

# **African Agriculture in the Face of Growing Global Challenges**

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*First Congress of Science*  
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# The Ethiopian Academy of Sciences

- ❑ Creation of the Academy
- ❑ First Congress of EAS
- ❑ EAS Value and Roles



# **African Agriculture:**

**Daunting Challenges**

**Limitless Possibilities**



# **The Headlines**

**2011**

**7.0 Billion**

**2050**

**9.5 Billion**

**A near 40% increase in Global Population**

**+**

**Diet Change in the Emerging Economies**

**=**

**~ Double Food production in 40 years**



***Today,***

***Nearly 1 Billion Poor Face Hunger Daily***

**+**

***2.6 Billion People earn < \$2 / day***

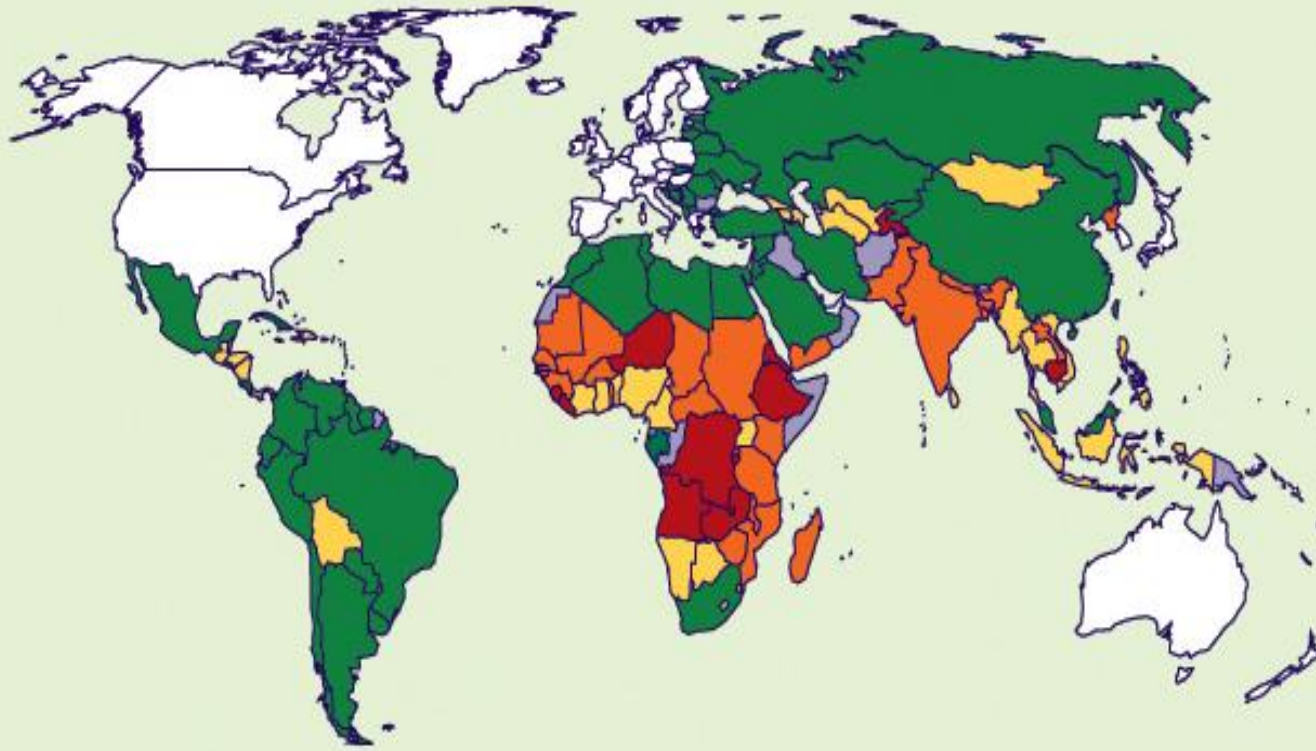
***(40% of the World Population or 60% of the rural people)***

**=**

***Humanity Will Face Formidable Challenges!***



The struggle to reduce hunger, poverty, and attain global food security is “Humanity’s Grandest Challenge of the 21<sup>st</sup> Century”



**“The root cause of hunger is Poverty”**

Sources: FAO 2005, WHO 2006, UNICEF 2005, and author's estimates calculated for 2003.

