
Summary: In Sub-Saharan Africa, annual weather patterns cause frequent and regular shocks which make the population more vulnerable to food insecurity. Countries are affected by periodic droughts between two irregular rainy seasons, which have a profound effect on seasonal food crises. This study is rooted in a food aid distribution problem arising in Kenya, but it can also be applied to other developing countries. Our aim is to design an effective last-mile food aid distribution network. We present location models to determine a set of distribution centers, where the food is directly distributed to the beneficiaries, for the region of Garissa in Kenya. Our models take into account the welfare of all stakeholders involved in the response system: the World Food Programme, the Kenya Red Cross, and the beneficiaries. We describe how we have combined need assessment and population data to plan food distribution in Garissa. We also show how we have used GIS data on the road network to establish a set of potential distribution centers. In addition to the results obtained by solving our primary model, we present several comparative analyses and variants of the basic covering model.

MSC:
90B90 Case-oriented studies in operations research
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Keywords:
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References:
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