Soil: Africa's hidden treasure

Highlighting a neglected resource

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Drivers

Africa is booming!

- economic growth at an average of 5% per year
- rapidly growing population & rapid urbanisation

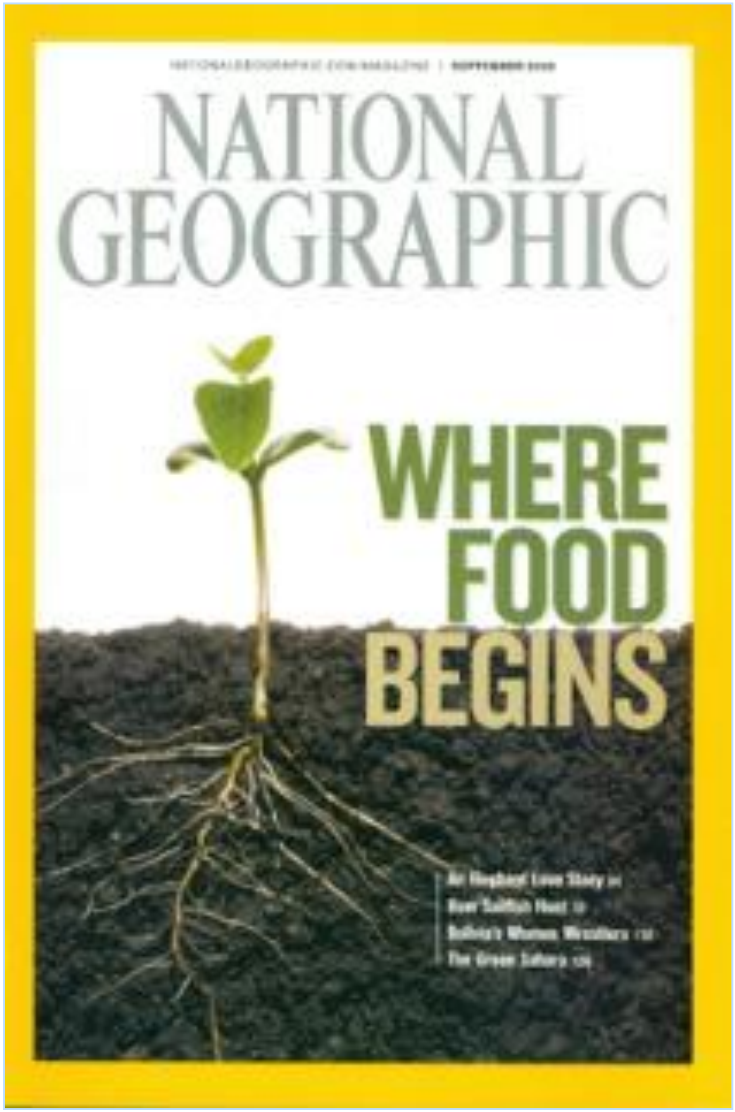
Agriculture is the backbone of African economies

- c.40% of total export earnings
- employing 60 – 90% of the labour force (women play key role)
- 50% of income comes from agriculture

Pressure to boost productivity to satisfy increasing demands for food, clean water and energy is now higher than ever (yield v area?)

Malabo Declaration commits countries to double agricultural productivity and end hunger by 2025

Soil and food production



98% of Africa's daily calorie intake comes from the land (FAOSTAT)

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Agriculture needs soil
Africa's premier natural resource?

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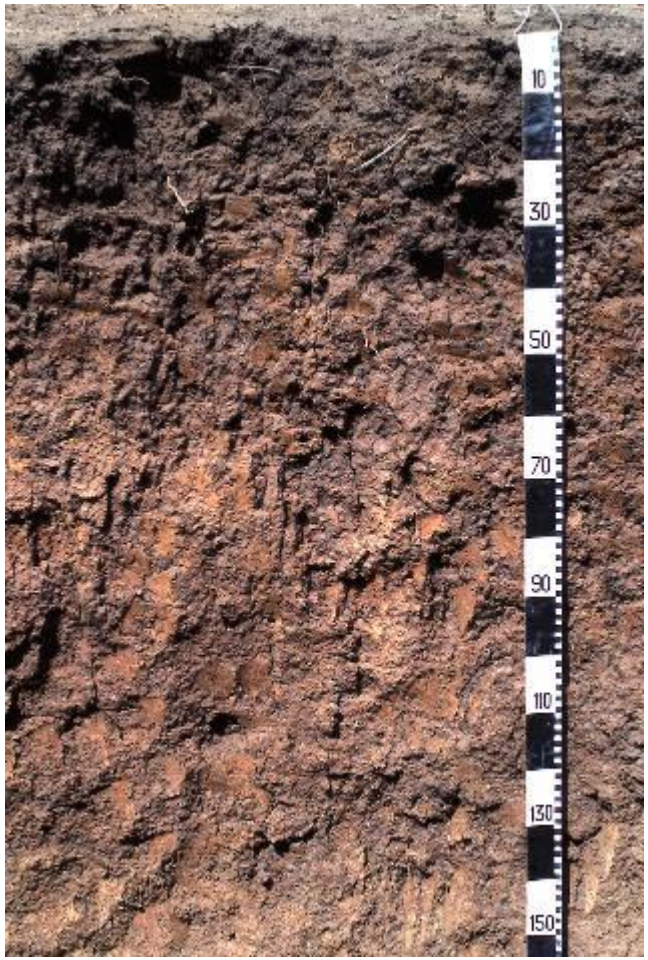
Coffee



