

FOREWORD

HIGHER EDUCATION AND DEVELOPMENT IN AFRICA

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One of the conundrums of the development agenda today is the lack of focus on higher education in development. I see this as a major impediment to development in Africa. While we all recognize the role of higher education in our own country's economic growth and future competitiveness, that support does not translate into our vision for developing countries. The recent 2005 United States Agency for International Development Education Strategy: Improving Lives through Learning places strong emphasis on basic education but scantily mentions or recognizes the role of higher education in international development. As a university faculty member and as director of an international development program, I am troubled that the present level of emphasis on higher education will not support nor sustain the new mission statement of United States Agency for International Development (USAID): "helping to build and sustain democratic well governed states that will respond to the needs of their people and conduct themselves responsibly in the international system."

Much greater support for basic education exists in Congress and the development community than for higher education. Based on very limited work in the late 1970s, basic education was found to have a higher rate of return than higher education. Donors focused on those studies to promote basic education. No doubt basic education is critical for development, but as opposed to competing with higher education, the development portfolio should be a balanced continuum of opportunity that allows the best and brightest to succeed. In fact, higher education should be viewed as a means to maximize the gains in basic education by producing the economic growth that will sustain basic education after development assistance ends. In an information

world with a global economy, higher education is critical to developing businesses, negotiating treaties and contracts, and creating the stability that is necessary for comprehensive national development. "Higher education produces the entrepreneurs, the creative thinkers, and the business leaders that generate economic growth and turn poor countries into prosperous ones. Tertiary education exercises a direct influence on national productivity, which largely determines living standards and a country's ability to compete in the globalization process."¹

Unfortunately donor support for higher education degree training continues to wane. USAID's efforts in this regard have diminished substantially. The Agency has gone from training more than 15,000 students per year who earned higher education degrees in the early 1990s to less than 1,000 today. Many African countries struggle to maintain even low enrollment levels, and the academic research output in the region is among the world's lowest.

Africa faces a multitude of challenges that will affect how successful development efforts will be. Clearly, agriculture is key to making that development successful. Successful agricultural development is most directly achieved through investments in human and institutional capacity that will generate the knowledge, technology, and leaders to eradicate famine and food shortages, and build economies that support stable and democratic societies in Africa.

We need to reengage the power of our U.S. Land-Grant institutions to assist Africa in building its higher education and research institutions, and in training another generation of scientists and academics to lead a new green revolution for Africa.

The Power of Agriculture Growth

In a broad review of African development, a recent International Food Policy Research Institute (IFPRI) study² shows that agriculture is truly an important engine for growth. While its role may vary among countries depending on a diversity of conditions, agriculture is an especially strong force in poverty reduction, as it affects the rural poor, who are the largest portion of the poor in Africa. The study concludes “most African countries cannot significantly reduce poverty, increase per capita incomes, and transform into modern economies without focusing on agricultural development.” This conclusion is similar to that of another study³ of a broad range of developing countries, which found that increasing agricultural productivity is the most efficient way to reduce poverty and inequality.

Yet another study⁴ of 62 developing countries demonstrates the power of agricultural development to increase national economic growth. The study shows that changes in agricultural productivity explained 54 percent of the growth in GDP per worker, and that this increased efficiency, and released labor from agriculture to other sectors that accounted for another 29 percent of the GDP growth. The remaining 17 percent of GDP growth came from non-agricultural increases.

Agriculture does not just grow economies, it measurably improves human lives. A secure and diverse food supply increases child survival, improves cognitive and physical development of children, and increases immune system function, including resistance to HIV/AIDS (a secure food supply also has an impact on the trajectory of this and other diseases).

The importance of food cannot be underestimated. In the GL-CRSP Child Nutrition Project (CNP)⁵ study in Kenya, children who received 2 oz of meat on school days (2/3 of the calendar days) performed 20 percent higher on intelligence scores, and achieved an increase of a grade-and-a-half higher in school performance. Think of the implications of that impact on creative capacity to compete in a knowledge based world when integrated to the national level; then think of the costs on chronic malnutrition to a national economy, not only in lost

potential, but in health care costs, lost productivity, and wasted lives.

