ENHANCING UNITED STATES EFFORTS TO DEVELOP SUSTAINABLE AGRI-FOOD SYSTEMS IN AFRICA

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Summary

Africa is now on the move. The incoming 2016 Presidential administration and new 115th Congress will have before them an historic opportunity to extend America's global leadership by promoting the sustainability of the economic transformations now underway in Africa. Even with rapid urbanization and the arrival of Walmart, Africa's development is still highly dependent on the performance of its agri-food systems.[2] Farming remains the primary source of employment for 65 percent of the region's population (Yeboah and Jayne, 2016). Poverty rates are declining but still unacceptably high. Putting more money in the hands of roughly 500 million Africans who depend on farming for their livelihoods will decisively influence the pace of growth in the rest of the economy. Virtually no country in the world has ever successfully transformed its economy from an agrarian to a modern economy with low poverty rates without enjoying sustained agricultural productivity growth.

Why should US citizens care? Investing in Africa's economic growth is in the United States' national interest. US exports of agricultural products to sub-Saharan Africa totaled $2.6 billion in 2013 and will grow rapidly if Africa continues to develop. By 2050, sub-Saharan Africa will contain 2.1 billion people -- 22% of the world's population compared to 12% today (United Nations, 2016). Rapidly rising population and incomes in Africa will increase the demand for a safe, affordable and sustainable global food supply. US farmers and agribusiness can help themselves by helping Africa to meet its rapidly rising demand for food by investing in the region's agri-food systems and by supporting a sustainable and efficient global food system.

But agricultural growth rarely happens spontaneously or through the private sector alone, as crucial as private investment is. Private investment responds to incentives. A sustainable approach to developing mutual US-Africa interests around agri-food systems will require greater support for the development of African public institutions to nurture the next generation of African educators, farm extension workers, research scientists, entrepreneurs and workers in agri-food systems, and policy makers. These people will greatly influence the pace and sustainability of private investment and agricultural transformation in African countries.

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[2] We use the term "agri-food system" rather than "agricultural sector" to emphasize the importance of agricultural input and commodity trade, agro-processing, retailing, preparation of foods away from home, as well as farming, in providing employment and generating economic growth and transformation in countries in their early stages of development (Johnston and Mellor, 1961; Allen et al., 2016).

An effective United State Government (USG) approach will also reflect a recognition of how dramatically the African landscape has changed with respect to partnerships. Development models premised on 1980s conditions no longer fit 2016 realities. US development-oriented institutions will continue to play a critical role, but their effectiveness will depend on understanding and adapting to how Africans view their role in today's world, in which there is considerably greater local expertise, awareness, and insistence that African organizations control their national development agendas, policies and programs. This thought piece describes this changed landscape, the challenges and opportunities being created for developing innovative and effective new partnerships between US and African institutions engaged in African agri-food systems, and a strategic framework to maintain effective United States engagement in this effort, which puts sustained commitment to capacity strengthening and leadership of African agricultural institutions at the center of USG strategy.

THE CHANGING LANDSCAPE

What does an effective US development strategy toward African agriculture look like? It would be based a recognition of how dramatically different the landscape is today in much of Africa from several decades ago and how this landscape continues to evolve rapidly. First, the population of sub-Saharan Africa (SSA) is projected to double from 0.95 to 2.1 billion people between 2015 and 2050, and its share of the world's population is expected to rise over this period from 12% to 22% (United Nations, 2016). Rapid population growth will put rising pressure on local and global food systems to feed Africa's burgeoning cities, and this will provide unprecedented opportunities for private investment in agri-food systems, especially under a favorable environment with respect to agricultural marketing and trade policies (World Bank, 2013). Moreover, as the region's food deficits continue to grow along with its share of the world's population, Africa's agricultural performance will increasingly affect global food supply and demand conditions and hence the long-term trajectory of world food prices.

Second, 62% of Africans are below the age of 25. Africans between 15 and 35 years of age now account for 55% of the region's labor force. Every year, roughly 11 million young Africans are entering the labor force (Filmer and Fox, 2014) and they are considerably better educated than in previous generations. However, even under the most favorable projections, only 25% of these young Africans over the next decade will find wage jobs. The other 75% will depend on farming and informal sector jobs, many of them related to agriculture, for their livelihoods. And evidence is now strong that faster rates of agricultural productivity growth in Africa are associated with rising employment opportunities and labor productivity in the non-farm segments of the economy (Christiaensen et al., 2011; Yeboah and Jayne, 2016). Therefore, a vibrant agriculture can profoundly influence youth employment prospects and political stability.

