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Comparative study of the environmental risks associated with construction and demolition waste deposits

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Any contingency that is considered to cause deterioration or destruction of the environment must be considered an environmental risk. Its evaluation allows estimating the way, magnitude and particular characteristics of a probable environmental damage.

In the case of construction and demolition waste deposits (WCD), an effective environmental management has as a fundamental link the evaluation of the environmental risk, which will be identified according to the frequency and probability of occurrence and the seriousness of the consequences once produced. Its recognition and registration represents the integration stage that makes it possible to determine it quantitatively with the objective of applying the occasional preventive measures to avoid the imminent potential danger that, due to exposure, would produce adverse effects and whose intensity and duration will bring undesirable consequences.

Furthermore, an efficient management of this waste should begin in the very first stage of the work, carrying out a simple classification of it as reusable, recyclable on site, recyclable off site and non-reusable [1].

In any case, the presence of these discarded materials, scattered on the surface of a soil, modifies its morphological characteristics and with it the ephemeral or permanent alteration of the different physicochemical processes, as well as those inherent to the ecosystem and its biological diversity.

On the other hand, a high and sustained load of pollution agents in the soil can exceed the retention, fixation and adsorption capacity, given the properties of each particular soil, and be available to be transported to groundwater. However, the agents involved can be chemical, physical, biological, forms of energy; and also be released into air, soil or surface water resources [2].

Thus, the objective of this work was the quantitative comparison of the physicochemical characteristics of a base soil with its contaminated counterpart ten years ago and its current leachate, which were called A0, A10 and A22 soil, respectively.

Having selected and prepared the samples for analysis, the materials were characterized and the risks that they could cause were assessed. The soils that were modified by the presence of WCD were affected in terms of the different residence times, since they presented evident, considerable and interesting variations respect to the soil taken as reference, A0, whose sample was not altered in terms of density, pH, salinity, ion exchange capacity, organic matter content, development of microorganisms, among others.

References

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2. Lizarazo, M.F. et. al. (2020). Contamination of staple crops by heavy metals in Sibaté, Colombia. *Heliyon*, 6(7).