Perhaps the most important revolution of the 20th century was a peaceful and green one at that. Dr. Norman Borlaug used advanced breeding techniques to redesign the wheat plant and make it considerably more productive, more adaptive to wide range of environments, and more disease resistant (funded by USAID, and the Rockefeller and Ford Foundations). Dr. Borlaug received the Congressional Gold Medal for his work (the highest civilian award by Congress). Part of Borlaug’s genius was his complete dedication to building human capacity in science that both advanced his vision more rapidly, and left a sustainable research capacity for developing countries. It is when research, human, and institutional capacity are wed that science can generate solutions to human problems, and it is when those elements are present in developing countries that we see major advances like those that Borlaug generated. Due to Norman Borlaug, the post war famines of Asia were extinguished in the early 1970s. For this effort Borlaug received the Noble Peace Prize in 1970.

Contrary to present day wisdom, which says that the answer to the development challenge is only through policy and market connectiveness, we also need substantial increases in agricultural productivity. Most of the recent gains in agricultural production in Africa have resulted from expanding the area of land cultivated, not through increasing the production per unit of land area. The negative implications include not just a decline in per acre production efficiency, but also the use of more marginal land with ever increasing negative impacts on the natural resource base, biodiversity, and water quality.

Increases in efficiency per acre are the result of improved technologies and access to inputs. The sustainable way to increase efficiencies is to create African capacity to generate new technologies; that is build the human capacity and build the institutions that generate that capacity—the universities and the agricultural research institutes. We need to make such investments. Evidence from rural Uganda indicates that public investments in agricultural R&D had the highest impact on poverty reduction of development investments throughout

the 1990s.⁶ In addition to financial resources, agricultural innovation requires human capital, and therefore, sustaining and improving upon advances in agricultural R&D requires concurrent investments in general education.⁷ It is the flexibility of creativity produced by human capacity that makes adaptation to change possible. In short, the most effective means to address the expanding footprint of climate change on Africa is through investments in education and human and institutional capacity.

How does research and higher education contribute?

1. **Higher education builds human capital** at a level that is necessary to compete in a global economy. Global economic engagement requires sophisticated business knowledge, the ability to meet international standards of quality, negotiate appropriate agreements, craft complex financial mechanisms, understand and interpret the rules of engagement, and to be both entrepreneurial and competent. Increased human capacity to conduct these endeavors will facilitate greater participation in global markets for the poor countries of the world. These are the job creators for all the basic education graduates currently being produced with the laudable emphasis on basic education.

2. Just as human capital is necessary to conduct business, it is critical to **build and maintain the institutions** that generate new knowledge and technology, establish and maintain standards, create laws, and conduct business in ways that resemble U.S. and international norms. Well-trained people create and sustain functional institutions that promote good economies and support good governance. Of USAID's 40-year investment in higher education degree training, an outside review concluded: "Change at the institutional level of this magnitude is unusual in human resources and training programs and testifies to the extraordinary impact the ATLAS/AFGRAD programs had in Africa."⁸

3. **Higher Education and research institutes generate knowledge** that has economic impact, particularly in agriculture. In a study⁹ of more than 1,800 rates of return to research in agriculture, the median of the rate of return estimates was 48 percent

per year for research, 62.9 percent for extension studies, 37 percent for studies that combined research and extension jointly, and 44.3 percent for all studies combined; a profitable investment by any standards but particularly so for a developing country.

4. In a USAID commissioned evaluation of more than 3,000 African higher education trainees educated in U.S. universities and supported by USAID, the evaluators found that the training had a marked effect on **the impact of individuals**, in building stronger institutions, and had a lasting impact on economic development and social contributions.¹⁰ The experience of training in the United States had numerous benefits beyond the technical skills acquired. A number of positive aspects of efficiency and views of democracy were associated with links to an American education.