Third, many more Africans today possess technical skills and policy understanding related to agri-food systems, both in the public and private sectors, than was the case 25 years ago. Many of these people were educated internationally, possess valuable job expertise, and can operate effectively given superior knowledge of local culture and connections with centers of local power. Many are articulate spokespersons and advocates for African agriculture and capable of influencing African government investments. An effective USG strategy toward African agricultural development will engage these experienced people more substantively than in the past.

Conditions are largely unchanged in at least one important respect, however. Despite recognition of the important of public agricultural institutions in providing public goods,[3] many such institutions in Africa are arguably no more effective in fulfilling their mandates than they were three decades ago, and in some cases perhaps less so. National agricultural research and extension systems remain chronically under-funded and, with a few notable exceptions, have little to show in the way of impact, though there is strong evidence that public expenditures to agricultural research and extension services are effective in promoting agricultural productivity growth and poverty reduction (Economist Intelligence Unit, 2008; Fan et al., 2009). Governments in Asia and Latin America are providing much greater funding support to their agricultural research and extension systems and these countries are, not surprisingly, reaping major rewards from these investments.

THE VISION

There are strong mutually shared aspirations in the United States and throughout Africa that could be realized through more effective US support for African agriculture. US and African governments share core interests in promoting private investment in African food systems in partnership with local firms and in supporting fair agricultural trade and a sustainable global food system. It is increasingly recognized that African agricultural exports in the majority of cases do not compete with US farm interests and are in most instances highly complementary. Rising farm incomes in Africa promote growth multipliers that expand private investment and employment opportunities in African agri-food systems and more broadly in the rest of the economy. Rising incomes in Africa also promote US export interests (Meade et al., 2011; Trostle and Seeley, 2013). Moreover, sustainable agricultural development in Africa promotes political and economic stability in the region. These are the benefits that would emerge from strong partnerships between African governments, the private sector and the millions of African farmers and entrepreneurs supported by enlightened US development assistance programs.

THE CHALLENGE

How can USG agricultural development assistance more effectively promote the achievement of Africa's agricultural development vision? Representatives of agencies such as the United States Agency for International Development (USAID), Millennium Challenge Corporation (MCC), and United States Department of Agriculture (USDA) understand the importance of building the capacity of local institutions in developing countries– those that create and adapt new agricultural technologies (research and development), those that disseminate and promote farmers' use of more profitable and sustainable management practices (agronomy, animal sciences, extension services, agribusiness and economics), and those that provide trusted policy guidance to African leaders (policy institutes). For clarity, the range of local institutions discussed here include African universities, agricultural training colleges and vocational schools, national agricultural research and extension systems, and policy institutes

[3] Public goods include those that would be under-provisioned if left to the market; a partial list relevant here would include investments in generating new technologies in areas where they could not necessarily be paid for by the users themselves; technologies such as open pollinating varieties in which private companies might not recoup the costs of generating them; investments in educational systems, policy analysis and policy institutes, and agricultural extension systems, which may produce high returns to society but not to any particular firm investing in them.

and think tanks. These local institutions can play a critical role in achieving the vision, but they will need new forms of support.

Overcoming perceived threats to objectivity

African policy makers' utilization of policy analysis depends on their confidence in the objectivity of those providing the analysis. External technical assistance has had some successes, but its track record in influencing agricultural policies has been limited. The World Bank (2007) concluded that technical assistance in support of agricultural policy reform – the vast majority of it undertaken by external analysts – has been among the least effective forms of development assistance in Africa. It is increasingly clear that, just as US leaders have accepted input from US-based think tanks for policy guidance, African leaders increasingly call for the involvement of African-led policy institutes in addressing their agricultural policy challenges, even though African governments have so far invested very little in such institutions. Because Africa has a longstanding history of powerful external influence in its political and economic affairs, even after formal colonial ties with European countries were severed, some African leaders understandably continue to be wary of external technical assistance with recommendations perceived to reflect interests not fully in tune with African priorities. It may be too early to firmly establish that African leaders strongly value the recent creation of autonomous African-led agricultural policy institutes, but in some cases these institutes have proven to be quite effective in influencing policy even within a short time frame. Lack of local African ownership and insufficient local voice in policy analysis may explain why some African governments have distanced themselves from policy prescriptions developed by otherwise well-meaning initiatives such as the Comprehensive African Agricultural Development Programme (CAADP).[4]