Cereals

Soils across Africa

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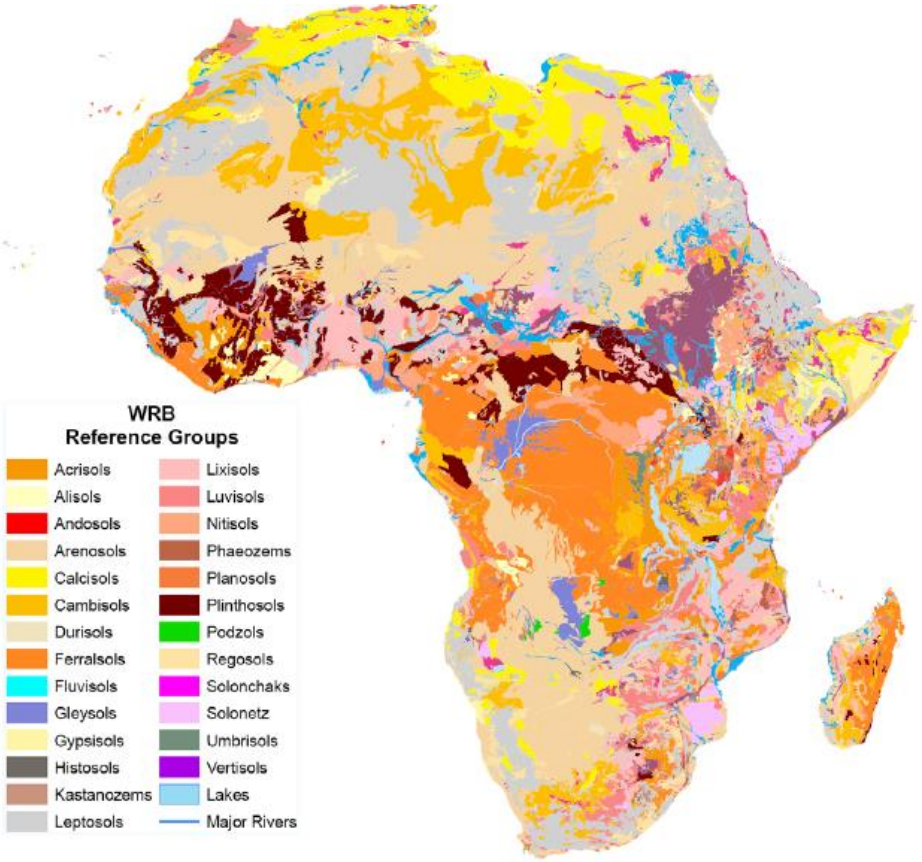