**Global Hunger Index**



“With all the abundance of resources in the world, and all the significant advances in science and technology around us, we have not been able to give humanity that fundamental right to enough food!”

Ejeta, 2009



# **Challenges of the Global Food System**

## **A: Existing, Growing Challenges**

- Population Growth
- Ecological Concerns
- Land Constraints
- Pre- and Post-Harvest Food Losses
- Food Safety & Nutritional Concerns



# **Challenges of the Global Food System**

## **B: Emerging Grand Challenges**

- Climate Change
- Looming Water Crisis
- Energy Crisis (Demand & Cost)
- Problems of Global Trade & Inequities





- ❑ Rapidly Growing World Population
- ❑ Growing Demand for Food, Feed, Fiber, Fuel
- ❑ Growing Pressure on Planet Earth
- ❑ Finite Natural Resources; Infinite Demands

\* \* \*

**Concern About Sustainability,  
And What To Do About It--- both evident!**



## **The Urgency of the Problem:**

- ☐ **For Poor and Rich Nations – for Humanity at Large:  
We badly need to break our habits**
- ☐ **We Need to Invest in Science now before the  
problems get out of hand!!**



# How Do We Feed the World ?

*Solutions Lie Not in Panic and Desperation but in:*

**Science, Technology, and Innovation**

**Science Needs to be Given the Chance**

**Governance, Policy and Commitment  
are Key!**











# The Irony?

**Farming in Ethiopia has been a brutal struggle without science**

**---and somehow as people, we have**

**Focused for too long on “The Problems” and not “The Solutions”  
and doing things “The Ethiopian Way”**





# **Modern Agriculture Has Been Slow in Taking Hold in Africa**

**Agriculture in Africa: 40% GDP; 80% Employment**

**The Basic Essentials Necessary for Livelihood  
Change had Major Problems in Africa**



# **Keys to Science-Based Development**

- **Science, Technology, and Innovation**
  - (Education)
- **Human and Institutional Capacity Development**
  - (Public, Private, and Incentives)
- **Sound Governance, Policy, and Executive Leadership**
  - (Resolve and Commitment)



# **Science, Technology, and Innovation?**

**No Nation has Developed Its Economy without the  
Catalytic Powers of Science, Technology, and  
Innovation**

**The African “Anti-Science” Rap is Mostly  
Undeserved !**



# **Strengthening Human and Institutional Capacity of a Nation**

**HICD as *Indispensable* and *Enduring* Investments**

**Nation Building Can Only Be Achieved by Nationals**



# Capacity Strengthening

*The Current African Awakening:*

**Includes Expansion in Tertiary Education**

**But,**

**Rapid Expansion can be double-edged Sword**



# Capacity Strengthening

**Understanding the Problem Critical to Finding Solutions**

**Need to Move Away from Delivering TA via the Disaster Relief Mode: Ag Development is too Complex, Requires Integrated Interventions**





**Africa Has Had Challenges in Governance and Democracy**

**Never Could Focus on the Bigger Challenges of Hunger, Poor Health, and Illiteracy**



# Governance

**Democracy is not a luxury but a right of people**

**Development without Democracy?**



**Clear Policy Declarations Vital for Development**

**Tendency to Dictate than Legislate Policies  
Problematic**



**Executive Leadership: Leaders that can Lead!**

**Current African Leaders Focus on Development Hopeful**

**Perhaps Democracy and Good Governance, Next?**



# **Africa's Challenges in Advancing Science-based Development?**



**RESOLVE & COMMITMENT**

**POLICY & GOVERNANCE**

**SCIENCE, TECHNOLOGY  
& INNOVATION**

**EMERGING  
CHALLENGES**

**WATER**

**ENERGY**

**CLIMATE**

**INT. TRADE**

**POVERTY**

**FOOD SECURITY**

**POPULATION**

**FOOD  
PRODUCTION**

**NUTRITION  
HEALTH**

**ECOSYSTEMS**

**FOOD  
SYSTEMS**

**EXISTING  
CHALLENGES**

**LAND &  
LAND USE**





# In Summary?

