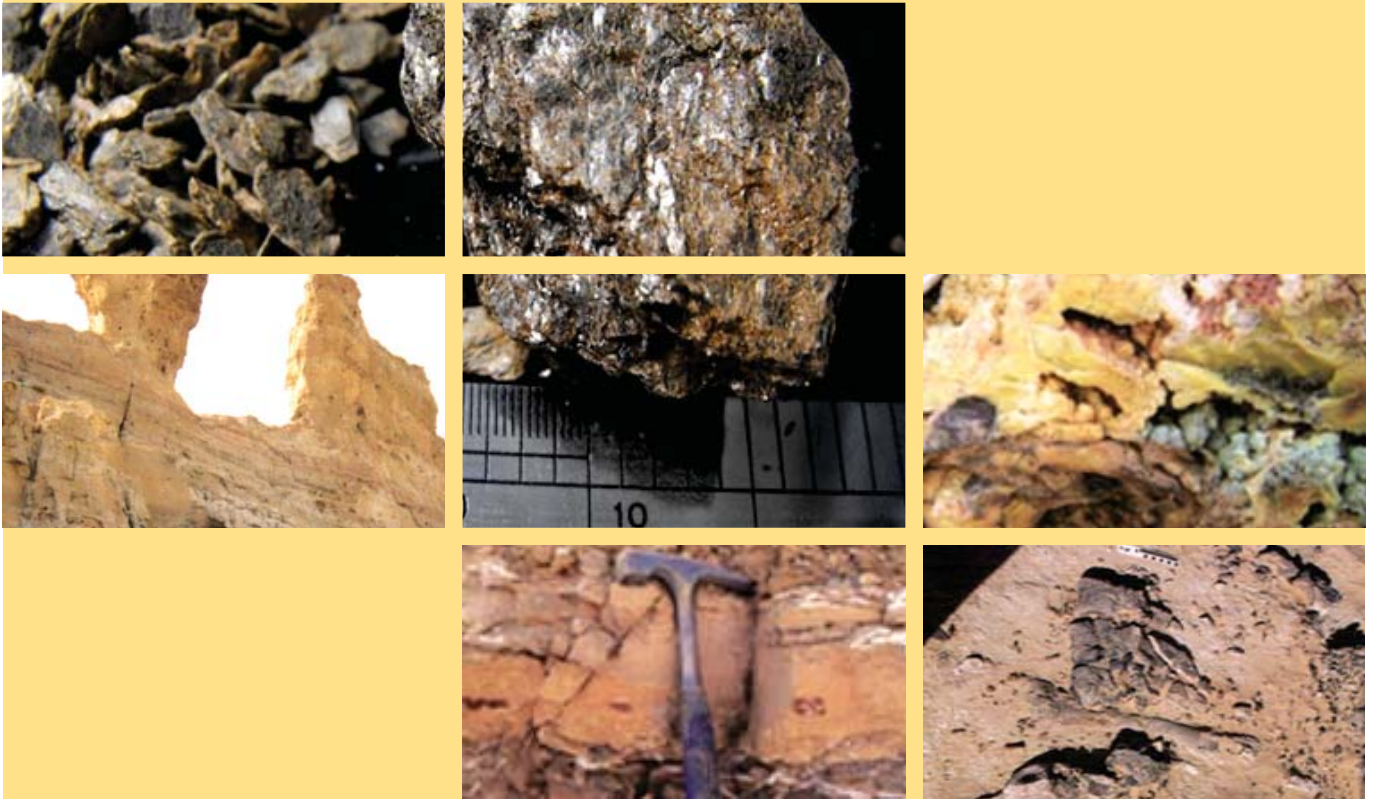


Agro-Minerals

(Fertilizer) Potential
in Sudan



Republic Of The Sudan
Ministry of Minerals



Geological Research
Authority of the Sudan
(GRAS)



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Potassium:

Potassium-Sodium nitrates and K-feldspar are the main known sources of potash in Sudan.

Potassium-Sodium nitrates are associated with the Late Cretaceous Nubian sandstones-mudstone hills of Broosh-Umkeddada, North Darfur State. Plant fossils found in the formation indicate a lacustrine environment of deposition. No distinct salt horizons are discovered but rather finely disseminated salt occur within the rock in variable concentrations. Preliminary analysis indicate K_2O range of 30% to 65% up to 14% kNO_3



Potassium Nitrates in Broosh area in Om Kaddada-N.W-Sudan

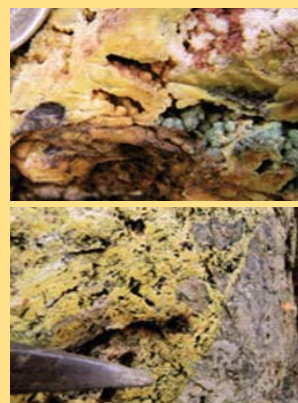
The soils of the Sabaloka igneous complex, 80km north of Khartoum contain K_2O ranges between 4% and 14%. The soil is mainly derived from the granite-acid volcanic units of the Sabaloka ring complex and the peripheral granitic stocks.

Phosphates:

* Phosphatic rocks in Sudan are found in the form of:

Phosphates associated with breccias and hydrothermally altered meta-sedimentary units in south central Sudan (Nuba Mountains).

The P_2O_5 contents in those breccias lie in the range of 13- 32%.



* Phosphate in the S.Kurdofan:

Phosphatic horizons associated with continental Tertiary J. Abyad Formation (dominantly limestone) in NW Sudan. Vertebrate fossils are widely found in the formation. The maximum P_2O_5 obtained from the exposed horizons range between 2% and 16%.



