A POTENTIAL LOW-COST METHOD TO BENEFICIATE EPPAWALA PHOSPHATE USING THE NATURALLY OCCURRING SULPHURIC ACID-RICH WATERS OF THE MUTHURAJAWELA PEAT DEPOSIT

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The mineral pyrite is found in abundance in the water-covered peat beds of Muthurajawela. This mineral also forms due to the reduction of sulfate-rich sea waters reaching the peat deposit. The villagers of Muthurajawela have excavated the pyrite-rich beds and brought the material to the surface to make islands, in an otherwise inundated terrain, which are suitable for the construction of their dwellings. These man-made islands are subjected to tidal flushing arriving through a man-made channel connected to the open sea. Measurements of the acidity of the interstitial waters associated with peat of the intertidal and supratidal regions of the man-made islands have indicated values ranging from 2 to 5.5. A plot of Eh vs pH of such interstitial waters also reveals that the values fall in a region characteristic of the formation of sulphuric acid-rich waters resulting from oxidation of pyrite.

Selected samples of poorly soluble Eppawala phosphate were buried in pre-determined highly acidic localities of the Muthurajawela peat deposit for fixed lengths of time. The preliminary analysis of samples treated with sulphuric acid-rich interstitial water of the peat indicated significant variations of water solubility and slight changes in citric acid solubility. Further studies are being undertaken by changing and monitoring the various parameters so as it further enhance the solubilities.

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