



Study on the Pumped Materials along Rail Bed in Taiwan

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The Neiwan Line is a railway branch line in Taiwan operated by the Taiwan Railways Administration. It is located in Hsinchu County. This line was completed on 11 September 1951. Although this line is a branch line, its standards are comparable to those of a main line except that it is not electrified. The materials for constructing railway subgrade were general in-situ topsoil which deposited in Pliocene. This line suffers the subgrade mud pumping frequently. Railway subgrade mud pumping is one of the most common defects on railway constructions. Most cases of the pumping phenomenon are caused in mud, say silt or ML in USCS. However, field observation and loggings show that not only silt but also other kinds of soil, such as sand or clay, pump as well in this study. Thirty pumping samples were collected in a sectional zone which length is about 12km. In the 30 samples, 12 ones are Sand, 10 ones are Silt, 6 ones are Clay, and 2 ones are Gravel. Under very similar conditions, such as natural geological material, train operations, the reasons why different soil caused pumping is well discussed in this paper.