

"Industrial Hemp: The Green Revolution in Phytoremediation Unleashed"

The outcome of the development of industrialization and urbanization is the abundance of heavy metals in the environment. As heavy metals are non-biodegradable, they persist in the environment, have the potential to enter the food chain through crop plants, and eventually may accumulate in the human body through biomagnification.

Phytoremediation is an eco-friendly approach to mitigation measures, to revegetate heavy metal-polluted soil in a cost-effective way. Phytoremediation is a low-risk and attractive cleanup method. Cleanups cause little disruption to the site or surrounding community. Fences and other barriers are constructed to keep wildlife from feeding on contaminated plants. Initial work may involve grading or tilling of the soil with earth-moving equipment, and backhoes may be needed to plant trees and large shrubs making a site more attractive than removal or other construction-based solutions. In addition, the site can be cleaned up without digging up and hauling soil or pumping groundwater, which saves energy. Trees and smaller plants used in phytoremediation help control soil erosion, make a site more attractive, reduce noise, and improve surrounding air quality

As humans have known for thousands of years, hemp is a plant that boasts abundant industrial, nutritive and medicinal properties. You can eat its seeds, treat pain and inflammation with its oils and make clothing, rope and paper from its fibers. And now, in the 21st century, we're discovering that Hemp is a hardy plant that grows like, well, a *weed*, just about anywhere. *Cannabis sativa* is more commonly known as industrial cannabis or Industrial hemp. This species is a low THC (below 0.3%) variety that is known for its dynamic uses in numerous industries and ability to support agriculture and carbon sequestration. Industrial Hemp has been shown to sequester from 4 to 12 tons of aCO₂e (atmospheric CO₂ equivalent) per acre based on the variety and growing climate. It's been grown at altitudes over 9000 ft, and in nearly every climate inhabited by humanity.

It produces a relative abundance of bushy biomass in a short period of time. Its relatively deep and extensive root structure, unusual for an annual plant, allows it to probe widely through contaminated soil and to access extensive groundwater. The root structure also allows for the soil to aerate and generate more efficient water distribution, support for organisms that are vital to soil health and retain sequestered atmospheric carbon. As the soil recovers over time the process of phytoremediation becomes more efficient as hazardous chemicals are removed and replaced by essential nutrients to the soil biome allowing for increased biodiversity. It is also naturally resistant to insect predators, thus obviating the need for pesticides.