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IMPROVE

Integrated Microbial & Phyto-Remediation Of Various Effluents

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INTRODUCTION

IMPROVE is an advanced technology known as Integrated Microbial & Phyto-Remediation Of Various Effluents. This technology is an extended and advanced version of constructed wetland systems. This can be used to treat Sewage and Industrial Effluent Water as well.

IMPROVE technology is an engineered system that uses natural processes involving wetland vegetation, soils, and their associated microbial assemblages to improve water quality. It is designed to take advantage of many of the same processes that occur in natural wetlands, but do so within a more controlled environment.

Advantages of IMPROVE technology in wastewater treatment:

- **Low cost and energy efficiency:** IMPROVE technology is relatively inexpensive to build and operate, and they require very little energy.
- **High efficiency:** IMPROVE technology can be very effective at removing pollutants from wastewater, including suspended solids, nutrients, and pathogens.
- **Low maintenance:** IMPROVE technology is low-maintenance system, and it can be operated with minimal training and expertise.
- **Environmental benefits:** IMPROVE technology can provide a number of environmental benefits, such as wildlife habitat, flood control, and groundwater recharge.

It can be often used in conjunction with other wastewater treatment systems, such as septic tanks and aeration basins.

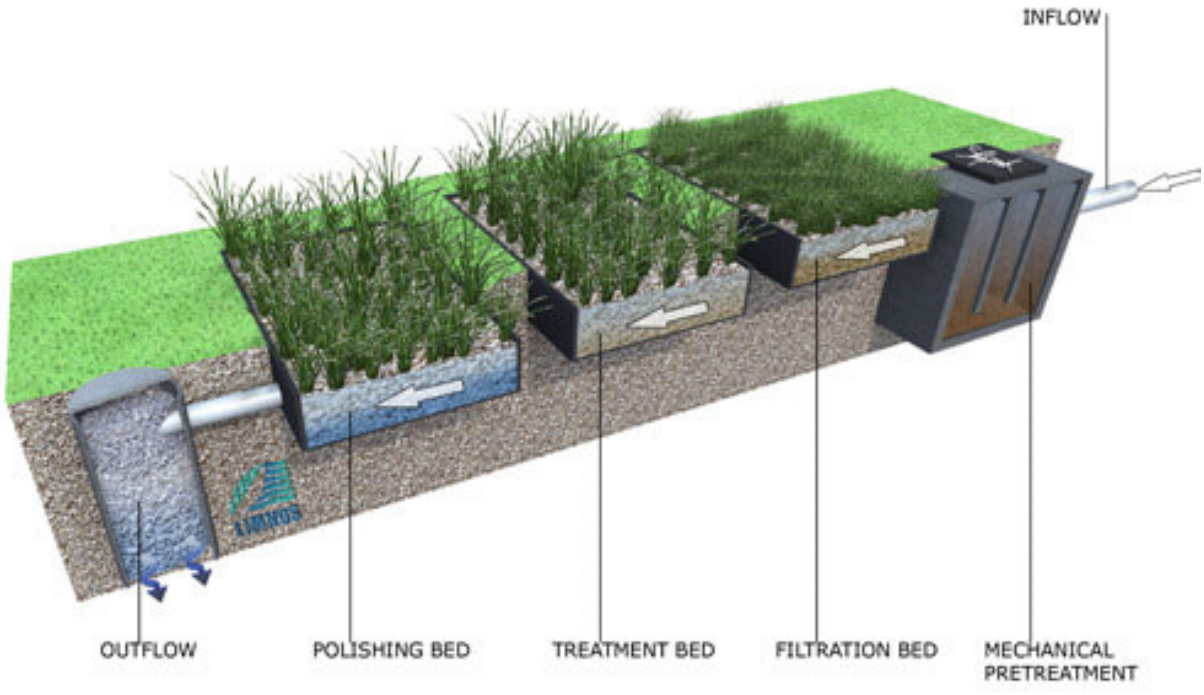
HOW IT WORKS ?

IMPROVE technology works by using a combination of physical, chemical, and biological processes to remove pollutants from wastewater.

Physical processes: Physical processes such as sedimentation and filtration remove suspended solids and large particles from the wastewater.

Chemical processes: Chemical processes such as adsorption and precipitation remove dissolved pollutants from the wastewater.

Biological processes: Biological processes such as biodegradation and assimilation remove pollutants from the wastewater by bacteria and plants.



APPLICATIONS

IMPROVE technology is a versatile and effective wastewater treatment technology that can be used to treat a variety of wastewater types and achieve a variety of water quality goals

01

STP Water Treatment

Municipal wastewater and Industrial STP wastewater: Constructed wetlands are being used to treat municipal wastewater from small towns and villages, industries where huge amount of sewage water is produced on daily basis.

