USAID
FROM THE AMERICAN PEOPLE

AFRICAN HIGHER EDUCATION:

OPPORTUNITIES FOR TRANSFORMATIVE CHANGE FOR SUSTAINABLE DEVELOPMENT

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AFRICAN HIGHER EDUCATION:
OPPORTUNITIES FOR TRANSFORMATIVE CHANGE FOR SUSTAINABLE DEVELOPMENT

Cover Photograph: *Neema Shosho (right), a USAID-sponsored Tanzanian scholar, takes a blood sample from a young boy while conducting nutrition intervention education as part of her master's research in the village of Peapea in Tanzania's Kilosa district. Neema completed her masters degree in 2014 through the USAID-funded Innovative Agricultural Research Initiative (iAGRI) program. The iAGRI program aims to strengthen training and collaborative research capacities of Sokoine University of Agriculture (SUA) and the Tanzanian Ministry of Agriculture, Food Security and Cooperatives (MAFC) with the goal of improving food security and agricultural productivity in Tanzania. Photo courtesy of iAGRI, 2014.*

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Association of Public and Land-grant Universities
Knowledge Center on Higher Education for African Development

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LIST OF ACRONYMS

AAU	Association of African Universities
ACU	Association of Commonwealth Universities
AfDB	African Development Bank
AfriQAN	African Quality Assurance Network
AHE	African Higher Education
APLU	Association of Public and Land-grant Universities
AVU	African Virtual University
CODESRIA	Council on the Development of Social Science Research in Africa
CRSP	Collaborative Research Support Program
DANIDA	Danish International Development Agency
DFID	Department for International Development (United Kingdom)
ERR	Economic rate of return
GERD	Gross expenditure on research and development
GDP	Gross domestic product
HE	Higher education
HICD	Human and institutional capacity development
ICT	Information and communication technology
IDRC	International Development Research Centre
IOM	International Organization for Migration
NEPAD	New Partnership for African Development
NGO	Non-governmental organization
NUFFIC	Netherlands Universities Foundation for International Cooperation in Higher Education

ACRONYMS (continued)

PAIUG	Pan-African Institute of University Governance
PHEA	Partnership for Higher Education in Africa
QA	Quality assurance
R&D	Research and development
RISE	Research Initiative in Science and Education
ROR	Rate of return
SAFE	Sasakawa Africa Fund for Extension Education
SAP	Structural adjustment program
SES	Socio-economic status
SIDA	Swedish International Development Cooperation Agency
SSA	Sub-Saharan Africa
TVET	Technical and vocational education training
TFHES	Task Force on Higher Education and Society
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

INTRODUCTION

This report seeks to provide USAID and other interested stakeholders with recommendations towards effecting positive transformation of Sub-Saharan African higher education – at both the system and institutional levels. This work is based upon the premise that African higher education institutions are critical to sustainable human development on the continent, evidenced by numerous studies measuring higher education's contribution to economic growth and long-term benefits to society. This report deals with the full spectrum of African institutions of higher education, including public and private colleges, universities and polytechnics, which serve undergraduate and/or graduate students and have the authority to award certificates, diplomas and/or degrees.

The report highlights several positive signs of progress on the continent and outlines African higher education's significant contribution to development. It also examines the myriad challenges facing higher education in Sub-Saharan African (SSA). The report concludes with a proposed strategic framework, emphasizing alignment with USAID priorities, policies and strategies; proposed criteria for investment at the system and institutional levels; and recommendations for action.

The study looks backward as well as forward: backward to gain evidence for what works, and forward to understand the rapidly changing African social and economic landscape in order to shape future investments. The rate at which new approaches, businesses, and business models (in higher education and other sectors) are evolving is astonishing. Predicting the outcome of this transformation of higher education is challenging, but ignoring it will lead to missed opportunities.

The development of the report included a landscape analysis of current and planned investments in African higher education from development partners as well as a review of the literature on challenges facing African higher education and higher education globally. Additionally, we reviewed five large U.S.-funded interventions to strengthen human and institutional capacity in higher education in order to identify best practices and lessons learned.

THE BROADER DEVELOPMENT CONTEXT IN SUB-SAHARAN AFRICA

Sub-Saharan Africa (SSA) represents one of the fastest growing economies on the globe. With an average annual growth rate in excess of 4 percent per annum, SSA has surpassed most regions of the world, including many parts of Asia, the growth continent of the last four decades.

Twenty-one SSA countries have already achieved middle-income status, as determined by GDP per capita greater than US$1000, and another 10 are slated to reach this status by 2025 at current growth rates. Several of these larger economies, such as Angola, Ghana, Kenya, Nigeria and South Africa, have a burgeoning middle class and are attracting increasing investment into their consumer sectors. Investment in the region has increased steadily from 15.9 percent of GDP in 2000 to over 22 percent of GDP in 2012. Foreign direct investment (FDI) is strong and anticipated to remain strong over the coming years given SSA's wealth of natural resources and relatively high rates of return on investment.

Although SSA economies are growing, the overwhelming majority of Africans remains poor. Forty-six SSA countries (out of a total number of 187 countries) are listed by the UNDP as low-human development countries in terms of the HDI. The bottom thirty-six is comprised of all SSA countries. Mozambique and the DRC, with the greatest potential in extractive resources, are ranked at 184 and 187, respectively.

THE CONTRIBUTIONS OF HIGHER EDUCATION TO ECONOMIC DEVELOPMENT

Given the importance of human capacity in development, economic growth and social stability, it is no surprise that higher education policy occupies an increasingly important place on national policy agendas. The widespread recognition that higher education is a major driver of economic competitiveness in an increasingly knowledge-driven global economy has made high quality higher education more important than ever before in both industrialized and developing countries.

Higher education contributes to social and economic development through four major missions:

- The formation of 'human capital' (primarily through teaching);
- The building of knowledge bases (primarily through research and knowledge development);
- The dissemination and use of knowledge (primarily through interactions with knowledge users); and
- The maintenance of knowledge (inter-generational storage and transmission of knowledge).

The same OECD research report points also to the changing nature of higher education. While the challenges that face higher education institutions and systems across the globe vary, there are some general similarities and trends that can be discerned across the world's higher education landscape. For most of the 20th century, higher education was thought to be what happened in universities. This largely covered teaching and learning requiring high level conceptual and intellectual skills in the humanities, sciences and social sciences; the preparation of students for entry to a limited number of professions such as medicine, engineering and law; and advanced research and scholarship.

These days, higher education is much more diversified and encompasses new types of institutions such as community colleges, polytechnics, universities, colleges, and technological institutes. These varied institutional forms have been created for a number of reasons: to develop a closer relationship between higher education and the external world, including greater responsiveness to labor market needs; to enhance social and geographical access to higher education; to provide high-level occupational preparation in a more applied and less theoretical way; and to accommodate the growing diversity of qualifications and expectations of school graduates.

As participation in higher education has expanded, higher education institutions (HEIs) have assumed responsibility for a far wider range of occupational preparation than in the past. As the result of

both the increased knowledge base of many occupations and the aspirations of individuals, not only doctors, engineers and lawyers, but also nurses, accountants, scientists, computer programmers, teachers, economists, pharmacists, speech therapists, business managers, and others now receive their principal occupational qualifications from an HEI. Furthermore, HEIs are now involved in a wider range of teaching than traditional degree-level courses. Numerous examples in many parts of the world can be found of HEIs that offer adult education and leisure courses, upper secondary courses to prepare students for tertiary-level study, and short specific occupational preparation at sub-degree level. In addition, it has become more common for HEIs not only to engage in teaching and research, but also to provide consultancy services to industry and government and to contribute to national and regional economic and social development.

In addition, substantial reforms aimed at encouraging institutions to be more responsive to the needs of society and the economy are taking place in higher education systems in many countries. This movement has involved a reappraisal of the purposes of higher education and the setting by governments of new strategies for the future. It has also involved, in some instances, more room for maneuver for particular institutions, coupled with clearer accountability of the institutions to society. This point is especially important if the tertiary education sector is expected to contribute to broad societal goals like equity at the same time as institutions strive to ensure quality and operational efficiency.

Rates of Return to Higher Education Investments

Quantitative measurements of the impact of higher education on development can take several forms. In understanding results from research on returns from investments in higher education, three categories are important to consider. They are:

- Private Market Benefits – these accrue to the individual in the form of earnings and income as a result of higher education.
- Private Non-Market Benefits – these accrue to the individual and/or family in the form of non-income quality of life improvements as a result of higher education.
- Social Benefit Externalities – these accrue to all of society and spill over to many others, including future generations as a result of higher education.

Higher education had been relatively neglected for some time by the international development community, stemming from the belief that it yielded lower social returns relative to other investments, especially primary and secondary education, and therefore should receive fewer public resources. Even more importantly, investments in higher education have often been considered regressive, reproducing existing social and economic inequalities. A 1986 World Bank study estimated that social rates of return for higher education in developing countries were on average 13 per cent lower than the returns from basic education.

These rates of return, however, were calculated using a narrow definition of benefits that typically considered only worker earnings (including income taxes). Analyses measuring the larger, broader and well-recognized social benefits lead to substantially different measures. Re-evaluations of data suggest that traditional estimates of social returns to higher education do not accurately reflect positive public "externalities," as metrics have tended to be based on the private returns measured by wage differentials and the social costs associated with education.

A new study by Claudio Montenegro and Harry Patrinos on rates of return to schooling around the

Returns to Schooling by Region

Region	Returns to Schooling (%)	Years of Schooling	GDP/pc (PPP 2005)	N
Middle East and North Africa	5.6	9.6	4,813	9
South Asia	7.0	6.5	2,661	7
Eastern and Central Europe	8.2	12.8	8,704	16
High Income Economies	10.0	12.7	29,538	25
East Asia and Pacific	10.3	10.5	4,996	13
Latin America and Caribbean	10.3	9.8	8,098	20
Sub-Saharan Africa	12.8	8.8	2,684	28

Note: based on comparable estimates of 545 observations, 131 economies, 1970-2011.
Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling Around the World. The World Bank.

Returns to Schooling by Educational Level and Region (latest available year between 2000 - 2011)

Region	Primary	Secondary	Tertiary	GDP/pc (PPP 2005)	N
World	10.3	6.9	16.8	6,719	74
Middle East and North Africa	9.4	3.5	8.9	3,645	7
South Asia	9.6	6.3	18.4	2,626	4
Eastern and Central Europe	8.3	4.0	10.1	6,630	7
High Income Economies	4.8	5.3	11.0	31,748	6
East Asia and Pacific	11.0	6.3	15.4	5,980	6
Latin America and Caribbean	9.3	6.6	17.6	7,269	20
Sub-Saharan Africa	13.4	10.8	21.9	2,531	24

Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling Around the World. The World Bank.

world, which used data from 545 households in 131 economies from 1970-2011, shows that private rates of return to schooling are significantly higher in Sub-Saharan Africa than in other world regions, as can be seen in the first table above. This study also found that returns are highest globally at the tertiary level with a world average of 16.8 percent, while primary and secondary returns are at 10.3 percent and 6.9 percent, respectively. Tertiary rates of return were also highest in Sub-Saharan Africa at 21.9 percent, as can be seen in the second table above.

A growing body of literature suggests that the conventional estimates of the returns to investments in higher education do not accurately reflect the social value added by higher education, including job creation, good economic and political governance, increased entrepreneurship, and increased intergenerational mobility.

It is estimated that the broader social rates of return to investments in higher education may in fact, be more than twice the more narrow rates of return estimates. These results suggest that rates of return to higher education investments are competitive to other investment returns and comparable to and often higher than the returns achieved in primary and secondary education investments.

Evidence from quantitative and qualitative research indicates the following:

- Social and private rates of return in higher education investments in SSA are among the highest relative to other world regions.
- Higher education investments are important for SSA because globalization brings new competition and opportunities. To deal effectively with these opportunities and competitive challenges requires highly educated people.
- Higher education is also critical to the success of reaching development goals in other sectors such as health, agriculture, the environment and natural resource development, democratization and good governance.
- Recent evidence shows that quality of higher education is more important to encouraging economic growth than simply years of education. This means that efforts to improve quality of education are critical to maximizing the contribution of higher education to growth.
- Evidence indicates that higher education contributes to significant economic growth and further development of the knowledge economy by producing better educated and highly skilled graduates; doing problem-solving research; and engaging the private, public and civil society sectors. These contributions promote technology development and catch-up, more productive private sector firms, better public sector policy and regulation systems, the achievement of development goals in other development sectors, and more effective teachers and leaders for primary, secondary and tertiary higher education institutions.
- Higher education is increasingly important in promoting regional and local development. University-city-regional collaborations are important for local and regional development in industrialized countries and offer promise for developing countries innovation systems in SSA.
- Case studies in Finland, Korea and the U.S. demonstrate the potential productivity of developing strong relationships among HEIs, the private sector, public agencies, and civil society to create regional and national development complexes.

What all of this suggests is a need for a renewed emphasis on investing in higher education. Focusing on human capital formation to promote economic growth, the development of the knowledge economy, and regional and local development is vital for the economic development of SSA. Given the evidence, the case for investing in higher education in SSA is logical and compelling. While some of the benefits to higher education are not easily quantifiable, they are indeed real and important for Africa's development future. In SSA and other developing regions, higher education development must be at the heart of sustainable development processes.

AFRICAN HIGHER EDUCATION CHALLENGES AND OPPORTUNITIES

Sub-Saharan Africa had a population of 911.1 million people in mid-2012 and has the highest rate of natural increase of any world sub continental region. In about 13 years, the population of SSA is projected to be 1,245 million. SSA has experienced relatively rapid population growth for many decades; hence the age cohorts of 17 – 20 year olds, the common age for enrollment in higher education institutions, are large and will continue to grow in the next several years. In addition, with incomes rising, with increasing numbers of adults interested in continuing education, and with more employment positions requiring higher education degrees, the increase in demand for higher education services will increase even faster than the increases caused by 17 – 20 year old cohorts entering higher education.

Enrollment in tertiary education in SSA grew by 8.6 percent annually over the past 40 years, compared to 4.8 percent annually on average for the rest of the world. In 1970, there were approximately

200,000 higher education students in SSA. That number had increased to 4.5 million in 2008 and to 6.3 million in 2011.

