



Agricultural Technology for Development

Old Issue, New Context

Secretary-General's Report to the 64th General Assembly

UN response to food crisis

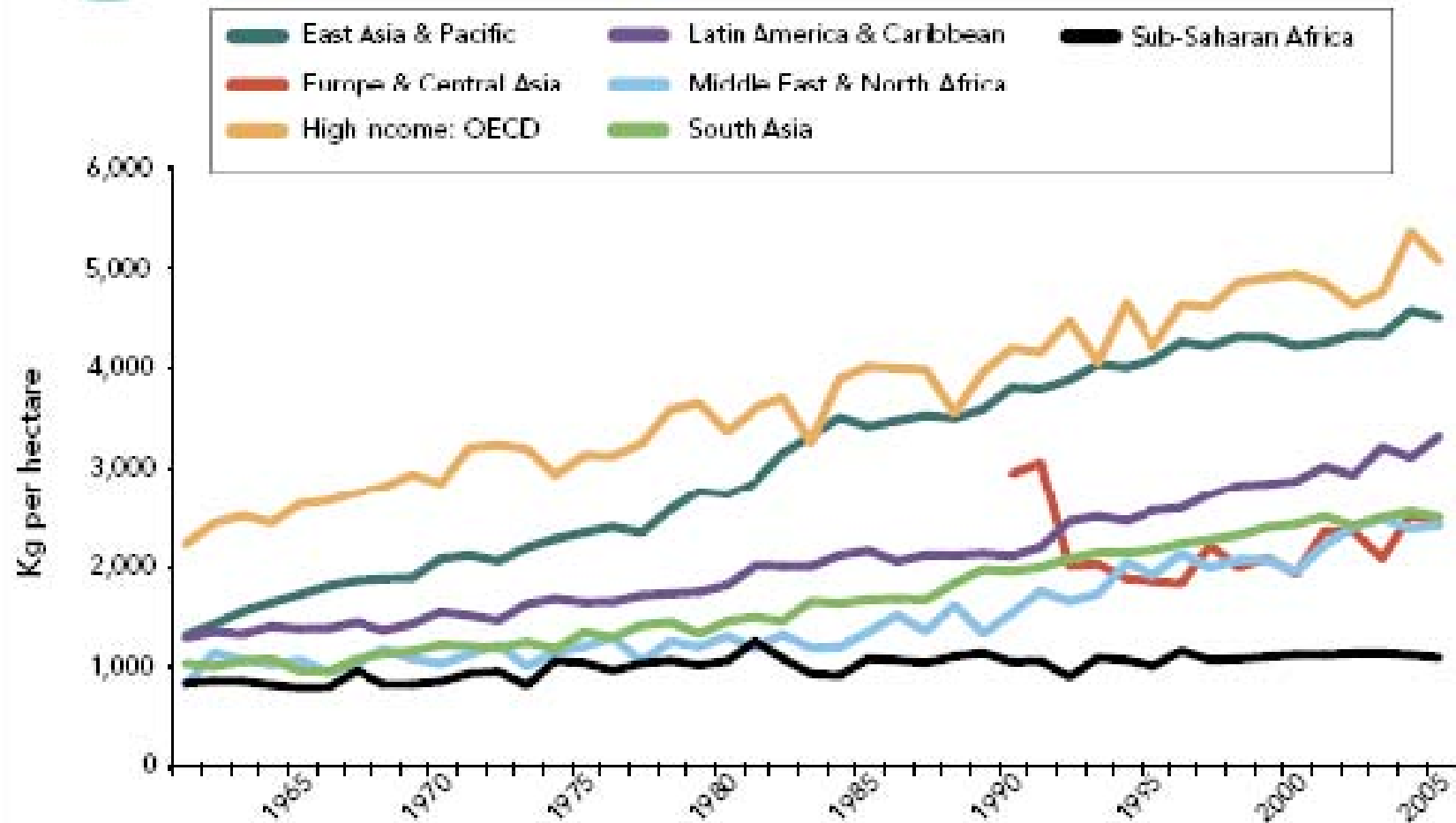
- In mid-April 2008, ECOSOC held **Special Session on the Food Price Crisis**
- Soon thereafter, SG created **High Level Task Force on the Global Food Security Crisis** (22 entities represented) which produced:
 - a **Comprehensive Framework for Action (CFA)** in July 2008 – now adopted by a broad set of development partners – which:
 - makes agriculture and food security a priority of national and international policy agendas
 - helps in country-level co-ordination of international actors in support of national food security strategies.

