STATUS AND MANAGEMENT OF LAND RESOURCES IN MALAWI

Presented at the Global Soil Partnership for Eastern and Southern Africa

By

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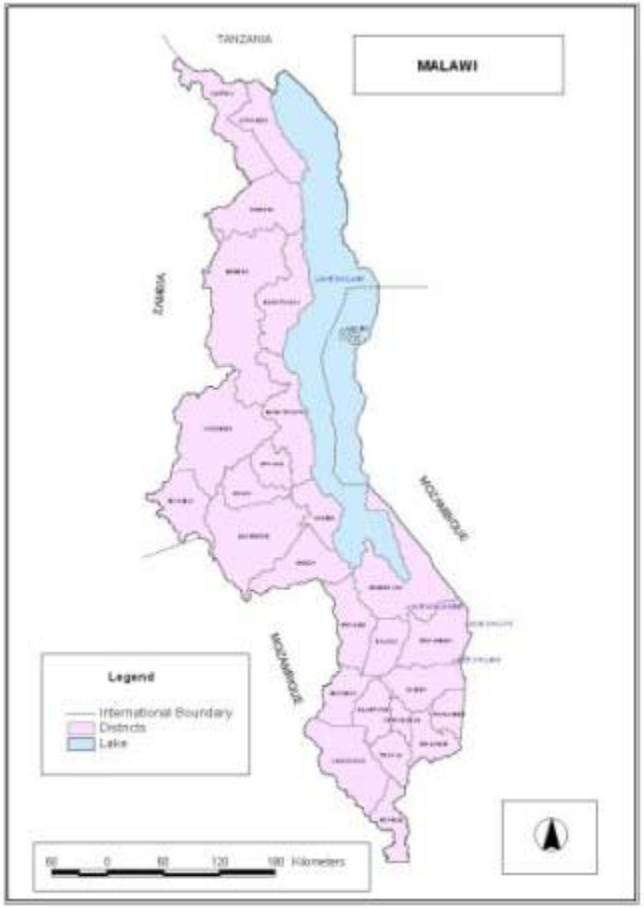
Introduction

- Area:
  - 118,480 sq. km
  - 94,080 sq. Km land area
  - 24,400 sq. Km water
- Population (2008)
  - 13.1 million
  - 49% men
  - 51% women
  - 2.8% growth rate
- Districts
  - South: 13
  - Center: 10
  - North



Major soil types

- Eutric leptisols (lithisols)
  - Shallow and stony
  - Associated with step slopes
- Chromic luvisols
  - Red-yellowish
  - Deep soil
  - Well drained
- Haplic lixisols

Other soil types

- Acrisols
  - Strongly leached soils
  - Associated with low pH
- Cambisols:
  - High organic matter content
  - Dark brown in colour
- Gleysols:
  - High clay content
  - Prone to water logging
- Vertisols:
  - Cracking clays

Significance of soil in Malawi

- Agricultural production:
  - 85 % of Pop. are subsistence farmers
  - 90% of export generated
  - 38% of GDP
- Construction industry
- Rain water storage and purification
- Pottery industry

Land resources evaluation project (1991)

- United Nations Devepment Programe (UNDP)
  - Mw Govt. (MoA, LRCD)
  - UNFAO
- Objective:
  - Appraise the land resources in the country
- Aims:
  - Provide an up-to-date and inventory of land resources;
  - Determine current land use
  - Determine the agricultural potential

