

# THE USE OF RATTAN AS A SOIL REINFORCING ELEMENT FOR SOIL REINFORCED WALL

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## ABSTRACT

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The use of rattan technique in soil mechanics is a recent development in the design and construction of foundations and earth-retaining structure. Reinforced earth is a construction material comprising soil that has been strengthened by tensile element such as metal rods or strips, nonbiodegradable fabrics (geotextiles), and geogrics, but now with new techniques by using rattan as a tensile elements. Although fundamental idea of rattan in soil is new, it still goes back to biblical times.

Rattans are spiny climbing palms in the tropical forest that can attain length of over 185 meters. According to my laboratory test with an apparatus name “Tensile Unit Test” (refer to Figure 9 at appendix K), the maximum tensile strength that 16mm diameter rattan can carry is up to 193.85 MN/m<sup>2</sup>. The variations of tensile strength are shown in Figure 8 at Appendix J. Because of its strength and flexibility, the stem of rattan suitable to use as reinforcement for earth.