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

20th 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
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, 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-extension 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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