



## Potential of Ex-tin Mined Area for Agricultural Production in Bangka Island, Indonesia

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Bangka Island is part of the South Eastern Asian tin belt extending from Myanmar to Malaysia. Around 70% of this area is tin mining area. Three main excavation techniques are applied on Bangka Island: (i) uncontrolled digging, often by individuals, (ii) mining by industrial groups in the inland and (iii) mining on-shore/ off-shore near the coastline. Land abandoned after tin mining has very low soil fertility and consequently is unsuitable for plant growth and agricultural use. However, Bangka Island needs to improve food security in its area. Ex-mined areas have potential to be used as agricultural land. Recultivation of ex-mined land for agricultural use needs to be addressed with technologies that are economically viable and environmentally friendly. This research aims at studying the potential of ex-mined land for agricultural use.

An experimental plot was established in a former mining area of Bangka Island, Indonesia, using randomized complete block design. This experiment consist of applying six different treatments, (1) Control, (2) Lime (10t/ha), (3) Compost (10t/ha), (4) Charcoal (10t/ha), (5) Charcoal (10t/ha) + Compost (10t/ha), and (6) Charcoal (10t/ha) + Wood Residue (10t/ha) in four replicates. Plot size was 2m x 2m, *Centrocema pubescens* was planted as a cover crop. Soil samples were taken before and after harvest to analyze soil properties. Further, plants samples were taken at harvest time. Soil samples will be analysed for the following parameters: [give list of parameters: pH, etc.]

Based on data from Bangka Belitung Province agency, tailing and ponds are approximately 85.6% and 14.4%, respectively of the total ex tin-mining land area. Tailings have high portion of sand, however, soil pH, organic matter content, cation exchange capacity (CEC), water-holding capacity, and essential macro nutrients are low. We found that soil from mining area was dominated by sand fraction, with low soil pH (4.64), Total Organic Carbon (TOC) was 1.05%, and Total Nitrogen was 0.01%. *Centrocema pubescens* was harvested 3 months after planting. The yields were determined for each plot after drying the harvested biomass: Control treatment 2.33 ton/ha of dry mass, lime 3.76 ton/ha, compost 10.88 ton/ha, charcoal 4.87 ton/ha, charcoal + compost 15.90 ton/ha, and charcoal + wood residue 6.68 ton/ha. Compared to other treatments, Charcoal (10t/ha) + Compost (10t/ha) significantly increased biomass. This results show that the ex-mined area in Bangka Island has potential for agricultural production that can be increased by adding soil amendments.