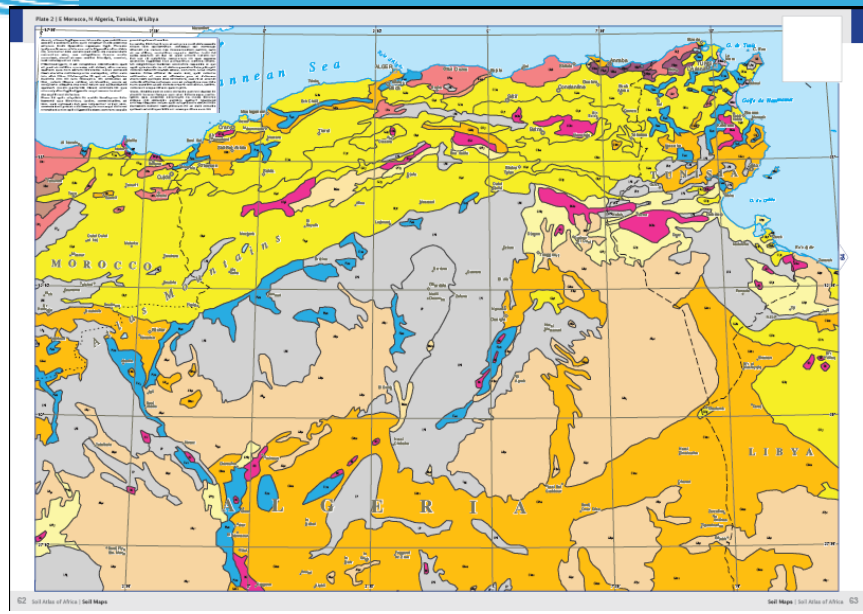

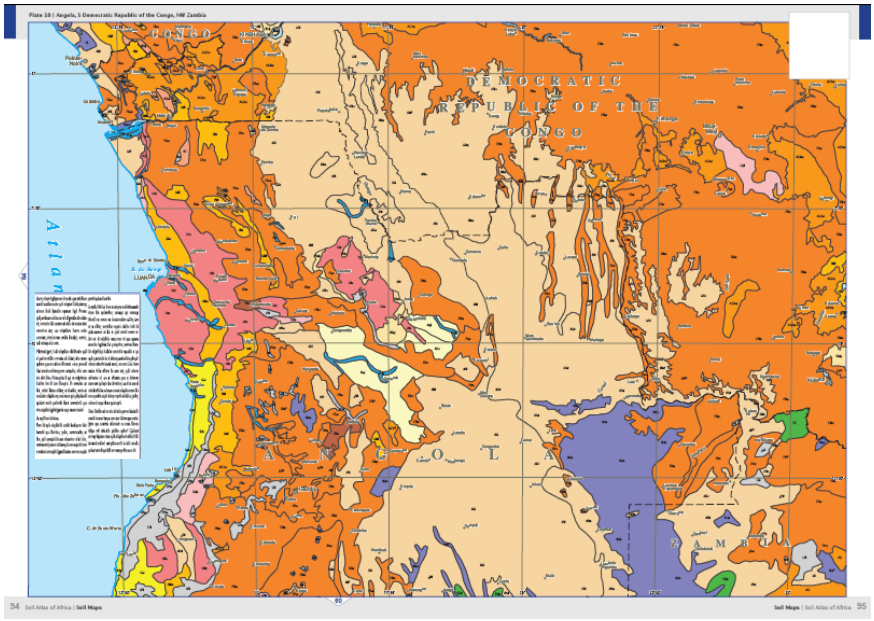

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Soil and food production

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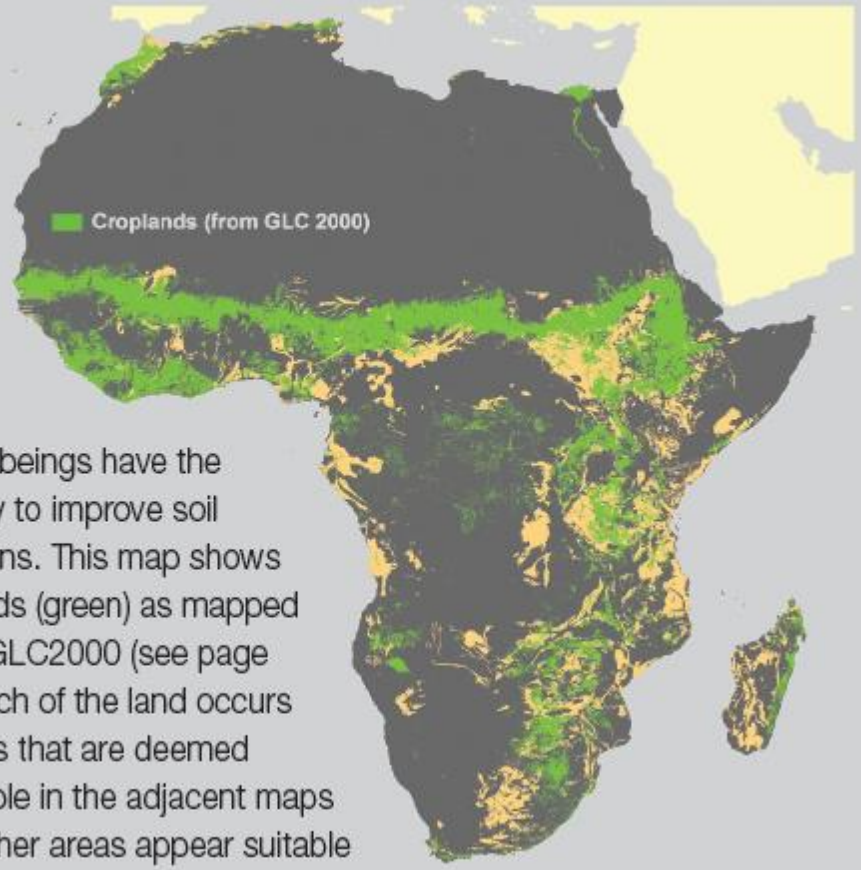
The human touch?

