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The Economic Evaluation of Research-Based Indonesian Coal Utilization
Evaluasi Ekonomi Pemanfaatan Batubara Indonesia Berdasarkan Hasil Penelitian

Efforts of Indonesian Government in diversifying the available fuels from domestic coal in the forms of solid, liquid and gaseous fuels open the possibility to overcome the depleted domestic oil reserves. Within the coming few years, Indonesia will be a net oil consumer after being the net oil importer in 2003. In the last forty years, Indonesian energy consumption was heavily depended on oil fuel. To meet the increase domestic energy demand, a large quantity of domestic coal reserves should be diversified into briquette, synthetic oil and gas as well as other non-fuel or chemical products. All these diversified products are expected to be economically competitive as well as environmental friendly using clean coal technology. This article is an evaluation on study results compilation of Indonesian coal utilization and diversification in the last 15 years.

Keywords: coal utilization, coal diversification, economic benefit, clean coal technology

Horman, Juanita R. and Wibowo, Aryo P. (Institut Teknologi Bandung)
Analysis of Regency Readiness Level in Implementing Autonomy of Mineral Resources Management in West Papua Province
Analisis Tingkat Kesiapan Kabupaten Dalam Mengimplementasikan Otonomi Pengelolaan Sumber Daya Mineral di Provinsi Papua Barat

Reformation in Indonesia has resulted in a new policy, which is widely known as regional autonomy. In implementing this decentralisation concept, provinces, regencies and cities as governmental units are being given huge authorities and wider opportunities in terms of managing and developing their areas. This policy, however, could not be interpreted that the central government is transferring an absolute authority. It has to be viewed and be functioned properly as an instrument to accelerate regional developments and to contribute comprehensively to national development as well. In West Papua, natural resources management including mining sector has been a crucial part affecting the implementation of decentralisation. Managerial aspects that consist of planning, organising, monitoring and evaluating seem to be more complicated in practical actions. Therefore, a question usually appearing to be answered is that has West Papua been prepared and capable to face this policy with considering that this long-term policy might have numerous external and internal factors constraining its success. To determine the level of regional capability in facing mining sector autonomy, data regarding mining resources, human resources and regional income of mining activities had been collected from four samples of regencies, namely Fak-Fak, Sorong, Raja Ampat and Teluk Bintuni. These data were then evaluated using factor analysis to be rated and interpreted. The results show that the capability level of Teluk Bintuni is low. Sorong and Fak-Fak have medium levels, and Raja Ampat is in high level.

Keywords: regional autonomy, regional capability, decentralisation, factor analysis

Sodikin, Ikin and Umar, Datin F. (R&D Centre for Mineral and Coal Technology)
Study on Ashes of Blended Coal-Biomass for Co-Firing System in a Coal Fired Boiler
Studi Abu dari Campuran Batubara Biomassa untuk Sistem Pembakaran Bersama pada Boiler Batubara

Biomass and coal blend combustion or co-firing is a promising combustion technology. However, significant development work is required before large-scale implementation can be realized. Issues related to successful implementation of coal biomass co-firing mainly for power generation should be identified. This paper presents the results of the study on blended coal-biomass characterisation, particularly the ash chemical composition and ash fusion temperature to predict the slagging and fouling propensity in a coal fired boiler. The coal used in this research has a calorific value of 5,067 cal/g and the ash fusion temperature of softening temperature in oxidation condition (softening temperature-ox) is 1,228ºC, while the biomass used was baggase, straw and rice husk with the calorific value of 4,144; 3,545; 3,301 cal/g and the softening temperature-ox of 1,303; 1,420 and $>$1,500ºC, respectively. Experimental results for some varieties of fuel blends indicate that the proportion of 95%-5% of coal and baggase has the highest softening temperature-ox of 1,225ºC. The blend of coal and straw resulted in the highest softening temperature-ox of 1,240ºC at 95%-5%, while the blend of coal and rice

husk, the highest softening temperature-ox of 1,235ºC was reached at the proportion of coal and rice husk at 90%-10%. According to the slagging and fouling index, blended coal and straw shows the best performance compared to that of blended coal either with baggase or rice husk.

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Processing of the Gold Ore from Kedondong, South Lampung Using Gravity Concentratio Method
Pengolahan Bijih Emas Kedondong, Lampung Selatan Menggunakan Metode Konsentrasi Gaya Berat

Kedondong gold ores seem promising to be processed. Referring to its mineralogy characters, the ores can be treated by gravity concentration method that include Knelson concentrator, shaking table, jig and sluice box. Processing the gold sample coded A from Kedondong, South Lampung by Knelson concentrator increased the Au grade from 21.87 to 399.76 g/t. Its recovery was 91.57 %. The silver grade also improved from 287.83 to 3,427.12 g/t performing recovery of 49.65 %. Re-processing Knelson concentrator concentrates using shaking table enlarged the Au and silver grades to 1,199.28 and 5,430.80 g/t respectively. Both Au and Ag recoveries were around 89.84% and 47.45% respectively. Another sample, coded B, provided grade 165.80 g/t Au (from 8.93 g/t) and 3,275.05 g/t Ag (from 172.73 g/t) when processed by Knelson concentrator. A shaking table process for such a B-Knelson concentrate yielded the Au and Ag grades to 710,05 and 13.800,80 g/t respectively and also improved the Au and Ag recoveries to 85.56 and 85.17%. Concentrate Sample A has satisfied the requirement for final processing using smelting method, however, Sample B still needs more shaking table process in order to get satisfied condition for smelting process, namely the grade of gold > 1,000 g/t.

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Tin-Based Alloy for Fuel Catalyst
Logam Paduan Berbasis Timah Sebagai Katalis Bahan Bakar

Tin-based fuel catalyst, if dipped into a gasoline-containing tank will increase fuel efficiency. The catalyst has been used since 60 years ago. Its usage will save the fuel and increase the use of tin as expected by tin-producers. Though the mechanism of catalytic reaction has not been clearly understood, several research regarding catalyst performance have been conducted. Moreover some companies have already produced such a catalyst. The tin alloy catalyst was made by melting tin and other metals at specific compositions in a burner and casted into different shapes. In term of evaluating the contact between the fuel and the catalyst as well as assessing the alloy catalytic mechanism, the samples were dipped in gasoline and stirred for 3 days. The gasoline with and without catalyst were analyzed using infrared and showed that the spectra appeared at 875, 835, 538, 343 and 229 cm-1 after 3-day dipped. The peaks resulted for catalytic interaction between Sn and gasoline. Fuel efficiency was measured through static and dynamic tests. The former was conducted using a genset and lawn mower by running the diesel-containing engines in empty load condition. The result showed that efficiency of catalyst-containing diesel consumption was still low, ranged between 0.6 - 5%. Other static tests were performed at LEMIGAS using Toyota and Isuzu car engines. using gasoline and diesel respectively. Effect of catalyst on the car with gasoline improves engine capacity to 8.79%, and increases fuel consumption to 1.03%. The catalyst applied the car with diesel enhances the capacity to 11.38 % and increases fuel consumption to 9.39%. Dynamic tests conducted to motor bikes and cars show the efficiency of fuel consumption around 5-17.5%. It means that tin-alloys based catalyst for efficiency of fuel use is prospective. Such a catalyst is easy to be made and utilized.