Status, priorities and needs for sustainable soil management in South Sudan

Present by

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Brief Overview of South Sudan

South Sudan, the newest independent state covers an area of 640,000 square kilometers.

It lies within the tropical zone between latitude 3.5º and 12º North and longitude 25º to 36º East.

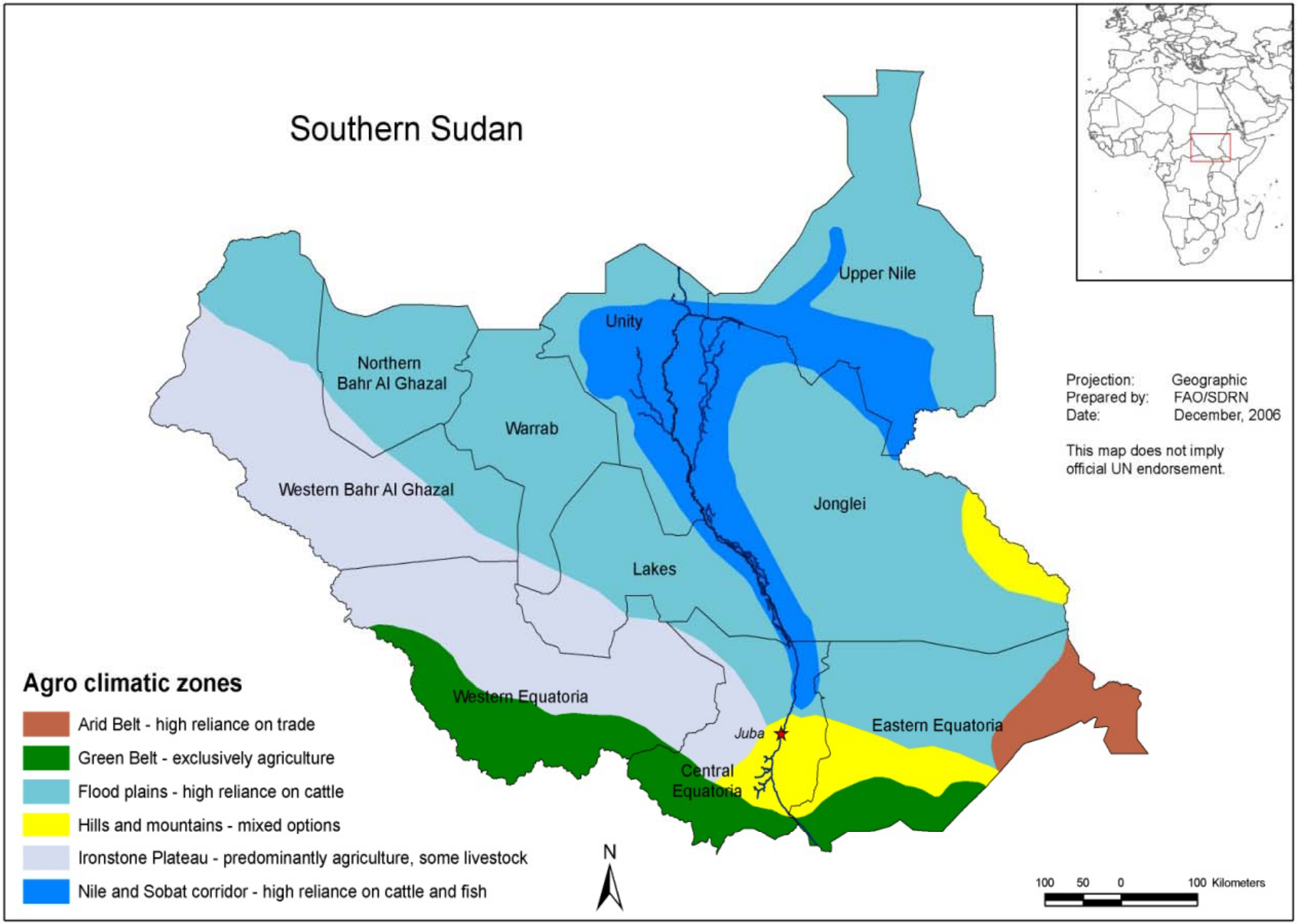
South Sudan borders Ethiopia in the East, Kenya, Uganda and the Democratic Republic of Congo in the South and Central African Republic in the West and Sudan in the North.