The value of US-funded technical analysis is weakened if the US is perceived to have vested interests in the analytical agenda or conclusions of technical analysis. Analysis intended to guide African government policies on topics such as trade barriers, the setting up of institutional frameworks to guide policy toward genetically modified seeds (GMOs), and policies toward climate change, are often viewed with scepticism. The objectives of the New Alliance for Food Security and Nutrition might also be not fully trusted by African policy makers as, rightly or wrongly, this initiative is sometimes portrayed by civil society and media as an attempt to expand international private firms' position in local markets and potentially weaken local autonomy over politically sensitive sectors of the economy.

Overcoming low spending on agricultural R&D by African governments

Pardey *et al* (2006) state that, of all types of agricultural expenditures, spending on agricultural research and development is the most crucial to growth in agriculture. Yet most African agricultural research systems are woefully under-funded, and their weaknesses constrain the pace of agricultural productivity growth in the region (Fuglie and Rada, 2013). Asian farmers benefit from the fact that their governments spend over 8 times more annually on agricultural R&D on average than African governments.[5] Not surprisingly, the pace of agricultural productivity growth in Asia has vastly exceeded that of Africa over the last

[4]African governments have for the most part sought to exclude policy issues from the CAADP process, instead focusing on the level and composition of public expenditures to the agricultural sector.

[5] For example, 28 Asian governments spent USD 7.52 billion in support of public agricultural R&D in 2000 compared to USD 1.46 billion by 44 Sub-Saharan African governments for which data was available (Pardey *et al.*, 2006), an 8-fold difference per country between Asia and Africa.

several decades. International R&D cannot fully substitute for local R&D because agricultural technologies, especially seed varieties, need to be locally adapted, tested, and refined in order to be suitable to the highly varied agro-ecological conditions that African farmers operate in. Building African R&D capacity requires sustained investments in people, facilities, lab equipment, budgets for field trials, demonstration plots, and the like. And because the benefits of many types of fundamental agricultural R&D investments accrue broadly and cannot be captured by firms investing in them, there is a strong role for sustained support for public R&D. Building the capacity of strong African agricultural R&D and extension systems should be a priority area for USG assistance.

While advances in ICTs are making it increasingly feasible to provide information to farmers even in the most remote areas, the emerging constraint is now an inability to provide farmers with proven "best practices" due to decades of neglect of agricultural research and development under localized conditions, not the ability to communicate with farmers.

Little progress has been made over the past several decades in building African universities and scientific crop and livestock institutes to develop improved technologies appropriate for the wide range of African farming conditions, as the USDA and Land Grant systems did for farmers in the US. Similarly, little progress has been made to rehabilitate weak national agricultural extension systems. USG development assistance has typically addressed these weaknesses by providing grants to organizations in the Consultative Group on International Agricultural Research (CGIAR) system, private development-oriented companies and international universities to develop alternative modes of technology transfer and extension, in the belief that public sector organizations within those countries are too dysfunctional for direct grants to them to generate positive outcomes within the short timeframes that grants are typically given. As a result, such projects are often structured so as to bypass or "work around" public sector organizations. The setting up of parallel channels to meet 3- to 5-year grant objectives is understandable in some respects but it leads to a vicious circle in which public sector agencies are perceived to be too weak to contribute productively to grant activities and outcomes, justifying future grants being organized to bypass them again.

Therefore, a key challenge for USG development assistance is to find cost-effective ways of building the capacity of local institutions – those providing R&D, extension, education, policy analysis and dissemination – to support agricultural productivity growth and broader economic transformation in the region. To do so, it is necessary to identify the parts of USG assistance that are working well, those that aren't and what to do about it.

How Might the US Approach Be Strengthened?