Even with this rapid growth in enrollment in higher education institutions in SSA, the Gross Enrollment Ratio for higher education is the lowest in the world, at 7.6 percent in 2011. This is far lower than the global average of 30.1 percent. Therefore, with a very low GER and a large cohort of 17-20 years olds coming along, the potential for rapid increases in demand for higher education is quite great.

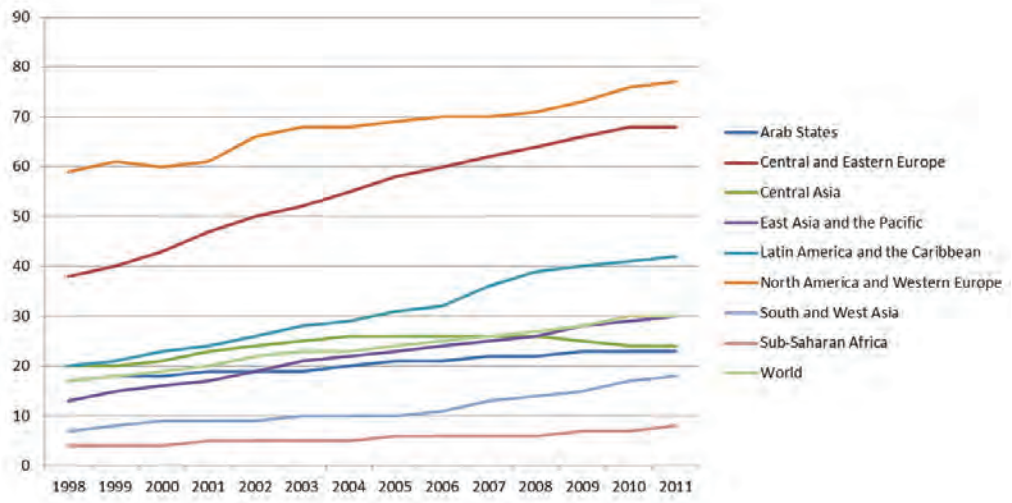
Despite these dramatic increases in numbers of students, public funding for higher education increased at only 6 percent annually in SSA from 1970 - 2008.

These facts and prospects help frame our examination of the challenges for higher education in Africa. The question of how to educate a rapidly growing number of students with attention to relevance and quality and to financial sustainability is a question that burdens higher education systems across the continent. This report focuses on challenges where we believe USAID development assistance can make an important difference. There are other important higher education challenges in SSA such as higher education related infrastructure, campus physical facilities and broadband capacity development, which we do not examine in depth in this report because they are likely to be largely beyond the scope of USAID funding. The seven challenges discussed in this report are:

1. Access to higher education services
2. Broader governance issues
3. Institutional leadership and management
4. Finance of higher education
5. Limited research investment and output
6. Quality and relevance in learning, discovery and public engagement
7. Information and communication technology

African higher education faces significant challenges that will require major reform. But while there appears to be a fairly common appreciation of the many challenges that face African higher education institutions and systems, there is far less consensus on what the priorities for investment should be.

Tertiary Gross Enrollment Ratio for Different Regions



Source: UNESCO Institute for Statistics 2013

Making decisions about what to prioritize when there are so many pressing challenges is never an easy task. To achieve reform, bold and innovative leadership will be needed in Africa, and development assistance must work to support the reform initiatives of African leadership. There are many African leaders both in and outside of academia who care deeply about the future of higher education in their countries and are eager to drive change.

RECOMMENDATIONS FOR ACTION

The report's recommendations to USAID fall into three main categories of recommendations. First, two general recommendations are given on the development and management of USAID's higher education portfolio. This is followed by four priority areas of focus at the institutional level and four related programmatic high priorities at the country level. Specific recommendations follow each priority area. The recommendations are outlined below, followed by brief discussions of each.

Recommendations to USAID on the Development and Management of the Agency's Higher Education Portfolio

1. Concentrate USAID Investments: focus on a few countries, combine system level interventions with comprehensive long-term institutional partnerships
2. Intervening at the Institution-level: Higher education partnerships should be at the core of USAID's efforts in HICD and these partnerships should be long-term and comprehensive.

Programmatic High Priorities at the Institutional Level

1. Professional Development of Faculty and Staff
2. Strengthening the Capacity of Institutions to Use Labor Market Data to Improve Quality and Relevance
3. Strengthening the use of and experimentation with e-learning in African higher education institutions
4. Supporting the Search for Other-than-Public Revenue for Higher Education

Programmatic High Priorities at the Country Level

1 Assessing and Improving Overall Quality of Higher Education Institutions
2. Assessing and Improving the Responsiveness of HEIs to the Labor Market
3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education
4. Working with ministries on finding solutions to the finance challenges of higher education

Recommendations to USAID on the Development and Management of the Agency's Higher Education Portfolio

1. *Concentrate USAID Investments: focus on a few countries, combine system level interventions with comprehensive long-term institutional partnerships*

Capacity building efforts that are spread too thinly will be ineffective at addressing the complex challenges facing higher education in SSA, and thus it is critical that USAID have an intentional, concentrated approach and focus efforts strategically in a few countries. As the challenges of higher education in SSA are both institutional and systemic, USAID should coordinate programmatic efforts at both levels in the countries of focus.

2. *Intervening at the Institution-level: Institutional partnerships should be at the core of USAID's efforts in HICD in higher education and these partnerships should be long-term, comprehensive and focused on making a transformational difference.*

We urge USAID to invest in long-term and comprehensive partnerships at the institutional level to build human and institutional capacity. Comprehensive transformational partnerships must focus on strengthening administrative systems as well as academic programs and establishing and managing transformational partnerships requires leadership expertise in organizational performance improvement and change management. Transformational partnerships should be between African higher education institutions and U.S. higher education institutions at the core, should include leaders with expertise in institutional performance improvement (either inside or outside of the partnership), should adopt a comprehensive approach, should engage private, civil, and public sectors, and should have a long-term commitment and built in flexibility. Establishing and managing transformational partnerships requires leadership expertise in organizational performance improvement, strategies to mitigate inequality, effective training using an HICD framework, and streamlining and tailoring of management of partnerships.

Programmatic High Priorities at the Institutional Level

1. Professional Development of Faculty and Staff

Given that African universities suffer from a shortage of qualified academic staff and high student-teacher ratios, effective faculty and staff development is critical to improving institutional capacity. Four specific recommendations emerge from this priority area. The first is that individual training of faculty should be done using USAID's HICD framework. This means that faculty training should not only focus on the individual, but should focus on training individuals to fill important institutional needs. The second recommendation on faculty development is that it take into account both the recruitment of new faculty and the retention and development of existing faculty. This involves establishing a broad support structure for faculty development to maximize the effectiveness of individual training efforts. A third recommendation is that faculty development efforts go beyond strengthening disciplinary knowledge to developing essential skills in active teaching, research, leadership and management, and technology. A final recommendation on faculty development is that incentive structures and policies be created to encourage faculty to invest in areas that align with institutional goals.

2. Strengthening the Capacity of Institutions to Use Labor Market Data to Improve Quality and Relevance

It is essential that HEIs understand what skills and competencies are demanded by the labor market so that they can better equip their students for employment. Two specific recommendations follow this priority area—the first being that USAID invest in quality assurance mechanisms to assist HEIs in improving quality. Mechanisms at the institutional level, such as Quality Enhancement Units, can lead and facilitate work on quality issues. The second recommendation of this section is for USAID to assist African HEI's in developing ways to interact with stakeholders in the public, private, and civil society sectors. Engagement with leaders in these sectors has the potential to both improve the quality of teaching, research, and outreach within an HEI, and provide opportunities for students to interact with professionals in their prospective fields.

3. *Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education*

It is clear that recent technologies are leading to new and effective ways of teaching for many students. There are many indications that new technologies offer the potential to make significant positive changes to the quality of teaching and access to education. Leading this transition are U.S. universities

that are now sorting their way through the different delivery models, their effectiveness, their costs and their institutional policies. While the pace of technological change in how education is delivered in the developed world is accelerating, higher education institutions in Africa are finding themselves increasingly resource-constrained to engage in these new educational models.

There are three main recommendations related to support for e-learning in Africa. First, USAID's e-learning investments should focus on increasing the use of e-learning tools by existing African universities rather than focus on developing fully online alternatives. Second, investments should incentivize international collaboration and public-private partnerships to promote the adoption of innovative, scalable approaches to blended learning. Third, USAID should give consideration to establishing regional centers of leadership for the development and implementation of e-learning in African Higher Education.

4. Supporting the Search for Other-than-Public Revenue for Higher Education

Available public revenue in SSA cannot keep up with the increasing costs and revenue needs of HEIs, and African institutions are turning to other sources for revenue, such as parents and students (through tuition or other related fees), donor country aid, externally-funded research grants, and philanthropy. Although cost-sharing programs are deeply controversial in SSA, many institutions turn to them as revenue needs continue to increase in the face of surging enrollments. Three specific recommendations falling under this priority area and regarding the development of partnerships between U.S. and sub-Saharan African HEIs are 1) develop innovative public-private partnerships to support the funding of African higher education institutions, 2) strengthen the capacity of African institutions to develop a variety of cost-sharing mechanisms where they currently do not exist, and 3) build capacity to enhance planning and budgeting at the institutional level. It is important to recognize that in many countries, institutions may have very limited authority to develop cost-sharing mechanisms because authority over such decisions lies at the ministerial level. In those cases, efforts to devolve authority to the institutional level ought to be supported; devolving authority (over hiring, compensating and negotiating with faculty) from the government to institutions or systems is indeed the first step to building capacity at the institutional level to address the challenge of increasing non-public funding for higher education.

Programmatic High Priorities at the Country Level

The next section focuses on the need to tackle system-level challenges and discusses four programmatic high priorities for USAID investment at the country level. These priority areas should be considered in conjunction with the institutional level priorities.

1. Assessing and Improving Overall Quality of Higher Education Institutions

It is recommended that USAID invest in the strengthening of higher education Quality Enhancement and Accreditation (QEA) processes at the country level in focus countries. The quality of higher education is a critical factor in how productive investments in higher education institutions ultimately prove to be. It is undisputed that quality matters a great deal in education in general, and in higher education in particular. Therefore, efforts to measure learning outcomes and cognitive skills development and adjust educational processes to achieve desired outcomes will be critical in assuring that higher education is contributing as much as possible to economic growth. Many countries and African continental organizations already have accreditation units and processes established, so these recommended investments will need to be tailored to existing conditions and contexts.

2. Assessing and Improving the Responsiveness of HEIs to the Labor Market

Measuring the responsiveness of higher education to the labor market is critically important for reasons of systemic and institutional efficiency. Such assessments can inform relevant government agencies and individual higher education institutions about how effectively scarce resources are being used in producing graduates that contribute to the labor market and the economy. Although there is evidence of attempts in SSA generally and South Africa specifically to measure the responsiveness of education and higher education to the labor market, these have been mainly undertaken on an ad hoc basis by universities and other research institutions. There is no evidence of any SSA country undertaking systematic evaluations of the relationship between education and work as there are in such countries as Australia, Canada, UK, USA, and South Korea.

3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education

Higher education places great demands on telecomm facilities. In many countries in Africa these demands are not being met. In part, this is due to regulatory regimes which are not friendly to such demands. The political will for widespread regulatory reform could have a major beneficial impact on the adoption of e-learning. Sustainable investment on infrastructure and e-learning resources requires the full awareness of policy makers of the implications of connectivity, applications, services and e-learning. E-learning needs to be integrated into the broader policies of education and ICTs. Donor assistance could help support dialogue between higher education advocates and other stakeholders involved in setting telecom regulations.

4. Working with Ministries on Finding Solutions to the Finance Challenges of Higher Education

It is inevitable, given serious public resource constraints, that the higher education sector must look at alternative mechanisms for generating funding to improve access and equity. Among the funding mechanisms that need to be considered are some form of cost-sharing and the development of loan schemes that are efficient in terms of cost recovery. Work also needs to be done in many countries to revise funding formulas for higher education to promote the more effective utilization of scarce financial resources to achieve national higher education objectives. Finally, consideration needs to be given to strengthening the private sector component of higher education, including supporting the development of national policies and regulations for the operation of private higher education, strengthening quality assurance and accreditation programs for private HEIs, exploring alternate funding models for private HEIs, and supporting research into the external efficiency of private higher education in SSA.

CONCLUSION

One of the hardest things to do in development is to reform institutions and strengthen institutional performance. It is one thing to build a road, a school, or a hospital. But to get human beings "to use the physical stuff available to produce the flows of improved services (learning in schools, water to farmers, cures for patients) that lead to desirable outcomes for citizens has proven much more difficult." This challenge expresses itself in numerous other ways. Even when policy reforms are enacted, for instance, it is an entirely different question whether the reforms are *implemented*. There are, unfortunately, many examples of this challenge. While transforming institutional norms, cultures, and practices takes time, such efforts are essential in the context of a larger development push.

A number of scholars have argued that poorly performing institutions are a pervasive problem in developing countries in part because of the way donor-funded development has traditionally been practiced. In their analysis of this challenge, Andrews, Pritchett and Woolcock (2012) argue that

"development interventions—projects, policies, programs—create incentives for developing country organizations to adopt best practices in laws, policies and organizational practices which look impressive (because they appear to comply with professional standards or have been endorsed by international experts) but are unlikely to fit into particular developing country contexts." As a result of these donor-driven incentives, organizations often wind up *mimicking* reform, but not genuinely *pursuing* reform. They do so because it enhances the organization's perceived legitimacy and therefore ensures support for the organization, even when the so called best-practices do not demonstrably improve performance (as measured by end results, not quality or efficiency of process).

These strategies of mimicry add up to what Andrews *et al* call "capability traps"—a dynamic in which organizations frequently promote and adopt reforms to ensure continued donor financing, yet never actually achieve the expected results of reform efforts. As a result, externally-funded development projects can, if set up in certain ways, in fact undermine the capacity of developing country institutions.

It is possible to create the right conditions and incentives to build institutional capacity with external assistance (financial and/or technical). To do so, though, requires some careful thought and attention to the role of external assistance.

