



Priorities for the Management of Soils in Zambia

Stalin Sichinga

Ministry of Agriculture and Livestock

Zambia

Country Profile

- Zambia is a land-locked country in Southern Africa
- covers a surface area of 752,972 km²
- The population of Zambia is about 14.54 million as of 2013

Climate

- Zambia has a sub-tropical climate.
- The rainfall pattern is unimodal and it's from November to March.
- Rainfall varies from 750 mm in the south to 1200 mm in the north

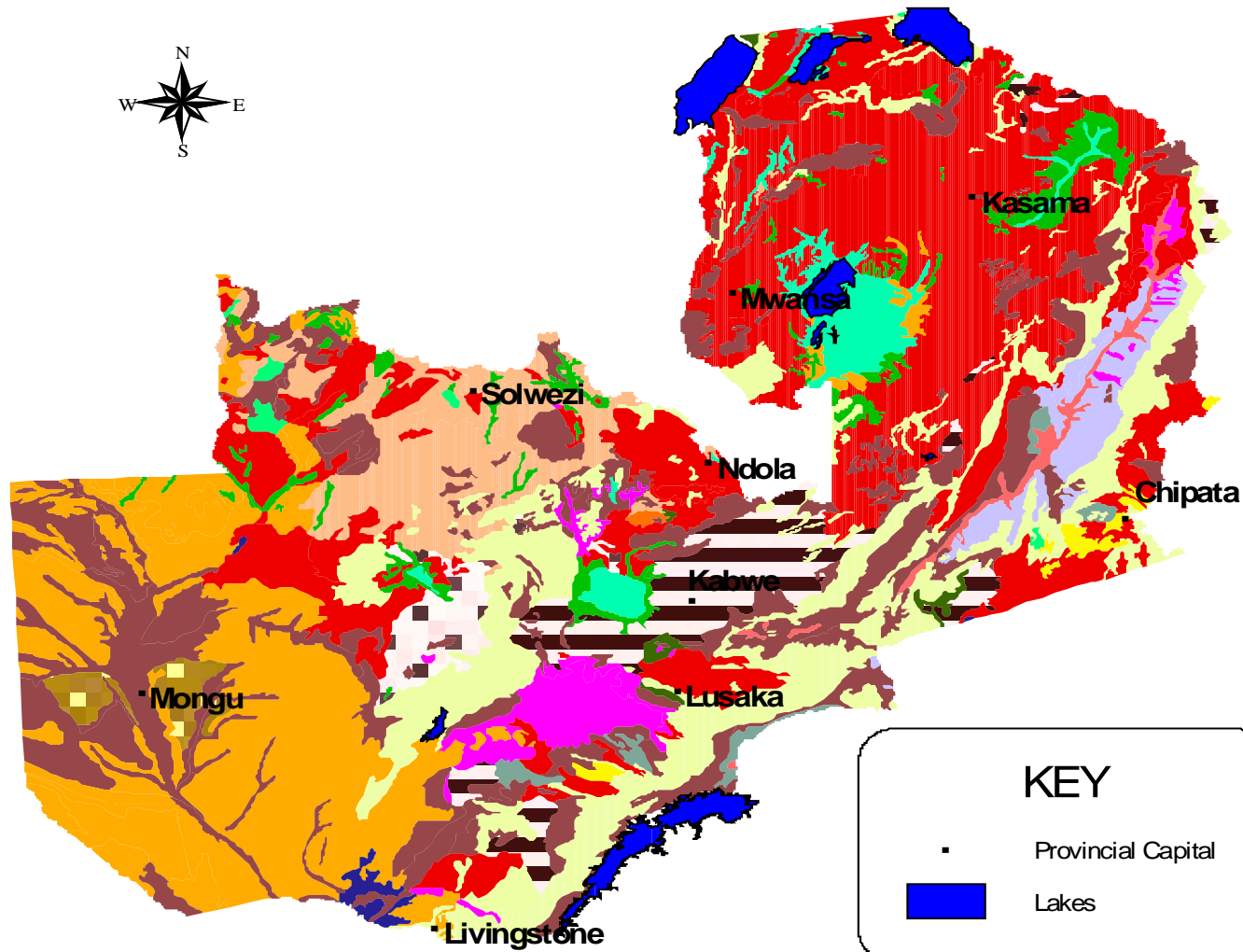
Economy

- The Zambian economy has historically been based on the Copper Mining industry.
- However Agriculture plays a very important part in Zambia's economy providing many more jobs than the mining industry

Agriculture

- Farming in Zambia is **predominantly rain-fed**, only about 2 percent to 3 percent of the land area cultivated annually is irrigated.
- Agriculture **provides employment for 67 percent** of the labor force and remains by far the major opportunity for employment of rural women.
- It **contributes about 23%** to the country's GDP

Soils of Zambia



LEGEND

Soils Types

- Acrisols
- Alisols
- Arenosols
- Cambisols
- Ferralsols
- Fluvisols
- Gleysols
- Histosols
- Leptosols
- Lixisols
- Luvisols
- Nitisols
- Phaeozems
- Planosols
- Podzols
- Regosols
- Solonchaks
- Solonetz
- Vertisols
- Associations

KEY

- Provincial Capital
- Lakes

Main Constraint to sustainable soil management is

Soil erosion and soil degradation

- Soil erosion and soil degradation are also closely linked to **deforestation** which is a major cause of soil erosion and soil degradation, and **clearing new land for agriculture** when old fields lose their fertility is a major source of deforestation.