Investing in higher education in developing countries is a critical component to long-term economic growth and stability, and crucial to agricultural development and poverty reduction. Investments in tertiary education promote "technological catch-up," allowing countries to gain ground on more technologically advanced societies and maximize economic output. To illustrate the economic growth potential of tertiary education on GDP, a one-year increase in tertiary education stock would raise steady-state levels of African GDP per capita by 12.2 percent due to factor inputs, potentially boosting incomes by 3 percent after five years, a significant feat considering the trend towards decreasing incomes in some African countries.¹¹

In developed countries this effect has been well measured. According to the U.S. Census Bureau, high school graduates earn an average of \$1.2 million, associate's degree holders earn about \$1.6 million, and bachelor's degree holders earn about \$2.1 million over an adults working life.¹² In the United States, average rates of return on investment for post-secondary education increased from 5.6 percent in 1979 to 9.1 percent in 2004, consistent with average international rates of return across nine countries estimated at 9 percent.¹³ The increases in rates of return likely reflect the increasing importance of education in a technology and knowledge-based global economy.

Perhaps the greatest contribution of higher education, however, is manifested in the indirect benefits to society. Based on a Carnegie Institute report,¹⁴ post-secondary education influences individual behavior, encouraging more open-minded, cultured, rational, and consistent individuals with less authoritarian tendencies. In addition, university enrollment has demonstrated a tendency to decrease prejudice, improve knowledge of global affairs, and improve social status. These benefits are in turn passed along to succeeding generations. Leadership training provides countries with talented individuals able to establish policy environments favorable to growth and sustainability. The promotion of education and literacy also encourages a social environment with an increased capacity for tolerance and understanding, and diminished tendencies towards prejudice and misconception, constructing a well-informed society with the ability to think critically and objectively, establishing the foundation for democracy: a critical component of developing a more secure and stable world.

FOOTNOTES

¹World Bank 2002. *Constructing Knowledge Societies: New Challenges for Tertiary Education*. World Bank, Washington, D.C.

²Diao et al. 2006. *The role of development: implications for Sub-Saharan Africa*. DSGD Discussion Paper No. 29, IFPRI, Washington, D.C.

³Bourguignon, F., and Morrisson, C. 1998. "Inequality and Development: The Role of Dualism", *Journal of Development Economics*, 57(2), 233-258.

⁴Gollin, D., Parente, S., and Rogerson, R. 2002. "The Role of Agriculture in Development", *American Economic Review*, 92(2): 160-164.

⁵Demment, M and Allen, L., 2003. *Animal Source Foods to improve micronutrient nutrition and human function in developing countries*. *J. Nutrition* 133 No 11s-11 (Special Volume).

⁶Fan, S., Zhang, X., and Rao, N. 2004. "Public Expenditure, Growth and Poverty Reduction in Rural Uganda." *Development Strategy and*

Governance Discussion Paper No.4, IFPRI: Washington, DC.

⁷Hayami, Y. and Ruttan, V. 1985. *Agricultural Development: An International Perspective*. Baltimore, Maryland: Johns Hopkins University Press.

⁸Aguirre International 2004.

⁹Alston et al. 2000. *A Meta analysis of rates of return of agricultural R&D*. IFPRI Research Report 113, Washington, DC.

¹⁰Aguirre International under the Global Evaluation and Monitoring IQC, Contract FAO-I-00-99-00010-00, Task Order 13. 2004. *Generations of Quiet Progress: The Development Impact of U.S. Long-Term University Training on Africa from 1963 to 2003: An evidence-based impact assessment of the value obtained from major investments in graduate education for 3,219 African professionals by USAID and its partners in the ATLAS and AFGRAD program*.

¹¹Bloom, D., Canning, D., and Chan K. (2006). *Higher Education and Economic Development in Africa*. World Bank Human Development Sector, Africa. [On-line]. Available: <http://www.sciencedev.net/Docs/Higher%20Education%20and%20economic%20developmnet.pdf>

¹²Day, J.C., and Newburger, E.C. (2002). *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*. (Current Population Reports, Special Studies, P23-210). Washington, DC: Commerce Dept., Economics and Statistics Administration, Census Bureau. [On-Line]. Available: <http://www.census.gov/prod/2002pubs/p23-210.pdf>

¹³Hamermesh, D. (2005). *Four Questions on the Labor Economics of Higher Education*. Secretary of Education's Commission on the Future of Higher Education. [On-Line]. Available: <http://www.ed.gov/searchResults.jhtml>

¹⁴Rowley, L.L., and Hurtado, S. (2002). *The Non-Monetary Benefits of an Undergraduate Education*. University of Michigan: Center for the Study of Higher and Postsecondary Education.