

# Improving the Food Security of Ethiopia

## Assessment of soil amendment rock resources and balanced application of fertilizer and soil conditioners in Ethiopia

### Food Security in Ethiopia

Agriculture is a key driver of Ethiopia's long-term growth and food security. Agriculture directly supports 85% of the population, constitutes 43% of the gross domestic product and 80% of the export value.

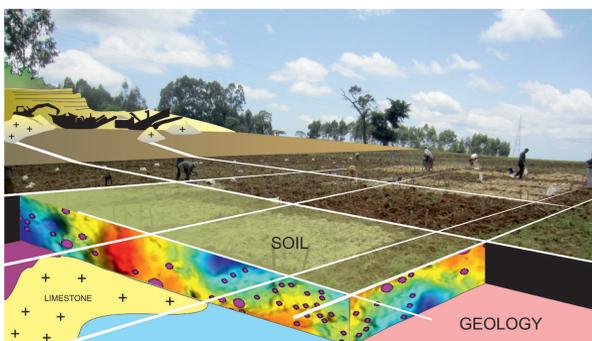
However, insufficient productivity of the land for an ever-increasing population has resulted in food insecurity. The current level of food production is anticipated to decline by 28% per capita by 2025 which could leave millions more Ethiopians exposed to food shortage and undernourishment.

The overall objective of the project is to increase productivity of agricultural land which improves food security in Ethiopia. The purpose is to strengthen the capacity of the Ethiopian counterpart agencies to assess mineral resources, which are suitable as soil conditioners and fertilizers needed to increase crop yields of acidic soil in Ethiopia. The project will increase knowledge of balanced usage of fertilizers and conditioners within the counterpart agencies as well as among the local farmers.

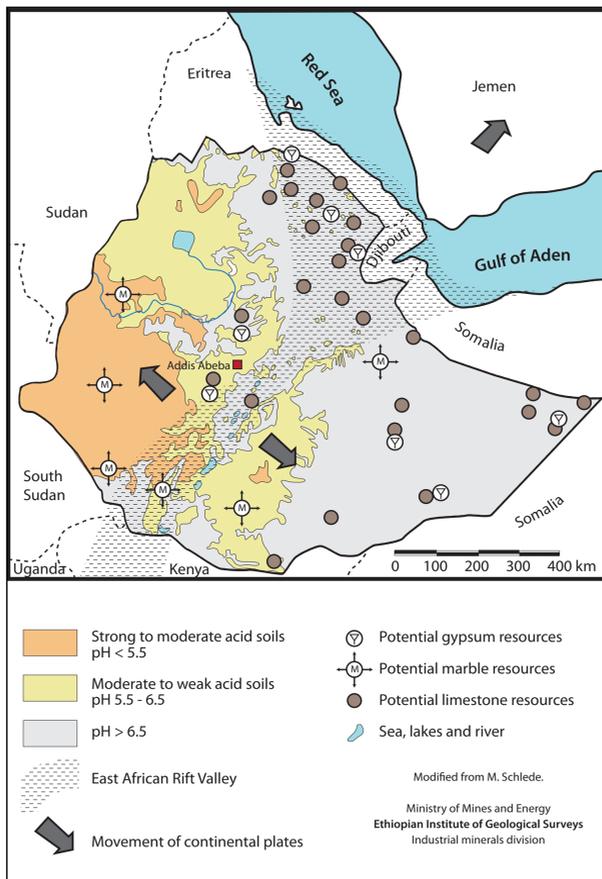
The project is implemented by Geological Survey of Finland (GTK) in cooperation with Geological survey of Ethiopia (GSE) and Oromia Agricultural Research Institute (OARI) and the Ministry of Agriculture of Ethiopia (MoA). In Finland the project partner is MTT Agrifood Research Finland.

### The purpose of the project:

- 1) Assessment of carbonate (lime) resources for soil amendment and agricultural uses.
- 2) Balanced application of lime and fertilizers in two pilot areas (150 growth tests).
- 3) Capacity building of experts and laboratories.



