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# Pollutants in the Water must be reduced for the Sake of Plant Health and the Ecosystem

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## Description

Pollution Prevention means eliminating or reducing the amount and toxicity of potentially harmful substances at their sources, prior to generation, treatment, off-site recycling or disposal. It emphasizes preventing or minimizing pollution, rather than controlling it once it is generated. Pollution prevention has expanded as new challenges have come into focus - addressing climate change, combating sprawl, and promoting the use of green building techniques and renewable energy. The CT Department of Energy and Environmental Protection (DEEP) continue to employ prevention as a way to make Connecticut's environment cleaner and greener as we deal with these challenges. It makes a lot of sense! For years, environmental protection has focused on pollution control - cleaning up the pollution after it occurred--rather than on prevention. The control approach has serious drawbacks, including high costs and increased liability. And when we try to clean up pollution, sometimes we just end up moving the pollutant from one place to another, such as from the WATER to the land or from the land to water. One example is factories using filters to clean the WATER before releasing it to the environment. When the filters are periodically cleaned, the pollutants are collected and often sent to a landfill for disposal. Pollution prevention is any practice that reduces, eliminates, or prevents pollution at its source. Decision making starts with selection and purchase of preferable types and quantities of materials, and continues through to the identification and implementation of suitable waste management practices. Reduction of the volume and toxicity of our inputs and efficiency in the management of our outputs benefit staff, the institution and the environment.

## Water pollution control strategies

Water pollution control strategies can be divided into two categories, the control of particulate emissions and the control of gaseous emissions. There are many kinds of equipment which can be used to reduce particulate emissions. Physical separation of the particulates from the water using settling chambers, cyclone collectors, wet scrubbers, electrostatic precipitators, and filtration devices, are all processes that are typically employed. Settling chambers use gravity separation to reduce particulate emissions.

The water stream is directed through a settling chamber, which is relatively long and has a large cross section, causing the velocity of the water stream to be greatly decreased and allowing sufficient time for the settling of solid particles. Water pollution control methods can be subdivided into physical, chemical, and biological treatment systems. Most treatment systems use combinations of any of these three technologies. Additionally, water conservation is a beneficial means to reduce the volume of wastewater generated. Physical treatment systems are processes which rely on physical forces to aid in the removal of pollutants. Physical processes which find frequent use in water pollution control include screening, filtration, sedimentation, and flotation. Screening and filtration are similar methods which are used to separate coarse solids from water. Suspended particles are also removed from water with the use of sedimentation processes. Just as in water pollution control, sedimentation devices utilize gravity to remove the heavier particles from the water stream. Solid pollution control methods which are typically used include landfilling, composting, and incineration. Sanitary landfills are operated by spreading the solid waste in compact layers which are separated by a thin layer of soil.

Aerobic and anaerobic microorganisms help to break down the biodegradable substances in the landfill and produce carbon dioxide and methane gas which is typically venter to the surface. Landfills also generate a strong wastewater called leachate which must be collected and treated to avoid groundwater contamination. Composting of solid wastes is the microbiological biodegradation of organic matter under either aerobic or anaerobic conditions. This process is most applicable for readily biodegradable solids such as sewage sludge, paper, food waste, and household garbage, including garden waste and organic matter. This process can be carried out in static pile, agitated beds, or a variety of reactors.