Analisa Logistik Limbah Tandan Kosong Kelapa Sawit sebagai Bahan Baku Bioethanol di Provinsi Riau = Logistic Analysis of Palm Oil Empty Fruit Bunch as Feedstock for Bioethanol in Riau Province

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Abstrak

Biaya logistik secara signifikan dapat mempengaruhi harga TKKS sebagai bahan baku bioethanol generasi kedua, dimana bahan baku itu sendiri merupakan bagian terbesar komponen biaya operasional. Untuk itu diperlukan studi yang secara spesifik merancang rantai pasok biomassa serta mengkuantifikasi biaya transportasi. Pada penelitian ini, telah dikembangkan rancangan logistik untuk beberapa cluster yang masing-masing terdiri dari beberapa PKS (Pabrik Kelapa Sawit) untuk mensuplai pabrik bioethanol berkapasitas 50 kta di Provinsi Riau. Selanjutnya juga dilakukan kuantifikasi biaya logistik dengan mempertimbangkan jarak, jenis kendaraan, kondisi jalan, dan kondisi sumber TKKS. Biaya logistik terdiri dari harga TKKS (dari sumber), biaya transportasi dan biaya pra-perlakuan. Hasil penelitian ini, diharapkan mampu memberikan skema supply network yang optimal dan biaya yang layak dalam mendukung pengembangan bisnis bioethanol generasi kedua berbasis TKKS yang layak secara komersial. Skema tersebut adalah lokasi pabrik bioethanol harus berdekatan dengan pasokan bahan baku terbesar. Didapatkan 3 calon lokasi pabrik bioethanol berkapasitas 50kta di provinsi riau yang terletak di Kabupaten Pelalawan dan Indragiri hilir. Lokasi tersebut menghasilkan biaya transportasi terendah calon lokasi pabrik 2 sebesar Rp 156.000 dengan jarak ke terminal BBM sejauh 282 km dan yang termahal terletak di calon lokasi pabrik 1 yaitu dengan biaya transportasi sebesar Rp189.000 dengan jarak ke TBBM sebesar 120 km.
.....Logistics costs can significantly affect the price of OPEFB as a second generation bioethanol raw material, where the raw material itself is the largest component of the operational costs. For this reason, studies are needed that specifically design biomass supply network and quantify transportation costs. In this study, we developed a design supply network for several clusters, each consisting of 15 PKS to supply a 50kta bioethanol plant in Riau Province. Furthermore, logistics cost quantification is also carried out by considering the distance, type of vehicle, road conditions, and conditions of the OPEFB source. Logistics costs consist of the OPEFB price (from source), transportation costs and pre-treatment costs. The results of this study are expected to be able to provide an optimal supply network scheme and a reasonable cost to support the development of a commercially viable second-generation bioethanol business based on EFB. The scheme is that the location of the bioethanol plant must be close to the largest supply of raw materials. There were 3 candidate locations for bioethanol factories with a capacity of 50kta in Riau province, which are located in Pelalawan and Indragiri downstream districts. This location generates the lowest transportation costs for prospective factory location 2 of Rp. 156,000 with a distance to the BBM terminal as far as 282 km and the most expensive is located in the prospective factory location 1, with a transportation cost of Rp.189,000 with a distance to TBBM of 120 km.