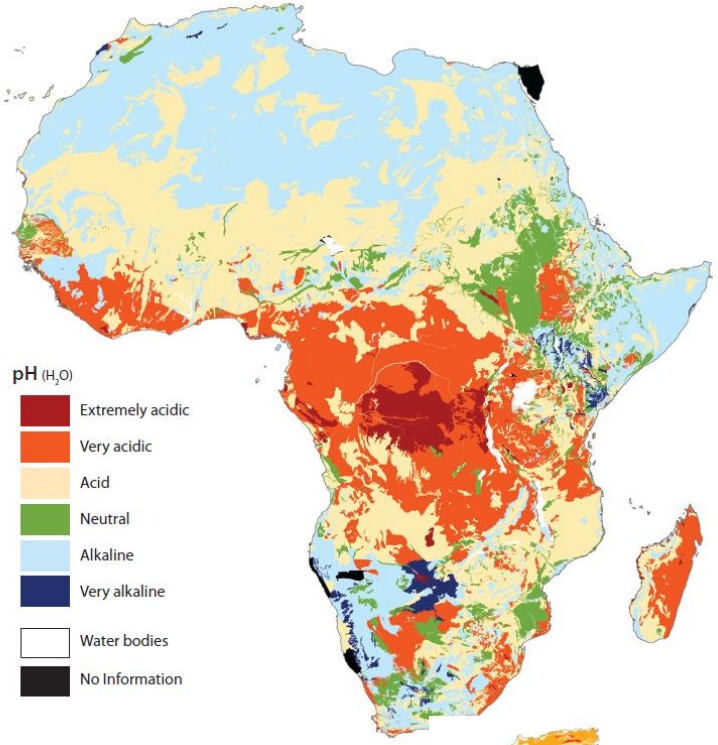


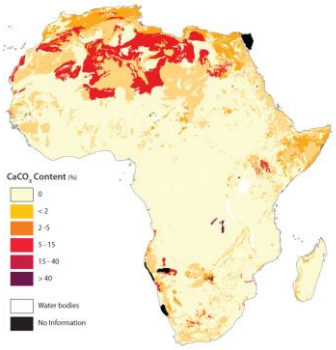
Human beings have the capacity to improve soil conditions. This map shows croplands (green) as mapped by the GLC2000 (see page 19). Much of the land occurs on areas that are deemed unsuitable in the adjacent maps while other areas appear suitable but are not cultivated. (JRC)