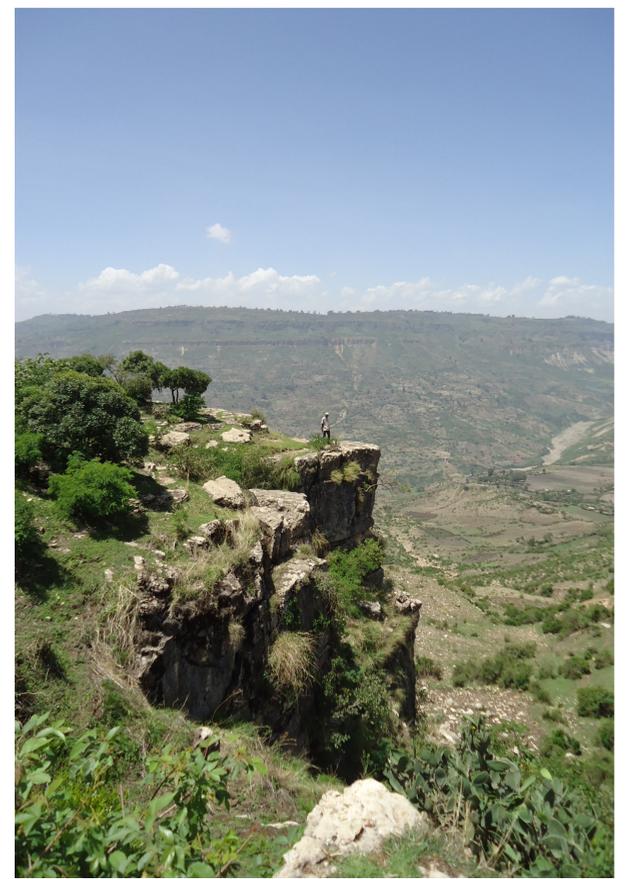
Improving the productivity of acid soils includes also developing lime crushing, logistics and infrastructure.



About 40% of the total land area of Ethiopia is affected by soil acidity due to rainfall, temperature, topographic factors and severe soil erosion. Crop yields in acid soils are frequently reduced by 50% and can be reduced to zero, because soil pH affects nutrient solubility and influences the precipitation of nutrients with toxic elements.



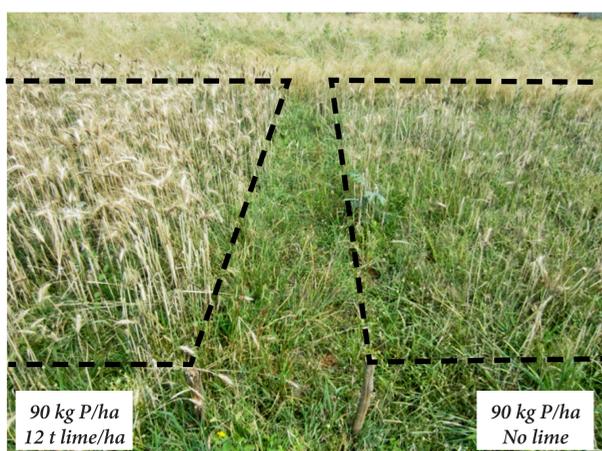
Evaluation of excellent results at the test field. Photo: Mika Räisänen, GTK.



Ethiopia has large resource potential of limestone. Photo: Petri Virransalo, GTK.



Harvesting by the local co-operation farmer. Photo: Kari Ylivainio, MTT.



Liming of acidic soil improved wheat growth substantially by increasing utilization of applied phosphorous fertilizers. Utilization of applied nutrients is enhanced due to improved root growth after liming. Less phosphorous was needed to produce comparable yields in limed soils compared to soil with less or no lime. Photos: Kari Ylivainio, MTT.



### Liming of soils improves food security and farmers' income in Africa

The beneficiaries of the project are government organizations of the agricultural and geological sectors, and the project can also boost private sector operators. The final beneficiaries of the project will be Ethiopian farmers, who can adopt balanced use of fertilizers and soil conditioners to increase crop productivity on their farms.

An up to 50% increase in productivity would not only reduce labour-intensive activities for women and children but also ensure their household food security and increase the possibilities for basic education. It also lessens pressure to deforestation and protects biodiversity. The costs of lime application can be covered already in the first year of cropping and the better yields will be achieved for at least 5 to 10 consecutive years.