

Phytoremediation Alternative for Landfill Leachate Sludges Doña Juana Bogotá D.C. Colombia Treatment

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Abstract : According to global data, solid waste management of has low economic investment for its management in underdeveloped countries; being the main factor the advanced technologies acknowledge for proper operation and at the same time the technical development. Has been evidenced that communities have a distorted perception of the role and legalized final destinations for waste or "Landfill" places specific management; influenced primarily by their physical characteristics and the information that the media provide of these, as well as their wrong association with "open dumps". One of the major inconveniences in these landfills is the leachate sludge management from treatment plants; as this exhibit a composition highly contaminating (physical, chemical and biological) for the natural environment due to improper handling and disposal. This is the case Landfill Doña Juana (RSDJ), Bogotá, Colombia, considered among the largest in South America; where management problems have persisted for decades, since its creation being definitive on the concept that society has acquired about this form of waste disposal and improper leachate handling. Within this research process for treating phytoremediation alternatives were determined by using plants that are able to degrade heavy metals contained in these; allowing the resulting sludge to be used as a seal in the final landfill cover; within a restoration process, providing option to solve the landscape contamination problem, as well as in the communities perception and conflicts that generates landfill. For the project chemical assays were performed in sludge leachate that allowed the characterization of metals such as chromium (Cr), lead (Pb), arsenic (As) and mercury (Hg), in order to meet the amount in the biosolids regard to the provisions of the USEPA 40 CFR 503. The evaluations showed concentrations of 102.2 mg / kg of Cr, 0.49 mg / kg Pb, 0.390 mg / kg of As and 0.104 mg / kg of Hg; being lower than of the standards. A literature review on native plant species suitable for an alternative process of phytoremediation, these metals degradation capable was developed. Concluding that among them, *Vetiveria zizanioides*, *Eichhornia crassipes* and *Limnobium laevigatum*, for their hiperacumulativas in their leaves, stems and roots characteristics may allow these toxic elements reduction of in the environment, improving the outlook for disposal.

Keywords : health, filling slurry of leachate, heavy metals, phytoremediation

Conference Title : ICWEEM 2015 : International Conference on Water, Energy and Environmental Management

Conference Location : Paris, France

Conference Dates : May 18-19, 2015