02

Industrial Wastewater Treatment

Constructed wetlands are being used to treat industrial wastewater from a variety of industries, including food processing, paper and pulp, and textile mills

03

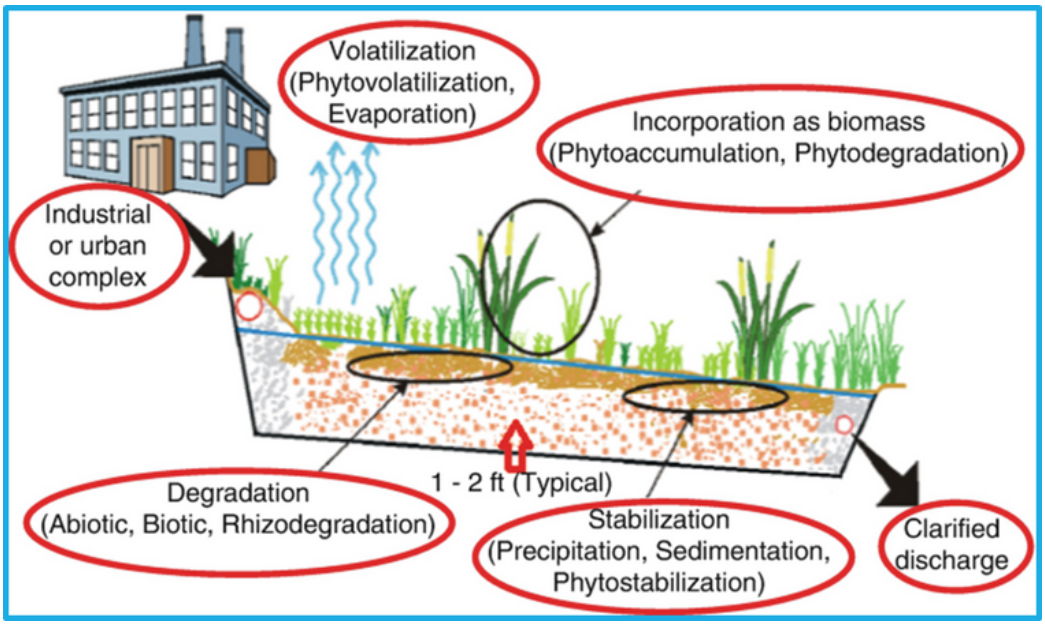
Agri, Mining and Others

Constructed wetland also help in treatment of agricultural runoff wastewater, Mining wastewater and other water like storm water etc.

MECHANISM

The mechanism works based on Ecological Design, Interaction of plants and microbes and integrated treatment.

- Combination of Biotic and Abiotic systems, plants and microbes, and interaction of all of them.
- Completely natural. No usage of Chemicals and Electricity.
- Phyto-remediation helps in reducing the nutrients from wastewater.
- Microbial films in the sub-surface reduce the complex pollutants for better absorption by plant roots.
- The microbial treatment and Phyto-remediation is integrated in the subsurface.
- The system is based on the specific plants, such as Elephant grass (*Pennisetum purpurem*), Cattails (*Typha sp.*), Reeds (*Phragmites sp.*), Cannas sp. and Yellow flag iris (*Iris pseudocorus*), normally found in natural wetlands with filtration and treatment capability. Some ornamental as well as flowering plants species such as Golden Dhuranda, Bamboo, Nerium, Colosia, etc. can also be used for treatment as well as landscaping purposes
- Hydraulics is maintained in the sub-surface to tackle the odor problem.



MECHANISM

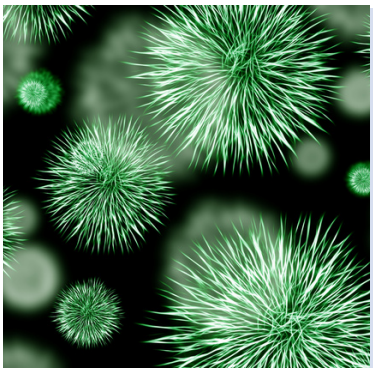
Pollutants removal mechanism in IMPROVE Technology

Suspended & Dissolved Solids

- Sedimentation
- Filtration
- Plant absorption
- Aerobic Microbial Degradation
- Anaerobic Microbial Degradation

Inorganic Pollutants

- Plant uptake
- Matrix Sorption
- Denitrification
- Ammonification



Metals & Pathogens

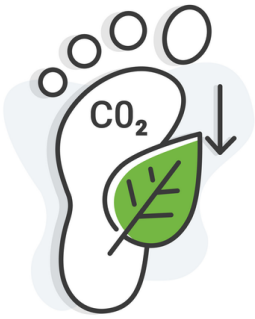
- Adsorption
- Precipitation
- Filtration
- Predation
- Natural die-off
- UV irradiation

Combination of all these mechanisms remove various pollutants from wastewater in the given residential time.

CARBON CREDITS

IMPROVE technology increases the carbon credentials of your industry. The green spaces act as oxygen machines and microclimatic zones.

Reduces Carbon emissions
Reduces Carbon Footprint



No Electricity is required
Reduced Maintenance Cost

SDGs Concerned

IMPROVE TECHNOLOGY

IMPROVE technology is a very advanced technology that just mimics the nature to treat the wastewater.

This is an STP that never looks like an STP

It looks like a beautiful garden with colorful flowers

No odor. No sludge. No scum. No dirtiness.

Reduce your pollution potential..!
IMPROVE your carbon credential..!

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