

## Food Insecurity Assessment, Consumption Pattern and Implications of Integrated Food Security Phase Classification: Evidence from Sudan

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**Abstract :** This paper provides a comprehensive analysis of food insecurity in Sudan, focusing on consumption patterns and their implications, employing the Integrated Food Security Phase Classification (IPC) assessment framework. Years of conflict and economic instability have driven large segments of the population in Sudan into crisis levels of acute food insecurity according to the (IPC). A substantial number of people are estimated to currently face emergency conditions, with an additional sizeable portion categorized under less severe but still extreme hunger levels. In this study, we explore the multifaceted nature of food insecurity in Sudan, considering its historical, political, economic, and social dimensions. An analysis of consumption patterns and trends was conducted, taking into account cultural influences, dietary shifts, and demographic changes. Furthermore, we employ logistic regression and random forest analysis to identify significant independent variables influencing food security status in Sudan. Random forest clearly outperforms logistic regression in terms of area under curve (AUC), accuracy, precision and recall. Forward projections of the IPC for Sudan estimate that 15 million individuals are anticipated to face Crisis level (IPC Phase 3) or worse acute food insecurity conditions between October 2023 and February 2024. Of this, 60% are concentrated in Greater Darfur, Greater Kordofan, and Khartoum State, with Greater Darfur alone representing 29% of this total. These findings emphasize the urgent need for both short-term humanitarian aid and long-term strategies to address Sudan's deepening food insecurity crisis.

**Keywords :** food insecurity, consumption patterns, logistic regression, random forest analysis

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