The climate in South Sudan is characterized by intermittent periods of drought and floods, many times resulting in total loss of crops, widespread death of livestock especially cattle, displacement of human populations as well as famine and disease.

Despite the presence of many rivers and streams and probably underground water reservoirs, there have never been serious efforts to develop irrigation and flood management systems in South Sudan.

The main crops grown include cereals (sorghum, maize, millets and rice), pulses (cowpeas and pigeon peas), oil seeds (groundnuts, sesame and sunflower), root crops(cassava, sweet potatoes), fruits (mangoes, pineapples and citrus), vegetables(okra, tomato, onions and leafy plants.

Currently, all these crops are not grown in sufficient amounts to satisfy local demand.


Southern Sudan
Upper Nile
Unity
Northern
Bahr Al Ghazal
Warrab
Western Bahr Al Ghazal
Jonglei
Lakes
Western Equatoria
Juba
Eastern Equatoria
Central
Equatoria
Projection: Geographic
Prepared by: FAO/SDRN
Date: December, 2006
This map does not imply
official UN endorsement.
Agro climatic zones
Arid Belt - high reliance on trade
Green Belt - exclusively agriculture
Flood plains - high reliance on cattle
Hills and mountains - mixed options
Ironstone Plateau - predominantly agriculture, some livestock
Nile and Sobat corridor - high reliance on cattle and fish
N
100 50 0 100 Kilometers

The rainfall pattern varies according to agro-ecological zones.

- **In the Green belt it ranges from 800mm to 2,000mm.**
- **In the Arid Zone it may be as low as 300mm per year.**
- **Temperatures range from 25 to 40°C.**
- **The growing season is generally between 100 to 200 days depending on the agro-ecological zone.**
- **Most parts of the country have two cropping seasons, April-June and July-December.**

Status of the soil heath in South Sudan

- **The soils of South Sudan are heterogeneous and require different regimes of managements and fertilizer application.**

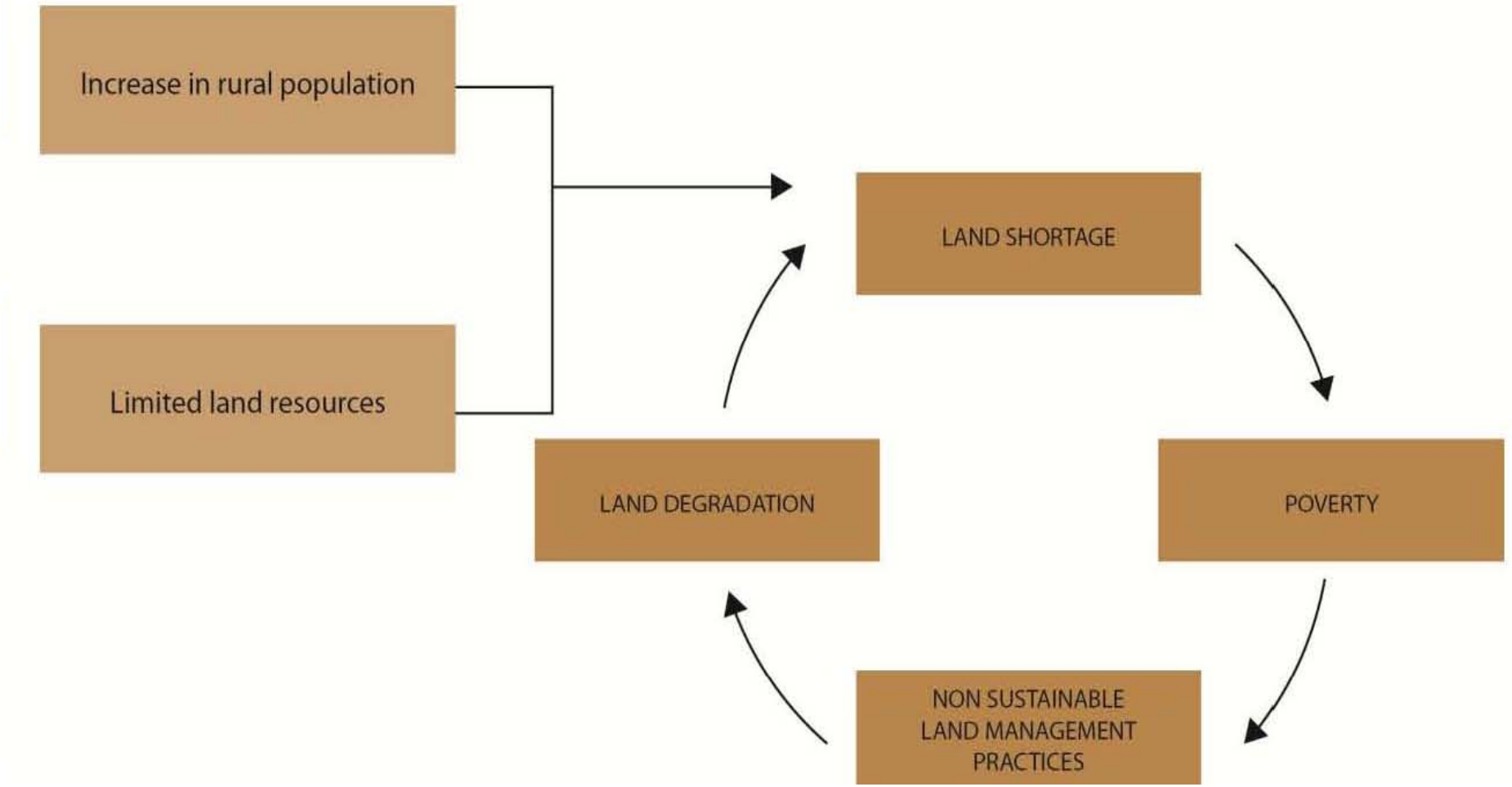
- **Most soils of South Sudan are moderately fertile but in the absence of soil amendments and appropriate cultural practices, the soil will rapidly lose the nutritional balance required for efficient and sustainable for crop production.**