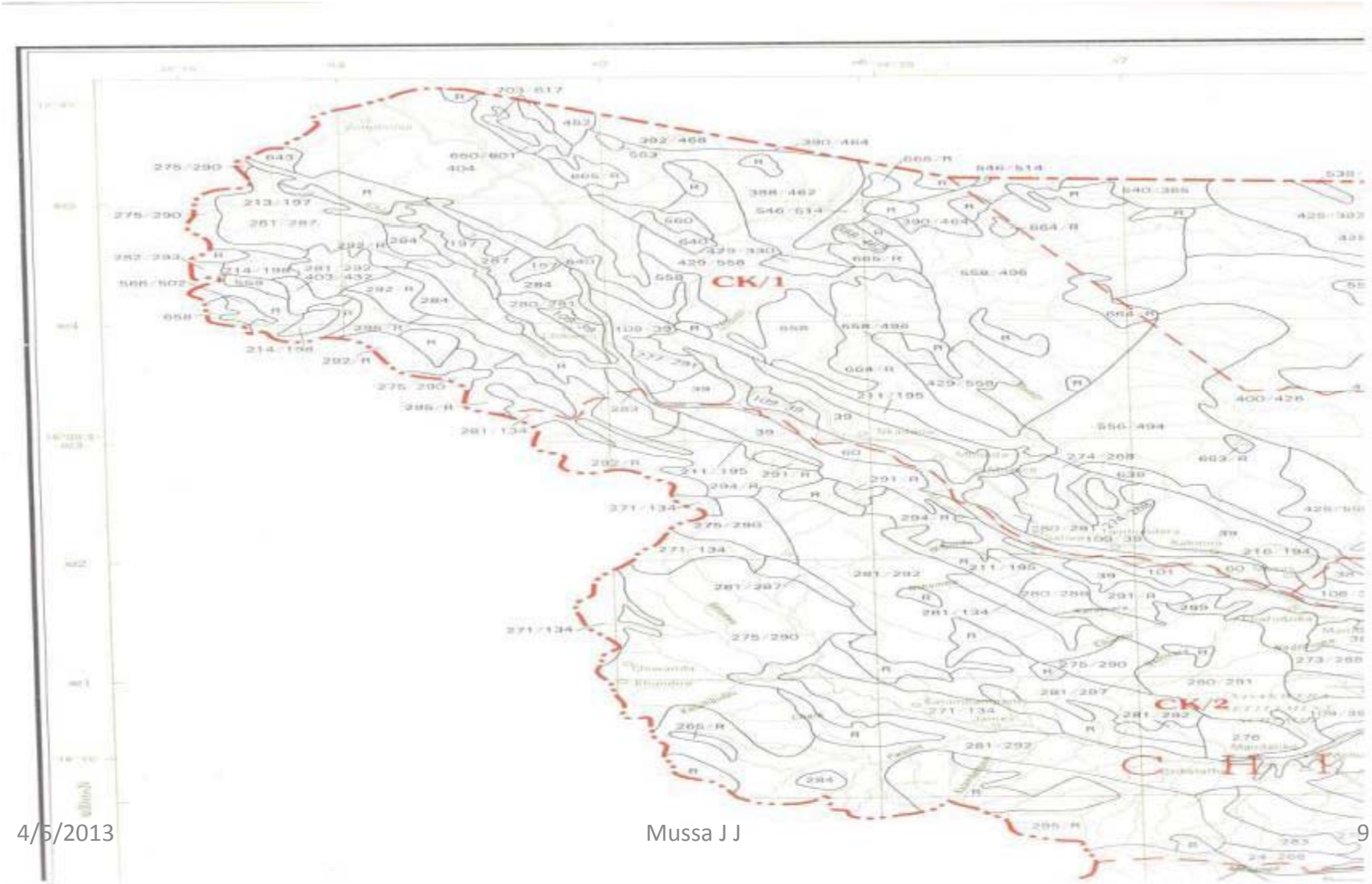
LREP: Methodology

- Preliminary desk work:
  - Existing reports of soils and vegetation; Aerial photograph analysis; Topographic and geological maps
- Fieldwork:
  - Surveys described physiography, soils, and land use; and collected soil samples
- Laboratory analyses:
  - soil texture; pH; soil organic carbon; minerals (N, P, Cu, Zn); CEC; electronic conductivity.
- Based on Agricultural Development Division (ADD)

LREP: Products

- Inventory of soils and physiography
- Land units and land resource data base
- Present land use and vegetation
- Land suitability for various crops
- Maps (1:250,000) for each ADD

LREP : Land units



LREP : shortfalls

- Data not regularly up-dated
  - land-use
  - Vegetation
  - Soil parameters e.g soil pH, soil depth
- Unsustainable capacity building on use of the data
- Mapping scale (1:250,000) not ideal for planning at farm level (0.5 – 2.5 ha/ff)
- URGENT NEED TO REVISE THE LAND RESOURCES APPRAISAL DATA

Threats to soil resources

- Soil erosion : Land / Environmental degradation
- Causes:
  - Poor farming practices
  - Cultivation of marginal/fragile areas
  - Deforestation
  - Overgrazing

