Sustainable Land and Water Management (SLWM) including Integrated Watershed Management Stratégies to ensure Food Security in Africa

Session III: Party presentations
AGN
9th June 2021

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- **Africa's** experiences with sustainable land and water management (SLWM), including integrated watershed management strategies, to ensure food security
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Status of land and water resources in Africa – key highlights 1

- Land and water are fundamental resources for livelihoods and food security in Africa
- Land degradation is a major problem affecting land and water resources - It affects about 66% of the productive land area in Africa .
- Over the last decade, the sub-Saharan Africa (SSA) has experienced the worst land degradation globally, accounting for 22% of the total global annual cost of land degradation amounting to 300 billion US dollars.
  - The most severe degradation has been encountered on Africa's grasslands where 40% have been degraded, followed by 26% of the forestlands and 12% of croplands
  - Water erosion is the most significant soil degradation process across Africa, followed by wind erosion.
  - Loss of soil nutrients is primary form of soil degradation, affecting over 45 million hectares.
- Estimates show that improving land and water management on just 25% of SSA's 300 million hectares of prime cropland would result in an additional 22 million tons of food.

The Situation of Water and Land in Africa- key highlights 2

- 40% of the population in Africa live in arid and semi-arid areas which have serious water stress and scarcity issues.
- North Africa is the most water scarce, with just 1% of renewable water resources but hosting 18% of the continental population, and over exploitation of renewal water in the North already exceeds 150%.
- The Sahel, eastern and southern regions are water stressed, with close to half (46%) of the total African population and 18% of renewable water resources.
- Growing water stress suggests substantial increase in use of water resources, leading to greater challenges on resource sustainability, and a rising potential for conflicts among diverse users.