- **The most comment deficient soil nutrients are phosphorus, calcium and potassium.**

- **In many areas in South Sudan(arable land even virgin lands) are low in availability of phosphorus as well as organic matter.**

- **Nutrients imbalance translate into low crop yield even from newly cultivated fields**.

Low agricultural production results in low income, poor nutrition, low consumption, poor education, poor health, vulnerability to risks and lack of empowerment.



Priorities and need for sustainability of soil heath in South Sudan

- **Fertilizers are rarely used in South Sudan, with an average of about 4kg per hectare.**

- **It estimate that nutrient mining from maize production alone in South Sudan range between 30-60kgper hectare per annum.**

- **To regenerate the nutrient mined it take 3-5 years of fallow during 2 years of continuous cropping.**

❖**Application of a balancing fertilizer mix(organic and or inorganic), combined with soil fertility management practice that minimize soil nutrient loses and enhances crop yield.**

❖**Limited knowledge experience and appreciation of the role of fertilizer in improved crop production , even among farmers adopting hybrid seed and improved planting material, contribute to this negative attitude on inorganic fertilizer.**

❖ **Inadequate extension and technology transfer services.**

❖**Limited smallholder farmers knowledge ; skills and capacity development are related to inappropriate fertilizer use.**

Conclusion

- **Implementation of sustainable soil management with especial attention to integrated soil fertility management and soil conservation practices ;**

- **Enhance the quality and availability of soil data and information: *collection, analysis, validation, reporting, monitoring, integration with other disciplines***

- **Develop and adapt improved methods for using inorganic fertilizers without compromising environmental health;**

❖**Develop and adapt methods for increasing efficiency of biological nitrogen fixation in leguminous plants;**

❖**Develop rotations which improve soil fertility and soil conservation;**

❖**Develop, improve and adapt methods for cost effective use of: Organic fertilizers; mulching to improve water retention; minimum tillage and Cultural practices.**

Capacity strengths

Capacity needs at individual level

- ❖Training in new chemical methods of analysis
- ❖Training of qualified technicians and researchers
- ❖ Mobilization of funding for research

Capacity needs at institutional level

- Establishment of well equipped and performing soil laboratories, that can be used as focal point for training for national technicians.

Thank You