Sub-Saharan Africa contains some of the fastest growing economies in the world, though performance has been quite variable across the region. Countries investing in their agricultural sectors have obtained more rapid rates of agricultural productivity, greater poverty reduction and more rapid pace of exit of the work force out of farming (Badiane et al., 2016; Yeboah and Jayne, 2016). Economic growth and rapid population growth have combined to push Africa's food imports to record levels in recent years, USD 43.6 billion in 2011. That same year, US agricultural exports to SSA reached a record 2.9 billion (USDA, 2013). SSA food imports are projected to continue to rise rapidly. While the evidence is based on a limited number of countries, studies generally find that agricultural productivity growth in developing countries tends to raise national incomes and increase the demand for

commodities from world markets (e.g., Rada and Regmi, 2010). For these reasons, there are strong mutual US-African business interests in promoting the productivity of African farmers and the broader agri-food systems on which they depend.

The US arguably has one of the most dynamic and productive agricultural systems in the world. Historians and economists point to the Land Grant University System, the US Cooperative Extension Service, the USDA and ERS, and other public agricultural institutions as major drivers of US agricultural growth (Bonnen, 1989). The US is capable of providing needed leadership and expertise to support institutional capacity building in Africa. We propose that the main thrust of a new USG approach be to shift the role of US public institutions from providing practical technologies, services and answers themselves to enhancing the incentives and the capacity of local African organizations to do so.

There remain many crucial roles for US institutions to work closely with African organizations, in discovery, foresighting, and frontier research in areas where expensive infrastructure and facilities and/or specialized human capital developed over many decades gives a comparative advantage for some international organizations in some tasks. But the proposed new thrust would be build collaboration and capacity building between international and public African organizations more explicitly and effectively by directly involving African organizations early in the design phases of USG development frameworks and strategies, programs and projects.

A new model of technical assistance? USG assistance might consider greater programmatic emphasis on long-term capacity building support to African universities and the national research and extension systems themselves. While it will take sustained decades-long support and innovative program design to meaningfully strengthen national agricultural research and extension systems in these countries, their weaknesses continue to impede the pace and sustainability of agricultural productivity growth in the region.

How to develop mutually beneficial partnerships between US development partners and local agricultural organizations? Much USG capacity building grants to non-governmental organizations (NGOs) and US universities are subject to problems resulting from incomplete alignment between the objectives of the grantee organization and the grantor.[6] USG project support may be designed to build sustainable institutional capacity, but grant recipients may have many additional objectives that could be achieved with project support. Grantees seek to raise revenues through overhead rates on the grant and enhance pre-eminent capacity in particular thematic areas. Overhead charges may account for as much as 50% of the total value of USG grants to some grantees (e.g., international universities, NGOs and private for-profit companies). University faculty face strong incentives to publish in scholarly journals, which often encourages them to prioritize resources for their own research programs rather than in building the capacities of host-country universities and institutes. Consequently, there are distinct risks that USG grants designed to build local African institutional capacity may instead be more successful in building the capacity of the prime grantee. As a result, USG capacity building assistance is less effective than it could be. This reflects inadequate USG oversight and involvement in grant management, and point to the need for innovative ways to align the interests of the grantor and grantees to enhance the effectiveness of USG capacity building investments.

[6] These problems, also referred to as "principal-agent problems", tend to make it costly for grantors to adequately oversee the activities of the grantee.

International universities play an important "public goods" role in advancing new technologies that can be successfully adapted in developing countries and by discovering emerging trends that shape public discussion on important topics affecting African agriculture. Continuing this type of work is important, but it is crucial to strike the right balance, so that the lion's share of USG capacity building and research support simultaneously brings along local African institutions in the process. Arguably too much support to international universities is used to produce scholarly publications that are long on subject matter issues and short on guidance for addressing the practical "how" questions for policy makers (Omamo, 2003). And unless they are working closely with local researchers, most international researchers are in a weak position to provide the type of "hands-on" guidance that would be practical and context-specific enough to usefully guide policy decisions.