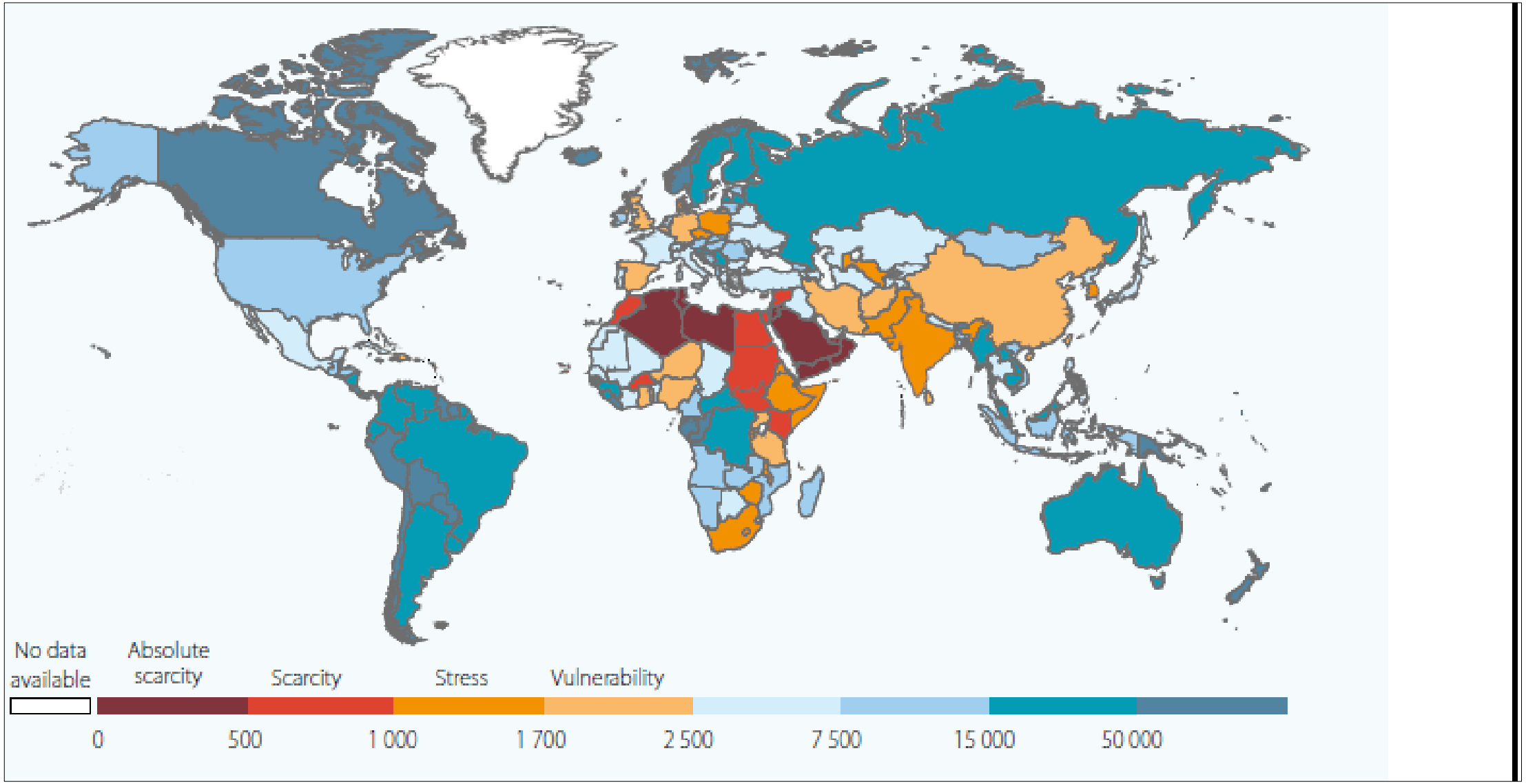


Figure 3: Total renewable water resources per capita (2013).

Source: WWAP, 2015

The Situation of Water and Land in Africa- key highlights 3

- Of the total amount of water withdrawn in Africa, 85% is used in agriculture, 9% for community use and 6% for industry.
- Water withdrawal is low (**3.8%**) for both rainfall and internal renewable resources (IRRs) in Africa except for northern African countries with 18.6% for rainfall and 152.6% of IRRs
  - ✓This reflects the low level of development and use of water resources across the continent.

Drivers of water and Land Degradation in Africa

- Climate change affects land and water resources by accelerating processes such as land degradation and desertification
- *Increased demand on water and Land resources* by p*opulation pressure* is a key driver as Africa's population is the fastest growing in the world, estimated to double by 2050 from the current 1.3 billion people.
- *Poverty* is widespread and predominantly rural in Africa as the poor largely depend on their environment to meet their food and water needs. About 60% of the people in Africa live in the rural areas.
    - ✓ Out of the 821 million people that were food insecure globally in 2017**, 31% were in Africa**. The SSA had the highest share of undernourished populations in the world in 2017 at 28.8%.
- *The growing competition for land and water from different uses* such as industry and urban settlement whereby agricultural land is being converted for urban and infrastructure development at the expense of food production.
- *Degradation of water quality and soils health*, due to *Poor agricultural practices* including poor, use of inorganic fertilizers, grazing systems, irrigation practices and lack of erosion control measures
- *Deforestation* accelerate land degradation.
- National and international conflicts for the water resource sharing