Diagnoses of Food Price Crisis

Combination of short- and longer-term causes, including

- a secular decline in public and private investment in agriculture (especially in staple food production)
- external assistance to agriculture dropped from 20% of ODA in the early 1980s to 3% by 2007
- stagnant or declining crop yields growth in most developing countries, Africa especially
- Agricultural technology innovation and diffusion, particularly to small holders, will be key to boosting yields, productivity sustainably

Cereal yields, 1961-2005



Source: World Development Indicators online database.

New Context

20st century view

- Unique package
 - Seed, inputs, technologies to max crop yield potential
- Monoculture
- DC rely on cheap food import
- Limited impact in marginal areas & areas without irrigation
- Extension services reached few groups

21st century view

- Food security = increase local agricultural production
- Target small holders in marginal areas
- Sustainability concerns
 - Benefits of diverse agriculture systems
- Risk management
 - Climate change
- Intellectual property


Supporting technology development and adoption

Agreements

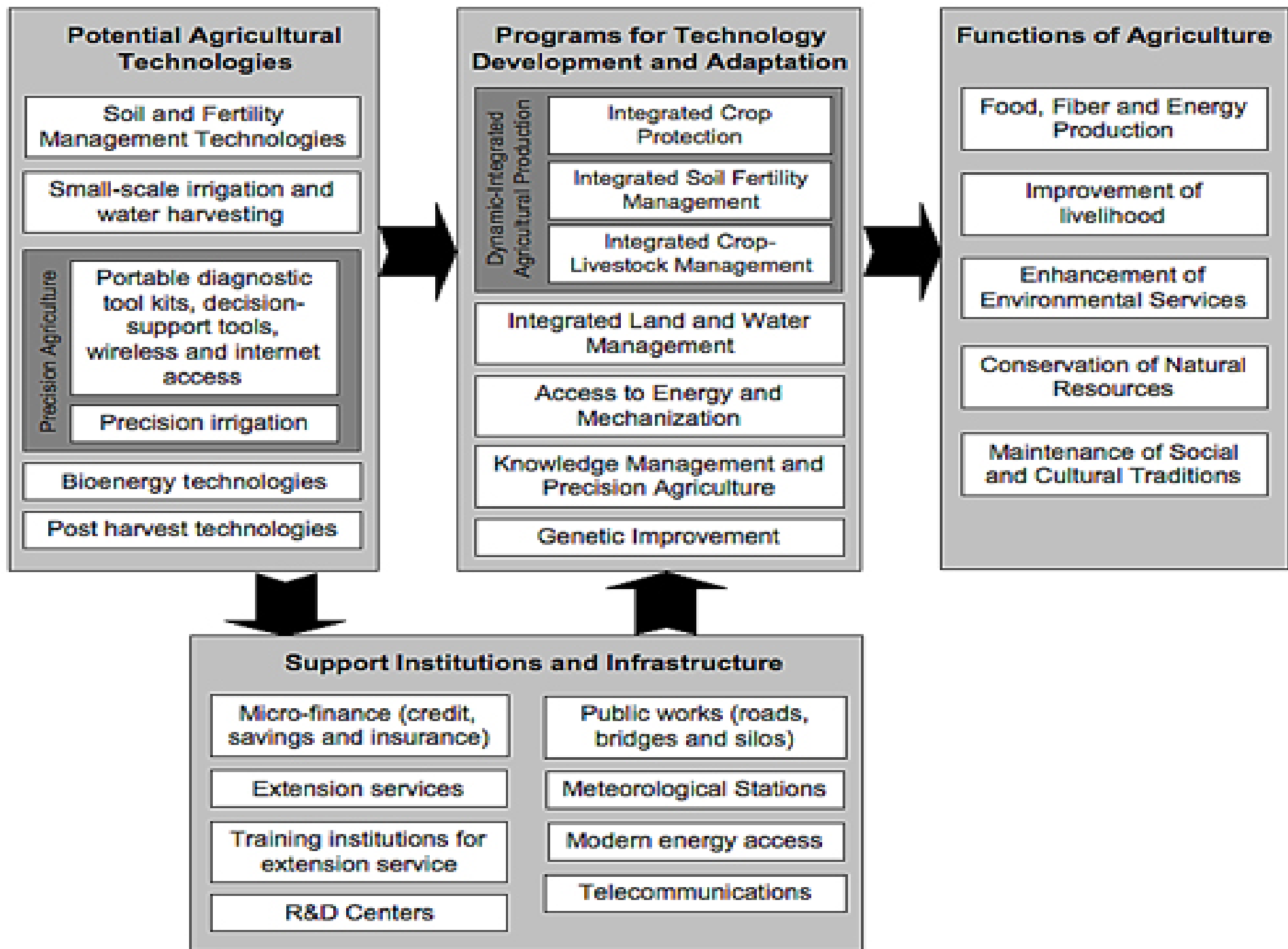
- Greater investment needed
- Focus on small resource-poor farmers, women, etc.
- Fundamental shift in agriculture and food needed
- High & rising input costs, tied to fuel prices - affordability an issue
- Intensive agriculture yields growth declining
- Environmental impacts of intensive agriculture are large