USG capacity building programs may also need to consider how to make long-term individual capacity building more effective. The training of Masters and PhD level scientists at major land grant US universities costs at least $55,000 per year when relocation costs, living costs and overheads are counted, about four times the cost of producing MSc graduates through the African Economic Research Consortium's Collaborative Masters in Applied and Agricultural Economics program at the University of Pretoria in South Africa, which may serve as a model for experimentation and replication in other fields. USG support to build the next generation of African agricultural scientists and researchers may need to reconsider how to do this in the most cost-effective way. US universities may also need to innovate in order to provide graduate-level training more cost-effectively, for example through setting up overseas campuses in collaboration with one or more African universities where the regional demand is sufficient to support a new campus at substantially lower enrollment costs for students.

Stop bypassing local African policy institutes and universities: Few African-led policy institutes and agricultural universities have been the centerpiece of long-term USG capacity building support. Despite some notable successes in recent years whereby USG development assistance has built the capacity of local policy research institutes, progress has in general been very slow. Similar to national scientific and extension systems, the perception that many national African agricultural universities and policy institutes are weak has worked against their substantive involvement in USG policy-oriented grants that operate within relatively short-term time horizons. Instead, significant amounts of USG development assistance intended to assist in developing agricultural policy, monitoring and data generation capacity has been allocated to international organizations that provide important services to local organizations (e.g., ministries of agriculture) but devote a relatively small fraction of the international organizations' budgets to enabling these services to be sustainably undertaken by the local African organizations themselves.

Current forms of capacity building support to African research institutes may do little to build those entities' long-term development. Prime recipients of USG grant funds often attempt to build the capacity of African research institutes by contracting with individuals within these institutes. At any given time, the majority of researchers in a particular institute or university department may be funded through individual consulting contracts on a disparate range of issues as determined by the prime bilateral and multilateral donors as well as the major international development foundations. This mode of involvement of African institutes in agricultural policy work may retard their ability to develop their own coherent policy analysis programs and may do little to build long-term capacity of the institutes themselves.

As a response to the global food crisis in 2007-09, the 111th US Congress introduced legislation to create a U.S. Global Food Security Program that included the establishment of a Higher Education Collaboration for Technology, Agriculture, Research, and Extension (HECTARE) Program designed to develop and sustain the education, research, and institutional support for a developing country's agricultural science and education sector. The bill was not enacted into law.

Global leaders committed themselves to addressing global food security programs at a G-8 Summit in L'Aquila Italy in 2009. The United States responded to this commitment by establishing the Feed the Future program. While comprehensive in a number of areas such as support for women and smallholder farmers, market development, and access to seeds, a strong higher education and human and institutional capacity program is absent. A single HECTARE type program has been established, and that one, Innovative Agricultural Research Initiative (*i*AGRI) is being funded at the U.S. AID Mission level in Tanzania. Ohio State leads a consortium of six U.S. universities – Michigan State University, Virginia Tech, University of Florida, Tuskegee University, Iowa State University – working to build both human and institutional capacity at Tanzania's Sokoine University.

Unless and until universities in developing countries are strengthened, they will not be able to partner with American researchers in tackling food security issues. With open borders and the ease of travel, plant and animal disease can spread quickly around the world. Researchers and scientists need to be able to work together to recognize and counter these threats.

PROPOSALS FOR CONSIDERATION

It is time to consider new ways of doing business at US congressional and executive levels and with non-government actors. First, choices need to be made as to whether to continue structuring development assistance programs that focus on measuring achievements over short-term time horizon or to recognize the long-term nature of institution strengthening. Focusing mainly on demonstrating achievements over short time horizons skews implementing partners' programs toward obtaining quick wins that may be transitory and unsustainable rather than tackling the fundamental problems of weak public sector agricultural institutions that limit progress both in the short and long runs. Evidence from other parts of the world, including the United States, has documented the major importance of public education, agricultural research, farm extension, data and statistical generation and analysis units in contributing to agricultural growth and economic transformation (Bonnen 1998; Eicher and Haggblade, 2013; Fan et al., 2009; Economist Intelligence Unit, 2008). Choices also need to be made regarding the extent to which the mandate of achieving agricultural transformation in Africa is to be shifted from international experts and organizations to African experts and organizations. It is not an either/or issue but one of achieving the appropriate balance, with cooperative partnerships at the foundation and based on the recognition that collection action is often critical to effectively address many development challenges. Currently, much development assistance is at risk of creating parallel organizations and processes for getting things done that can be sustained only as long as donor projects remain funded and that marginalize African public sector organizations.

