

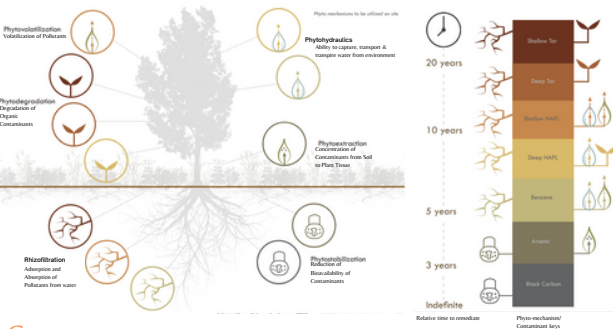


Phyto-remediation

Phyto derived from the word plant; remediation as an action to correct & cause decontamination. An environmental & eco-friendly plant-based approach (bioremediation) that purifies or removes the elemental pollutants such as cadmium (Cd), mercury (Hg), lead (Pb), arsenic (As), zinc (Zn), copper (Cu), nickel (Ni), and chromium (Cr) that are accumulated in soil (groundwater included) and water (surface run-off) through detoxification process, thus the cellular concentrations of heavy metals are able to maintain below the toxicity threshold levels.

Plant selection

Phytoremediation plants species have certain characteristics that enables it to undergo such process and each of them are known to carry out phytoremediation through particular strategies.

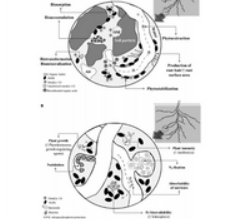


Strategies

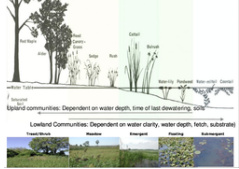
Study shows that phytoextraction is the most commercial application as it is a permanent solution compared to phytostabilization

Context

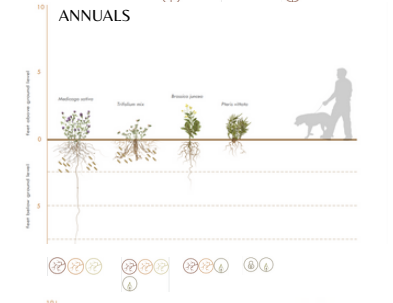
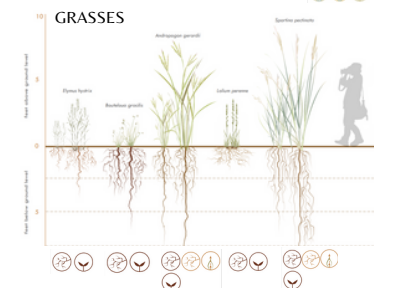
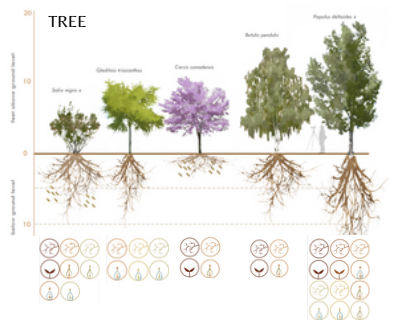
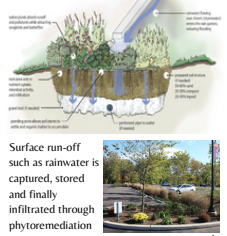
Legumes



Constructed Wetlands



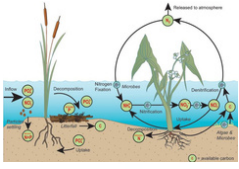
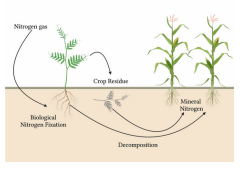
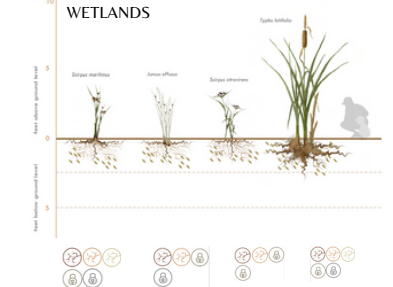
Rain Garden



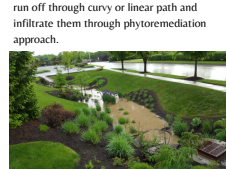
In agriculture field, symbiotic relationship between legumes (plant) and rhizobia (bacteria) with plant growth promoting rhizobacteria as catalyst (PGPRs). Heavy metal pollutants are purified to increase the bioavailability of metal which is beneficial to the growth of legume plants and the neighbourhood plants.

- Class I: Open, Concentration of natural environment
 - Class II: Concentration of natural environment, Water Quality is moderate to treatment necessary
 - Class III: Water Quality is Concentrated treatment
 - Class IV: Sensitive aquatic species
 - Class V: Recreational use body system
- Water Quality is: Extreme treatment required
- Phytoh - Common, of economic value and tolerant species, fast-track drainage
- Phytoh - None of the above

Bioswale



Phytoremediation has proven that, by utilizing the natural resources which is plants, the polluted environment can be treated eventually in an economically feasible way. Human has implemented this method in designing a green landscape like park whereby not only it is beneficial to community due to its recreational value but also the wildlife for the source of food as well as a secondary habitat.



Native plant species are preferable to be selected as it provides added benefits to the pollinator value and wildlife habitat introduction.