Emerging consensus

- Huge increase in yields possible with diffusion of knowledge
- Adoption =f(extension services, land tenure, farmer organizations, credit/financial incentives, adaptation to local conditions, education)
- Grounded in local context, participatory
- Demonstration & pilot projects, farmers' schools, farmer to farmer extension, woman extension agents
- Simple, adapted tools to weed and practice integrated soil fertility mgt
- Productivity compatible with resilience & LT sustainability

A vibrant yellow field of flowers, likely rapeseed, stretches across the foreground and middle ground. The sky is a clear, bright blue. In the background, there are rolling hills and a small body of water. A green rectangular text box is overlaid in the center of the image, containing the title text in a bold, black, sans-serif font.

**Boosting agriculture
productivity sustainably:
A Sustainable
Green Revolution**



Sustainable agriculture technologies

Dynamic integrated agricultural production



- Integrated crop protection
 - Agriculture-ecosystem based
 - Integrated pest management
 - Multi-cropping systems
- Integrated soil fertility management
 - Use local resources, e.g. SRI, organic
 - Integrated crop-livestock systems
 - Green cover, nitrogen fixing plants,
- Molecular biology and biotech as appropriate

Sustainable agriculture technologies

Integrated Land and water resource management



- Multi-stakeholder participation
- Community-driven
- ↑ Role of women
- Small-scale irrigation
 - E.g. sand dams
 - Low pressure drip irrigation
- Rainwater capture
- Water conservation & soil moisture management
 - Integrated soil management
 - Cover crops

Sustainable agriculture technologies

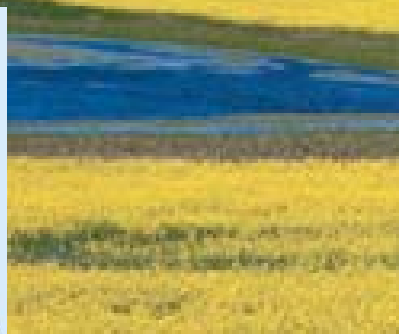
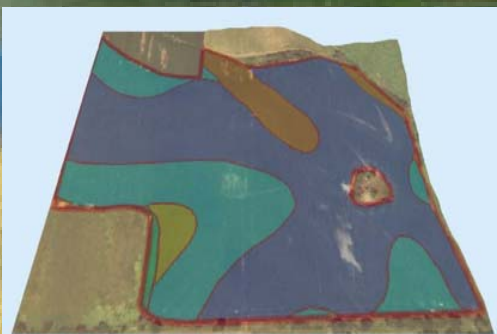
Access to energy and mechanization



