

Urban expansion and its impact on sustainable food production: A case study of Dodowa, Ghana

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Introduction

Trends suggest exponential growth of urban population in Africa. Capital cities of sub-Saharan Africa are growing beyond their boundaries, encroaching on peripheral communities. This phenomenon is threatening agriculture and food production which is typical of these communities. In Ghana, the capital city, Accra is spreading uncontrollably into rural- agrarian towns. One of these townships experiencing such overspill is Dodowa, found in the Shai Osudoku District. The population of Dodowa has doubled beyond what was speculated.

Objective: To understand the impact of urban expansion on food production.

Methodology

The study used a quantitative approach, which involved administering questionnaires to 100 households within Dodowa, a township in Ghana. Additionally, GIS and remote sensing techniques were used, including NDVI classification to know the extent of built infrastructure over a period of 22 years while SPSS and Excel were used to analyze the quantitative data.

$$NDVI = \frac{(NIR - RED)}{(NIR + RED)}$$

Results

The community is experiencing increase in urban infrastructure, while vegetative cover, including farmlands are declining.

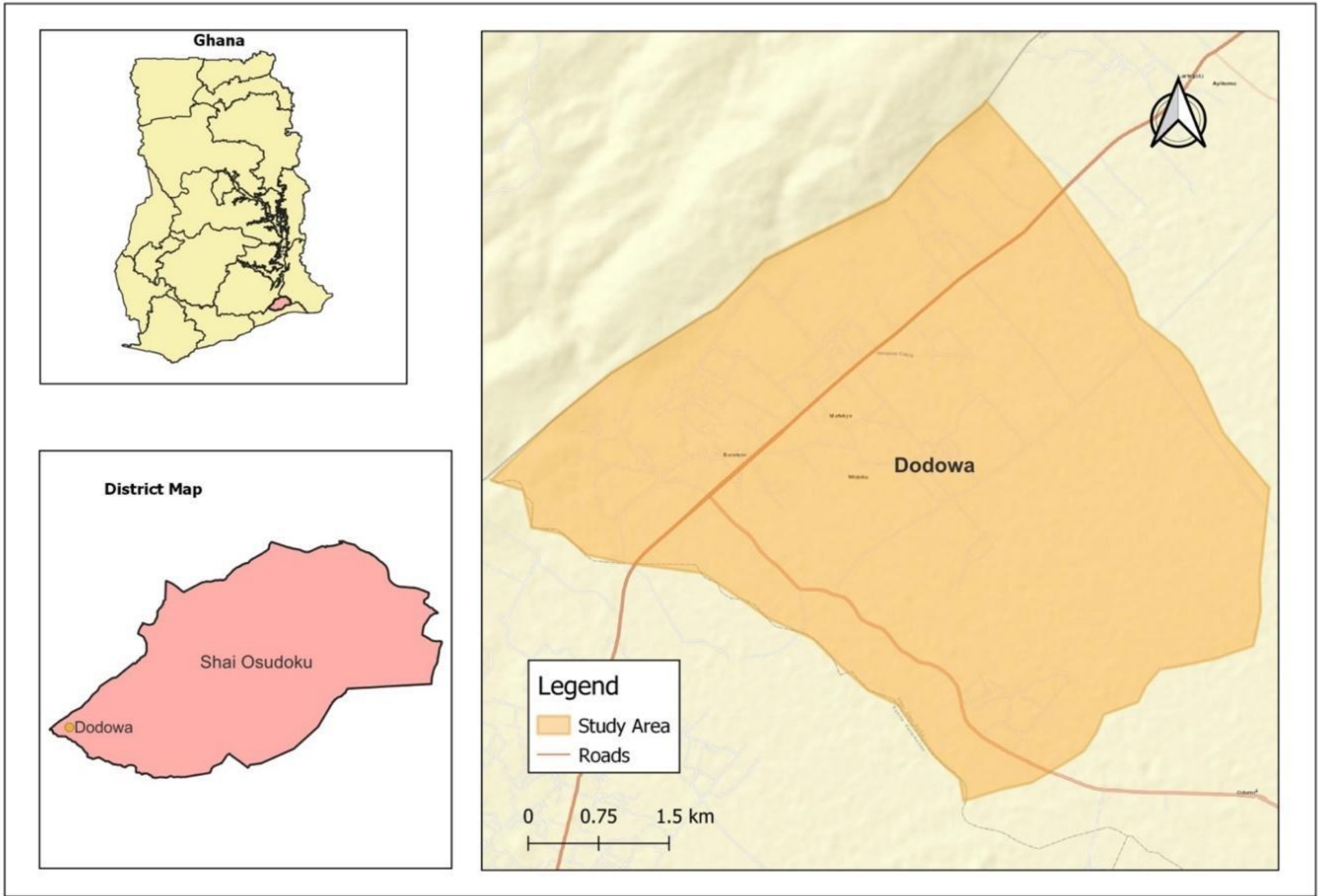


Figure 1. Study Area

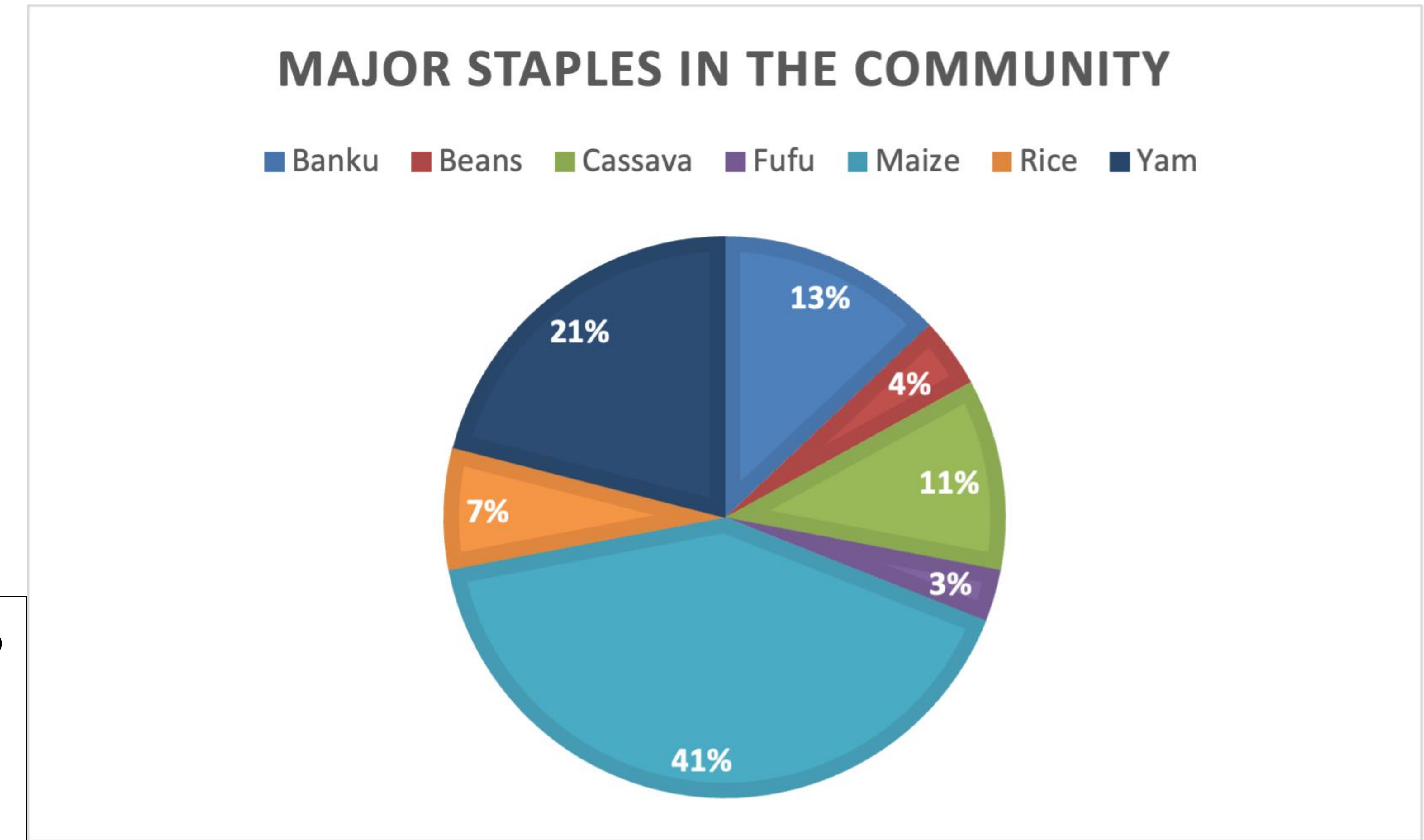


