of water supply system (irrigation system, reservoir operation guidelines) to face the challenges due to global climate change.
3. Water demand and allocation priority to respond irrigation, domestic, industrial, municipal needs.
4. Safe pure water is suspended in water resources (rivers, lakes, etc) which will be safe for the environment and prevent global warming which reduce the melting of glaciers.

2. AREA OF STUDY:-

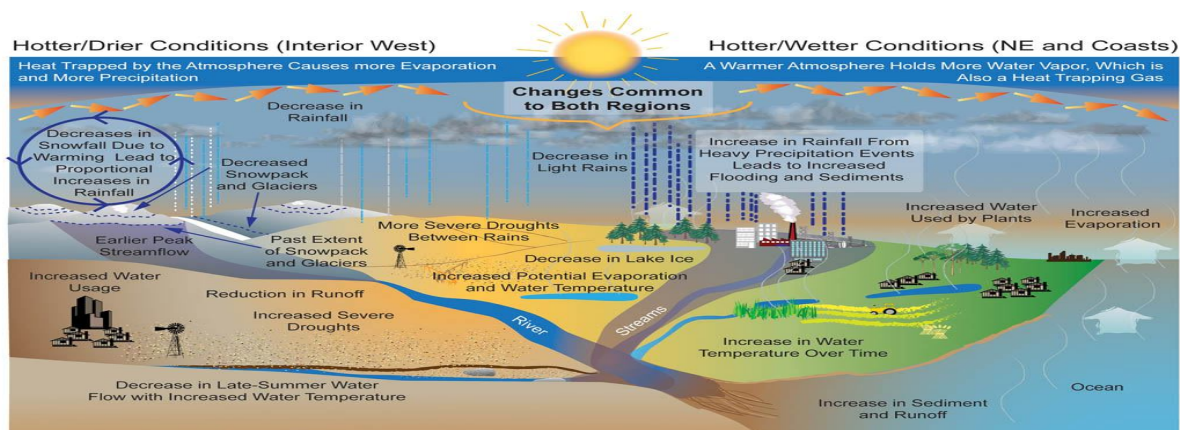


fig:-1

We find that major of the cities encompasses discharge of solid waste, organic waste, industrial waste, heavy metals, oils and tar in the river. This discharge point is surrounded by many small scale industries including recyclers, barrel cleaners, workshops and other units. Illegal activities like washing of oily drums have resulted in discharge of unauthorized

hazardous waste which is carried out along the bank of the rivers. This part of the river is a dumping ground for garbage and it is reflected in higher values of suspended solids. The present idea gives a new approach for contaminant removal which prevents the global warming, the present process is an automated process in which the contamination removal takes place from macro-level to micro-level and the obtained water is suspend able in river as well as can be taken for domestic use.

3. Flowchart

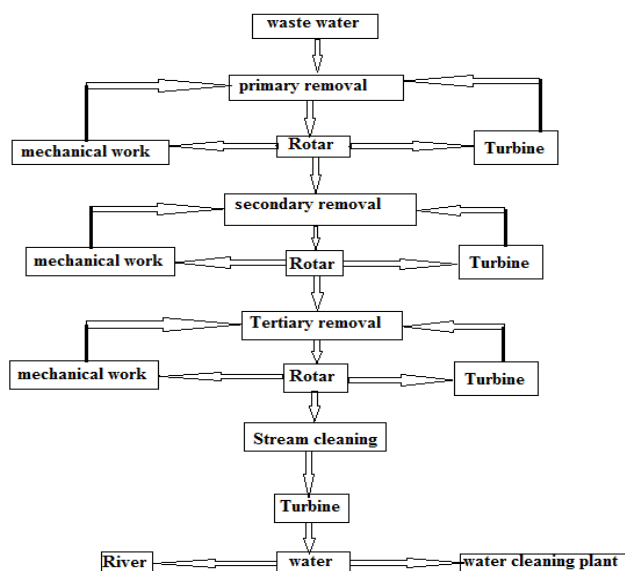


FIG.2:- flowchart for the process.

4. Automatic removal process

Step1:- The waste water enters into primary removal process where the solid and macro-level waste ranges from 4inches to 2meters collects in front of screen. This screen is continuously cleaned by circular rotor.

Step2:- The water falls over rotor assembly, the rotor assembly connected with transmission system from which the power is supplied to circular collector which is sated over primary removal stage, the circular collector collects all the solid and macro-level waste, the goal of this step is to allow only water to fall over the rotor, on the other side the turbine is connected with rotor by perfect gear ratio, which generate electricity which will be usable for the water treatment process as-well-as other purpose. This automated removal process remove the macro level waste continues just need required maintenance of machines.

Step3:- The primary treated water enters into secondary removal process where again the waste removal process carried out which remove the remained solid waste ranges between 4inches to 0inches from the primary process, the mechanical and power generation runs continually as in primary process.

Step4:- After secondary treatment the water enter in to tertiary removal process where the oil, soap scum, grease collectively known as scum removed out by the proper combination of mechanical and electrical equipments.

