

Sand resources in marine environment - off Southwest coast of Sri Lanka

K. Amalan, N.P. Ratnayake* and S. Weerawarnakula

Department of Earth Resources Engineering, University of Moratuwa, Sri Lanka.

Inland sand reserves have been severely depleted in Sri Lanka leading to sky rocketing construction costs. The best alternative is to look for offshore sand resources. Therefore, this study focused on prospecting construction sand resources in the offshore Galle area. However, the continental shelf sand is usually rich in valuable heavy minerals such as Ilmenite, Rutile and Monazite. Therefore, studies would also investigate the heavy mineral prospects in the offshore sand. For this study, collected bottom sediments using Nansen type grab sampler from a 500 m × 500 m grid and tested the suitability for construction purposes using sieve and shaker according to BS 812: Part 1: 1975. In addition, heavy mineral potential was also investigated using petrographic microscope.

Results show existence of significant offshore sand resources with suitable grain size and texture in water depths of more than 18 m ideally suiting to mine without adversely affecting the nearby beaches. In addition, the petrographic analysis revealed significant presence of heavy minerals ranging from 0.03% to 16.86% (average 2.23%). Three main isolated regions have high potential for heavies and they are probably associated with buried river channels. Individual heavy mineral make up shows the abundance of Ilmenite mainly with Zircon and traces of Monazite, Garnet and Rutile.

Keywords: construction, offshore sand, heavy minerals, Galle, Sri Lanka

*Corresponding author e-mail: nalinratna2010@gmail.com