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Rururbanization – a threat to agricultural intensification and food security?

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Introduction

This paper addresses the challenge of agricultural intensification to meet food security in Africa. The case study is based on the development of a high-potential area in Babati District, Manyara Region, Tanzania over the last 20 years. The study area has developed from settlement frontier territory in the 1950s and 1960s to an intensive and highly productive integrated farming area. Although still rural in character, the villages in focus have recently become part of the administration of the town council, which means that the process to certify individual rights of occupancy is halted. The individual household's control over the land is an important incentive for further investments and land intensification. This process – rururbanization - was identified in Tanzania already in the 1930s (Kilimanjaro), but seems now to reach a large number of medium- to high potential areas around market towns. The results show that – in spite of tripled maize yields over 20 years – farmers are forced to look for agricultural land in more distant areas with lower potential. This is a problem for overall food production levels as well as for sustainable land use in vulnerable environments. The study discloses parts of the rich heterogeneity in rural Africa, where high-potential areas with stabilizing population numbers are taken out of business, and their role as engines in the process of sustainable agricultural intensification is largely ignored.



Figure 1. *The "Great North Road" southward from Babati Town in 1996 and 2013. Although still rural in character, the farming area is now defined as "urban".*

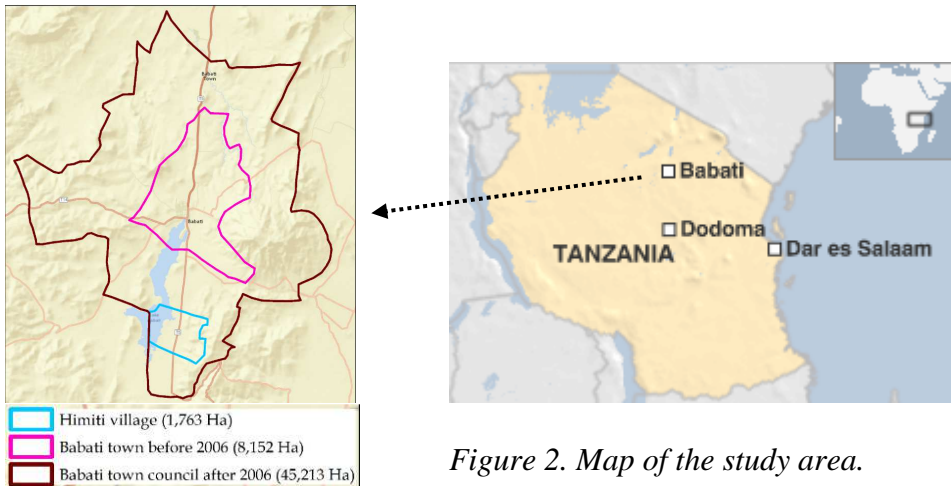


Figure 2. Map of the study area.

The conflict between urban expansion and agricultural intensification is a global challenge to food security. In the study area, 16 rural villages were in 2006 incorporated in the new Babati Town Council (figure 2). Now being part of an urban planning administration, decades of efforts towards sustainable intensification are jeopardized as the villages experience out-migration of farmers.

Material and Methods

The results are based on population and agricultural production data collected through local interviews and available statistics in 1994 and 2014, respectively. Land use maps were produced as a part of a PhD thesis in 1994 (Hillbur 1998), and for the current situation, recent maps (2012) were studied and combined with field observations. In 2013 and 2014, interviews with key informants have been conducted for this specific aim, as well as a review of land use policy documents at the village, district and national levels

Results

Agricultural intensification

In Himiti village, the primary indicators of agricultural intensification over the studied period are: (1) increased yield per hectare of the dominant crops (maize and pigeon peas, figure 3), and (2) the gradual transformation of animal husbandry from large herds of free-ranging cattle to intensive zero-grazing of high-yielding cattle and dairy goats (figure 4).

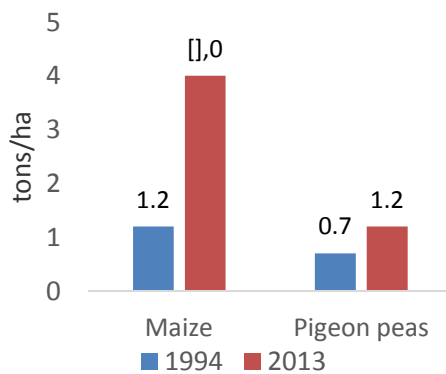


Figure 3. Average crop yields in Himiti village 1994 (n=468) and 2013 (n=606)

