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## Impacts of Land Use Change on Food Security in Nigeria: An integration of stakeholder participation in bioeconomic modelling

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Two hundred million persons at an annual population growth rate of 2.5% in addition to uncertainty in climate and societal changes challenges development goals particularly food security in Nigeria. Food security challenges primarily originate from conflicts in agricultural and forestry land systems causing changes in the systems. Agricultural and forestry land systems constitute 77.7% and 7.7% of land area in Nigeria. However, pressured by an increasing population and a changing climate, society and even seemingly divergent policy objectives, these systems have failed to ensure food security. The challenge for Nigeria is to simultaneously maintain a 5% annual increment in food production and conserve 10% of its land area as forest. With agriculture already occupying 77.7% of the total land area, what will a 5% annual increment in food production and a 10% conservation of land area mean for both agriculture and forestry systems? Would these targets require an expansion or intensification or an integration of both systems? This paper provides insights into opportunities and trade-off for optimal land use systems in Nigeria by answering questions such as how can its land use be optimized for biodiversity conservation and agricultural production targets? Amidst the aforementioned targets what plausible governance, management technologies and policy adjustments can aid food security in Nigeria and at what cost?