

Sarawak Peat Characteristics and Heat Treatment

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 Date Received: 7 November 2014
 Date Published: 30 January 2015

Abstract - Peat layer is extensively scattered over the land of Malaysia. In Sarawak alone, peatland represents 13 percent (about 1.66 million hectares) of Sarawak's total land area. They are present, mostly in low-lying areas; with in some areas, peat exceeding 10 m in depth. During past few decades, the demands on development of land were expanded into the swamp and deep peat areas which cannot be avoided. Thus proper management and construction practices should be emphasized, in order to overcome consequential occurrence of ground subsidence problems. The objectives of this study are to determine the characteristics of Sarawak peat, their empirical correlations as well as the effect of heat treatment on peat. The samples were taken from Matang, Batu Kawa, and Kota Samarahan sites, in Sarawak. The characteristic tests consist of degree of humidification, loss on ignition, Atterberg limit, particle density, moisture content and pH value. The results recorded high moisture content and organic content of Sarawak peat. It is also being categorized under the hemic group with pH values ranging from 3 to 4. The heat treatments with temperatures ranging from 100°C to 400°C were used on the peat samples. Samples collected were undergoing heat treatment and changes to its physical characteristic were compared with the original Sarawak peat. It was found that the heat treatments do influence the physical properties of Sarawak peat and have shown significant reduction in the compression index determined through the empirical correlations.

Keywords: Sarawak peat, heat treatment, degree of humidification loss of ignition.

I. INTRODUCTION

PPEAT is defined as highly organic soil with the heterogeneous mixture of partially decomposed plant remains, with some contents of sand, silt and clay under damp and anaerobic condition. Obviously, the content of organic remains in peat is sufficiently fresh and undisturbed to permit identification of plant remains whose structure ranges from more or less decomposed plant remained to a fine amorphous mass. Approximately 1.7 million ha (13%) of the Sarawak State's total land area, are covered with peat [1]. This peat land is located in the primal lowlands and along the coast, usually situated 2 to 4 km inward. Most of Sarawak's peat lands are found in the central region of the State, specifically in Sibu Division, which roughly covers 70 percent of the division (refer Figure 1).

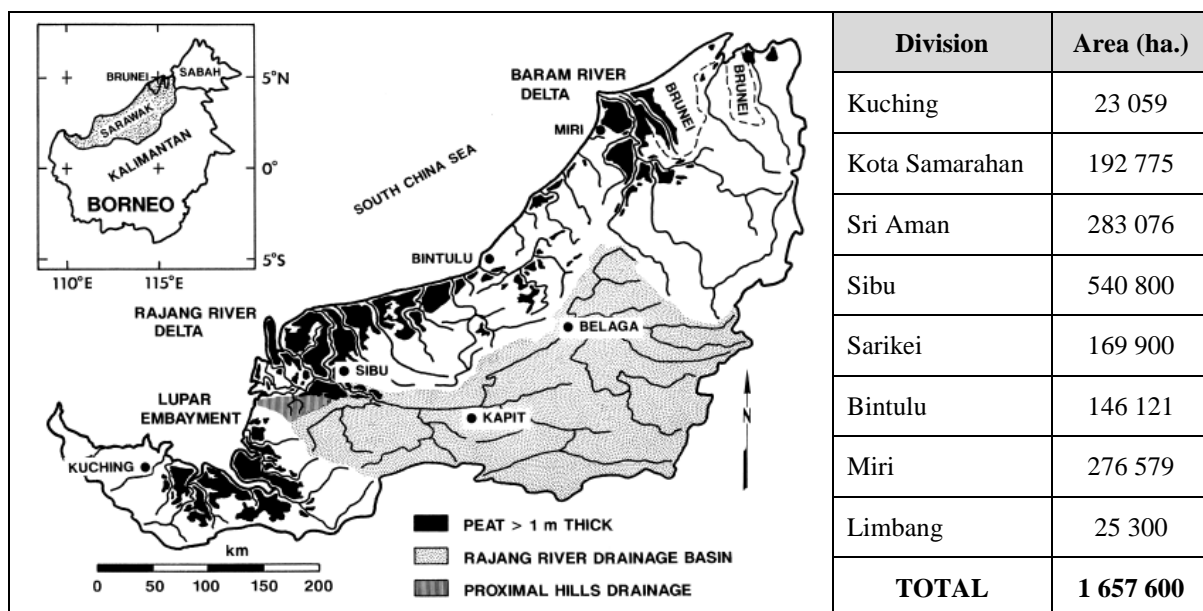


Figure 1 The distribution of peat in Sarawak [2]