Other causes of soil degradation and soil erosion are **bush fires** and **overgrazing** by livestock

Bush fires leave the soil bare over much of the country each year, exposing it to the effects of wind and water erosion.

Fires in Zambia (2001)



Other causes of soil degradation are Non-sustainable cultivation practices

- Cultivation or rows which run parallel to a slope automatically concentrate water flow to produce rill erosion.



Small plot studies indicate erosion losses of 8 to 12 tons of soil per hectare per year compared with soil formation rates of 1 to 2 tons per hectare per year.

Traditional cultivation systems like Shifting Cultivation (Slash and burn)



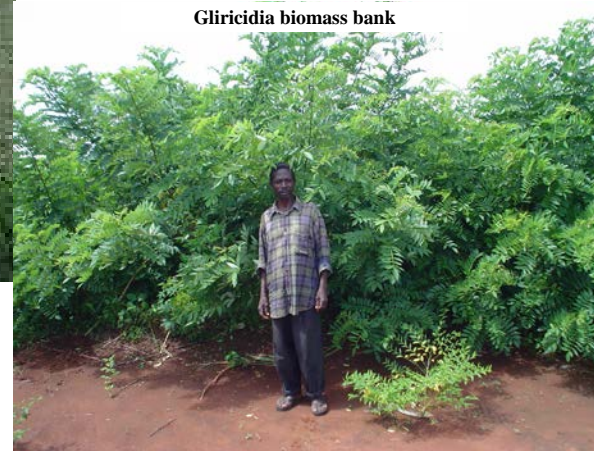
After the yield declines, a new area is cleared for Shifting Cultivation, and the initial site is left to lie fallow

Soil acidity is also an important problem, particularly in the heavily leached soils of the higher rainfall zones of northern Zambia.

Phosphate becomes insoluble and unavailable to the plants even when present in the soil under conditions of high acidity.

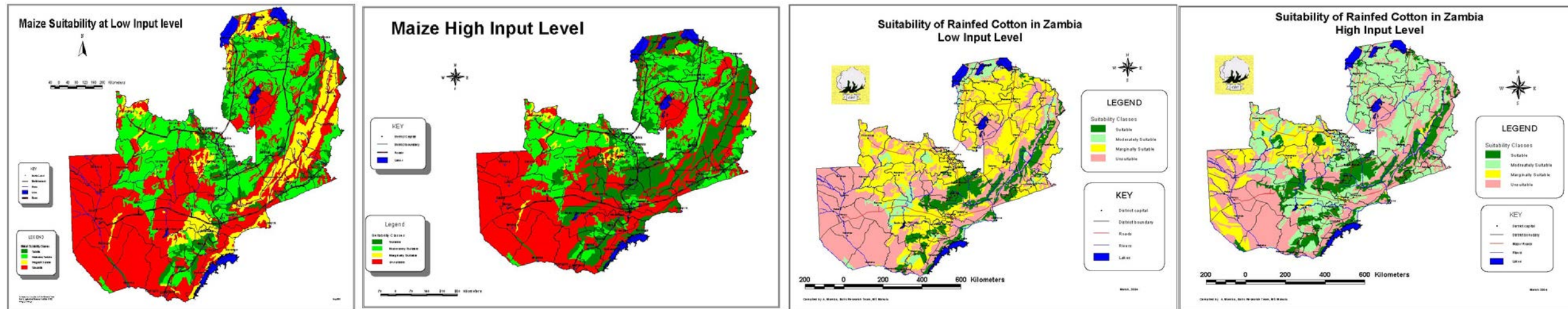
What are some of our Priorities

1. Promotion of Soil Fertility Management practices e.g.
Cultural practices - Crop rotation, Agroforestry, Green Manure



2. Development of **site specific fertilizer** recommendations as opposed to blanket application- working with AGRA
3. **Capacity building of Agricultural stuff** at all levels, there is also need to encourage farmer to farmer extension by way of Training Farmer Trainers. This will enhances farmer participation.

4. Development of soil data Management i.e. -there is need to update the current soil and crop suitability maps



5. Integration of Geographical Information System in soil fertility research

6. Support for the development of crushed lime production for agricultural application to overcome the problem of soil acidity in the Northern part of Zambia

7. Decentralization of soil laboratories



8. **Promotion of Irrigation** among small scale farmers using simple water lifting devices and drip irrigation to off set the impact of erratic rain fall



9. Promotion of **Diversified Agricultural Production** among small scale farmers
e.g. practicing small-scale livestock production, fish farming, fruit tree production, etc.



10. **Work with community** to control bush fires and livestock in the dry season. Involvement of local leadership is necessary





Thank You