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Science Meets Farming in Africa

THE ROLE OF SCIENCE, TECHNOLOGY, AND ENGINEERING IN SOLVING AFRICA'S MOST CHALLENGING economic problems—from telecommunications to agriculture to infectious diseases—is no longer in question. However, some leading international organizations undermine the role of innovation in development. The time has come for the scientific community to advance a new generation of international organizations that expressly promote scientific cooperation—agencies that can help foster technological cooperation for Africa's economic transformation.

Worldwide, there are growing concerns about the accessibility and production of food. Sustainable agriculture in Africa cannot be pursued without modern technologies.* Africa has a long history of exporting resources and importing food, despite the potential to meet its own food demands, reduce poverty, and drive economic growth. Unfortunately, major international agencies such as the United Nations (UN) have persistently opposed expanding biotechnology to regions most in need of its societal and economic benefits. The 1992 Earth Summit created the UN Convention on Biological Diversity (CBD) to promote the conservation and sustainable use of biological diversity as well as foster equitable sharing of the benefits of biotechnology. Yet for two decades this treaty has curtailed the use of genetically modified organisms (GMOs) in agriculture, even though the greatest threats to biological diversity are deforestation and invasive species. This is mainly because only 8 of the 196 national focal points for the CBD, which are located in environmental ministries, are not hostile to biotechnology. The role of the scientific community at these CBD meetings is often limited to negotiating texts that have been drafted by government officials and international civil servants with the intent of smothering agricultural biotechnology. For Africa, this has been a major distraction from addressing the threat of low agricultural productivity, a problem that innovative science could address and put an African agricultural revolution within reach.

The UN's agency for supporting science, the UN Educational, Scientific and Cultural Organization (UNESCO), has played only a nominal role in advancing the scientific enterprise. At most, it has convened conferences whose decisions are barely implemented. The recent decision by the United States to withhold financial support from UNESCO over the admission of Palestine to that organization will only weaken what was already a struggling function.

The global scientific community must foster international cooperation through new intergovernmental organizations and treaties that focus on innovation to improve human welfare. There is a precedent for such action. In 1908, despite opposition from the natural ice industry, scientists and engineers worked to advance modern refrigeration by creating the International Institute for Refrigeration (IIR). Today, this independent intergovernmental organization promotes knowledge of refrigeration and associated technologies in 60 countries. The IIR provides a powerful guide to create a similar collaborative agency that promotes biotechnology. Currently, 30 countries, only 4 of which are in Africa, have adopted laws that allow the use of GMOs. Almost all of these countries have scientific communities dedicated to the economically and ecologically sound use of biotechnology.

African countries should break the logjam by creating an "International Institute for Biotechnology." Like the IIR, the new institute would be created under a charter signed by governments and other invited agencies. The legislative authority should come from the government agencies, private enterprises, universities, scientific associations, farmers' groups, and others charged with advancing biotechnology and allied fields. The agency would help African countries adopt biotechnology strategies enabling African farmers and the population at large to benefit from the world's wealth of scientific and technological knowledge. — Calestous Juma

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*C. Juma, *The New Harvest: Agricultural Innovation in Africa* (Oxford Univ. Press, New York, 2011).