And the stakes are high. If development partners can assist Africa in upgrading its agricultural institutions so they are capable of sustainably raising agricultural productivity

growth, this would not only raise living standards and expand employment opportunities in the region, but also help to address incipient social problems borne of youth under-employment and poverty. Leaders need to look no farther than Syria and other middle eastern countries to see how a large population of unemployed and disaffected youth combined with state oppression can attract a growing presence of militant groups that result in widespread violence, spark mass migration, create fragile states, and end in massive humanitarian expenditures and US military interventions. Such events might have been mitigated if not avoided with earlier well-conceived development support. Many African countries are currently enjoying rapid economic growth but the sustainability of this progress is not assured, and even despite major general progress many African countries may still be characterized as "fragile states".

Congressional Action: The U.S. Congress may consider an approach that more effectively encourages relevant U.S. agencies to recognize the long-term nature of effective capacity-building work for the key agricultural institutions in developing countries, and give them the authority they need to provide the appropriate funding and oversight framework for such efforts.

- Capitalize on USDA's extensive knowledge and technical expertise to enhance understanding in developing nations on regional technical regulations, trade facilitation, and overcoming barriers to market.
- Foster knowledge transfer and capacity training for post-farm gate processing, production, and transport.
- Expand the Innovative Agricultural Research Initiative (iAGRI) program model to a multi-country pilot to scale-up teaching, research, and extension programs that address organizational development challenges by providing management training and by matching local organizations with sister organizations in the US.
- Update the Bayh-Dole Act to provide incentives to academic institutions that develop patentable innovations out of federally funded agricultural research to license their technology to entities or individuals in developing countries for lower fees, and potentially with a longer patent protection period if a certain share of licensing goes to developing countries. Much can be learned by looking at the successes of the African Agricultural Technology Foundation.
- Amend the Bayh-Dole Act to cover patent rights for innovations developed through joint federal/non-federal research projects, such as will be promulgated under FFAR.
- Create mechanisms to help US land grant faculty members with agricultural experiment station appointments through funding from the Hatch Act to identify and recruit scientists from universities in developing countries to work jointly with US research teams.
- The Farmer-to-Farmer program, established in the 1985 Farm Bill, enables American farmers, extension specialists, and others in the U.S. agricultural community to provide short-term, on-the-ground technical assistance to counterparts in developing countries. Congress could give USAID the flexibility to offer extension personnel and other agricultural specialists longer term assignments to work with counterpart institutions in Africa. This approach might allow USDA to apply its decades of domestic extension experience internationally to strengthen counterpart African public sector extension systems.
- Under the current Peace Corps program, create a one to two year agricultural specialization program for US students and faculty in partnership with 4-H or Future Farmers of America (FFA) that focuses on strengthening the capacity of African

agricultural extension systems to provide training and extension needs to African farmers. 4-H already operates in 50 countries around the world, so the basic structure is already present in many places.

- *Consider mandating lower overheads on grants to international development partners*, as some other development agencies do (*e.g.,* the Gates Foundation) in order to reserve a greater portion of overall USG development assistance for meeting program objectives.

Executive Action: With the enactment of the Global Food Security Act, USAID will have more explicit authority to operate international agricultural development and research programs. Within that framework, more attention can be paid to how activities aimed at fostering agricultural institutions are funded and managed, with particular attention to the following:

