

## **A mechanized system for log skidding using a "Winch-mounted steel sled" in the peat swamp forest of Malaysia**

### **ABSTRACT**

The soft peat soil pose a major problem to the use of heavy machinery for log skidding in the Peat Forest of Sarawak. Hence, in the past, the "kuda-kuda" system, a manual approach, remained the practical solution. However, increasing labour recruitment difficulties led to the need for an alternative system to the "kuda-kuda" such as the use of the "Winch mounted steel sled". However, information on the "Winch mounted steel sled" is still lacking. A continuous time study was therefore, conducted on log skidding using the "Winch mounted steel sled" in Bintulu, Sarawak, Malaysia. The objectives of the study were to describe the work components and quantify the production rate. The study identified four basic work elements in the skidding cycle which are travel empty, choke/winch, travel loaded and landing. Travel empty and travel loaded were the two largest elements accounting for 82% or more of basic skidding cycle time. Choke/winch and landing elements accounted for 12.6% and 4.6% respectively. The basic skidding cycle time only contributed 70.7% of gross cycle time due to the occurrences of delays (29.3%). Skid distance was the only independent variable found to influence skidding travel times. The production rate of the sled was 10.58 m<sup>3</sup> per hour which was higher than production rate of the "kuda-kuda". The study showed the "Winch-mounted steel sled" is a potential alternative to the "kuda-kuda" system for log skidding in the Peat Swamp forests of Sarawak.

**Keyword:** Log skidding; Mechanized system; Winch mounted steel sled; Peat swamp forest