

## **Scenario-based assessment of future food security**

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This paper presents a scenario-based assessment of regional future food security in Nigeria. To do that climate change and socio-economic variables were defined for the future and were linked to an integrated modeling framework. The crop yields simulated by the GIS-based Environmental Policy Integrated Climate (EPIC) model and crop areas simulated by the crop choice decision model were combined to calculate the total food production and per capita food availability, which was used to represent the status of food availability and stability. The per capita Gross Domestic Product (GDP) simulated by IFPSIM model was used to reflect the situation of food accessibility and affordability. Based on these two indicators, the future food security status was assessed at a regional scale of Nigeria over a period of approximately 20 years, starting from the year 2009. The results show that food insecurity is a major concern in all the regions in Nigeria. The mean household in all the six regions is highly food insecure. North east is the most food insecure region and will likely remain hotspots of food insecurity in the future as both the per capita food availability and the capacity of being able to farm will decrease between 2009 and 2029. Low food production associated with poverty, conflict and flood are the determining factor to starvation in Northwest, North central and South south regions respectively. South west and South east where there is an increase in per capita food availability between 2009 and 2029 might be able to improve their food security situation. Efforts are needed to combat hunger in terms of future actions.