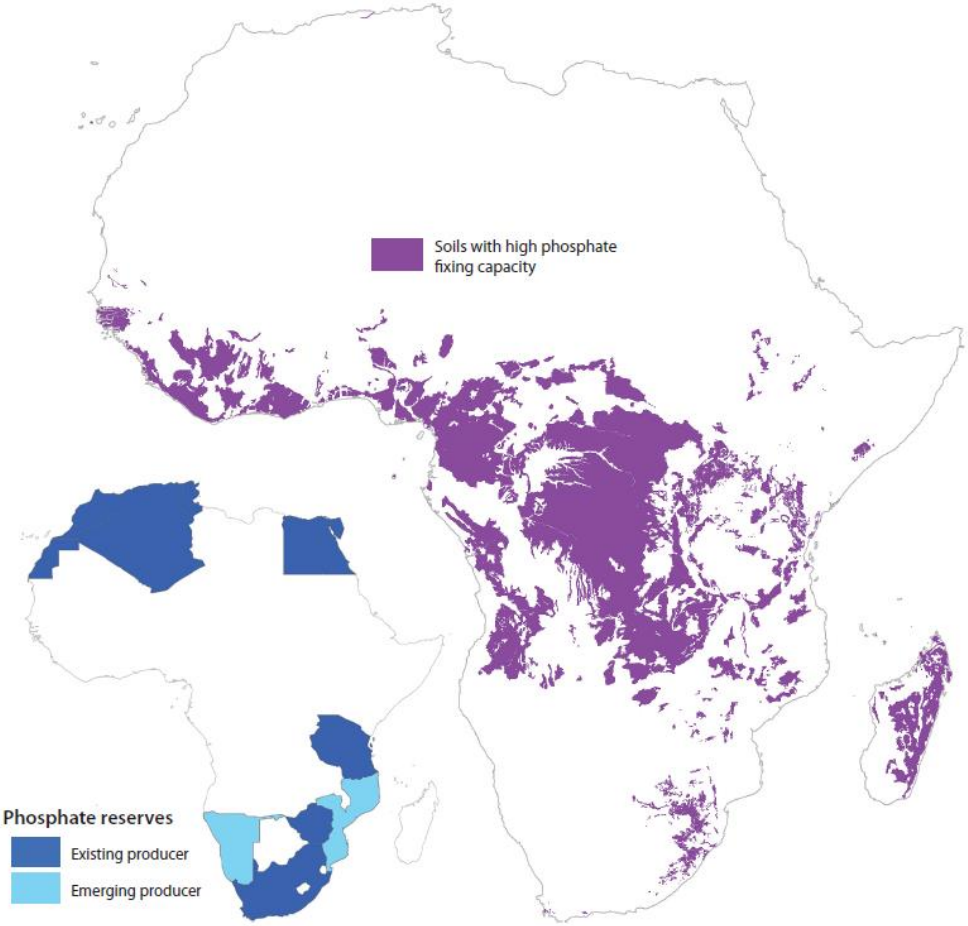
Soils across Africa

- Varied in character and function
- Many are naturally fertile and productive and are the cornerstone of food security and rural livelihoods.
- Underutilised?
- Will conserving, restoring and enhancing soils through sustainable management practices transform Africa?

Challenging soil characteristics







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Pressures

Soil degradation in Africa

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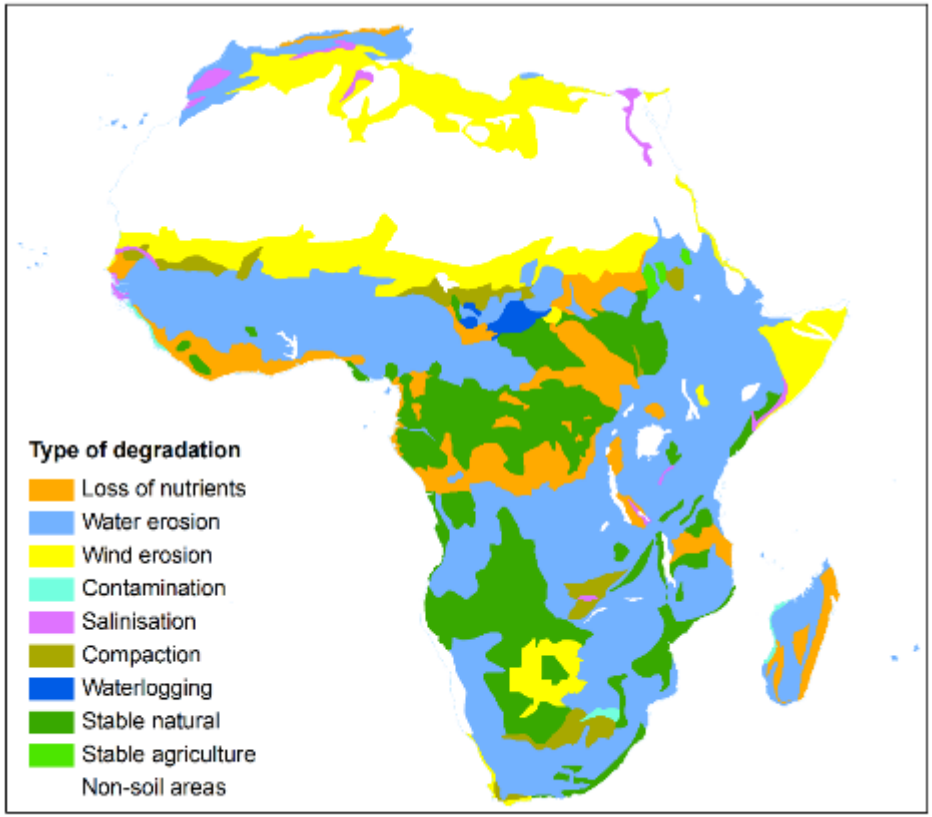
More than **50%** of the total land area is not naturally fertile due to climate and soil

Over **22%** productive land is affected by soil degradation (loss of OM, salinity, erosion, pollution, structural collapse, …)

In sub-Saharan Africa, **80% of farmland** in is affected by severe degradation = reduction in production

Outlook: climate change forecasts temperature rises that are higher than global means, changes in precipitation patterns,..



Expert judgment from 1990s on data from 1970s, '60s, '50s or even earlier!

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Current assessments are subjective.

Many areas are infertile or of low fertility, exacerbated by nutrient depletion and low organic matter content

Land degradation reduces fertility, lowers yields, impacts other soil services….mirrored by loss in soil biodiversity