Bones pias (crocodiles) in area of Jebel Abyad W.Dongola - N.Sudan



A layer of rocks with 30 cm thickness containing a percentage of (2% of P_2O_5)- Jebel Abyad W.Dongola - N.Sudan



A layer of rocks with 30 cm thickness containing a percentage of (7% of P_2O_5)- Jebel Abyad W.Dongola - N.Sudan

* Low grade phosphates in the Late Cretaceous Nubian sandstones of Abu Hasheem, approximately 50 km North West of Khartoum. The P_2O_5 in the exposed horizons ranges from 3% to 8%.

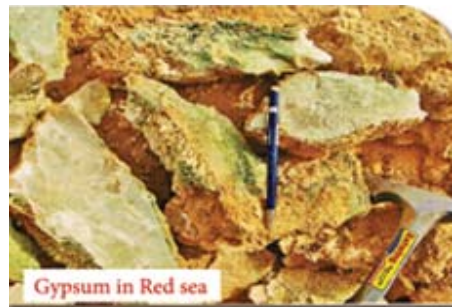
* Phosphatic horizons associate with the Mid to Late Cretaceous Nubian sandstones of WadiHalfa region in the far north of Sudan (P_2O_5 ~ 8%).

* The limestone formations along the Red Sea coast have generally shown low contents of P_2O_5 (~ 5%).

Soil quality improving minerals :

A variety of minerals commonly utilized in Sudan for improving the quality of soil for better cultivation (soil conditioners) are found in different parts of the country but their qualities and quantities have not yet verified. Those minerals include:

Gypsum: Red Sea Cost, Red Sea State.



Zeolite : Gadarif state, Central Sudan



Zeolite Mineral in El Gadaref State

Vermiculite: Red Sea, Northern Sudan

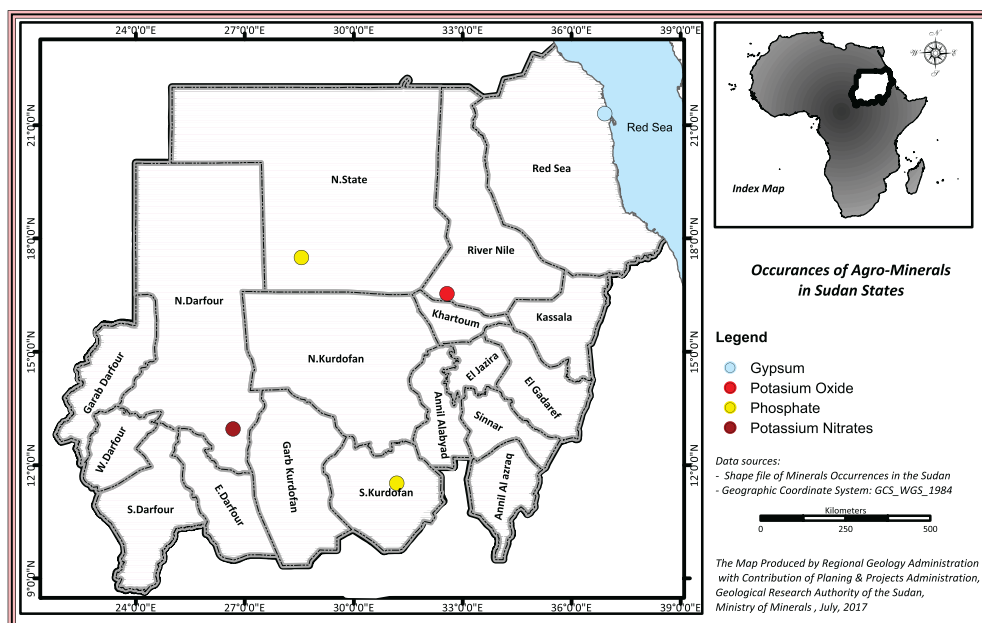


(Pozzolana) Perlite-volcanic Ash: River Nile, Northern, North & Central Darfur States

Limestone-dolomite: All of the 18 Sudanese states with variable qualities but extensive in volumes

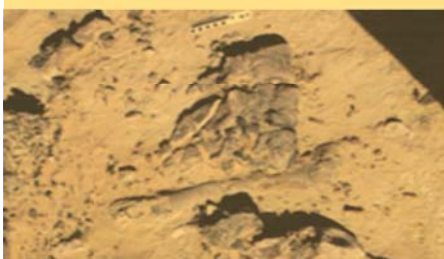
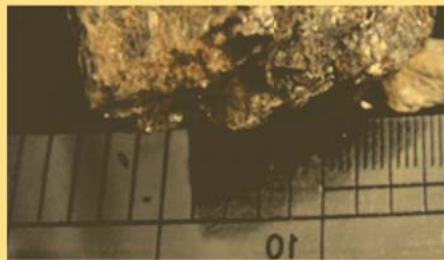
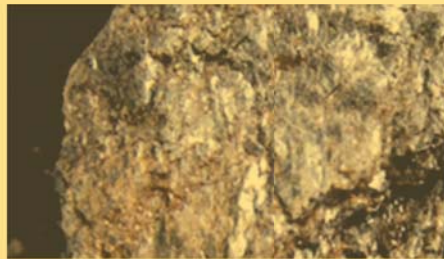
The Ministry of Minerals has taken the initiative of exploring for and producing inorganic fertilizer raw materials. The future studies should be done to estimate quantities and assess the qualities of phosphatic horizons, potassium minerals, limestone, gypsum, zeolite and vermiculite.

Until now, Sudan's industrial base is tied to the agriculture sector. Although gold commodity exports has recently become a parallel player as major source of income that supports the national economy. Until 2013, the national annual fertilizer imports amounts to 140,000 metric tons (urea, phosphate, compounded fertilizers). The demand for food production in Sudan is ever increasing, which necessitate bigger supply and application of agricultural inputs.



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