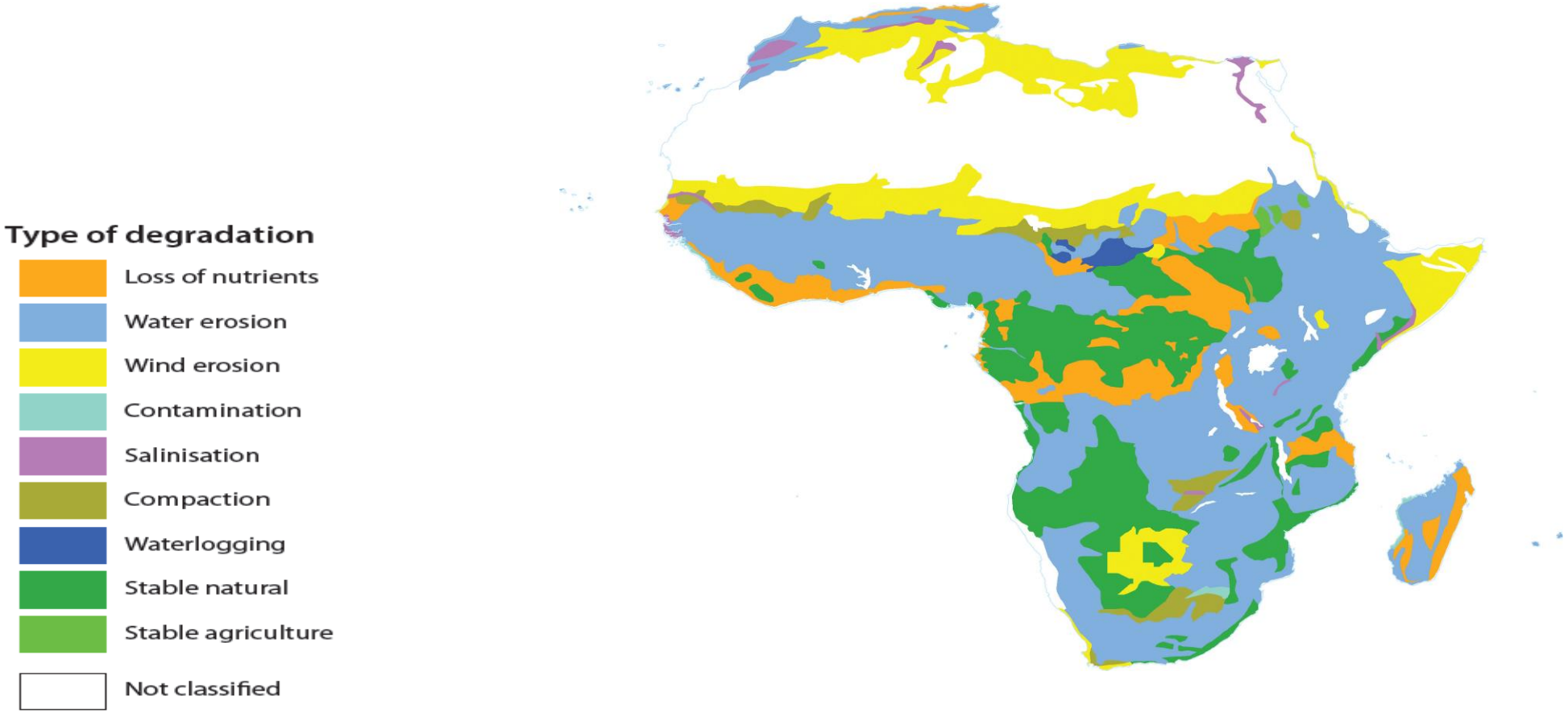
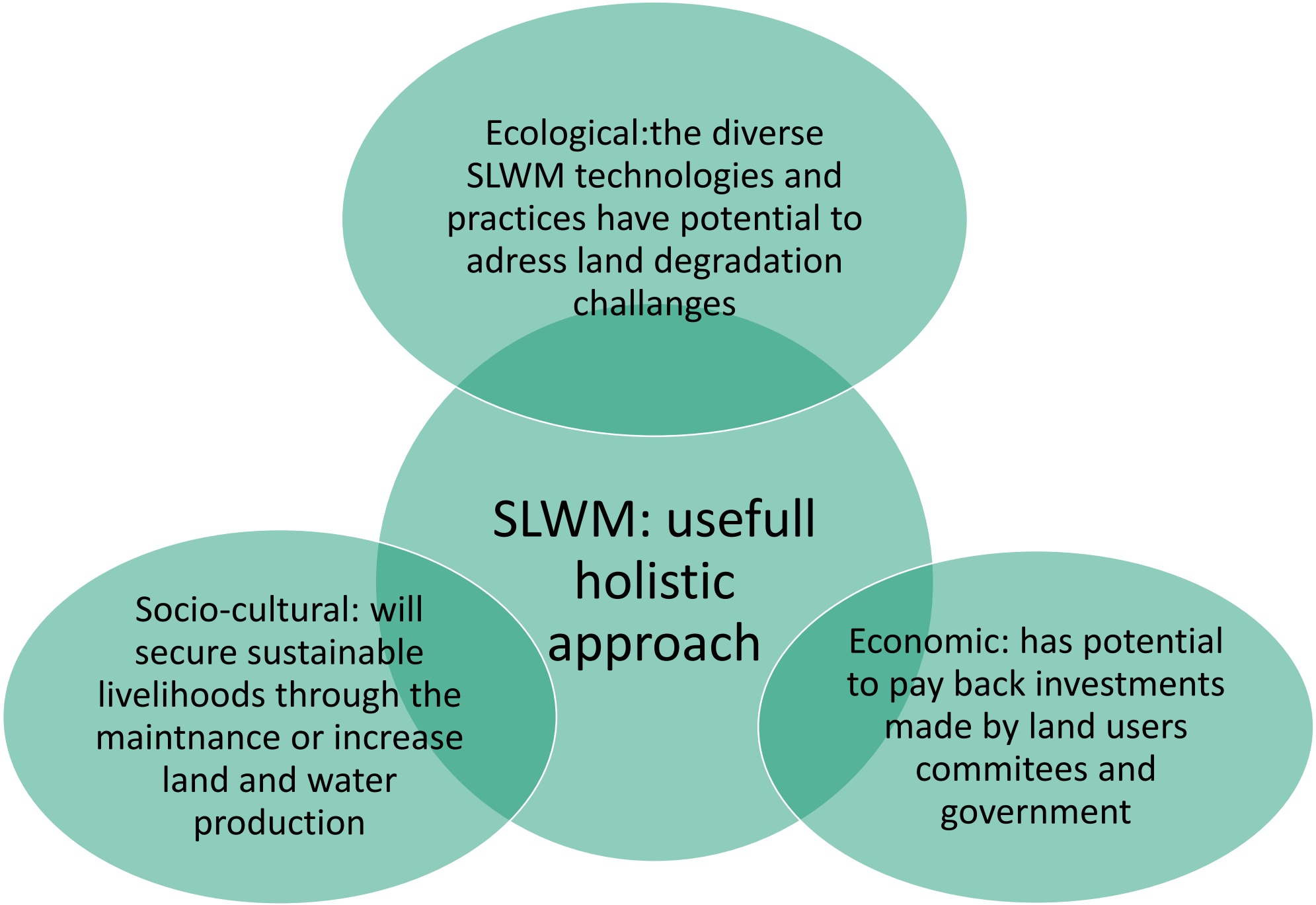


