

## **A truck scheduling framework for sugarcane transportation (the case of Mumias Sugar Company)**

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### **Abstract:**

Supply and demand imbalance is one of the crucial problems in sugarcane factories in Kenya. Even though proper delivery allocation planning is made to match with the factory demands, i.e. the factory crushing capacities, critical factors such as distance from the mill, field characteristics and individual truck capabilities under varying circumstances are ignored. This results in higher costs of work in process inventory holding, transportation, as well as labor on both the field owners and the processing mills. This research work proposes a dual approach to resolve this problem; first, the key factors that affect the entire process of the sugarcane transportation are established. The finite and not high level factors are then consolidated and analyzed with regard to their level of impact on the transportation process. Since truck allocation is the key interface between the demand in the processing factory and the supply from the harvested cane production units; the identified factors are then mapped to the available truck types. This ensures that the right trucks are allocated to the right routes and fields. A prototype is developed to show the relationship between the various factors that drive the transportation process and the different trucks. It clearly indicates how the allocation and scheduling of the trucks is done.