USAID's Human and Institutional Capacity Development (HICD) policy represents a sophisticated understanding of the needs and challenges of institutional performance improvement and provides some good guidance on designing and managing capacity building programs. But although the policy is strong, it does not seem to be implemented widely. Indeed, most of the individuals we spoke to in preparing this report, both in and outside of the Agency who work or have in the past worked on human and institutional capacity development projects in higher education were unaware of the policy or even of the concept of HICD as defined in the framework. Therefore, considerable work needs to be done to expand the understanding and implementation of the HICD framework in the higher education sector as well as in other parts of the Agency.

We conclude with these remarks to point out that while we have, in this report, identified a number of programmatic priorities for investment based on our research and experience, we feel that our most important recommendations are those focused on *how* we ought to approach higher education capacity strengthening, rather than on *what* we should invest in.

Lastly, we wish to close by saying that we hope this report can serve to stimulate dialogue with the Agency and with our African colleagues on the way forward from here. This is certainly not the first word, and most definitely not the last. There is much more to be examined and discussed.

INTRODUCTION

This report seeks to provide USAID and other interested stakeholders with recommendations towards effecting positive transformation of Sub-Saharan African higher education – at both the system and institutional levels. This work is based upon the premise that African higher education institutions are critical to sustainable human development on the continent, evidenced by numerous studies measuring higher education's contribution to economic growth and long-term benefits to society.[1] This report deals with the full spectrum of African institutions of higher education, including public and private colleges, universities and polytechnics, which serve undergraduate and/or graduate students and have the authority to award certificates, diplomas and/or degrees.

Specifically, this report hopes to address the following questions:

- What are the key challenges that inhibit the effectiveness of higher education's contributions to economic and social development in Sub-Saharan Africa?
- What is the broad landscape of interventions from major investors in African higher education, from the World Bank, European donors, and USAID, to the African Development Bank, private foundations, and select African governments?
- What has worked well in the past to build the capacity of African higher education institutions and systems and what has been less effective?
- What are the recommendations for future USAID investment in African higher education?

The report highlights several positive signs of progress on the continent and outlines African higher education's significant contribution to development. It also presents the myriad challenges facing higher education in Sub-Saharan African (SSA) as well as an analysis of best practices and lessons learned. The report concludes with a proposed strategic framework, emphasizing alignment with USAID priorities, policies and strategies; proposed criteria for investment at the system and institutional levels; and recommendations for action.

The study looks backward as well as forward: backward to gain evidence for what works, and forward to understand the rapidly changing African social and economic landscape in order to shape future investments. The past has a rich history of higher education programs, partnerships, and projects that have been well-documented and reviewed and can serve to improve the way USAID implements programs going forward. The future is a dynamic environment where new technologies and innovative approaches will allow us to build on the lessons learned from the past to create more effective solutions. The rate at which

new approaches, businesses, and business models (in higher education and other sectors) are evolving is astonishing. Predicting the outcome of this transformation of higher education is challenging, but ignoring it will lead to missed opportunities.

In looking to the future, it is important to recognize that over the last several decades, USAID and other donors have increasingly taken on a results-driven framework for making investment decisions. This is a positive movement. A challenge, however, in the context of higher education investment, is determining the appropriate timeframe for assessing results. There has been a tendency across the development community to favor goals that can be easily counted over a 3-5 year timeframe. Efforts that have impacts that are long-term, diffuse, and not easily quantifiable are at a considerable disadvantage. While higher education is generally recognized as a critical component of development, it struggles to attract sufficient attention due to the narrowness of the dominant evaluative metric. The dilution of support created by this environment diminishes the role of higher education within the donor community, impacts staffing levels at agencies, and affects the way higher education investments are designed. This study addresses some of these challenges.

The study is based on information from a wide range of sources collected over six years of effort in engaging in African higher education capacity development as part of the Africa-U.S. Higher Education Initiative started by APLU in 2007. The development of the report included a landscape analysis of current and planned investments in African higher education from development partners as well as a review of the literature on challenges facing African higher education and higher education globally. Additionally, we reviewed five large U.S.-funded interventions to strengthen human and institutional capacity in higher education in order to identify best practices and lessons learned. Together, these analyses and consideration of USAID's and the United States' comparative advantage in responding to needs identified by Africans provide the basis for our recommendations for action – identifying potential areas for intervention to support the transformation of African higher education to more effectively contribute to national and regional development efforts in Sub-Saharan Africa.

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CHAPTER 1

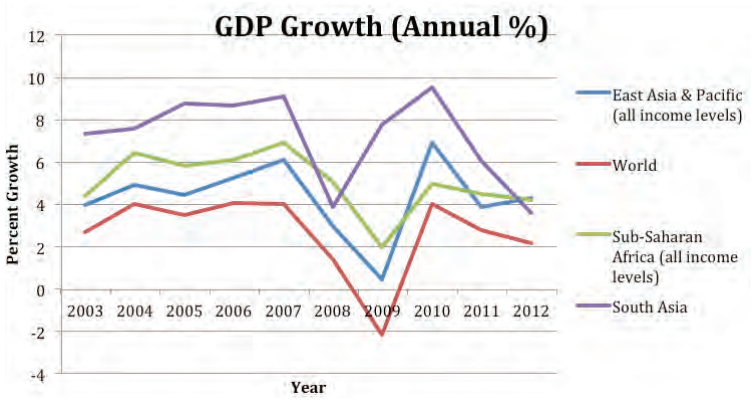
The Broader Development Context in Sub-Saharan Africa

ECONOMIC GROWTH, INVESTMENT AND TRANSITION

Sub-Saharan Africa (SSA) represents one of the fastest growing economies on the globe. With an average annual growth rate in excess of 6 percent per annum, SSA has surpassed most regions of the world, including many parts of Asia, the growth continent of the last four decades.

Twenty-one SSA countries have already achieved middle-income status, as determined by GDP per capita greater than US$1000, and another 10 are slated to reach this status by 2025 at current growth rates.[1] Several of these larger economies, such as Angola, Ghana, Kenya, Nigeria and South Africa, have a burgeoning middle class and are attracting increasing investment into their consumer sectors.[2] Investment in the region has increased steadily from 15.9 percent of GDP in 2000 to over 22 percent of GDP in 2012.[3] Foreign direct investment (FDI) is strong and anticipated to remain strong over the coming years given SSA's wealth of natural resources and relatively high rates of return on investment.[4] Remittance flows to Africa represent another important source of direct investment. Having quadrupled between 1990 and 2010, they reached nearly US$40 billion in 2010, which is equivalent to 2.6 percent of Africa's 2009 GDP.[5] For potential investors, growth signals prospects of higher profits, and for government, higher growth presents opportunities for dealing with the pervasive development challenges on the continent.

Figure 1: Annual Percentage of GDP Growth for Various Regions



Source: World Bank DataBank, 2013.

High growth is especially noticeable among economies based on extractive industries. Angola for instance, growing at 12-13% per annum, is the third fastest growing economy in the world. Other high growth economies include Ghana (gold and oil); Mozambique (oil and gas); Botswana (diamonds); Gabon (oil). It is well known that SSA possesses huge reserves of natural resources including minerals of all kinds, oil, and gas.

GROWTH NOT NECESSARILY TRANSLATING INTO BROAD-BASED DEVELOPMENT

Although SSA economies are growing, the overwhelming majority of Africans remains poor. This dichotomy can be illustrated in a comparison of growth and development indicators. In Botswana, long touted by international agencies as an African model that should be emulated, one-third of the population lives below the national poverty line, this in a country with one of the highest GDP per capita in Africa enabling it to be classified as middle-income; in South Africa, almost one-quarter; in Gabon, one-third; in Mozambique, 55%; and in the DRC (Democratic Republic of the Congo), 71% of the population lives below the national poverty line. In the last two countries mentioned above, 60% of the population lives below $1.25 dollars a day.

Forty-six SSA countries (out of a total number of 187 countries) are listed by the UNDP as low-human development countries in terms of the HDI. The bottom thirty-six is comprised of all SSA countries. Mozambique and the DRC, with the greatest potential in extractive resources, are ranked at 184 and 187, respectively.

SSA countries are amongst the most unequal in the world. Gini coefficients reflecting income inequality are in the range of 0.4 – 0.7, with countries such as Botswana, South Africa, Namibia, and Equatorial Guinea topping the rankings with the greatest inequality differentials.

Finally, there is the issue of "food poverty." According to the United Nations, "dehumanizing hunger remains pervasive in the region, despite abundant agricultural resources, a favorable growing climate, and rapid economic growth rates."[6] More than 1 in 4 Africans – close to 218 million – is undernourished. And yet, one of the continent's key assets is the considerable land that is available for food production and the ample size of the yield gaps on existing cropland. The continent has 60% of the world's unused arable land. In short, Africa could become a major component of the solution of food demand by 2050.

It is clear that the majority of SSA's population is not benefiting from the high economic growth evident across the continent. Where growth is based on extractive industries, it is evident that the primary beneficiaries are private capital, African governments, and politically-connected elites within countries. Tax revenues, furthermore, are not spent equitably; rather, state revenues are often used to disproportionately subsidize the education, health, and other needs of the richer segments of the population.

There is strong evidence from the post-World War II growth and development experience of many East Asian countries that education is the key to more equitable patterns of development. Moreover, given the significant number of middle-income economies in SSA, higher education assumes greater importance because of its potential to enable these countries to embark on higher value-adding growth paths which could raise standards of living for more people in much shorter periods of time. The actual and potential contributions of higher education to development are discussed in some detail in Chapter 2 of this paper.

CHANGING DEMOGRAPHICS: THE YOUTH BULGE

Sub-Saharan Africa (SSA) will be home to the world's largest workforce by the year 2040, outnumbering that of China and India.[7] Africa is also the world's youngest continent and by 2025, will host one-quarter of the world's under-25 population.[8] This demographic phenomenon poses either a tremendous opportunity for economic growth and development or a significant threat to

regional stability and peace and a drag on African economies.[9] This large "youth bulge" – representing those under the age of 24 – and growing inequalities on the continent, bring forth the urgent need to address youth employment issues and access to higher education and workforce development opportunities.[10]

Critical to capitalizing on this demographic dividend is the ability of African tertiary education institutions to prepare current and future generations to meet labor market demands in a market that increasingly requires the ability to adapt and adopt emerging technologies and participate actively in the global knowledge economy. As noted above, across the continent, Africa is demonstrating impressive economic growth rates and democracy continues to rise, with over forty countries now holding regular, multiparty elections.[11] However, much of this impressive economic growth over the last decade has not translated into formal jobs, and joblessness remains an endemic problem in many parts of the continent, especially among youth.[12] Africa's youth comprise the largest segment of the unemployment ranks, representing 60 percent of total unemployment in the region.[13] In some high performing countries such as Ghana and Mozambique, youth unemployment and underemployment is as high as 80 percent.[14] These conditions often lead to instability, conflict and emigration of a country's top talent.[15]

In 2012, the McKinsey Center for Government released a report entitled "Education to employment: Designing a system that works" that sought to address two of the world's most paradoxical problems: high levels of youth unemployment and a shortage of job seekers with critical skills. The McKinsey report represents an important step in addressing the knowledge gap regarding the relationship between higher education and economic development. The survey study that formed the basis of the report, however, did not include any countries in Sub-Saharan Africa and the dynamic in Africa may be somewhat different than in other parts of the world.

Many African countries are cognizant of the risks and opportunities that their demographics present and know that they must find ways to productively engage their youth. According to the World Development Report 2007, one successful policy response to youth unemployment is the expansion of opportunities for the accumulation and preservation of human capital through access to formal education and training.[16] In this context, the role of the private sector becomes increasingly important in terms of job creation, and thus underscores the necessity and urgency of meaningful engagement between higher education and the private sector to ensure the relevance of education and training, and the absorption of graduates. USAID's Youth in Development policy further expands on this notion, stating that programs must "…address both the demand and the supply side of job creation, promote self-employment and entrepreneurship, engage youth productively in agriculture and value chains, and expand access to services for economic success such as financial literacy and information communications technology, banking and credit."[17]

Thus, the ability of governments, higher education and the private sector to nurture supportive environments for young entrepreneurs and innovators becomes a highly critical element in ensuring that Africa experiences a demographic dividend rather than an alternative of political instability, social unrest and dragging economies.

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CHAPTER II

The Contributions of Higher Education to Economic Development

INTRODUCTION AND CONTEXT

This section of the report focuses on the importance of higher education to development. First, a short introduction and contextual setting is given that presents a broad view of the development and higher education relationship, including some historical perspectives. Then, the question of "why higher education" is posed with subsections regarding quantitative and qualitative evidence on rates of return to higher education investments and the contributions of higher education to economic growth, the knowledge economy, and regional and local development. The importance of building a social compact among higher education institutions (HEIs), the private sector, government and civil society institutions is discussed with evidence from three case studies presented. Conclusions are provided at the end of the section.

Development is about change – some changes created intentionally and others occurring from external or unexpected sources. From this "change" perspective, development depends critically on the quality of human capital. It is people, after all, who are involved in choosing the changes to be made, making the changes that will benefit society, responding to externally produced or other unexpected changes, dealing with shocks, and creating innovative ways to use the changed contexts.

The quality of human capital can be improved through investments in human capacity development.[1] This, then, is the most basic and obvious link between human capacity development and higher education. Appropriate forms of education make it more likely that people can change their individual and societal circumstances for the better. Human capacity development is essential if these changes are going to be effective and ensure impact and sustainability of development efforts.

Human capacity development is enhanced through education at many levels, including primary, secondary, technical and vocational, and higher education. Given the growing complexity of contemporary contexts, higher education is increasingly a more critical piece of human capacity development. Higher education enhances people's abilities to make informed decisions, produce technology, adopt and adapt technology, sustain livelihoods, cope with shocks, be healthier, be responsible citizens, and be more effective stewards of natural resources.[2]

Given the importance of human capacity in development, economic growth and social stability, it is no surprise that higher education policy occupies an increasingly important place on national policy agendas. The widespread recognition that higher education is a major driver of economic competitiveness in an

increasingly knowledge-driven global economy has made high quality higher education more important than ever before in both industrialized and developing countries.

