STATUS, NEEDS AND PRIORITIES FOR SUSTAINABLE SOIL MANAGEMENT IN SIERRA LEONE

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By

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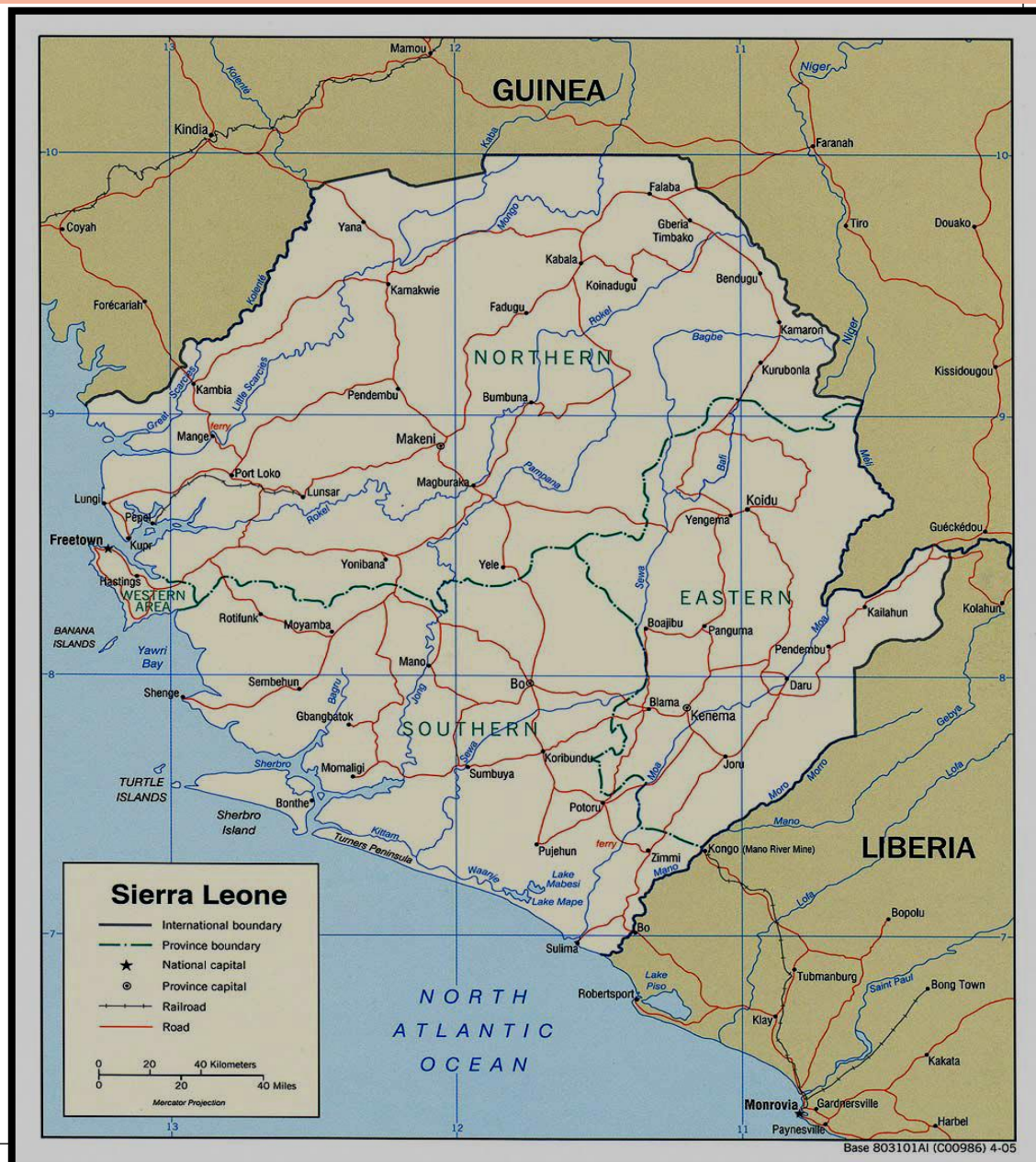
GEOGRAPHY OF SIERRA LEONE

- It lies between latitude 6 55 N and 10 00 N.
- Bordered by Guinea to the northeast, Liberia to the southeast, and the Atlantic Ocean to the southwest.
- Covers a total area of 72,300 km^2
- Estimated population of six (6) million



GEOGRAPHY OF SIERRA LEONE Contd…

- Country is divided into four geographical regions: *Northern , Eastern and Southern Provinces, and Western Area;*
- The 4 regions further subdivided into 14 districts.
- Has tropical humid climate with two distinct seasons that determine the agricultural cycle:
  - : the rainy season from May to October, and
  - a dry season from November to April.
  - Peak rainfall from July to October
- Average monthly temperature ranges between 23°C to 31°C

GEOGRAPHY OF SIERRA LEONE Contd…

- Rainfall ranges between 2000-4500 mm per annum, with highest along the coast
- The climate can sometimes be erratic causing problems to farmers, such as:
  - ***unpredictable flooding and drought spells during the growing season, and***
  - ***prolonged dry season pose serious challenges for water management in the upland***
- 6.1 million hectares (ha) are uplands and 1.16 million ha are lowlands.

