

## ABSTRACT

Green Manufacturing (GM) refers to production processes which use inputs with relatively low environmental impacts, highly efficient, and generate little or no waste or pollution. The sugar sector in Kenya contributes up to 5% of the country's GDP (Kenya Sugar Board). This sector faces challenges such as inefficiency, pollution and waste disposal, leading to high costs of production and therefore vulnerable to competition in the international market. Previous GM researches focused on material substitution, toxic reduction, innovation, design for recycling and disassembly. They did not address specific green manufacturing practices and their influences on organizational performance, particularly in the sugar subsector, which faced rising costs of production, local community concern on environmental pollution and low sales. This study sought to determine the relationship between green manufacturing practices and performance of Kibos Sugar and Allied Industries Ltd. Specifically it was to establish: the use of recyclable packaging, waste disposal practices and energy efficient equipment. The study was anchored on the natural resource based view theory, and guided by a conceptual framework, where the independent variable was green manufacturing practices and the dependent variable was performance. The study employed correlation research design. The target population was 124 employees of Kibos Sugar and Allied Industries Ltd. Primary data was obtained using structured questionnaires. The data was analysed using regression analysis. Validity of the instrument was ascertained by expert in field of operation management, the instrument's reliability was confirmed using Cronbach's Alpha, which gave a coefficient of 0.8 indicating the instrument, was reliable. The study established that there was a significant level of adoption of recyclable packaging as indicated by an overall mean of 3.8845. It also revealed that there was a prominent level of adoption of waste recycling as shown by a weighted mean average of 4.102. There was to a high extent, the use of energy efficient equipment, as indicated by a grand mean of 4.294. The regression results revealed an  $R^2 = 0.524$  which implies use of recyclable packaging, waste disposal practices and use of energy efficient equipment explain performance up to 52.4%. The  $\beta$  coefficients were found to be positive i.e. ( $\beta_1 = 0.102, \beta_2 = 0.615, \beta_3 = 0.316$ ) with p values of (0.016, 0.02 and 0.018) respectively meaning that any unit increase in the independent variable would lead to a positive increase in performance of the firm. This study provides valuable insight to the management of Kibos Sugar And Allied Industries Ltd, and other manufacturers on how green manufacturing practices can contribute positively to overall organizational performance. The finding may also be a point of reference to the academicians who wish to carry out a research in green manufacturing.