



RESILIENT GRAIN MARKETS: **UNLOCKING AFRICA'S FOOD SECURITY POTENTIAL**

2ND-4TH, OCTOBER 2025 | ZANZIBAR, TANZANIA

Main Session 2

Innovating for productivity.

Scaling climate-smart technologies and practices for sustainable food systems

**Session
Sponsors:**



**Boaz
Waswa**

Soil Fertility Expert

Alliance of Bioversity
International and CIAT



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Building Sustainability in Cereal Grain Food Systems



Outline



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Introduction/Context

The twin challenge to grain production and their impacts

Climate Resilience and Regenerative Agriculture

Why sustainability matters for business

Call to action

Introduction



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Micro, small, and medium-sized enterprises (MSMEs) account for **85% of Africa's agrifood value chains** and are responsible for up to **60% of employment** in the sector.

Over 70% of agricultural production comes from smallholder farms (typically <2 hectares).

These farms are often **rain-fed**, making them highly vulnerable to climate variability.

Agriculture is labour intensive with limited mechanization

Yields are generally **below global averages**- climate and declining soil health, poor agronomy

The Twin Challenge to Grain Production



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Climate Change

- Recurrent droughts
- Floods
- Displaced and erratic rainfall
- High temperatures
- Frost

Land Degradation

- Low and declining soil health
- Soil erosion
- Overgrowing
- Deforestation



Africa Soil Status



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Degradation Form	Status
Soil erosion	77% of Africa is affected by erosion; Annual soil loss costs US\$ 4 billion
Nutrient depletion	Almost all countries have negative soil nutrient balances due to low inorganic fertilizer use (average 12-17kg/ha) and organic fertilizer use
Soil organic carbon	Below 1.5% yet declines annually 2.8 to 13 t C ha ⁻¹ from crop harvests and other losses
Soil biodiversity loss	Croplands have the lowest biodiversity compared to undisturbed or less disturbed soils
Soil acidity	Approximately 30% of the SSA have pH<5.5 mainly in sub humid areas
Salinization	Over 80 million ha of soils with pH>8.5 commonly in arid and semi- arid areas

FAO and ITPS (2015), FAO et al. (2020), Namirembe et al 2020, Umuto and Vargas 2018

Impacts of Climate Change on Grain Production



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1. Crop Yields and Quality

- Reduced productivity
- Increased pest and disease pressure
- Lower nutritional value

2. Water Resources

- Diminished water availability
- Increased competition for water

3. Shifts in Agricultural Zones

- Changing crop suitability
- Need for adaptation to new crops or farming systems

4. Soil Health

- Soil erosion
- Loss of fertility
- Reduced carbon sequestration capacity

5. Economic and Market Risks

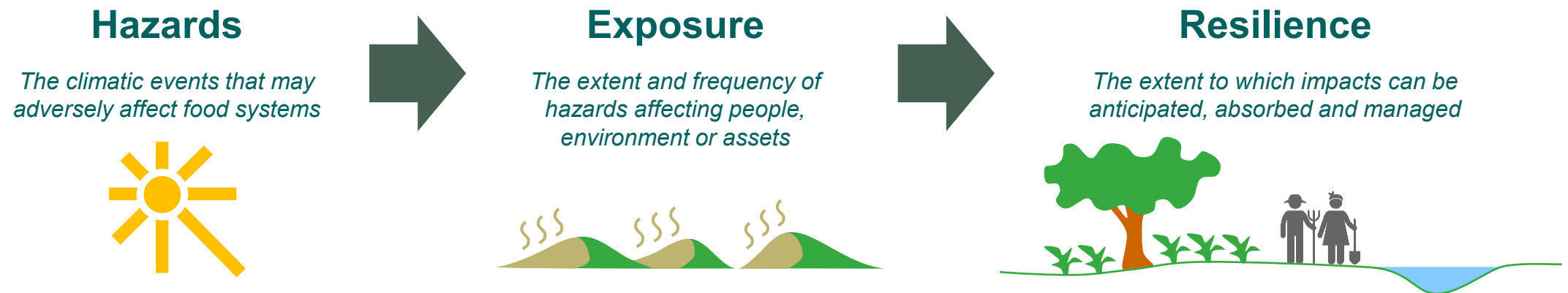
- Higher production costs
- Supply chain disruptions
- Price volatility in agricultural commodities

Climate Resilient Value Chains



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- There is an urgent need to build resilient grain value chains to ensure business continuity
- Resilience:
 - *“The ability to **prepare and plan for, absorb, recover from, and adapt to adverse events.**”¹*
 - Understanding the hazard, risk, how this impacts value chain and devising current and future adaptation measures



Regenerative Agriculture



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- Adopting regenerative agriculture is one key step to achieving system resilience
 - *Regenerative Agriculture is a system of farming principles and practices that increase biodiversity, enrich soils, restore watersheds, and enhance ecosystem services (FAO)*
- RA is not a single practice but a bundling of practices in context of farmer and farming systems
- RA goes beyond practices to outcomes

Entry points for Regenerative Agriculture



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*It all starts with
a soil health!*

REGENERATIVE AGRICULTURE



Image Source: General Mills

Why sustainability matters for business



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- Sustainability ensures continued production, environmental protection, fair compensation
- It will ensure resilient supply chains
- Cost reduction and efficiency
- Enhanced brand value- brand loyalty, new customers, business differentiation
- Creates new revenue streams- e.g. carbon credits, circularity, environmental payments
- Risk mitigation for the business

What's needed



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- Visioning of businesses and producers to embrace RegenAg in production systems
- Designing data driven RegenAg interventions at plot, farm, landscape and business levels
- Businesses influencing the transition along the value chain
- Developing business cases around RegenAg
 - E.g circularity (composting, , carbon sequestration agroforestry and biochar,
- Incentivizing the transition to sustainability
- Tracking the process and impact on business and value chain actors

Call to action



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- The need for the grain businesses to prioritize sustainability as part of their production strategies
- There is need to build in traceability which will mean working with and in influencing the entire value chain from production, processing to the market
- Call for more investment in the transition to sustainability for grain value chain

THANK YOU.