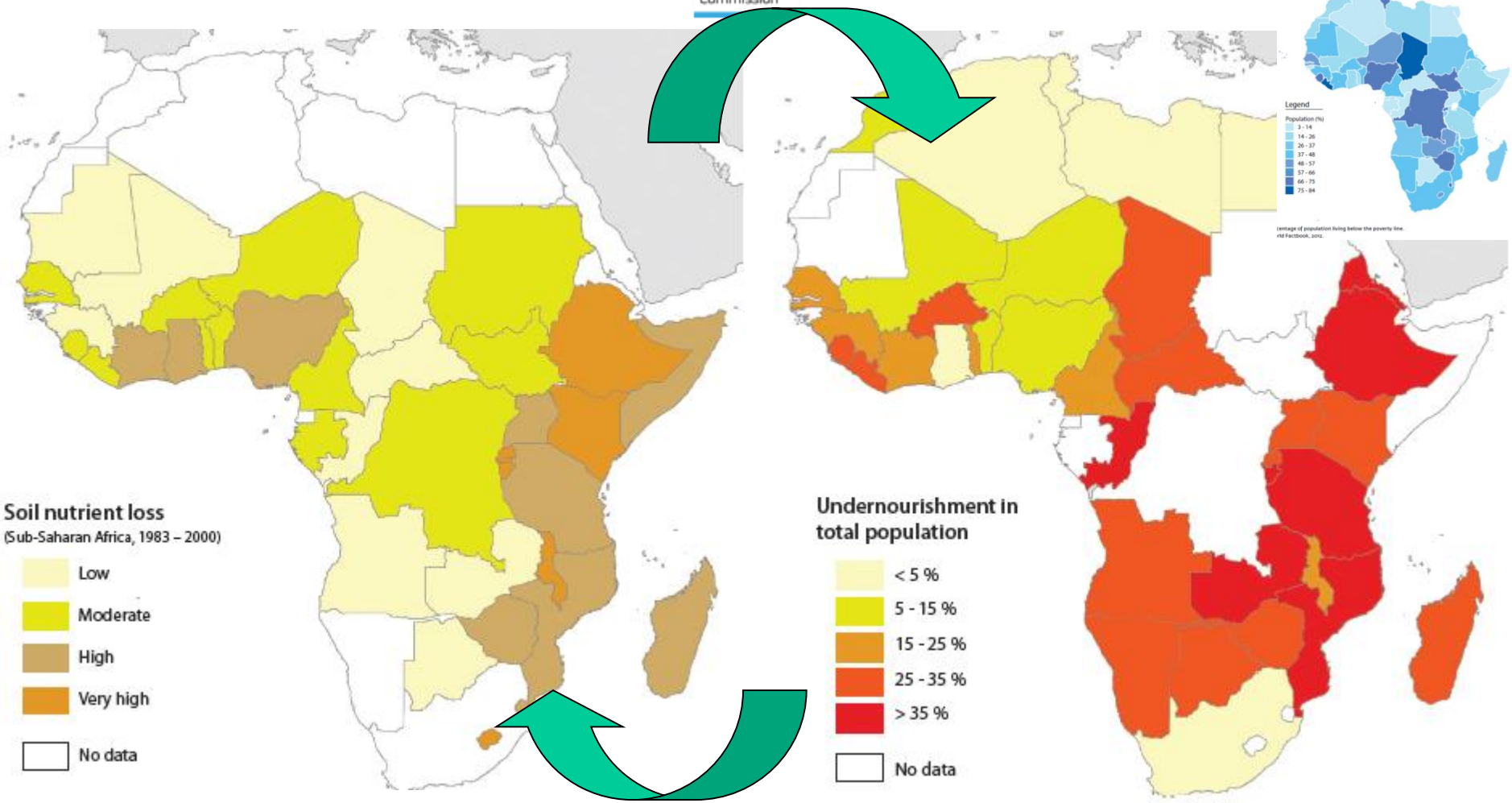
low nutrient status of most soils is further exacerbated by insufficient use of fertilizers and manure and by the practice of mono-cropping

Burden on smallholder farms

Issues compounded by land tenure,
limited access to markets
& cycle of rural poverty

Slow progress in dealing with land issues

Soil and poverty cycle



Poor soils = poor people = hungry people
= no investment = > soil/land degradation

Soils across Africa

- Large parts of Africa are lacking in nutrients, acidic and low organic matter content
- Huge problem with degradation
- Inherent issues and lack of water
- ‘Sympathetic’ land management often lacking
- Rural poverty and land tenure issues not aiding
- Good evidence base and consensus on some issues (erosion)
- Poor evidence base on many issues

