

THE MULTI-OBJECTIVE ALLOCATION OF SUITABLE LANDS FOR OIL PALM DEVELOPMENT IN KUALA LANGAT DISTRICT, MALAYSIA

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ABSTRACT: Multi-criteria Evaluation (MCE) is a procedure to conduct the Land suitability analysis in GIS. The Multi-Objective Land Allocation (MOLA) is an extended MCE in a hierarchy manner for land allocation of the multi-objective cases. Accurate planning of lands for development is a big motivation of this research, where currently oil palm is the fast growing landuse in Malaysia, especially in Kuala Langat district. This paper addresses the spatial allocation of the most suitable lands for the oil palm development using Multi-Criteria Evaluation (MCE) and Multi-Objective Land Allocation (MOLA) techniques. The analysis includes two stages of the MCE, and the MOLA procedures. The spatial dataset which are extracted from Spot 5 imagery includes two sets of constraints and factors as the indicators of the environmental, social, and economic domains of the study area. Each spatial criterion is standardized with the aid of fuzzy membership function after getting an AHP weight towards incorporating into MCE. Weighted Linear Combination (WLC) method aggregates the evaluation criteria. Finally, MOLA allocates the most suitable areas for oil palm development.