Figure 1 Map showing the main types of soil degradation across Africa

Source: Joint Research Centre, Soil Atlas of Africa, p149; GLASOD - http://www.isric.org/projects/global-assessmenthuman-induced-soil-degradation-glasod


Ecological:the diverse SLWM technologies and practices have potential to adress land degradation challanges
SLWM: usefull holistic approach
Socio-cultural: will secure sustainable livelihoods through the maintnance or increase land and water production
Economic: has potential to pay back investments made by land users commitees and government

Africa's experience with sustainable land and water management/1

- The concept of SLWM is a unifying theme for continental efforts on combating desertification, drought and land degradation, climate change and loss of biodiversity.
- Estimates show that improving land and water management on just 25% of SSA's 300 million hectares of prime cropland would result in an additional 22 million tons of food.
- However, adoption rates of SLWM in Africa are currently a paltry 8%

  Estimates showing that currently only 12.6 million ha (8%) of Africa's total arable land is under managed water and land development.

  - ✓ about 50% of farmers in SSA do not use external inputs (inorganic fertilizer or organic inputs).
  - ✓ The use of inorganic fertilizer inputs is approximately 19%, 25% for organic inputs and 6.2% for integrated soil fertility management

Africa's experience with sustainable land and water management/1

Pastoral and livestock management: Community-based approaches have been used to promote integrated crop-livestock systems in the Sahel leading to improved nutrient. Pastoral codes and legal texts have been introduced in West Africa to enhance access, sustainability and peaceful use of common pastoral resources such as the pastoral Charter in Mali and the pastoral codes in Niger and Mauritania

Agroforestry: The integration of agroforestry trees into farming has also been promoted as a best practice in SLWM. In Niger for example, farmer managed natural regeneration has been done on close to 30 million hectares

Africa's experience with sustainable land and water management/2

Water, Energy and Food Nexus Approach to address Climate Change impacts in central Tunisia

- The project, seeks to enhance smallholder farmers resilience to CC through preparedness to climate hazards, better management of natural resources, and environmental goods and services microfinance
- *The paradigm shift* instrumented through water, food and energy nexus approach is expected to have a significant positive impact on well-being and resilience of both smallholder farmers and their ecosystems in the semi-arid areas of Central Tunisia to current and future CC impacts.