As the Organization for Economic Cooperation and Development (OECD)[3] has pointed out, higher education contributes to social and economic development through four major missions:

- The formation of 'human capital' (primarily through teaching);
- The building of knowledge bases (primarily through research and knowledge development);
- The dissemination and use of knowledge (primarily through interactions with knowledge users); and
- The maintenance of knowledge (inter-generational storage and transmission of knowledge).

The same OECD research report points also to the changing nature of higher education. While higher education looks quite different in different places, there are some general similarities and trends that can be discerned across the world's higher education landscape. For most of the 20th century, higher education was thought to be what happened in universities. This largely covered teaching and learning requiring high level conceptual and intellectual skills in the humanities, sciences and social sciences; the preparation of students for entry to a limited number of professions such as medicine, engineering and law; and advanced research and scholarship. These days, higher education is much more diversified and encompasses new types of institutions such as community colleges, polytechnics, universities, colleges, and technological institutes. These varied institutional forms have been created for a number of reasons: to develop a closer relationship between higher education and the external world, including greater responsiveness to labor market needs; to enhance social and geographical access to higher education; to provide high-level occupational preparation in a more applied and less theoretical way; and to accommodate the growing diversity of qualifications and expectations of school graduates.[4]

As participation in higher education has expanded, higher education institutions (HEIs) have assumed responsibility for a far wider range of occupational preparation than in the past. As the result of both the increased knowledge base of many occupations and the aspirations of individuals, not only doctors, engineers and lawyers, but also nurses, accountants, scientists, computer programmers, teachers, economists, pharmacists, speech therapists, business managers, and others now receive their principal occupational qualifications from a HEI. Furthermore, HEIs are now involved in a wider range of teaching than traditional degree-level courses. Numerous examples in many parts of the world can be found of HEIs that offer adult education and leisure courses, upper secondary courses to prepare students for tertiary-level study, and short specific occupational preparation at sub-degree level. In addition, it has become more common for HEIs not only to engage in teaching and research, but also to provide consultancy services to industry and government and to contribute to national and regional economic and social development.[5]

In addition, substantial reforms aimed at encouraging institutions to be more responsive to the needs of society and the economy are taking place in higher education systems in many countries. This movement has involved a reappraisal of the purposes of higher education and the setting by governments of new strategies for the future. It has also involved, in some instances, more room for maneuver for particular institutions, coupled with clearer accountability of the institutions to society. This point is especially important if the tertiary education sector is expected to contribute to broad societal goals like equity at the same time as institutions strive to ensure quality and operational efficiency.[6]

The priority of the development assistance community for investing in higher education has changed over time. While higher education was in vogue in the 1950s and 1960s, it subsequently fell out of favor. The various development paradigms of the mid-20th century, from basic needs to rural development to structural adjustment and policy reform, had little place for higher education. Even when human capital began to garner attention in the 1990s, the focus was on areas that were seen to more directly affect the human capital of the poor – namely primary education and health.

WHY HIGHER EDUCATION?

Universities and other post-secondary institutions can play a role in development in one or more of the following ways:

- Education and training (the so-called 'human capital' function);
- Research;
- Through innovation and contributions to the knowledge economy;
- Through regional and local development; and
- Through social development, e.g., improving schooling, community health.

Rates Of Return To Higher Education Investments

Quantitative measurements of the impact of higher education on development can take several forms. This section discusses the rates of return from investments in higher education to individuals in terms of private and social benefits. A later section presents results from other research that focuses on the impact of higher education on economic growth at the macro level.

In understanding results from research on returns from investments in higher education, three categories are important to consider. They are:

- Private Market Benefits – these accrue to the individual in the form of earnings and income as a result of higher education.
- Private Non-Market Benefits – these accrue to the individual and/or family in the form of non-income quality of life improvements as a result of higher education.
- Social Benefit Externalities – these accrue to all of society and spill over to many others, including future generations as a result of higher education.[7]

Higher education had been relatively neglected for some time by the international development community, stemming from the belief that it yielded lower social returns relative to other investments, especially primary and secondary education, and therefore should receive fewer public resources.[8] Even more importantly, investments in higher education have often been considered regressive, reproducing existing social and economic inequalities. A 1986 World Bank study estimated that social rates of return for higher education in developing countries were on average 13 per cent lower than the returns from basic education.[9]

These rates of return were calculated using a narrow definition of benefits that typically considered only worker earnings (including income taxes accrued). Analyses measuring the larger, broader and well recognized social benefits are discussed below. Re-evaluations of data suggest that standard estimates of social returns to higher education do not accurately reflect positive public "externalities", as metrics have tended to be based on the private returns measured by wage differentials and the social costs associated with education.[10]

Table 1: Returns to schooling by region

Region	Returns to Schooling (%)	Years of Schooling	GDP/pc (PPP 2005)	N
Middle East and North Africa	5.6	9.6	4,813	9
South Asia	7.0	6.5	2,661	7
Eastern and Central Europe	8.2	12.8	8,704	16
High Income Economies	10.0	12.7	29,538	25
East Asia and Pacific	10.3	10.5	4,996	13
Latin America and Caribbean	10.3	9.8	8,098	20
Sub-Saharan Africa	12.8	8.8	2,684	28

Note: based on comparable estimates of 545 observations, 131 economies, 1970-2011.
Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling Around the World. The World Bank.

Table 2: Returns to schooling by educational level and region (latest available year between 2000 - 2011)

Region	Primary	Secondary	Tertiary	GDP/pc (PPP 2005)	N
World	10.3	6.9	16.8	6,719	74
Middle East and North Africa	9.4	3.5	8.9	3,645	7
South Asia	9.6	6.3	18.4	2,626	4
Eastern and Central Europe	8.3	4.0	10.1	6,630	7
High Income Economies	4.8	5.3	11.0	31,748	6
East Asia and Pacific	11.0	6.3	15.4	5,980	6
Latin America and Caribbean	9.3	6.6	17.6	7,269	20
Sub-Saharan Africa	13.4	10.8	21.9	2,531	24

Source: Montenegro, C.E. & H.A. Patrinos (2013). Returns to Schooling Around the World. The World Bank.

A new study by Claudio Montenegro and Harry Patrinos on rates of return to schooling around the world, which used data from 545 households in 131 economies from 1970-2011, shows that private rates of return to schooling are significantly higher in Sub-Saharan Africa than in other world regions, as can be seen in Table 1. This study also found that returns are highest globally at the tertiary level with a world average of 16.8 percent, while primary and secondary returns are at 10.3 percent and 6.9 percent, respectively. Tertiary rates of return were also highest in Sub-Saharan Africa at 21.9 percent, as can be seen in Table 2.[11]

A growing body of literature suggests that the conventional estimates of the returns to investments in tertiary education do not accurately reflect the social value added by tertiary education, including job creation, good economic and political governance, increased entrepreneurship, and increased intergenerational mobility[12].

McMahon, for instance, has taken a broader account of the full range of benefits that accrue from investments in higher education. Higher education presents analyses and data that indicate that the private non-market benefits and social benefit externalities from investments in higher education are substantial. Regarding private non-market benefits, McMahon's analyses show, controlling for income and other variables, that individuals with a bachelor degree had:

- Better health outcomes for the individual, the family and their children
- Increased longevity and reduced mortality for members of the family
- Increased child education and improved child cognitive development outcomes
- Reduced fertility rates and family size especially with women having higher education
- Increased consumption efficiency and savings rates[13]

Regarding social externality benefits, this analysis indicated that, controlling for income and other variables, people with a bachelor's degree helped:[14]

- Democratization and political institutional development
- Strengthen human rights and civic institutions
- Increase political stability
- Reduced inequality of incomes and increased access to opportunities
- Lower crime
- Improved air and water quality

From these results, McMahon estimates that the broader social rates of return to investments in higher education may be more than twice the more narrow rates of return estimates.

These results suggest that rates of return to higher education investments are competitive to other investment returns and comparable to and often higher than the returns achieved in primary education investments.

Beyond Quantitative Rates of Return

Moving beyond quantitative rates of return measures, the case for higher education in Sub-Saharan Africa and other developing regions *vis-à-vis* economic and broader social development has now been made extensively in recent literature on the subject.[15]

In essence, analysts have indicated there are several reasons why developing countries should invest in higher education. First, globalization is bringing the world closer together and at the same time changing traditional patterns of economic growth and development. As economies become increasingly knowledge-dependent, the role of higher education institutions becomes increasingly important.[16] The role of HEIs in helping to connect and understand different cultures and contexts, and their role in driving international collaboration through research, partnerships, and exchanges of faculty and students is a vital contribution to increasing the competitiveness of their countries in a globalized world.

In addition, many countries are adopting more open policies on trade, capital flows and foreign direct investments. All of these trends open developing countries to more competition and opportunities to interact with global markets. To deal effectively with such opportunities and competition requires highly educated people. Mankiw[17] argues, for instance, that international investors do not invest in countries with low educational attainment because skilled work is necessary to maximize the return on investments in physical capital. Mankiw's comment suggests not only that an educated populace is needed to take advantage of the opportunities presented by economic globalization, but that higher education plays a precursor role, increasing foreign direct investment and capital flow into countries with higher stocks of education.

Second, recent evidence suggests also that higher education can produce both substantial public and private benefits. The private benefits for individuals are well-established, and include better employment prospects, higher salaries, and a greater ability to save and invest. These benefits may result in better health and improved quality of life.[18]

As stated above, it is likely that the social benefits of higher education may have been consistently under-estimated. Recent evidence suggests that the public/social benefits of higher education accrue as a consequence, *inter alia*, of the creation of greater tax revenue, increased savings and investment, and the development of a more entrepreneurial and civic society. It can also improve a nation's health, contribute to reduced population growth, improve technology, strengthen governance, and ensure better management of the environment.[19]. As indicated above, McMahon estimates that the broader calculation of social rates of returns may be twice the narrow social rates of return. These substantial benefits, though difficult to measure, would indicate that social returns to higher education are much higher than typically reported and surpass the social rates of return to primary education.

Third, investments in higher education are critically important because they contribute to reaching development goals in all sectors of development programming. Achieving agricultural development goals, for example, requires people who can produce relevant research, develop new technology, manage businesses, and understand how to take advantage of new ideas and change. In addition, higher education can contribute to improving health outcomes by producing doctors who understand both modern medical technology and the local contexts and by educating other health care personnel to utilize new technology and implement more effective health care programs. Higher education can also contribute to reaching goals in sustainable natural resource efforts, to democratization programming, and to development goals in a host of other sectors. These multi-sector contributions make higher education a critically important investment for all of development. Because of its cross-cutting benefits, higher education should not be relegated to a sector of its own, but rather should be seen as a dynamic contributor to the goals of all development efforts.

In the context of development, the economic benefits of universities naturally receive the most attention. These benefits range from a university's role in developing a country's skill base to its role in creating public knowledge through publications, patents, and prototypes. In recent years, the benefits of more direct university-industry partnerships, including contract research, cooperative research, technology licensing, faculty consulting, and access to specialized equipment and incubation services, have been noted. Through various methods such as meetings and conferences, centers, mentoring programs, alumni networks, personnel exchanges, and visiting committees, universities also provide platforms to facilitate the exchange of knowledge and resources between industries and institutions.[20]

Higher Education, Economic Growth and the Knowledge Economy

Evidence from the Asia Pacific region has demonstrated that higher education has a significant effect on the economic growth of nations.[21] This research has also shown that, in general, the larger the stock of the population with higher education, the higher the rate of economic growth.

In a study by Gyimah-Brempong et al, a positive correlation was found between the average number of years of education in the adult population above 25 years old income growth per capita in Africa. Furthermore, higher education was found to have the largest coefficient impacting income growth followed by that for primary and then secondary education.

Another study estimated that a one year increase in Africa's stock of higher education, with no other actions, would raise output growth by 0.63% per year, boosting incomes about 3% after five years and by 12% eventually.[22] These data and the private returns from investing in higher education indicate that higher education can boost incomes and overall GDP in African nations.

The more recent literature on the empirical evidence of the contributions of education to economic growth, finds that cognitive skills and school quality are more important in explaining economic growth than years of schooling.[23] "Evidence shows that cognitive skills of the population – rather than mere years in school – are powerfully related to individual earnings, to distribution of income and to economic growth".[24] In Ghana, Kenya, Pakistan, South Africa and Tanzania, individual earnings increased significantly for each additional standard deviation of cognitive skills. Also, returns for cognitive skills were greater for low-income individuals. Therefore, policies that improve school quality and raise educational outcomes are also important for improving income distribution.[25]

Given this evidence, it is clear that quality matters a great deal in education in general, and in higher education in particular. Therefore, efforts to measure learning outcomes and cognitive skills development and adjust educational processes to achieve these outcomes will be critical in assuring higher education is contributing its full potential to economic growth. Accreditation and quality measurement that lead to improvements in educational quality will be important contributions to making higher education as effective as possible to economic growth and income distribution goals.

In a rapidly technologically-changing world, technology makes a significant difference to the economic growth of nations. UNDP's work, for instance, has shown that the level of achievement in technology depends upon the level of higher education in a given economy. Most countries with high enrollment ratios in higher education became 'leaders' in technology. The converse is also true: a large number of countries with low enrollment ratios (say less than ten percent) are 'marginalized' in the area of technology. Therefore, one possible channel through which higher education can enhance economic development in poor/developing countries is through technological catch-up. In a knowledge economy, higher education can help economies gain ground on more technologically advanced societies, as graduates are likely to be more aware of and better able to use new technologies. Graduates are more likely to develop new tools and skills themselves, and their knowledge can also improve the skills and understanding of non-graduate co-workers.

The role of higher education in knowledge generation and application for global competitiveness raises the importance of higher education's research function. The importance of research both in higher education institutions and in non-university research institutes is confirmed in many studies. In a meta-analysis conducted by the International Food Policy Research Institute, it was found that the annual median returns from agricultural research were 34.3% for 188 R&D projects. The returns from 1800 agricultural research projects throughout the world were 44.3%.[26]

Africa, like all world regions, will need to borrow and adapt technology as well as produce it. It has been shown that it takes about the same development of economic and technical skills to become an efficient borrower of technology as it does to develop new technology.[27] Therefore, higher education is critical to not only producing new technology, but also to adapting it effectively.