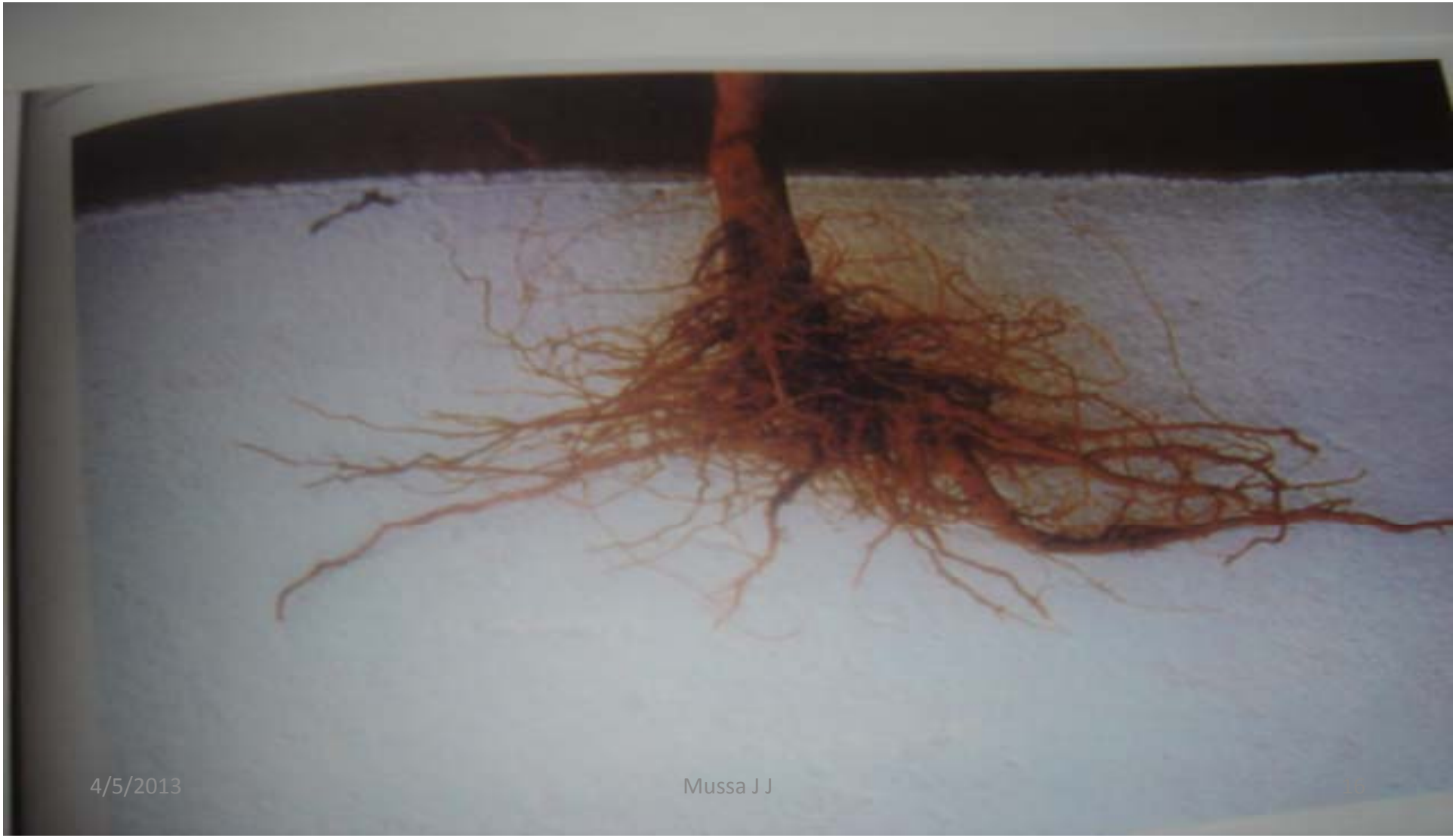
Deforestation

Stream bank & river bed cultivation

Gully Erosion

Land clearing and burning of crop residues

Hoe pan (Tobacco plant with bending tap root)



Soil loss estimates studies

STUDY	ESTIMATED SOIL LOSS (TONS/HA)
Kasambara & Machira (1984	0 - 50
Khonje & Machira (1987)	50
Bvumbwe Soil Erosion Project (1982)	0.15 – 16.4
World Bank (1992) * *	20

Soil and Water Conservation farming practices

- Physical structures
  - Contour ridging
  - Check dams
  - Swales
  - Box ridging
  - Vegetative hedgerows (vertiver grass)
- Agro-forestry
  - Improved farrows
  - F. albida interplanting
- Manure
  - Animal
  - Compost
  - Tree biomass
- Conservation agriculture

SALWM Practices

Contour ridging

Intercropping (Mz & Cowpea)

SYSTEMATIC TREE INTERPLANTING [*Faidherbia albida,* Winter Thorn,

Maize / *T. vogelli* undersowing

Compost manure

Conservation agriculture

- Principles
  - Soil cover
  - Minimum tillage
  - Intercropping/ crop rotation

Coordination on promotion of SWC

- MoA&FS
  - LRCD
  - DARS
- ASWAp
  - SALWM TWG
- NCATF
- NCE
  - EIA Technical expert
  - Environmental Mgmt. Plans
- Agro-forestry Steering Committee
- NRM training
  - MSc & BSc degrees at Bunda College
  - Diploma at Natural Resources College


Thank you
For your attention
WAS IT WORTH PLANTING