

Improving productivity: technology acquisition and utilization

The Proposition

In agro-industry, systematic attention must be given to productivity improvement. The focus should be on the acquisition and utilization of productivity-enhancing technology throughout the sector's value chain. The public sector should assume specific responsibilities in this regard.

Rationale and recommended response

Increased productivity will likely represent the main driver behind growth in agriculture in the 21st century, and the primary means of satisfying the growing need for food, feed and other agricultural products. At the level of the individual firm or farm, productivity has already become the principal determinant of competitiveness.

Given the increasing scarcity of agriculture-related resources and the new dynamics of the global market for agro-industrial and food products, technology now lies at the heart of productivity. Productivity-enhancing technologies must therefore be renewed continually, not just within the agricultural production or processing enterprise, but by all participants in the chain linking the enterprise to its input and output markets.

The private sector must assume overall responsibility for identifying, conceiving, selecting, acquiring and utilizing productivity-enhancing technology. However, it is essential that the public sector act pro-actively to facilitate and support private sector action.

This involves creating the policy, regulatory and institutional framework that:

- promotes investment in, and use of, relevant agro-industrial technologies at all levels of the value chain;
- alerts entrepreneurs, agro-processors and farmers to where the most significant productivity gains and improvements can be achieved;
- ensures a mutually supportive mix of technology acquisition, trained personnel and innovative business practices;
- addresses the specific constraints of small and medium-sized producers and processors;
- maintains the balance between technology use and such fundamental considerations as

job creation, environmental sustainability and judicious use of non-renewable resources.

In short, "systemic" attention must be given to the introduction and application of technology in agro-industry.

Focus of the debate

1 What are the new dynamics of the global food market that make constant productivity improvement necessary? In addition to technology enhancement, what are the other factors that have greatest impact on enterprise productivity in the agro-industrial sector?

2 What are the new production and processing technologies that are dictating competitiveness in the agro-industrial sector? What new technologies are likely to have greatest impact on productivity and competitiveness in the years to come?

3 What are the specific challenges of promoting technology enhancement "throughout" the value chain? Should the public sector restrict itself to playing a supportive and facilitating role in technology acquisition, or should it play a more direct, hands-on role, especially when it comes to raising the "absorptive" capacities of the farmer and small-scale agro-processor? What would a more direct role involve?

4 What are examples of successful programmes underway in developing countries that directly target technology upgrading in the agro-industrial sector? What are the key elements of these programmes? How are they managed? What lessons can be drawn? Who are leading them?



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Justino Arboleda founded Juboken and Coco Technologies (Cocotech) which manufacture geotextile nets, fibre and fascines from waste coconut coir. As an entrepreneur he has developed the above mentioned products and machines for decorticating coconut coir. His work earned the 2005 Global 100 Eco-Tech award (Japan) and first prize in the First World Challenge contest sponsored by BBC World Television in 2005. Cocotech operates with subcontracting and sister companies in coconut producing regions all over the Philippines to meet requirements of local and foreign clients and has implemented projects in various countries.

Prior to Juboken, Mr. Arboleda was Dean of the College of Agriculture at Bicol University, Philippines. He holds BS, MS and Doctorate degrees in Agricultural Engineering.

Gisele d'Almeida leads Interface which is a network of CEOs and investors from small and medium agribusiness companies in Africa, headquartered in Senegal. Through the Network, African entrepreneurs are investing in agricultural research, collaborating with farmers' organizations (especially womens' groups involved in commercialization) and utilizing research results as business opportunities. She has been active in various Agricultural Research and Development Committees and decision making bodies, including the Special Program for African Agricultural Research (SPAAR), Forum for Agricultural Research in Africa (FARA), West and Central African Council for Agricultural Research and Development (CORAF/WECARD), "Research Into Use" (a new DFID supported program for Sub-Saharan Africa and South East Asia) and the CGIAR Private Sector Committee. Ms. d'Almeida has a degree in marketing, entrepreneurship and imports management, with more than 25 years of experience in this field.



Andrés López Camelo is a food technologist with the National Institute of Farming Technology (INTA) in Argentina. He has thirty five years of applied research in fruit and vegetable production including postharvest of fruits, vegetables and flowers, food science and safety, and quality assurance systems. Mr Lopez has coordinated many agro-industrial and research projects in Latin America. He is author of many publications including leaflets, bulletins, congress presentations, general interest and scientific papers and books, including an FAO's publication, "Manual for the preparation and sale of fruits and vegetables: From field to market". Mr Lopez holds a doctorate in agronomy.

Moderator: Sergio Miranda-da-Cruz is Director of the Agri-Business Development Branch of UNIDO. His area of interest and professional activities is the theoretical and experimental modelling of the linkages between Science and tech-knowledge (S&T) and sustainable development. His past experience involves the work in different capacities with development and investment banking and also at academia as a Professor at the 'School of Food Engineering' in Brazil. He has been working with UNIDO since 1986, including a six-year period as Representative of UNIDO in Beijing covering North-east Asia (China, Mongolia, North and South Korea). Sergio Miranda-da-Cruz is educated in engineering and economics at 'Campinas University' – UNICAMP and Getulio Vargas Foundation (both in Brazil) and at the 'Massachusetts Institute of Technology' – MIT (Boston, USA).