Although research on the impact of the knowledge economy on employment creation and growth is still at a preliminary stage, efforts have begun, particularly in advanced economies, to quantify its effects. Comparative studies of job creation in knowledge-based and low-knowledge sectors in the European Union and United States over a ten year period found that knowledge-based industries

created twice as many new jobs in the United States and four times as many in Europe compared to other industries in that time period.[28]

One possible way forward is for tertiary-level and research institutions in low-income countries to focus on creating a pool of experts in certain areas capable of adapting science and technology to the local context and promoting local adoption. In particular, this means changing the current paradigm to include – in addition to teaching and research – a third mission: service to the community and close cooperation with the public and private sectors to contribute to innovation and development. This third mission is common to higher education institutions in many other parts of the world.

Higher education can contribute to economic growth through private and public channels. As stated earlier, the private benefits for individuals are well established, and include better employment prospects, higher salaries, and a greater ability to save and invest. These benefits may result in better health and improved quality of life, thus setting off a virtuous spiral in which life expectancy improvements enable individuals to work more productively over a longer time, further boosting lifetime earnings. Public benefits are less well recognized. Higher earnings for well-educated individuals raise tax revenues for governments and ease demands on state finances. They also translate into greater consumption, which benefits producers from all educational backgrounds. Higher education can also have less direct benefits for economies. By producing well-trained teachers, higher education can enhance the quality of primary and secondary education. By training doctors and other health workers, it can improve a society's health, raising productivity at work. And by nurturing governance and leadership skills, it can provide countries with the talented individuals needed to establish a policy environment favorable to broad-based growth.

Setting up robust and fair legal and political institutions and making them a part of a country's fabric, and developing a culture of job and business creation, for example, call for advanced knowledge and decision-making skills. Addressing environmental problems and improving security against internal and external threats also place a premium on the skills that advanced education is best placed to deliver.

Higher Education and Local/Regional Development

OECD research[29] shows that rich countries are putting considerable emphasis on meeting regional development goals particularly in developing knowledge-based industries. As key sources of knowledge and innovation, higher education institutions are regarded as central to this process.

An under-researched area for developing countries is the relationship between higher education institutions, especially universities, and local/regional economic development. An important question in this regard is how HEIs can contribute to the capabilities of local/regional firms to take up new technologies, to market knowledge and to apply it effectively.

The comparative advantage of certain universities to complement teaching with research is behind the gathering interest in university-industry linkages as a vehicle for supporting, if not accelerating technology development.[30] Virtually every industrial country is moving to make university-industry links a centerpiece of its innovation systems, and the notion of a "triple helix" – representing the symbiotic relations linking the government, the universities, and the business community – has acquired wide currency.[31]

Also important is the speed with which industrializing countries (such as China and India, which are constructing innovation systems) have embraced technology as the key to regional and national

development and, with it the utility of research-oriented universities as a means of augmenting the innovation capability of the economy.

To be able to play their regional role, research suggests that HEIs must do more than simply educate and research – they must engage with others in their regions, provide opportunities for lifelong learning, and contribute to the development of knowledge-intensive jobs that will enable graduates to find local employment and remain in their communities. This has implications for all aspects of these institutions' activities – for teaching, research, and service to the community and for the policy and regulatory framework in which they operate.

In both industrialized and developing countries, the issue of university-region/city collaboration is assuming increased importance. In many countries this collaboration has manifested itself in the establishment of research hubs or centers around universities and colleges. In some cases such hubs have been specifically supported by governments to foster collaboration between higher education institutions, other research institutions, and industry, particularly around adapting to the knowledge economy, and driving innovation and technology transfer. In summary, university-region/city collaboration is not only about "*what*" to do (e.g., in terms of industrial policy) but more especially about "*how*" to do it.

In emerging economies, governments have played a prominent role in the establishment of 'science parks' and have provided incentives to encourage collaboration between higher education institutions, the private business sector, and government agencies for their mutual benefit and for broader economic and social development. The fundamental purpose of establishing such hubs or centers is to adapt to the knowledge economy, to drive innovation, and to increase the country's ability to adapt to technology transfer.[32]

These global case studies show that higher education can stimulate cutting-edge development in cities and regions through different forms of inter-sectoral engagement. They provide evidence that university-city-region collaboration (UCRC) is of increasing importance in both industrialized and developing countries.

Building a Social Compact to Increase Higher Education's Contributions to Development

Recent international evidence stresses the need for the development of a social compact (hereafter referred to as the 'pact') among government, the private business sector, and higher education institutions, particularly in countries that are committed to promoting innovation and growth of the knowledge economy.[33] UCRC in the form of research hubs (as described above) provide excellent examples of collaboration between the three social partners for broader social benefit.

The notion of a pact is as critical at the regional level as it is at the national level. First, in virtually all SSA countries, higher education is characterized by a severe shortage of resources, both financial and human. There is thus an urgent need to commit to consensus building among the partners to utilize scarce resources efficiently and effectively. Second, a pact is vital to ensuring a better 'fit' between higher education and the economy. With the involvement of all three social partners, the higher education system should be able to better respond to needs of the labor market. Third, a pact is vital if countries or regions within countries, want to embark on an economic growth and development path in which innovation and knowledge are key components. Given the unique characteristics each social partner brings to the pact it makes sense to develop such a pact for more effectively addressing these developmental challenges.

Recent research[34] has demonstrated that cooperation and consensus is a key factor in policy making and implementation. Pillay (2011b) examined the evidence for a pact in three settings: Finland, South Korea, and the state of North Carolina in the United States.

The findings from this study demonstrate that the Finnish system is characterized by a high degree of consensus building and cooperation between stakeholders in the higher education system including HEIs, government, public funding agencies and the private sector. This has been a key factor in stimulating efficiency and effectiveness in the distribution of resources and the development of appropriate education and research outcomes. Moreover, it has facilitated an effective regional development strategy with universities and polytechnics spread throughout the country.

Appropriate institutional arrangements created through legislation also help in the achievement of efficient and effective outcomes in higher education. The Finnish model illustrates clearly the value of appropriate institutional arrangements in a number of areas, whether it is with a view to developing consensus in strategic policy making (e.g., Science and Technology Policy Council), ensuring efficient resource allocation, or designing a strong innovation system.

In South Korea, the hand of government is clearly visible in all components of the education system including oversight of the private sector. Historically, an important network has been developed between the relevant government ministries, the public research institutions and the large private sector companies (*chaebols*) with respect to research and development. Increasingly today, universities, particularly the large public institutions, are becoming an important fourth component of this group as they develop their R&D capacity. Second, important linkages are developing directly between industry and universities particularly through initiatives such as the Industry-Academia Collaboration. Finally, the third set of networks that is developing somewhat belatedly is that between universities, industry, and regional governments in initiatives such as the Regional Innovation Committee and the New University for Regional Innovation. In summary, there has been a dramatic change in the nature of the higher education networks from one historically dominated by central government to one in which the private business sector and regional governments are starting to play an increasingly important role. Such initiatives are beginning to address both the role of universities in R&D and also the challenge of regional equity in the quality of higher education institutions.

The North Carolina case study shows how effective relationships can be developed between the higher education system on the one hand, and government, the private business sector, and civil society broadly on the other, to promote economic, social, and environmental development. None of these relationships have been legislated but they have come about through a common commitment to the development of the state and region.

CONCLUSION

Evidence from quantitative and qualitative research indicates the following:

- Social and private rates of return in higher education investments in SSA are among the highest relative to other world regions.
- Social rates of return are often estimated using the narrow definition of social benefits. There are significant social benefits other than the ones counted in the narrow definition that are real and substantial, if difficult to measure. New studies have indicated these broader social benefits would substantially raise the social rates of return to investments in higher education – perhaps by 100%.

- Higher education investments are important for SSA because globalization brings new competition and opportunities. To deal effectively with these opportunities and competitive challenges requires highly educated people.
- Higher education is also critical to the success of reaching development goals in other sectors such as health, agriculture, the environment and natural resource development, democratization and good governance.
- Evidence shows that quality of higher education is more important to encouraging economic growth than simply years of education. This means that efforts to improve quality of education are critical to maximizing the contribution of higher education to growth.
- Evidence indicates that higher education does contribute to significant economic growth and further development of the knowledge economy by producing better educated and highly skilled graduates; doing problem-solving research; and engaging the private, public and civil society sectors. These contributions promote technology development and catch-up, more productive private sector firms, better public sector policy and regulation systems, the achievement of development goals in other development sectors, and more effective teachers and leaders for primary, secondary and tertiary higher education institutions.
- Higher education is increasingly important in promoting regional and local development. These university-city-regional collaborations are important for local and regional development in industrialized countries and offer promise for developing countries innovation systems in SSA.
- Case studies in Finland, Korea and the U.S. demonstrate the potential productivity of developing social compacts among HEIs, the private sector, public agencies, and civil society to create substantial regional and national development complexes.

What all of this suggests, therefore, is a need for a renewed emphasis on investing in higher education. Focusing on human capital formation to promote economic growth, the development of the knowledge economy, and regional and local development is vital for the economic development of SSA. Given the evidence above, the case for investing in higher education in SSA is logical and compelling. While some of the benefits to higher education are not easily quantifiable, they are indeed real and important for Africa's development future. In SSA and other developing regions, higher education development must be at the heart of sustainable development processes.

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CHAPTER III

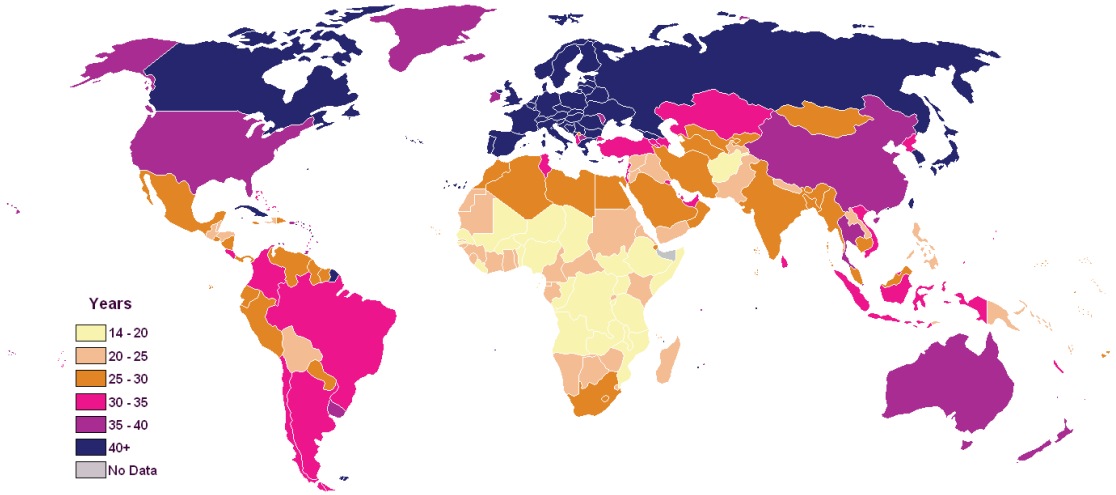
African Higher Education Challenges and Opportunities

This section provides a brief background on the enrollment pressures faced by African higher education and comparative data for various world regions. This is followed by a review of two recent important reports that provide a more global picture with regard to tertiary education in developing countries. This section also discusses four USAID-funded higher education programs to highlight lessons learned from past experience. Finally we identify and briefly discuss seven current challenges and opportunities for African higher education, with a particularly deep examination of the opportunities and challenges that recent innovations in e-learning present for African higher education. This review of challenges and opportunities frames the recommendations we make for USAID action.

BACKGROUND

Sub-Saharan Africa had a population of 911.1 million people in mid-2012 and has the highest rate of natural increase of any world sub continental region.[1] In about 13 years, the population of SSA is projected to be 1,245 million. SSA has experienced relatively rapid population growth for many decades; hence the

Figure 2: Global Median Age by Country



Source: CIA World Factbook 2013

Table 3: Gross Enrollment Ratio - Tertiary Education

REGION	1970	1980	1990	2000	2010	2011
World	10	12.3	13.6	19	29.6	30.1
Sub-Saharan Africa	0.9	1.7	3	4.4	7.2	7.6
Latin America and Caribbean	7	13.4	17	22.8	41.2	42.3
East Asia and Pacific	2.9	5.1	7.2	15.8	29.1	30.1
OECD Members	23.6	30.8	38.4	50.8	68.1	68.3
LDCs (UN Classification)	1.1	1.9	2.6	3.7	7.6	8.2

Source: World Bank Databank 2013

age cohorts of 17 – 20 year olds, the common age for enrollment in higher education institutions, are large and will continue to grow in the next several years. In addition, with incomes rising, with increasing numbers of adults interested in continuing education, and with more employment positions requiring higher education degrees, the increase in demand for higher education services will increase even faster than the increases caused by 17 – 20 year old cohorts entering higher education.

Enrollment in tertiary education in SSA grew by 8.6 percent annually over the past 40 years, compared to 4.8 percent annually on average for the rest of the world.[2] In 1970, there were approximately 200,000 higher education students in SSA. That number had increased to 4.5 million in 2008 and to 6.3 million in 2011.

Even with this rapid growth in enrollment in higher education institutions in SSA, the Gross Enrollment Ratio for higher education[3] is the lowest in the world, at 7.6 percent in 2011. This is far lower than the global average of 30.1 percent.[4] Therefore, with a very low GER and a large cohort of 17-20 years olds coming along, the potential for rapid increases in demand for higher education is quite great.

Despite these dramatic increases in numbers of students, public funding for higher education increased at only 6 percent annually in SSA from 1970 - 2008.[5]

These facts and prospects help frame our examination of the challenges for higher education in Africa. The question of how to educate a rapidly growing number of students with attention to relevance and quality and to financial sustainability is a question that burdens higher education systems across the continent.

AFRICAN HIGHER EDUCATION CHALLENGES IN A GLOBAL CONTEXT

There is a vast literature, and substantial grey literature, on the challenges facing African higher education and higher education globally. In this section, we highlight two recent reports that provide some broader context to Africa's challenges and opportunities for transformation.