- Mechanization choice depends on capital to labor ratio
- Mechanization requires a shift from traditional biomass to **MODERN, AFFORDABLE & CLEAN energy**
 - Eg. biodiesel-driven multifunctional platform
 - Other sustainable biofuels for local use
 - Other renewables, small hydro, solar dryers,

Sustainable agriculture technologies

Knowledge management & precision agriculture

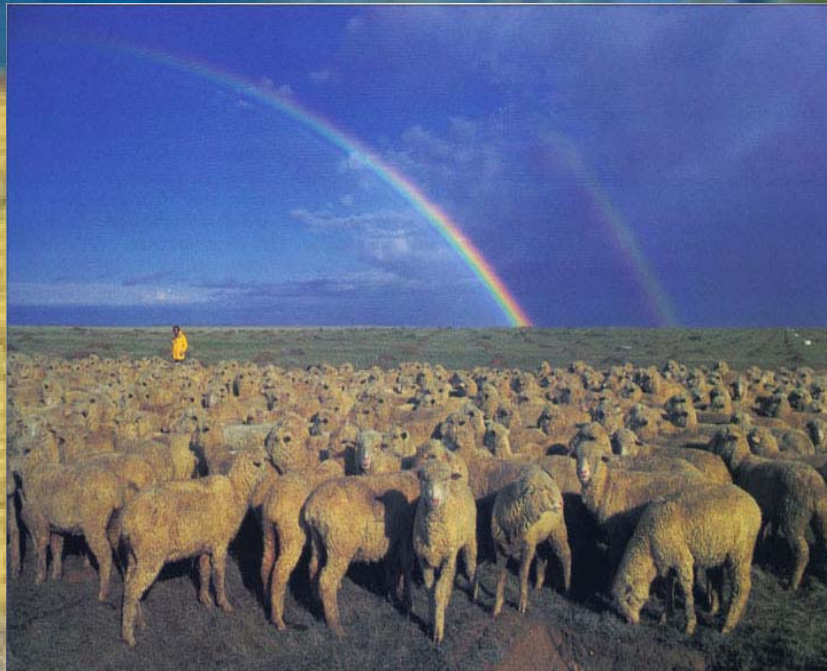


- Mobile and wireless technologies facilitate credit, e-extension, information transfer, weather forecast
- ICT helps fine-tune management to local conditions
 - Portable diagnostic tools kits, GPS, animal identification, etc.
 - Facilitate integrated soil, nutrient, and pest management
- E.g. Rapid assessment
- Could do more through PPP
- Engaging communities in participatory agricultural innovation

Sustainable agriculture technologies

Technologies

- Genetic improvement



- Complements; does not replace integrated plant, soil, water, nutrient management
- Should include traditional knowledge
- Good applications e.g. enhance nutrients and water uptake and plant resistance to drought
 - Current applications- pest and herbicide resistance
- **REQUIRES** risk management
- Intellectual property and competitiveness issues
 - Multilateral system offers an alternative

Recommendations: CSD-based Strategic framework

National actions

- **Include in national sustainable development strategies**
 - Sustainable land and water management,
 - adaptation to climate change
 - Limits the use of scarce inputs
 - **Build and reorient extension services**
 - Farmer-to-farmer, with close links to research
 - Market integration
 - Post-harvest technologies & infrastructure
 - Africa-specific programs
 - Land tenure protection
 - Empowerment of women

International Cooperation

- **Agricultural resources for ODA**
 - Support scaling up of existing and affordable best practices especially in integrated water, soil and land management
 - Provide effective protection against weather and price risks facing small holders
 - Support orphan crops research

Climate change

- Fund research & development of drought/heat resistant seed varieties and livestock breeds, technological solution based on traditional knowledge

Sustainable Agriculture

- Sustainable biofuels criteria
- Extension services for scalable practices
- Market access

Potential DESA/HLTF initiatives

- E-xtension for sustainable agriculture
 - Develop an integrated soil and nutrient management curriculum with protocols to adapt to local conditions
 - Using ICT, develop a pilot e-extension system that could be scalable
- Integrating sustainable agriculture into climate change mitigation/adaptation

Questions/Comments

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