Competition for land and soil

Managing soil services

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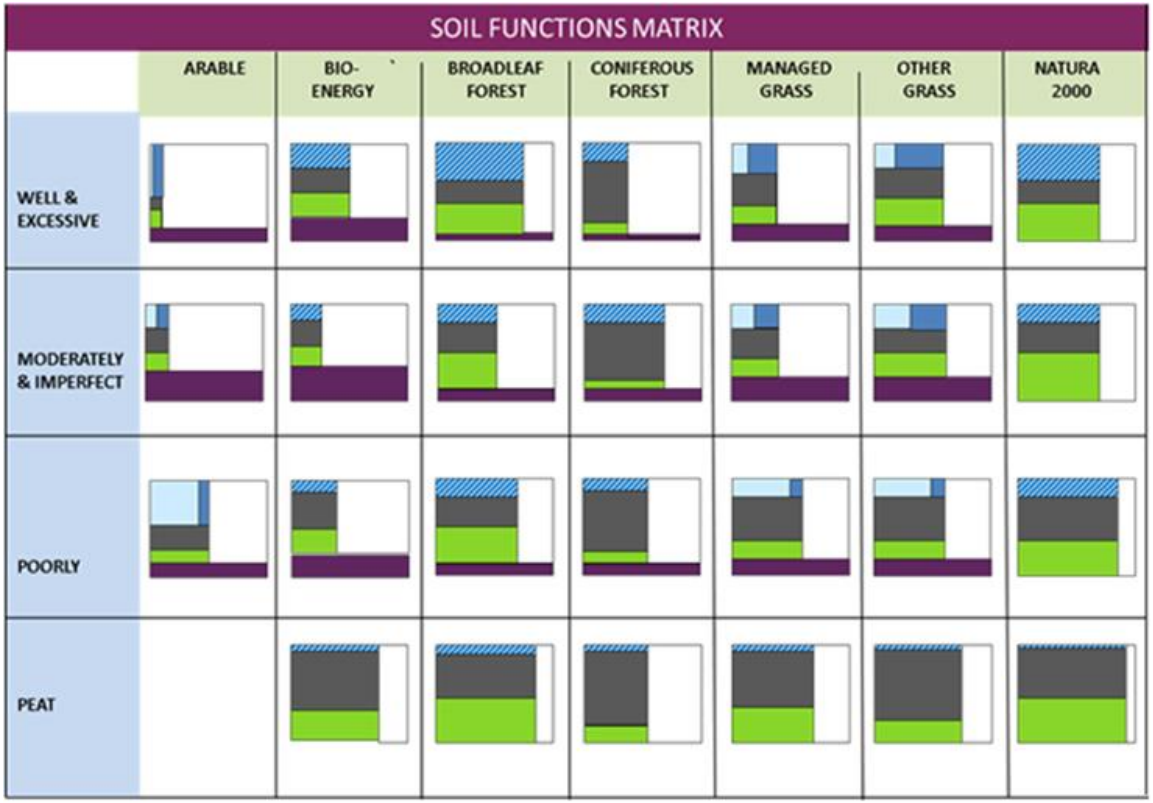
H2020 Landmark Project..for Africa?



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THE GLOBAL GOALS
For Sustainable Development

Soil a key component of SDGs

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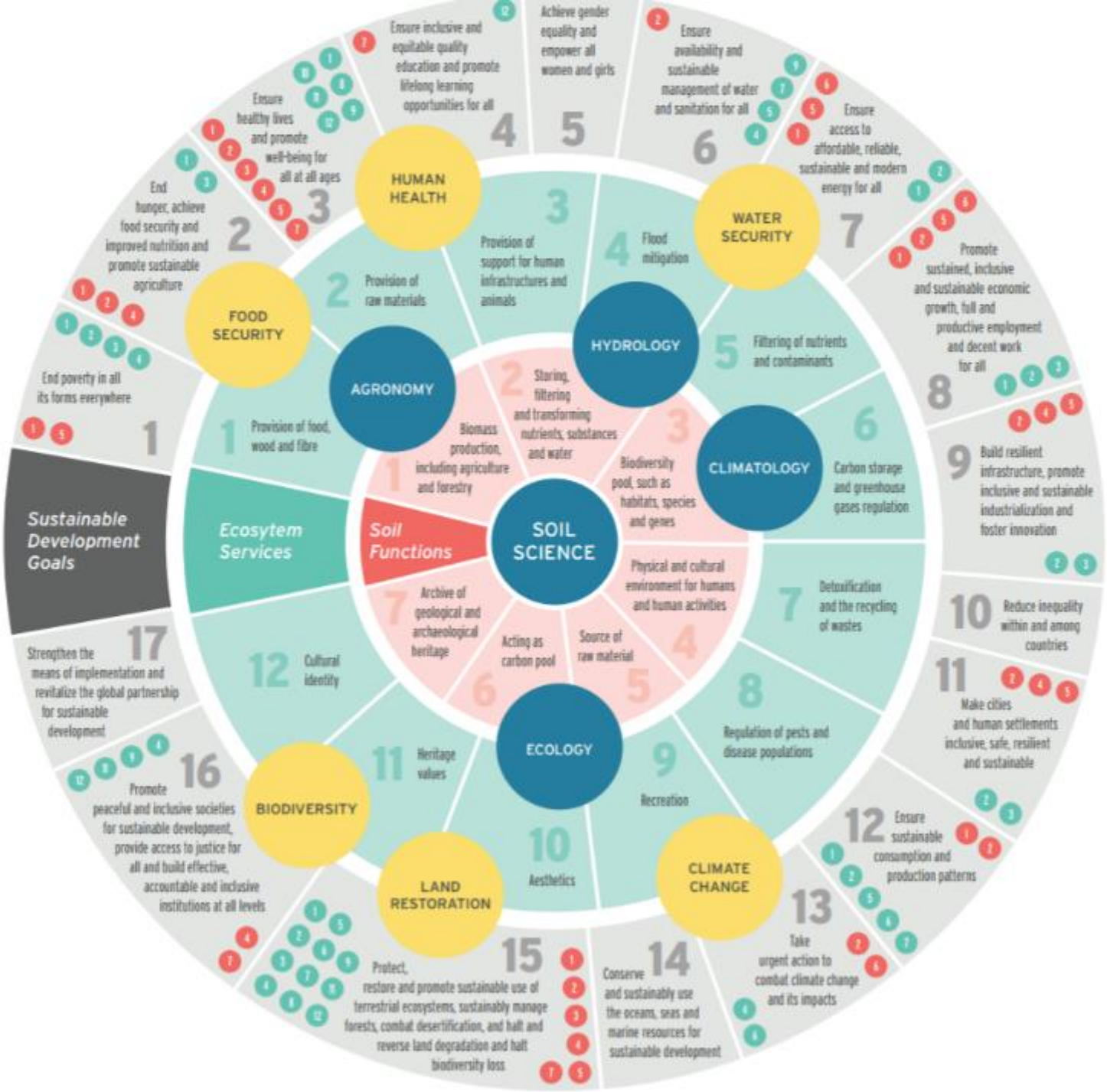