Step5:- After tertiary removal process the tertiary treated water enters into stream cleaning process where the water is allowed to pass through stream, in this the macro-level organic matter settle down due to effect of gravity and water enters into biological treatment process in this the treatment is achieved by microbes consuming the organic matter as food, and converting it to carbon dioxide, water and energy for their own growth and reproduction.

Step6:- After stream and biological treatment process the water is allowed to fall over turbine to generate electricity. The water is suspendable in river as-well-as it can be usable for day to day life after chemical treatment.

Step7:- Then the water is treated in well running plant where 85% suspended solids and body can be removed and after chemical treatment it can be useful for household purpose.

5. Preliminary treatment

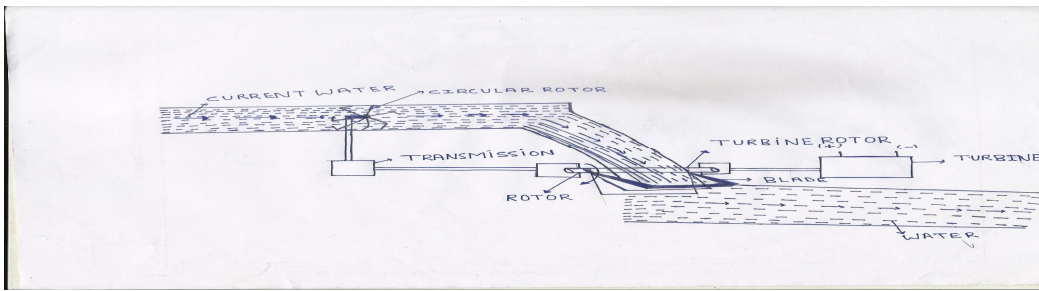


Fig:-3 Primary removal:-

The primary removal is take place to remove gross, suspended and floating solids from raw sewage. It includes screening to trap solid objects and sedimentation by gravity and circular roller collector to remove suspended solids. This level is also called as “mechanical treatment”, Primary removal can reduce the BOD of the incoming wastewater by 20-30% and the total suspended solids by some 50-60%. Primary treatment is usually the first stage of wastewater treatment. The primary treatment devices are therefore designed to remove the large entrained, suspended or floating solids. These solid consists of piece of wood, cloth, paper, plastics, garbage, etc. On proper gear ratio 2000rpm of turbine can be achieved, which will generate the required electric power to run the electrical equipments to carry out cleaning process in drainage water on the other hand the mechanical circular rotor is driven by the power transmitted from rotor to circular or cleaning rotor. The transmission system makes the primary removal process automatic.

Secondary removal:-

The mechanism of secondary removal process is same as primary removal process (ref fig3). In secondary removal process the solid waste ranges between “o inches to 4inches” can be removed out from the drainage water.

Tertiary removal:-

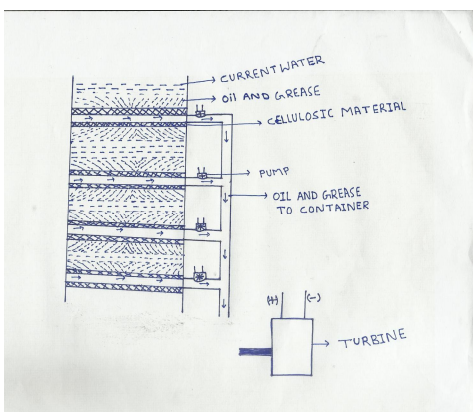


Fig:-4

In tertiary removal process the oil, grease and other light weight elements can be sucked out from the drainage water. An Oil absorbent cellulosic material is used to suck out the oil and grease from drainage water. The cellulosic material so treated is strongly oleophilic and hydrophobic and can absorb from 15 to 27 times its own weight of oil. the generated electricity from the turbine can be used to run the pumps in order to suck-out the oils, since the pressure inside sucking pump is higher than atmospheric pressure it can easily suck the oil from water, the sucked oil can be stored in container for the treatment process. The tertiary removal process cleans the water 70-85% by absorbing the oil, grease and other fatty elements from the water.

Secondary (biological) treatment:-

This removes the dissolved organic matter that escapes primary treatment. This is achieved by microbes consuming the organic matter as food, and converting it to carbon dioxide, water, and energy for their own growth and reproduction.

Tertiary treatment:-

The tertiary treatment process is a simply additional treatment beyond secondary treatment. The Tertiary treatment can remove more than 99% of all the impurities from sewage, producing an effluent of almost drinking-water quality.

6. CONCLUSION

Global warming is an ever increasing problem of earth as glaciers are melting rapidly. There is an urgent need for some sort of solution for the problem. This project is not the 100% solution, but it will improve the condition up to a certain extend. The main object of the present project is to provide an assembly which may be used within a wastewater treatment facility. The source, which is going to be used, will always available hence; the process will be continuously going on. Hence we can say that the above project is one of the economic and suitable for the water treatment in order to reduce the global warming.

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7.REFERENCES

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