GEOGRAPHY OF SIERRA LEONE Contd…

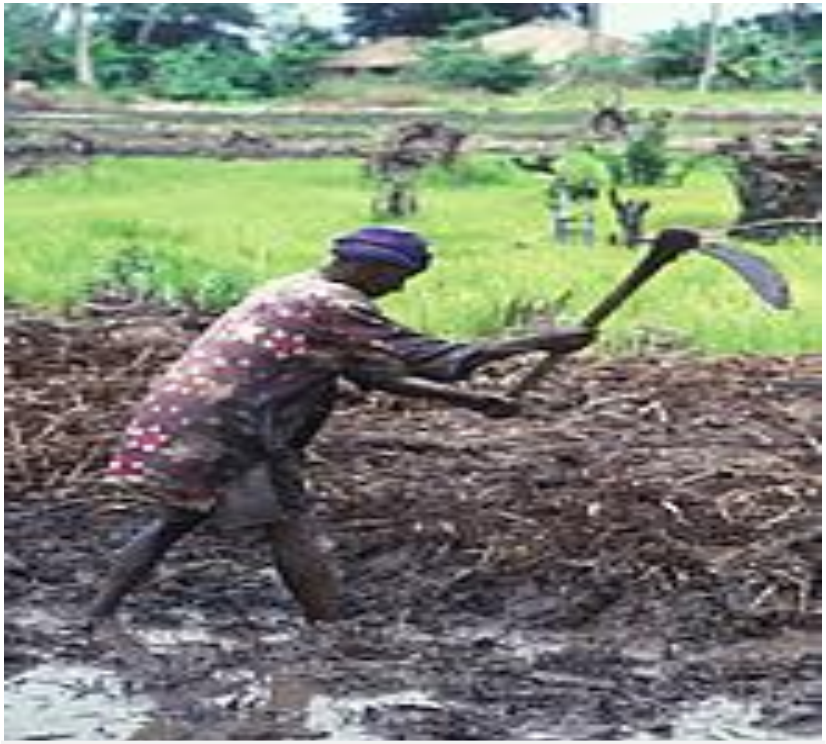
- About 71% percent of uplands and 90 percent of the lowlands are arable.
- The lowlands are differentiated in four ecosystems:
  i. *inland valley swamps (630,000 ha),*
  ii. *mangrove swamps (200,000 ha),*
  iii. *bolilands (120,000 ha) and*
  iv. *riverine grasslands (110,000 ha).*
- Natural resources: diamonds, titanium ore, bauxite, iron ore, gold

Crop Production

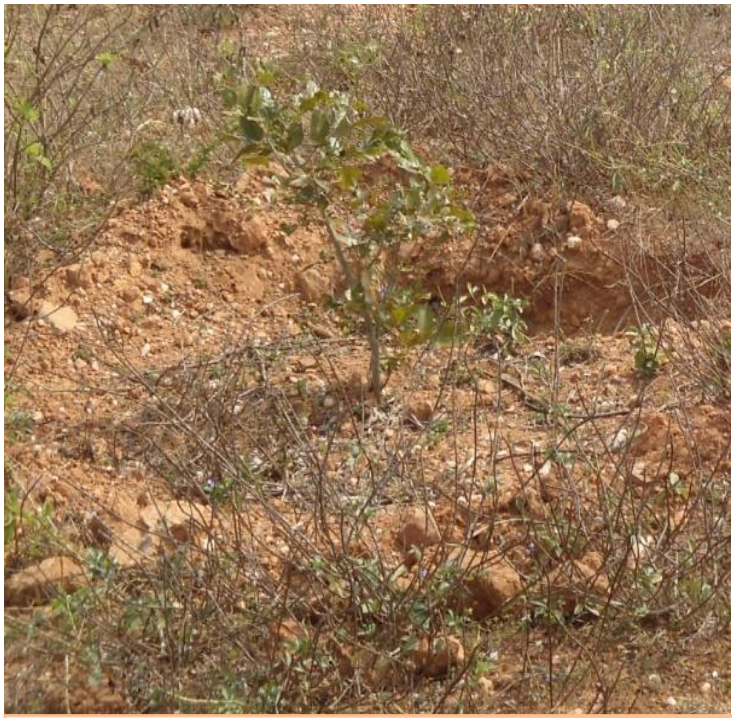
- Crop production is mainly rainfed on the uplands and the low lands support short duration crops and vegetables in the dry season.