MCC's 2011 Draft Report – Tertiary Education in Developing Countries: Issues and Challenges[6]

The purpose of this review was to take stock of tertiary education in developing countries, with a special focus on Sub-Saharan Africa. The review was requested by the Millennium Challenge Corporation (MCC) and addressed the following questions:

- What is the case for investment in tertiary education in the literature and to what extent does the evidence support that case?
- What are the main issues in tertiary education? What progress has been made and what are the remaining challenges?
- What options do countries have to address the challenges?
- What could be the role of development assistance partners?

Johanson and Shafiq indicate that improving relevance and quality are some of the most significant challenges for tertiary education. Many graduates enter the labor market unprepared with the knowledge and skills for available jobs. Quality has been severely compromised by enrollment expansion at the tertiary level. A range of weak inputs accounts for low quality of instruction, including lack of financial resources, weak academic preparation of incoming students and inadequate teaching staff. Low output of post-graduate degrees in SSA and poor remuneration of staff and brain drain, in turn, account for inadequate staff qualifications. Research in tertiary education suffers from many of the same constraints.

Another major challenge identified by Johanson and Shafiq is outdated governance and poor management of HEIs. These constraints can impede progress and become the single greatest obstacle to better tertiary education. This can include over-control by central administrations, lack of freedom and incentives to innovate, isolation from national development strategies and lack of accountability.

Per student costs of tertiary education tend to be high, especially in SSA. Unfortunately, higher relative spending does not translate into higher quality. One of the main problems confronting tertiary education institutions is inefficient use of often meager available resources. Many countries are bumping against the ceiling of what can and should be allocated to tertiary education. Therefore, increases in public spending are unlikely, and significant changes in the structure and financing of tertiary education may be necessary. Countries are taking steps to reduce costs, but cost containment alone is unlikely to suffice. Resources also will have to be raised from new sources.

Among the interventions suggested by Johanson and Shafiq to address these challenges include the following:

1. *Increased access* can be achieved through relatively low fees for public tertiary education coupled with high government subsidies, but this is not financially feasible for many countries. Pressure for expansion needs to be managed, in part by channeling demand into relevant technical-vocational programs. Means to increase access include vertical diversification through development of short-cycle tertiary programs, expansion of private provision for those able to afford it and promotion of open and distance education. In addition, greater student financial assistance and better articulation between levels can promote access, as can use of formula funding.

2. *Increased equity* can be sought by intervening to promote equity at earlier stages of education and by allocating funds directly to students rather than institutions. Financial aid seems to be the most effective form of equity intervention. Gender equity can be raised through national strategies, affirmative action, pre-entry support, gender sensitization courses, development of female teachers and gender audits.

3. *Enhancing relevance*. The congruence between tertiary outputs and employment requirements can be sharpened by narrowing the separation of higher education from the rest of society. The goals and strategies of tertiary institutions must be linked explicitly with national development goals and strategies. Externally accountable governance structures can help with strong private sector participation. Short-cycle tertiary programs tend to be more market oriented than traditional tertiary programs. Other means include work-based internships, conduct of graduate destination surveys and use of public-private partnerships. Innovative financing mechanisms can also impact relevance, including earmarked grants and competitive funds for priority fields. In research the most important contribution of universities is in formation of graduates with strong capabilities in problem solving. Means to improve science and technology include interdisciplinary studies, emphasis on methodological knowledge and analytical skills and use of competitive, peer-reviewed funds for research. Demand-side reforms may also be needed to stimulate employment in the private sector.

4. *Raising quality.* Achieving higher academic standards and more effective learning is also a major challenge. The most obvious way is to strengthen learning achievements at the secondary level in language, mathematics and science. Another way would be to concentrate resources in at least one flagship institution. The most instrumental reform would be to raise the stock of qualified instructors through expansion of post-graduate programs, possibly through regional collaboration, or through joint degrees and sandwich programs with study abroad. Establishing attractive working conditions and attractive salary scales for teaching staff is as essential as it is difficult. Access to broadband internet services would link isolated faculties with global sources of knowledge. Regulatory efforts can also play a highly important role in ensuring or raising quality – rigorous selection based on academic merit (with exceptions only for equity), and establishment of a quality assurance system through accreditation. Funding mechanisms tend not to be much help in raising quality, except for competitive funds. Distance education can also help raise academic standards through access to open educational resources.

5. Strategies to *reform tertiary governance and management* feature a shift in the role of central government from an exclusive funder and direct provider of tertiary education to one of oversight and regulation. Intermediary, or buffer, organizations can play an important role in freeing policy from politics. At the institutional level broader stakeholder governance and greater institutional autonomy, coupled with increased accountability, can stimulate resourcefulness and innovation.

6. Strategies to *increase finance and internal efficiency* involve steps to reduce or moderate public expenditures, greater economy in use of resources and mobilizing additional resources to achieve sustainability. An array of ways exists to reduce public costs for tertiary. At the national level these include limiting enrollment in public institutions and channeling excess demand to private providers; using low cost delivery such as distance teaching and short-cycle programs; and adoption of funding formulas based on average or target costs per student. Within institutions costs can be reduced by merging and consolidating institutions to realize economies of scale, increasing class sizes and teaching loads where below average and outsourcing services. Ways to use resources more efficiently include tracking costs (an obvious but often ignored first step), avoiding duplication within public provision as well as overlap with private provision, limiting the number of repetitions allowed and incentive payments per graduate. Cost-side solutions and

more efficient resource use are unlikely to suffice by themselves. Larger resources are needed, in part to cover the backlog of investment needs and costs of reform. Means to raise resources for tertiary include encouragement of private training provision, cost sharing with students through tuition and fees --coupled with parallel equity measures, sale of goods or services, use of public-private partnerships and possible use of levy financing where this is practiced. One clear implication – external assistance will also be essential to fill the gaps.

McKinsey Center for Government 2012 Report – Education to Employment: Designing a System that Works

In 2012, the McKinsey Center for Government released a report entitled "Education to Employment: Designing a System that Works" that sought to address two of the world's most paradoxical problems: high levels of youth unemployment and a shortage of job seekers with critical skills.[7] This report analyzed over 100 education-to-employment initiatives from 25 countries and surveyed youth, educators, and employers in nine countries in order to answer the question of how countries can successfully move their young people from education to employment. This report represents an important step in addressing the knowledge gap regarding the relationship between higher education and youth employment.

Some of the findings include:

1. Educators, employers and students have different understandings of the problems of the current situation related to higher education, employment and student preparedness. This is largely due to the lack of engagement these three stakeholders have with each other.

2. The education to employment process is difficult. This process involves three intersections: enrolling in higher education institutions, building skills and finding employment. Costs were a major constraint to enrolling for more than 30% of the students surveyed. Regarding skill development, surveyed students indicated hands-on education was the most effective way to build skills; less than ½ of these students were enrolled in curricula that emphasized this kind of education. Related to finding a job, 40% of students in emerging markets did not work in their area of study, or wanted to change their first jobs quickly.

3. The education to employment system does not work well for most employers and young people. More than 2/3 of the employers surveyed indicated they were unsuccessful in being able to hire the talent they required. There was considerable frustration expressed by most of the youth surveyed about getting the jobs they wanted.

4. Effective education-to-employment programs around the world have certain common elements. First, education providers and employers engage closely in defining curricula and in developing work experiences for students. Secondly, education providers and employers work intensively together with students from enrollment to skill development to job obtainment.

5. Creating a successful education-to-employment process requires new incentives and structures. First, all stakeholders need better information to make informed choices and manage performance. Second, the best solutions were those that engaged multiple providers and employers within a particular sector or business type. Finally, the best solutions had system integrators who took a

system view of the education to employment process to communicate the successful examples and necessary information to both providers and employers.

6. Education-to-employment solutions need to be scaled up. To augment scarce faculty resources, technology-engaged education with standardized curricula can reach many more students and lower per student costs. If there are not enough internship opportunities available for students who want hands on experiences, serious game simulations can be used to provide practical experience to more students. Finally, employers are often not interested in being engaged with offering practical learning experiences if the participating students take employment elsewhere. One way to accommodate this concern is to have standardized curricula that are augmented by employer-specific top-ups.

LESSONS LEARNED FROM PAST US INVESTMENT IN HIGHER EDUCATION

To ascertain what the experience has been in working on some these challenges and what lessons have been learned from past investment in higher education, we also reviewed five major programs that were focused on strengthening higher education in Africa and other regions. Four of the five programs are USAID funded and the fifth was funded by a group of private foundations that came together to form the Partnership for Higher Education in Africa. All five of these programs have had documented reviews of their programs, although not all have been externally evaluated. The discussion of these programs below is based on the available documented reviews.

The five major initiatives analyzed were:

1. Investment in human capacity development through the African Graduate Fellowship Program (AFGRAD; 1963–1990), and its successor, the Advanced Training for Leadership and Skills Program (ATLAS; 1991–2003)[8]
2. Impacts of investments in agricultural higher education in 10 countries from 1960-1980.[9]
3. Collaborative Research Support Programs (CRSPs), a research and capacity-building initiative (renamed the "Feed the Future Innovation Labs for Collaborative Research" in 2013); and
4. Higher Education for Development Partnerships
5. The Partnership for Higher Education in Africa (PHEA)

USAID Support to Tertiary Agricultural Education, 1960-1980s

Since 1952 the United States has provided development assistance to agricultural institutions of higher education in 40 countries. These interventions were focused across the developing world, with a significant number of projects established in SSA. To investigate the impact of these interventions, USAID's Center for Development Information and Evaluation conducted a 10 country study of the results and the lessons learned of that effort. Each country study was conducted by an expert team hired by USAID. In 1988, to integrate and synthesize the results of the 10 studies, USAID also sponsored a conference in the U.S. that brought together the teams and higher education leaders from 25 developing countries.[10] These projects were characterized by long-term commitments of funding, a significant number of U.S. university faculty in residence at the partner institutions, and large cohorts of foreign nationals receiving degree training at the U.S. universities.

Hansen summarized the consensus of the 1988 USAID conference in regard to university transformation in the following terms:

- Education and research roles of the universities should include a major concern for policy and institutional innovation in the rural sector. The university should be a responsive agent that solves development problems. Universities have been more focused on technologies specifically addressing production constraints and have not employed a more sophisticated model for rural development. Development is a complex of interacting processes, from production to policy to markets to consumer behavior. Universities need to broaden their approach to be relevant to the overall process. This observation seems quite similar to the multidisciplinary value chain approaches of today.
- *Universities should place a major focus on issues of natural resource management, employment and income generation.* This recommendation has a similar general message to the one above. The universities need to address problems that are broader than production and technology development. They need to place emphasis on natural resources that sustain production. Production increases that do harm to the environment not only are unsustainable but also in the longer run produce negative associations with the institutions that produced them. Employment and income generation are fundamental to people in developing countries and if the universities are to be perceived as relevant agents of development they need to concentrate on issues that positively impact those parameters.
- Universities should engage in development roles that feature the institution as a proactive agenda of rural and agricultural change. Following a similar theme to both points above, the general message from the conference was that universities need to be active and participatory agents of development. They need to redesign themselves to make contributions that impact the public. They need to be both problem solving and educational institutions. In the former they need to solve problems that impact development, particularly at the individual and household level. Their educational function should in part be to develop students who support the demands of the workforce in the evolving national economies.

In order for universities to achieve such a transformation, the conference focused on changes of the following nature:

- Build strong linkages to key constituencies and policy arenas to ensure that research and education are demand and not supply driven.
- Create a process whereby universities can continuously evolve their missions to be responsive to major development conditions and constituencies in their countries.
- Design strong interdisciplinary programs and organizational structure that reduce disciplinary silos.
- Adapt more holistic educational approaches.
- Gain greater autonomy from government controls to enhance university innovation in education and research.

In addition to these conclusions, the analysis pointed to a few other issues that should be considered in building university capacity in developing countries. They were:

- Relevance issues span education, research, and engagement programs in higher education institutions.
- As important as relevance issues are university linkages to key constituents and to international and global institutions.
- To be relevant and remain relevant requires that universities be responsive to economic, social, and technological change.
- Existing university structures dominate HEIs programmatic approaches to development instead of

the reverse. This challenge might well be viewed as how to create horizontal and interdisciplinary programs in the vertically defined world of universities.[11]

AFGRAD/ATLAS – Human Capacity Building.

Established in the early 1960s, often in many countries just after their independence, USAID funded the AFGRAD (African Graduate Fellowship Program) from 1963-1990 and its successor ATLAS Program (Advanced Training for Leadership and Skills) from 1991-2003. Over the period of about 40 years these two programs trained 3,210 Africans at the Ph.D. and Masters level in U.S. universities. The original goal was to build human capacity in critical areas for development, but as the program matured there was increasing focus on using human capacity development to build the capacity of institutions, a primary goal of ATLAS. Over the period of 40 years the investment was equal to $366 million in 2004 dollars. A comprehensive external review of the program was commissioned by USAID in 2004 and concluded with thirteen findings which are summarized in Table 4.[12]

When these findings are viewed as a whole, one of the key lessons that emerges from the Gilboy report is the fact that human capacity building, when done strategically with a long-term commitment, can contribute to institutional development. When key institutions were selected and technical gaps were identified within those institutions that could be filled by training, trained individuals made a difference in the effectiveness of their institution. The strategic targeting of institutions and understanding of their needs also had the effect of ensuring that the awards were merit-based. The impact achieved through AFGRAD suggests that human capacity building programs should be linked to programs that have a strategic framework for institutional change based on a comprehensive needs assessment or, at a minimum, with programs that have a clear development objective within which the degree training is supportive.

The report also found that although it is less expensive per person to train people in third countries (that is, not in the United States), training in the United States may well have a lower cost relative to the desired *impact*. The report concluded that the work ethic, management skills, and general soft skills acquired during training in the United States were more critical for introducing changes and being effective in the home institutions than were the technical skills acquired.