1. *Move to longer-term institutional capacity support*, based on the recognition that time frames for progress on institutional capacity building may realistically require sustained commitments of a decade or more. Periodic reviews can be conducted to assess whether sufficient progress is being made to warrant continuation.
2. For grants where the lead grantee is an international partner, *consider putting greater oversight and direction on the activities of US partners* – universities, NGOs, private development firms, -- so that their activities are more directly targeted to the achievement of capacity building objectives within the grant. In many cases, this will require more intensive USG review of grant budgets to ensure that sufficient grant funds are flowing to "recipient" organizations and that the effort expended by US university staff are devoted to directly supporting particular objectives of the grant.
3. Where appropriate, *require that substantial shares of total project funds are sub-contracted to local African partners* (perhaps with a minimum threshold) with specific oversight regarding how such funds are allocated.
4. *Where appropriate, engage in direct long-term contracts with African universities and institutes*, with international partners as sub-recipients with clearly specified roles and budgets that are in service to the long-term building of local institutional capacities.
5. *Recognize that institution building involves much more than research capability.* Local African organizations can benefit from capacity building in many respects, including (i) the preparation of well-designed proposals capable of achieving important objectives in a realistic manner; (ii) the ability to spend on funds granted over specified time periods, including the administrative capacity to issue sub-agreements and payouts to sub-partners; (iii) delivering on the terms of reference in a timely manner and at a satisfactory level of proficiency; and (iv) the ability to prepare and pass financial audits. US development partners can play a major role in building the capacity of African organizations to satisfy these criteria, and progress is indeed being made.
6. *Consider greater use of performance contracts* with specific capacity building deliverables based on project proposals and work plans prepared jointly by African and international partners, and endorsed by high-level management within all parties.
7. *Encourage grant recipients to s*et up advisory boards comprised of representatives from a range of African stakeholder organizations in the recipient country's agricultural sector to periodically advise and guide the activities of USG grantees.

8. *Encourage international lead grantees to involve African partners through institutional contracts rather than through individual consultancies.*
9. *Support African universities' efforts to undertake land-grant university activities* that were, and in many cases continue to be, so effective for rural communities in the USA. USG agricultural development assistance may effectively encourage partnerships with local and international land grant universities, engaging with local and international NGOs to co-create effective ways of serving the interests of local communities.
10. *Regarding U.S. assistance to the CAADP process and other USG initiatives designed to provide policy guidance to African governments, support long-term partnerships between African universities and policy institutes and US development partners to simultaneously build capacity and to support African policy institutes' efforts to liaise directly with African governments relating to policy guidance.*

CONCLUSIONS

Agricultural productivity growth continues to be at the heart of Africa's economic transformation and investing in Africa's economic growth is in the United States' national interest. Over the past 15 years, African governments that have effectively promoted farm productivity growth have enjoyed faster rates of poverty reduction, higher rates of labor productivity in the non-farm segments of the economy, and a more rapid exit of the labor force out of farming. Because the economies of most African countries still depend largely on the performance of agriculture, public investments in support of agricultural productivity growth will be an important component of an effective youth employment and livelihoods strategy. Young people between 15 and 34 years of age account for roughly 60% of Africa's labor force. Often considered more of a burden than a benefit, Africa´s youthful workforce could open up a wide range of economic opportunities in farming, in the downstream stages of agri-food systems and in the broader non-farm economy with the right mix of policies and public investments toward agriculture.

African agri-food systems of the future will require upgraded and profoundly expanded skill sets relative to what local education and training systems are currently producing. Developing the skills and jobs to move the continent towards a productive 21st Century Agriculture will require transforming the content and approach of African agricultural education, research, extension and policy analysis institutions. And, now that ICTs are increasingly able to overcome problems of remoteness, the transformative power of ICTs is increasingly dependent on our ability to generate relevant, appropriate and applicable information to be disseminated. This means a serious commitment to overcome decades of neglect in supporting localized, context-specific adaptive public agricultural research and extension programs.

The time has arrived for USG assistance to invest directly in long-term capacity building of the institutions needed to bring African agriculture into the 21st century. These include universities, agricultural training colleges and vocational schools, national crop science research organizations, extension systems, and policy analysis institutes. International private companies, universities, US government organizations and NGOs still have a crucially important role to play but it is increasingly a redefined role, one that puts African institutions in the lead. Such an approach is often extolled in principle but more can be done to make USG development assistance more effective in this area. African governments would also do well to show greater financial commitment to building the capacity of public agricultural organizations, and the exploration of innovative cost-sharing arrangements

between foundations, international development agencies and African governments might provide scope for leveraging greater mutual commitment to the development of African agri-food systems.

US assistance can increasingly entertain the idea of assisting stronger African universities and research institutes to carry out many of the Land Grant activities that US universities did in the US – providing know-how and extension support to farmers and local agri-business firms, and training the next generation of young Africans to contribute to their nation's development. It will take time for the proposals made here to generate their full impact. This is why there is no time to waste in getting started.

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