Figure 3. Most consumed foods in Dodowa

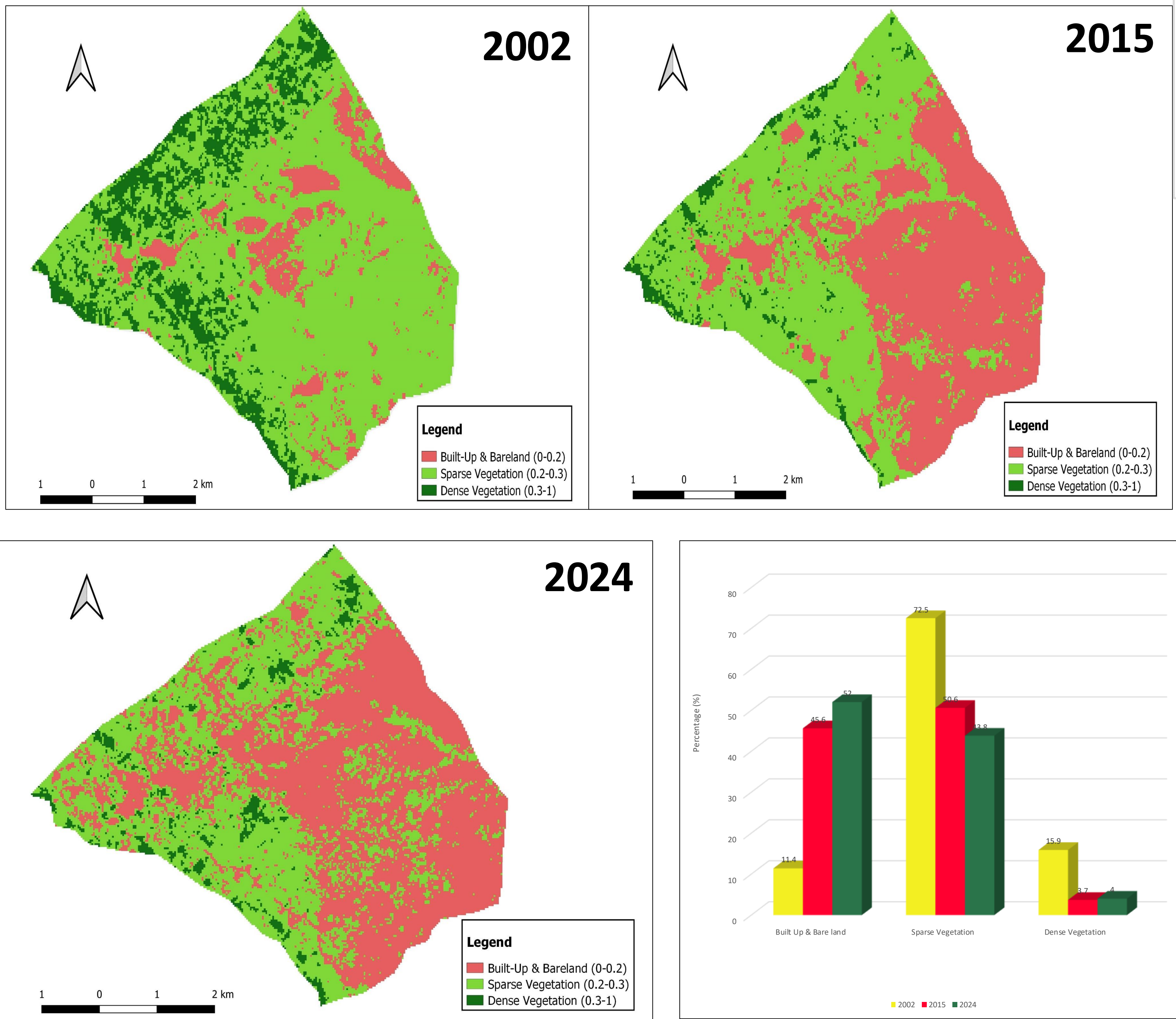


Figure 4. Urban growth influence on food in Dodowa

Conclusion

The study highlights on the negative impact of urban expansion on agricultural communities. There is the need to control the spread of urban areas into farmlands and preserve rural livelihoods as this would help mitigate food insecurity.

The study also recommends a collaborative effort between traditional land tenure systems and government planning agencies. This would promote sustainable land management practices and ensure proper zoning for land use areas, preserving the environment's biodiversity.



Figure 2. Built up area encroaching on farmland