The focus on soft skills in future programs is a key recommendation of the Gilboy report:

The conventional wisdom holds that if technical skills were transferred effectively and sufficiently to institutions, impact would result. This view is grounded in the concept that African institutions lack technical know-how and resources that prevent their intervention in sectors to spur growth. So deep-set is this notion in both the U.S. and African organizational culture that it drives most training dollars into technical upgrading rather than into performance improvement. Close to two-thirds of all amounts spent for training in the United States are reportedly spent to upgrade staff competencies, yet two-thirds of the constraints to improved performance cited by employees are managerial not technical. This alarming disconnect extends to Africa as well, where acquiring technical skills is viewed as critical to increasing productivity and breaking down organizational hierarchies through team building is considered an irrelevant luxury.

The report also found that it was the long-term exposure in the United States that was important and that short-term training was less likely to develop the critical work skills found to be so effective in impact:

Table 4: Summary of Findings from 2004 AFGRAD/ATLAS Report

FINDING 1	USAID's multi-million dollar investment in long-term training for over 40 years produced significant and sustained changes that furthered African development in measurable ways.
FINDING 2	Long-term degree training at U.S. institutions was critical in creating the necessary foundations for significant impact to occur.
FINDING 3	Participants reported that changes in institutional performance were attributable to U.S. training and gave concrete examples as justification.
FINDING 4	Running against prevailing views, participants cited critical thinking and research skills rather than improved technical and scientific knowledge more frequently as critical to achieving impact.
FINDING 5	Changes in attitudes towards work consistently appeared as major benefits.
FINDING 6	No difference in impact was observed between PhD and master's graduates.
FINDING 7	Improved management was a frequently cited training benefit even though it received minimal attention during training.
FINDING 8	Participants from the education sector reported consistently higher impact and less difficulty applying their acquired knowledge and skills in their institutions than other sectors.
FINDING 9	Participants with degrees in financial fields, or those with MBAs, recorded lower impact than those in agriculture, health, and education.
FINDING 10	Although women reported more difficulty applying their knowledge and skills at the workplace than men, they reported impressive anecdotal examples of impact where they were able to apply their skills and knowledge.
FINDING 11	No correlation could be found regarding impact and the frequency with which participants returned to their original workplace.
FINDING 12	Participants returned to their home countries after their U.S. training when conditions permitted.
FINDING 13	AFGRAD/ATLAS participants surveyed were well-advanced in their careers, making significant contributions to development.

The characteristics of change noted during the course of information-gathering confirm that short-term exposure to the United States may be insufficient. A well-structured one-month U.S. visit with a technical objective can result in a significant impact on a participant's institution or career, such as the transfer of an idea or the creation of a new network that ensures future access to improvements. But the attitudinal changes regarding work or performance, and advances in critical thinking cannot be expected to be rooted over a busy one-month U.S. study tour. In terms of in-country training, the lack of exposure to the outside, and preoccupation with family and work needs, might matter much more than technical transfer of know-how.

The non-technical changes in attitude extended into trainees' commitment to their work. They developed a greater recognition of the importance of their research, a greater commitment to their program and stronger skills to manage a research project.

The Collaborative Research Support Programs (CRSPs) – Now Feed the Future Innovation Labs for Collaborative Research

USAID's Collaborative Research Support Programs, a program that has been running for over 30 years, engages U.S. universities and developing country partners in research and capacity-building. In 2013, this long-standing program was renamed the "Feed the Future Innovation Labs for Collaborative Research." This collection of programs has at its core a collaborative relationship between U.S. universities and a range of host-country institutions, including universities, research institutions, international research centers, NGOs, and private sector entities. Collaborators conduct research on development problems in low-income countries and assist USAID in carrying out the international food and agricultural research mandate of the U.S. government. The programs support long-term commitments to partnerships that build human and institutional capacity through collaborative research directed at solving development problems in the host country.

In 2012, a review of the CRSP program was commissioned by BIFAD with support from USAID with a broad mission to review how USAID could most effectively engage U.S. universities in agriculture and food security issues and related capacity building to meet the Agency's objectives. The review was to focus on an assessment of the CRSP model for its research advances, capacity building and other impacts. In addition it was to assess other research models to compare their performance.

The report identified a number of strengths of the program, including: strong integration of development research and human and institutional capacity development (HICD); an interdisciplinary approach that enables the programs to draw on a variety of analytical approaches; the ability to attract world class scientists in many cases; mutual benefit of the research to U.S. and host countries; substantial leveraging of external resources; broad engagement with 60 U.S. universities and 200 agricultural research institutions; and, perhaps most importantly, significant positive impacts on people's lives and economic wellbeing.

The report also identified a number of weaknesses to the CRSP program. Most relevant to the analysis here include the need for more systematic priority setting, and aligning of priorities with national and regional development strategies; the spread of funding to too many small projects; the lack of sufficient USAID oversight and coordination between Washington and the Missions; not enough institutional capacity building, with training being done without a clear understanding of institutional performance gaps; lack of coordination among the programs and projects; and finally not enough investment in rigorous assessments of impact.

Higher Education for Development (HED) Partnerships

Higher Education for Development (HED), formerly the Association Liaison Office (ALO) has been developing and managing higher education partnerships for 20 years. The funding for these partnerships has come from USAID as well as from participating universities that provide considerable cost sharing and from other external sources that partnerships obtain. The partnership activities funded by HED are typically three years in length. In 2013, the average funding level for HED-funded partnerships was approximately $1 million over the full grant period.[13]

In 2009, HED produced a set of lessons learned from a review of 15 of their partnerships in South Asia. The lessons learned identified in this report are listed below.

1. Involve host country partner institutions in the critical process of determining performance objectives for the partnership activities and outcomes. The challenge is how to appropriately engage Mission staff and resources to allow host country institutions and their U.S. partners to conduct an in-depth assessment of the transformational needs of the institution to best serve the development of their country.

2. Involve the host country partners actively in the selection of the US partner institution.

3. Emphasize ways to attract host country academics studying abroad for advanced degrees back to their institutions through specific institutional capacity building work.

4. Ensure that the partnership objectives clearly focus on providing results that build human and institutional capacity.

5. Determine if U.S. and host country partners have a genuine collegial support from a legitimate academic unit involving more than one motivated principle investigator. Leadership of partnerships on both sides is perhaps the single most important factor in a successful partnership.

6. *Difficult but critical to judge when awarding new partnerships is some evidence of cultural sensitivity of the U.S. partners.* Cultural sensitiveness requires relatively deep knowledge of the particular culture and context of the partner institution and experience with cultural differences in general. This includes being sensitive to different attitudes toward time, caste and ethnic influences, and being aware of face-saving techniques.

The Partnership for Higher Education in Africa (PHEA)

In 2000, the Carnegie Corporation, Ford Foundation, MacArthur Foundation and the Rockefeller Foundation launched the PHEA to coordinate their support for higher education in Africa. PHEA grants totalled US$440 million over the ten years up to 2010. The PHEA focused support in nine African countries: Egypt, Ghana, Kenya, Madagascar, Mozambique, Nigeria, Tanzania, South Africa and Uganda. The PHEA aimed "to provide direct support to universities, respond to African university demand, focus on a subset of universities, and treat consultation as key to effective support" (1). Most of the funding (84%) went directly to African grantees, including $243 million in direct support to universities and colleges. In responding to university demands, grants for institutional development usually supported priority areas identified by the universities themselves. Of the 65 universities and colleges supported, 27 received $1 million or more, with seven universities receiving over $10 million

each. African regional networks for postgraduate training and research were the second largest type of grantee, receiving just under $61 million dollars.

In 2010, the Partnership published a review of its decade of investment in African higher education.[14] In this review, the PHEA cited among its accomplishments: enduring improvements in African higher education, including the development of a 'Bandwidth Consortium'; developing university capacity to manage their IT networks; using technology to improve teaching and learning; enhancing gender equity in enrollments and graduation rates; improving access for marginalized groups; strengthening physical infrastructure; expanding the capacity for policy research and advocacy; establishing new and more efficient systems for strategic planning, financial management; supporting the development of advocacy and policy reforms through the establishment of the higher education Research and Advocacy Network (HERANA) including the creation of *University News;* library automation, and resource mobilization; and helping to develop the next set of African Academics.

Top amongst the challenges identified by the PHEA for the near future is the recruitment, development, and retention of the next generation of African academics. In the view of the PHEA, "efforts are needed to strengthen and expand postgraduate capacity, including research productivity, to create institutional policies, and practices that nurture junior academics and to adopt national policy and regulatory environments that help build sustainable institutions that serve national development needs."

Among the key lessons cited in the PHEA report were: 1) that grants for institutional development must support priority areas identified by the universities themselves; 2) the foundations determined that a policy of going 'deeper rather than broader' was more effective and 3) a focus on institutional development and transformation, rather than sectoral or systemic, was more effective.

Conclusion

One clear result of the interaction between USAID and the U.S. and developing country higher education institutions is a remarkably high level of interest in participating in partnerships that involve development activities. Recent RFAs for partnerships between African and U.S, higher education institutions attracted over 300 proposals. The competition for the Higher Education Solutions Network (HESN) attracted about the same number of applicants. The Collaborative Research Support Program (CRSP) involves institutions in higher education institutions in 50 states working in 36 countries with hundreds of partners.

Furthermore, the partnership mode is increasingly used by higher education institutions all over the world to develop programs for mutual benefit to all institutions in the partnership. In Europe, Latin America, East Asia, and Oceania, institutions invest their own resources in seeking, developing and implementing appropriate partnerships. Unfortunately, most African universities do not have the financial capital to lead in selecting and developing partnerships, so external assistance can make a significant difference in assisting African universities to be effectively engaged in this worldwide university collaboration process.

The past record of USAID success in higher education, the overall highly positive USAID reviews of the investments and the increasing needs for transformation of higher education in SSA for African HEIs to be effective development agents, argues for significant USAID investments in African higher education with partnerships being a part of that investment.

CURRENT CHALLENGES AND OPPORTUNITIES FOR AFRICAN HIGHER EDUCATION

In light of the two recent reports highlighted above, discussions with leaders and others involved in African higher education, and the analysis of past USAID-funded higher education programs, the next section examines seven major challenges and/or opportunities facing African higher education. There are other important higher education challenges in SSA such as higher education related infrastructure, campus physical facilities and broadband capacity development, which we do not examine in depth in this report. While we know these challenges are also important, given USAID's comparative advantages and broader priorities, we have focused on challenges and opportunities where we believe USAID development assistance can make an important difference. The seven challenges/opportunities are:

1. Access to higher education services
2. Broader governance issues
3. Institutional leadership and management
4. Finance of higher education
5. Limited research investment and output
6. Quality and relevance in learning, discovery and public engagement
7. Information and communication technology

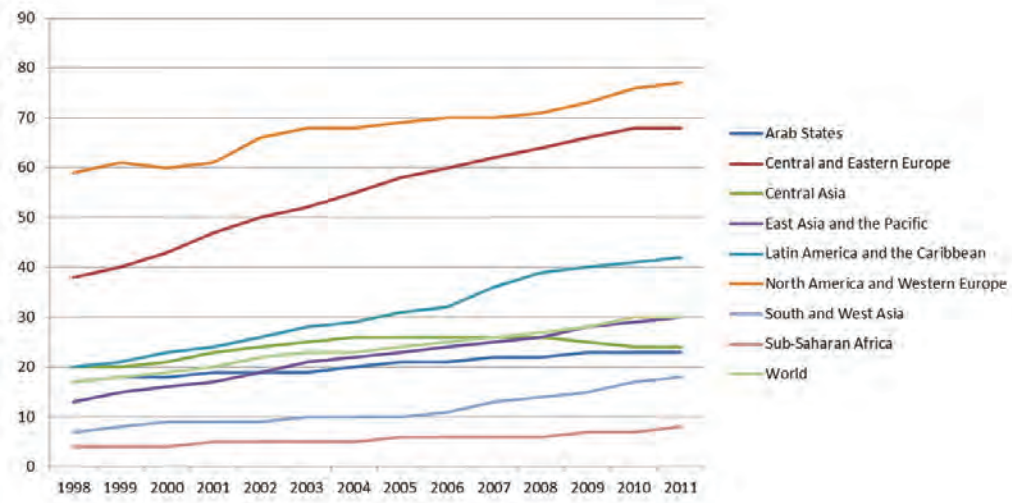
1: Access to Higher Education Services

It is important to view this challenge as access to the services of higher education rather than the access to residential enrollment in higher education institutions.

It is evident that participation rates in SSA are substantially lower than the average for both developing countries and industrialized/developed countries (Figure 3: Tertiary gross enrollment ratio for different regions). Of 23 SSA countries for which data is available, only Botswana, Mauritius, Nigeria, and South Africa had a GER in double figures. However, the GER for SSA has increased by almost 73% from 2000 to 2011. This is a significant increase in just 11 years.

In addition to low participation rates, access to higher education is highly inequitable. There are three important determinants of inequity: gender, socio-economic status, and region. In almost all

Figure 3: Tertiary gross enrollment ratio for different regions



Source: UNESCO Institute for Statistics 2013

SSA countries, with the possible exceptions of Mauritius and South Africa, women have substantially lower participation rates. Moreover, where women have managed to enter higher education, their participation is often concentrated in traditional 'women's" disciplines such as humanities and education, rather than in commerce, engineering and science. For example, in Mauritius, even though overall enrollment shows a more or less even gender distribution (47 percent female), enrollments vary by gender across disciplines, with a predominance of male students (76 percent) in the faculty of engineering and a predominance of female students (68 percent) in the faculty of social studies and humanities (Teferra and Altbach, 2003).

Women students often also have higher dropout rates than men due to the cultural emphasis on family obligations, which is often in conflict with their desire to pursue advanced studies (Rihani, 2006). In addition, there are ongoing concerns about harassment, security, academic preparation, and a lack of women faculty or staff support women students. Specific initiatives can serve to mitigate a negative campus climate. For example, Uganda's Makerere University has a gender mainstreaming initiative as part of the university's strategic plan. The initiative highlights the accomplishments of women and is working to create a network and infrastructure of support.