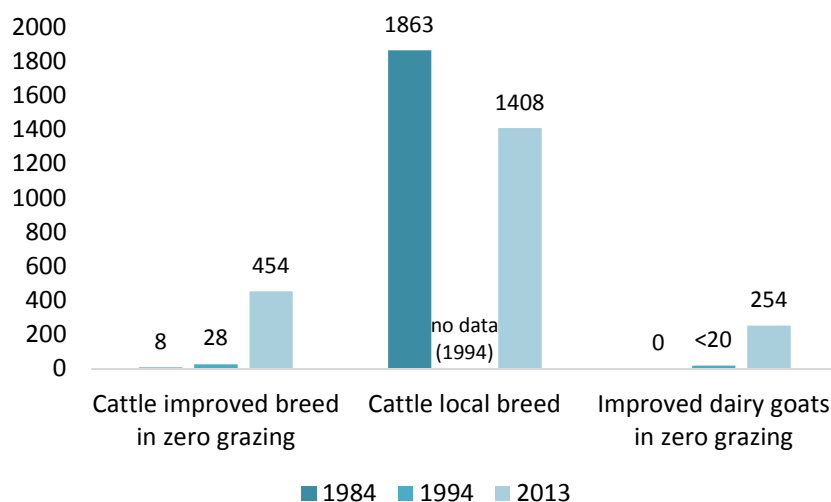


Figure 4. *Livestock numbers in Himiti village 1984-2013 (selected years)*

The main explanation for crop yield increase is the continuous adoption of improved seed varieties and the intercropping of maize and pigeon peas. The use of industrial fertilizer is still marginal in this area. Application of farmyard manure is gradually increasing, but is confined to fields near the homestead. The adoption of improved cattle and dairy goats is a result of long-standing support from project activities in the area.

Population dynamics

The search for productive arable land has attracted a large number of immigrants to Babati District since the 1950s (figure 4, red line), and the population growth of Babati town and Manyara Region is among the highest in Tanzania. The development in Himiti village over the last decade show a strikingly different pattern (yellow line).

The data suggest that the villages incorporated in the new Town Council experience a much slower growth recently, indicating out-migration of farming households. Over time, when urban settlements and services are established, villages like Himiti are expected to attract urban dwellers on the once productive farmland.

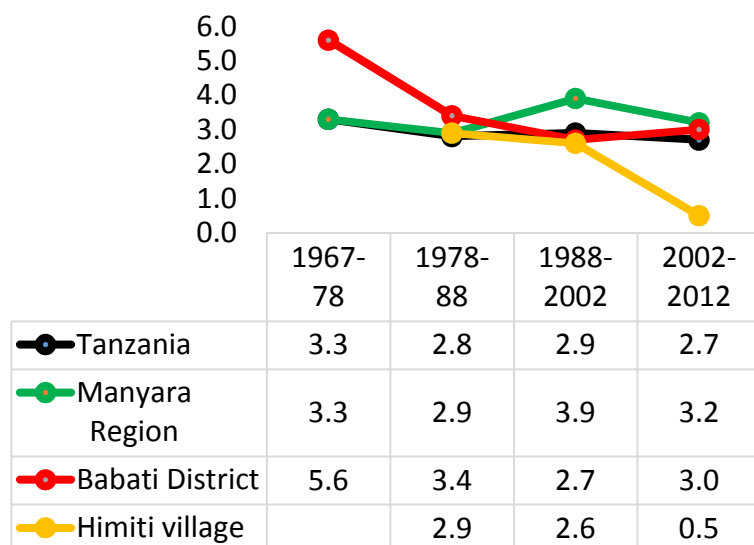


Figure 4. *Annual average population growth in the study area 1967-2012*

Discussion - The development of rururbs in Tanzania

Most of the poor in Tanzania live in rural villages, and most of them already own land under customary tenure. However, rural smallholders lose land to government and/or donor initiated development projects, to expansion of urban borders (as in this case), declaration of national parks or reserved areas, and increasingly through 'landgrabbing' by local and international investors who are allocated land by local or central administrators (Sundet 2005:16).

Babati District is a pilot area for registration of customary rights in Tanzania, and the process of issuing of individual certificates has been underway for some years. The process should be seen as a step in a formalisation of the customary system of tenure, with precautions put in place to ensure that the process does not undermine existing rights (*ibid*:14). The process of registration of these rights do not apply to urban lands.

A rururb can be defined as: (1) a rural area with an urban population density, but with pastoral, agricultural, and kinship values that it cannot fully support (Moore 1986:223), or (2) a rural area which is transferred into administration as an urban area. The former is a well-documented phenomenon in Kilimanjaro since the 1930s, while the latter – outlined in this case – is a situation where medium- to high potential areas around market towns are urbanized “by definition”, as *e.g.* through the incorporation of rural villages in new town councils. Rururbanization – the development into rururbs – has the same effect in both cases: agricultural intensification comes to a halt, and agricultural activities need to relocate. This phenomenon seems to be evident around a number of emerging market centers in Tanzania, and needs further investigation.

Conclusions and Outlook

The results suggest that – in spite of tripled maize yields over 20 years – farmers move out of high-potential farmlands due to lack of tenure security. The study discloses the heterogeneity in rural Africa, where high-potential areas with stabilizing population growth have a crucial role as engines in the process of sustainable agricultural intensification and food security. Farmers' relocation may set off agricultural intensification elsewhere, but is more likely to result in exploitation of marginal or low-potential lands. More research is needed on effects of urbanization on agricultural intensification in rural Africa.

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