



Tropentag, September 20-22, 2023, hybrid conference  
“Competing pathways for equitable food systems transformation:  
Trade-offs and synergies”

## Agro-ecological effects of terrestrial sand mining in Accra metropolitan area, Ghana

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### Abstract

Sand, being the main component of concrete, constitutes the skeleton of every city in our modern civilisation. Even though sand is a non-renewable resource in human timescales, it is mined globally at exorbitant scales from rivers, marine and terrestrial deposits, constituting the second most consumed natural resource after water. Increasingly, sand and its extraction draw media and scientific attention. But while global research focusses on open pit and river sand mining in Asia and the Global North, data on terrestrial sand mining in sub-Saharan Africa (SSA) are very limited. Ghana, like elsewhere in the region, is experiencing a high rate of development related urbanisation, leading to resource extraction far beyond its natural replenishing rate by weathering and natural erosion / deposition. This study focuses on Accra, Ghana's political, economic and cultural capital where sand mining, or locally called “sand winning”, is most predominant. The source of sand is farmlands in the peri-urban and rural areas reaching up to 60 km from the city centre leading to social and environmental problems such as land degradation, loss of farmlands, and food and water insecurity. Since Accra also depends on the surrounding rural areas for food production, sand mining and agriculture are rivals in the competition for land. This study comprises qualitative and quantitative interviews as well as soil analysis to (i) determine the effects of sand mining on agricultural productivity and farming incomes, (ii) assess the effect of sand mining on soil fertility through a comparison of physical, chemical, and biological parameters of mined and unmined fields, and (iii) determine positive and negative effects of sand mining on the livelihoods of mining communities.

**Keywords:** Environmental impacts, illegal, natural resource extraction, urbanisation, West-Africa