The significance of soils and soil science towards realization of the UN sustainable development goals.

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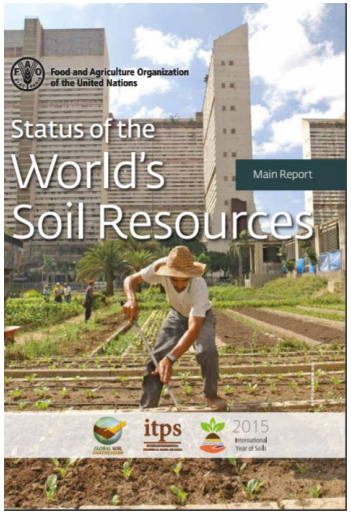
- Soils can be improved, restored, managed sustainably



Voluntary Guidelines for Sustainable Soil Management

GLOBAL SOIL PARTNERSHIP

Implementation Plan for Pillar Two of the Global Soil Partnership

Encourage Investment, Technical Cooperation, Policy, Education, Awareness and Extension

Working Group for Pillar Two

GSP Chair: Ms. Lucrezia Caon

ITPS chair of Pillar Two: Ms. Maria de Lourdes Mendonça Santos Brefin

Africa: Ms. Botle Mapeshoane
Asia: Mr. Muhammad Arshad
Europe: Mr. Arwyn Jones
Eurasia: Ms. Elena Sukhacheva
Mexico, Central America & the Caribbean: Ms. Laura Bertha Reyes Sánchez

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Education and Outreach

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- Collapse of soil survey in last 40 years.
- Lack of knowledge and limited scientific data on soil in many countries.
- Need to invest in education.
- Need to invest in capability for soil survey, soil science and soil use.
- Support and stimulant for African soil science community and policy makers.
- Empower soil scientists to be 'ambassadors' – African Soil Partnership.

More of this

Less of this

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Challenges

•Better understanding of farming systems: e.g. Organic v Sustainable Intensification v Conservation Agriculture v Indigenous Land Management – role of soil biota

•Understanding the competing demands on soil and drivers of land degradation & land take –soil in spatial planning, functional land management…

•Quantifying the ‘costs’ of soil functions and land degradation – balance with increased financial support for investment in land and soil management, including research and knowledge transfer/extension

•Assessing the risks from climate change and implementation of climate smart agriculture

•Quantifying the costs of soil functions and land degradation.

•Timely and relevant data! On soil functions, degradation processes, monitoring, scenarios. Build and develop existing knowledge and resources

•Improved ‘infrastructure’ land rights, better access to markets, extension services and training to improve soil health, …

Last words!

Untapped potential of soil in Africa

Long term and large-scale measures are needed to combat to **soil degradation** – **sustainable soil management**

Strengthen political support for **sustainable land management**. No common pan-African framework to encourage the sustainable use of soil and create incentives for people to participate in soil conservation.

Improved knowledge base: up-to date information on the state and trends of soils across Africa is critical but lacking! Need current assessment of the state of soils and impact of pressures.

Awareness raising: must be increased. Society as a whole need to have a greater appreciation of the value of soil and the role it plays in peoples lives – especially in increasingly urbanized population.

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Thank you for your attention.

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