

Alternatives to the Disposal of Sludge from Water and Wastewater Treatment Plants

Authors : Lima Priscila, Gianotto Raiza, Arruda Leonan, Magalhães Filho Fernando

Abstract : Industrialization and especially the accentuated population growth in developing countries and the lack of drainage, public cleaning, water and sanitation services has caused concern about the need for expansion of water treatment units and sewage. However, these units have been generating by-products, such as the sludge. This paper aims to investigate aspects of operation and maintenance of sludge from a wastewater treatment plant (WWTP - 90 L.s-1) and two water treatment plants (WTPs; 1.4 m3.s-1 and 0.5 m3.s-1) for the purpose of proper disposal and reuse, evaluating their qualitative and quantitative characteristics, the Brazilian legislation and standards. It was concluded that the sludge from the water treatment plants is directly related to the quality of raw water collected, and it becomes feasible for use in construction materials, and to dispose it in the sewage system, improving the efficiency of the WWTP regarding precipitation of phosphorus (35% of removal). The WTP Lageado had 55,726 kg/month of sludge production, more than WTP Guariroba (29,336 kg/month), even though the flow of WTP Guariroba is 1,400 L.s-1 and the WTP Lageado 500 L.s-1, being explained by the quality that influences more than the flow. The WWTP sludge have higher concentrations of organic materials due to their origin and could be used to improve the fertility of the soil, crop production and recovery of degraded areas. The volume of sludge generated at the WWTP was 1,760 ton/month, with 5.6% of solid content in the raw sludge and in the dewatered sludge it increased its content to 23%.

Keywords : disposal, sludge, water treatment, wastewater treatment

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020