

**THE POSSIBILITIES OF REPLENISHMENT AND SOUTHWARD
EXTENSION OF *PULMODDAI* MINERAL SAND BELT,
SRI LANKA: PRELIMINARY PHASE**

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Techno-economically minable mineral sand deposit of *Pulmoddai* is extended about 7.2 km along the beach from *Arisimale* to *Kokkilai* lagoon mouth of northeastern Sri Lanka. Since the global demand for heavy minerals is increasing, the new expanses for mineral deposits should be investigated. In this background, present study investigated the mineralogical characteristics of sediments that are presently available at extracted areas of *Pulmoddai* in order to check the replenishment possibility and *Thiriyai* area, about 5 km southward from the present minable deposits to examine the extension possibilities. At this initial phase of the study, powder X-ray diffractometry (XRD) and grain counting techniques were applied on total sediments collected from both locations and compared the characteristics with general published data of Lanka Mineral Sands Limited, *Pulmoddai*. The heavy mineral sands recognized by means of XRD results in both places are zircon, monazite, rutile, and ilmenite. The original minable deposit of *Pulmoddai* indicated 70-80 % of heavy mineral contents whereas that of already extracted area and *Thiriyai* area shows 48.45% and 24.98 % respectively. Already extracted area of *Pulmoddai* is mainly composed of monazite, zircon, rutile, ilmenite, and quartz with average percentages of 5.82, 23.79, 5.21, 15.09 and 51.55 respectively. Those average mineral percentages of *Thiriyai* are 4.62, 13.08, 1.33, 5.95 and 75.02 respectively. The zircon contents of both locations indicate higher values than the average (8-10%) of the minable deposit whereas ilmenite (70-75%) and rutile (8-10%) indicate lower values. The current pattern and the energy of waves would have been the reason for the above changes which need to be measured and confirmed. The results indicate a very little possibility for extractable heavy minerals towards the southward beach of the *Pulmoddai* deposit. In addition, the refilling nature also negligible for a period of couple of months and it is recommended and needed to monitor the refilling nature for a long-time period. Hence the study suggested getting the maximum usage and profits from the present deposits by developing the quality of the exporting materials.

Keywords: Mineral Sands, *Pulmoddai*, Mineralogy, Extensions, Replenishment