- Rice (staple)
- Maize
- Sorghum
- Cassava
- Potatoes
- Groundnut
- Legumes (cowpea, pigeon pea)
- Yam
- Coffee
- Cocoa
- Oilpalm
- Cashew

STATUS OF SOILS IN SIERRA LEONE



Inland Valley Swamp Development



Upland with lateritic Soil

STATUS OF SOILS IN SIERRA LEONE

- Soils are mostly Oxisols and Ultisols that contain oxides of iron and aluminium and are acid.
- The most serious crop production problems on these soils are that of deficiencies in plant available phosphorus and low inherent fertility.
- High level of deforestation, poor management and lack of inputs have led to a decline in productivity, soil erosion, and loss of vegetation
- Mining of agricultural lands for natural resources such as diamonds, titanium ore, bauxite, iron ore, gold.

ENVIRONMENTAL ISSUES

- Today nearly 70% of its forest cover has been lost.
- Rapid population growth pressuring the environment;
- Alarming rate of deforestation for timber, fire wood and charcoal and construction of dwelling houses.
- Shifting cultivation (slash and burn agriculture), is still wildly practised by two thirds of population who depend on subsistence agriculture for their livelihoods, which is unsustainable in the face of increasing population densities and contributes to deforestation and emission of $CO^{2.}$

ENVIRONMENTAL ISSUES CONTD..

- Wildfires on wooded savannas and farm fallows
  - Wildfires are another major direct cause of land degradation in Sierra Leone. There is
  - always a huge amount of highly combustible grass fuels on savannas and fallows and these areas burn very frequently during the dry season.

- Mining activities in Sierra Leone are raising a wide range of issues related to land degradation, health and safety of the mining communities.
- Soil erosion and leaching of nutrients

INSTITUTIONS IN SOIL RESEARCH AND/OR SUSTAINABLE LAND MANAGEMENT

- Ministry of Agriculture
- Njala University
- Sierra Leone Agricultural Research Institute (Government & Donor support)
- NGOs: **Welt Hunger Hilfe Project; World vision; Action Aid, SNAP (**Farmer field schools)
- Office of National Security (ONS)
- Climate Change Secretariat

Policy and Legal Context

- Important legislative actions related to sustainable land and natural resource management include:
  - *the National Environmental Policy (2002),*
  - *the National Environmental Action Plan (2002),*
  - *the National Land Policy of (2004),*
  - *Biodiversity Strategy and Action Plan (BSAP),*
  - *the Mines and Minerals Act*
  - *the Poverty. Reduction Strategy Paper ("Agenda-for-change"; "Agenda-for-Prosperity")*

SOME GOVERNMENT IMPLEMENTED PROGRAMS

- Enacted legislation on the Environmental protection of forest and land use in 2002.
- Environment impact assessment (EIA) prior to mining.
- Resources available for mine-land reclamation
- Climate change project – Under MAFFS supported by IFAD
- Fuel wood project: Youth empowerment programme for sustainable management of forest.
- The School of Environmental Sciences at Njala University has developed academic programmes for sustainable land management
- SmallHolder Commercialization Programme in the Ministry of Agriculture

Small Holder Commercialization Programme (SHCP)

- Agriculture contributes to approximately 50% of the country's GDP
- SHCP:
  - Promoting commercial agriculture(processing value addition & marketing; seeds & planting materials at rates)
  - Improving agric research & extension delivery
  - Plant clinic, ABCs.
  - Promoting effective sector resource management systems
- Given the poor fertility status of soils, especially the uplands, this programme provided farmers with over 1,523mt of assorted fertilizers including NPK, and Urea in last one year.

Small Holder Commercialization Programme (SHCP)

- Reforestation of catchments, coastal areas
- Irrigation: Small scale irrigation of over 1.8 hectares of IVS; bore and pump irrigation been targeted.
- Large scale irrigation: Looking forward to investors especially in areas with potential for large scale crop production of the country's staple (rice) such as Torma Bum, Gbundapi, Rhombe swamps
- Forest management associations -127 villages.

BARRIERS TO SUSTAINABLE LAND MANAGEMENT

- Inadequate knowledge and knowledge management for natural forest management
- The limited legal and economic instruments for promoting sustainable land management, especially in relation to land tenure is an another barrier
- Research into use – limited use of developed research technologies by farmers.
- Soil erosion: clearing of lands especially mountains/hills slopes for construction of dwelling houses (some have ended in disaster and loss of life) resulting in washing of top and in some areas sub-soil into small streams and even the ocean
- Growing farming population and attendant shortened fallow periods

NEEDS & PRIORITIES FOR SUSTAINABLE SOIL MANAGEMENT

- More support for research facilities – RARC, NARC, and LWDD of SLARI;
- Increase access to inorganic fertilizers
- Reforestation of lands.
- Crop rotation
- Soil organic matter management
- Government Legislations on sustainable soil management
- Capacity building for Sustainable Soil/Land management (FFS, University curriculum, extension services)
- Increase research facilities & convert research results into use
- Reclamation of mined agricultural lands given the increased mining activities in the country.

CONCLUSION

- Remove barriers to sustainable soil management:
  - Support to Research
  - Capacity building and
  - Commitment by government

- Generation of soil and land use information and awareness of stakeholders on practical utility of the land use information system.

- Using sustainable land management practices to mitigate climate change and improve productivity

THANK YOU !!