Opportunities and Challenges in planning and implementation of Sustainable Land and Water Management practices-1

- *Land resource potential for agricultural water management*: The potential for agricultural water development is estimated at 46 million ha against 13.4 million ha that are currently developed. Consequently, there are opportunities to *integrate and mainstream* SLWM as a land-based solution for addressing the rampant land degradation across the continent.
- *Potential for improving productivity:* Only 25% of the projected growth in crop production is expected to come from expansion of arable land in SSA while 75% will come from intensification in the form of yield increases (62%) and higher cropping intensities (13%).
  - This creates an opportunity to enhance adoption of a suite of SLWM practices.

Opportunities and Challenges in planning and implementation of Sustainable Land and Water Management practices -2

- *Availability of water resources*: Water withdrawals for agriculture are less than 4% of total renewable resources and although major basins in the region are experiencing or approaching water scarcity, this is due to lack of capacity for storage and institutional management (by trans-boundary organizations rather than absolute scarcity).
  - Groundwater also has great potential.
- *Potential for agricultural carbon markets*: In SSA alone, agricultural carbon has the potential to contribute 17% of the total global mitigation potential
  - With agroforestry scenarios, there is potential for an additional 10 tons of above and below ground CO_2-eq. sequestration/ ha/yr.
  - The carbon sequestration capacity of SLWM practices is therefore a salient point for nations to consider agricultural carbon in the development of their mitigation portfolios and national action plans.

Opportunities and Challenges in planning and implementation of Sustainable Land and Water Management practices-1

Key challenges to scaling SLWM

- To improve of adequate policy and institutional human and financial resources for capacity building and extension services (Coordinated planning and collaboration).
- To enhance awareness of innovative approaches to incentivize adoption of SLWM such as payment for ecosystem services and insurance.
- High investment risk for individuals and the private sector (De-risking investments in land-based activities).
- Alignment of NDCs with NAPs NSLC&RCC and other development planning process
- Consider water as system not as sector
- Transition from supply to demand water management

Opportunities and Challenges in planning and implementation of Sustainable Land and Water Management Enabling environment/3

- **At regional level** : Africa Land Policy Framework; the Abuja and Malabo Declarations; Africa Agenda 2063; the Comprehensive African Agricultural Development Program's (CAADP); *African Resilient Landscapes Initiative (ARLI) which aims at improving the productivity of land and water using a landscape approach that connects agriculture land, forest land and rangeland under a single management concept.*
- **At the sub-regional level**, the Sahel and West Africa Program in support of the Green Wall Initiative is a good example of how SLWM could be used to address land and water degradation.
  - ✓ Africa's flagship initiative to combat the effects of climate change and desertification
- **At the national level**, countries have established policies and programs to guide national actions and investments that are aimed at addressing land degradation and protection of watersheds. several best practices and approaches to SLWM that are being deployed and have great potential for scaling up in Africa, as:
  - ✓ *Integrated production systems (IPSs)*
  - ✓ *Agroforestry*
  - ✓ *Pastoral and livestock management:* Community-based approaches have been used to promote integrated crop-livestock systems in the Sahel leading to improved nutrient
  - ✓ *Integrated landscape management*

Outcome of the KJWA that could contribute to efforts addressing the identified challenges

- **Unlock means of implementation to support and catalyse adoption and scaling up of SLWM:**
  - Create an enabling environment for mainstreaming and scaling out SLWM approaches.
  - Provide incentives to catalyse adoption and scaling up of SLWM by land owners and users.
  - Enhance access to a reliable and sustainable pool of financial resources (public and private).
  - Capacity building in SLWM approaches and address knowledge gaps on ecological implications of different SLWM options.
  - Platform on available SLWM technologies, best practices and lessons learnt to enhance local, national and regional level information and knowledge sharing.
- **Increase knowledge on the various available SLWM technologies and their associated benefits:**
  - Inadequate scientific data showing trends of different land uses in Africa to facilitate proper planning and management.
  - Inadequate data on current estimates of total land under actual irrigation for different systems to identify opportunities for irrigation development.
  - Gaps related to land (especially land degradation), freshwater assessment (seasonality and economic water stress) and groundwater resources.

THANK YOU FOR YOUR ATTENTION