Second, access to higher education is often dependent on one's socio-economic status. In many SSA countries, participation in universities and other higher education institutions is dominated by students from the highest income quintiles. Often, public funding mechanisms act to exacerbate such inequities by providing free higher education to the "best" students who invariably come from the wealthiest households which had access to the best secondary schools. In a case study on Ghana and Tanzania, Morely (2010) found that students from low socio-economic backgrounds were under-represented in all disciplines. Furthermore, Morley (2010) demonstrated that current schemes to assist young people from disadvantaged backgrounds to enter higher education are not working, and that this group must be targeted more effectively.

Third, in almost all SSA countries, participation in higher education is skewed in favor of students from urban and metropolitan areas. Students from rural households face enormous barriers to accessing higher education in general, and the higher quality higher education institutions in particular. In summary, these three stratifying factors – gender, socio-economic status, and region or location of origin – act to skew the already low participation rate in favor of males, richer families, and urban households.

Little is known about the state of access for students with disabilities. Categorizing disability and evaluating access is extremely difficult outside of isolated case studies. Morley (2010) showed that in Ghana and Tanzania, the facilities and programs designed for students with disabilities did little to support disabled student retention.

Access and equity in higher education in SSA are also fundamentally determined by access to and the quality of secondary education. In the past two decades, most SSA countries have pursued a policy of Universal Primary Education (UPE), although not all of them have succeeded in this goal. One critical outcome of UPE has been the vast increase in primary school leavers seeking secondary education. In countries such as Kenya, Mozambique, Uganda and Tanzania, the capacity to absorb anything more than a small proportion of primary school leavers in the secondary school system is extremely limited. Consequently, households have had to seek places in a growing fee-paying private system, often of poor quality in many countries.

In addition, in the richer countries of SSA, such as South Africa, where participation rates in secondary

education are much higher, there is substantial differentiation in the quality of primary and secondary schools. In these countries, factors such as socio-economic status and region of origin determine access to better quality secondary education and eventually to better quality higher education.

If SSA countries are to ensure that higher education plays its role in economic and social development, policies and strategies have to be devised and implemented to address the challenges of access, equity, and efficiency. How governments, higher education leaders and the private sector approach the issue of public and other forms of investment in higher education is key to addressing these challenges. E-learning is an important part of how to address the challenges of access in the future in SSA.

2: Broader Governance Issues

The governance of African higher education at the system level creates challenges for both public and private institutions. Highly centralized legal frameworks can make it difficult for educational institutions to be responsive to changes in the labor market and limit the contributions of higher education institutions to economic and social development. Systems with loose oversight can lead to low-quality education with minimal return to the investment of students and the public. This is a particularly difficult issue give that legal environments vary widely in Africa. Angola, South Africa, Guinea, and Liberia all provide legal autonomy to public higher education institutions (Bloom, Canning, and Chan, 2006). However, out of 49 SSA countries surveyed in 2009, half either had no legal framework for public higher education at all, or had a framework that was at least two decades old (Saint et al. 2009).

Private higher education struggles with a different set of legal challenges. Regulatory barriers include unclear national policies concerning the role of the private sector, complex registration processes, unclear and subjective criteria and standards for registration, outdated criteria for accreditation, and limits on the ability of private education institutions to set fees at market rates (Fielden and LaRoque, 2008).

Unsuitable governance and outdated institutional management limit the effectiveness and efficiency of higher education institutions. Recognizing this problem, in 2009, a Pan-African Institute of University Governance (PAIUG) was launched. The Institute's purpose is to modernize the governance of university systems and institutions through expert assessments, training modules, seminars, workshops, and specific tools for management, analysis and evaluation. The Institute takes a dual-level approach to governance:

1. Rationalizing and modernizing university foundations and their various systems of functioning, thereby improving university management and transparency in pursuit of inclusive decision-making.

2. Questioning the efficiency of the functioning of university systems, which may be too much centered on the hierarchical authority of the State; and on university and academic administration, focusing on financing, programs, qualifications and courses (PAIUG 2009).

According to the PAIUG, the governance of African higher education will succeed only if it supports a common space of meeting between a broad array of actors, including political, socioeconomic (private sector), students, teaching, and civil society stakeholders.

The existence of PAIUG highlights an emerging issue in the African context: cross-border challenges of harmonization and collaboration. Given both resource constraints and the increasing mobility of

students and faculty, efforts are being made to harmonize academic degrees and programs across the continent and to create regional networks of excellence. Mutual recognition of degrees between countries or institutions allows credits and degrees to be considered equally across borders. Academic mobility is prominently featured in the "Action Plan of the Second Decade of Education for Africa.[15]" It is anticipated that academic mobility will be achieved through the revision and implementation of the Arusha Convention[16] on the recognition of qualifications and the African Union Higher Education Harmonization Strategy (African Union, 2006).

Across the region, a concern for many universities is operational and academic autonomy. Autonomy is a key principle in recent higher education reforms (Fielden, 2008). Historically, African higher education has been characterized by strong government controls. Yet increased institutional autonomy provides greater ability to mobilize, allocate and utilize resources, which in turn depends on the existence of favorable governance arrangements (World Bank 2010). With growing recognition of the need to increase the autonomy of African higher education institutions, emerging trends include:

- Withdrawal of the state from institutional control and direct decision-making;
- Affirmation of governing boards as the institution's highest decision-making body;
- Creation of system oversight for finances and encouragement of resource diversification;
- Adoption of funding models that give institutions greater flexibility; and
- Establishment of external agencies to monitor educational quality.

Increasing the accountability and quality of higher education institutions is a major concern of governments, citizens and donors. Measures to strengthen accountability include developing strategic plans with measurable goals and broad stakeholder participation, conducting external auditing, tying the finance to performance, and developing or strengthening systems of accreditation (Saint et al., 2009). Some have suggested that any shift in SSA towards greater institutional autonomy is perceived as something governments grant their higher education institutions, rather than a consequence of the institution's legal status and authority as established by law, pointing the way to the need for a broader cultural shift if indeed autonomy is to be a privileged goal (Johnstone, 2011).

3: Institutional Leadership and Management

Strong leadership and efficient organizational structures are critical to the increased productivity, relevance, and quality of higher education. They are important for every level of higher education from the system, to the individual institution, to the schools and departments within an institution. Unfortunately, African universities "suffer from poor, inefficient, and highly bureaucratic management systems…poorly trained and poorly qualified personnel; [and] inefficient, ineffective, and out of date management and administrative infrastructures" (Teferra and Altbach, 2003). The limited authority given to the leadership of individual institutions in many African countries poses a serious constraint on institutional development and problem solving, as leaders rarely have the authority to institute significant changes in their institutions or to develop strategies appropriate and viable for local circumstances (Reisberg, 2010).

As institutions increasingly gain greater autonomy, the need to strengthen the leadership and management skills of senior higher education administrators becomes all the more important. Recognizing this need, the African Development Institute of the AfDB launched an initiative to provide leadership training for these key actors in higher education in order to arm them with the analytical and problem-solving skills needed to transform their institutions.

As Ashcroft and Rayner write in *Higher Education in Development* (2011), around the globe, the role of university presidents, vice-chancellors, or rectors is increasingly becoming that of a chief executive officer. This shift is testimony to the growing reality that higher education institutions are no longer just communities of academics whose only concern is scholarship. Universities are now major enterprises in a competitive world and they need to be effective, efficient and publicly accountable if they wish to prosper. A key challenge for the leadership of universities, therefore, is to move their institutions towards thinking and acting more strategically, attempting to manage higher education institutions in a way that does not threaten academic freedom, a critical element of higher education quality institutions.

In just a decade or so, many African universities have grown exponentially, with many thousands more students than they were originally built to serve and without a correlating influx of resources (Reisberg, 2010). As a result of the speed of this growth, many African university leaders do not have experience leading such large and complex organizations and therefore lack the requisite skills. The infrastructure to manage the institutions is also either very new or still non-existent.

Given the increase in size many HEIs in Africa are experiencing and the increase in numbers of new institutions taking place, it is critical that more leaders are trained to accept these CEO type positions. The usual topics for training CEO leaders should be a part of this effort, for example, strategic planning, implementing modern administrative systems, human resources management, etc. However, training is also needed for higher education leaders in Africa to be advocates to the public, private and civil society sectors. In addition, university leadership should also be trained in fund raising and how to obtain resources from not only the public sector but from the private sector, foundations and international sources.

While increased access to higher education is certainly a good thing, when the student enrollment rate outpaces the expansion and improvement of facilities, this sets the stage for protests and conflict (Reisberg, 2010). Classrooms in many African universities are far too small for the numbers of students and often lack technology to facilitate teaching to larger audiences or even proper ventilation for the number of bodies crowded into them. Student dormitories are also grossly overcrowded, with sometimes more students than numbers of beds. University leadership in Africa cannot avoid dealing with these difficult management challenges, which in many ways are unique to Africa.

As Africa works to strengthen its leadership capacity for higher education, it must focus on developing leadership qualities relevant to these significant challenges, such as "the ability to think divergently and contemplate solutions to problems that involve redefining the nature of difficulties and the possibilities for response; the ability to motivate, involve, and draw out creativity from individuals; and the ability to manage and understand the dynamics of groups." African higher education leadership also needs to strengthen its overall organizational management infrastructure, particularly with regard to the management of finances. African institutions are being forced to diversify their financing, and this requires senior leadership with the skills to set up effective mechanisms to manage diverse sources of university income.

The need to improve higher education leadership and governance structures is becoming all the more pressing as more private institutions emerge to compete with public institutions, and change the overall landscape of higher education, and as institutions become increasingly reliant on diverse funding sources to survive and expand (Woodhall, 2003). The successful transformation of governance structures, combined with strengthened leadership, have the potential to initiate substantial, positive change in African higher education.

4: Finance of Higher Education

Challenges to higher education in Africa also include inadequate budgets and additional financial constraints. Many countries are caught in the divergence of "…surging higher educational costs and revenue needs and extremely limited available public revenues" (Johnstone and Marcucci, 2010, p. 261). There is, however, a mounting shift in the cost burden away from governments and taxpayers to parents and students, as a result of economic, financial and political realities (Johnstone and Marcucci, 2010).

It is evident that enrollment is growing much more rapidly than the financing capabilities of Sub Saharan African governments. It is also evident that public funding across virtually all countries in the region will not be sufficient to meet growing demand (World Bank, 2010)[17]. The problems and needs of higher education in Sub-Saharan Africa, then, cannot be comprehended or ameliorated (whether by governments of institutions) without addressing the critical and worsening financial austerity.

According to the World Bank (2010:1-2), Africa has maintained its public investment in higher education (HE) between 1995 and 2010, allocating approximately 0.78 per cent of its gross domestic product (GDP), and around 20 per cent of its current public expenditure on education to higher education . However, during this period, the number of students increased from 2.7 million in 1991 to 9.3 million in 2006. Enrollments during this period grew at an average annual rate of 16% while public resources allocated to current expenditure grew at 6% per annum on average. The World Bank (2010:22) also shows that "the situation is even more dire in the poorest countries, which allocate approximately 0.63% of their GDP to higher education, and where from 1991 to 2006, the number of students quadrupled, while available public resources in general only increased by at most 75 per cent."

The decline in public expenditure per student is having an adverse impact on the quality of both teaching and learning and of research and scholarship. In fact, the World Bank shows that Africa is the only region in the world that has experienced a decrease in the volume of current public expenditure per student (30% between 1995 and 2010). The austerity is not simply a case of pervasive underinvestment by governments, although a case can be made that the value of higher education for sustainable economic growth and broader political, social and civic health has not been fully recognized by all African governments. But the pervasive austerity of higher education is the region is more a complex function of underlying poverty, uneven economic growth, surging enrollments, politically and socially compelling competition from other sectors for the scarce public revenues, and too frequently unstable governments—in addition to an ongoing brain drain of academic talent and what some believe to be a lack of meaningful coordination among the donor nations and donor agencies attempting to address the condition of higher education in Africa.

Manifestations and Consequences of Austerity

The pervasive austerity of African institutions of higher education (including universities, university colleges and other tertiary level institutions) is manifested in some or all of the following ways:

- The inability of the leading universities in Sub-Saharan Africa to retain top faculty: that is, those with scholarly skills who may be enticed by the better resourced universities of e.g., the United Kingdom, the United States, Canada, or France (and extending as well to universities within some African countries such as South Africa and Botswana), or those enticed by the private sector with skills in such fields as computer science, management, accounting, and law. This is, of course, not a problem unique to the universities of Sub-Saharan Africa, but the drain is arguably more

extensive and the consequences more serious. The causes are multiple and include: low salaries; civil service constraints and the inability to differentiate salaries in response to markets; very heavy teaching loads; and generally inadequate scientific equipment, libraries, and computing facilities.

- The tendency—for some of the same reasons as enumerated above—of many faculty members to moonlight at private universities, short-cycle institutions, and in private practices—thus diverting them from both teaching and scholarly research. Again, this is not a problem unique to Africa, but it is exacerbated by the low salaries, insufficient academic personnel policies, and the inability or unwillingness of deans, department heads, and others in positions of authority to police faculty time and workload policies.
- Severely overcrowded classrooms: a function of over-enrollments, too few faculty, and inadequate lecture theatre space.
- Inadequate library collections, computer availability, and bandwidth for students and faculty alike.
- Inadequate laboratories and specialized equipment for such programs as physics, biology, engineering, and the agricultural sciences.
- Inadequate residential facilities, forcing overcrowding of residence halls and other student hardships
- General deterioration of infrastructure, from campus roads to buildings to water and sewer.

The consequences of this pervasive austerity are severe limitations on learning, on faculty scholarship, and on the ability of faculty and staff to contribute to the needs of their governments, communities, and non-governmental institutions. And significantly, the resource needs—and thus the current levels of austerity—are projected to increase further. The World Bank[18] estimates that enrollment in higher education could reach 18-20 million by 2015 (from less than 10 million in 2006) and that required expenditure will then be 75% higher than available public resources. The Bank further estimates that the required number of teaching faculty would have to double from 456 000 in 2006 to 908 000 in 2015, and that the investment required to increase capacity of current institutions (classrooms, libraries, laboratories, workshops, and lecture halls) establishing new institutions, and improving administrative and teaching materials over this period is estimated at approximately US$45 billion (in 2006 dollars)[19].

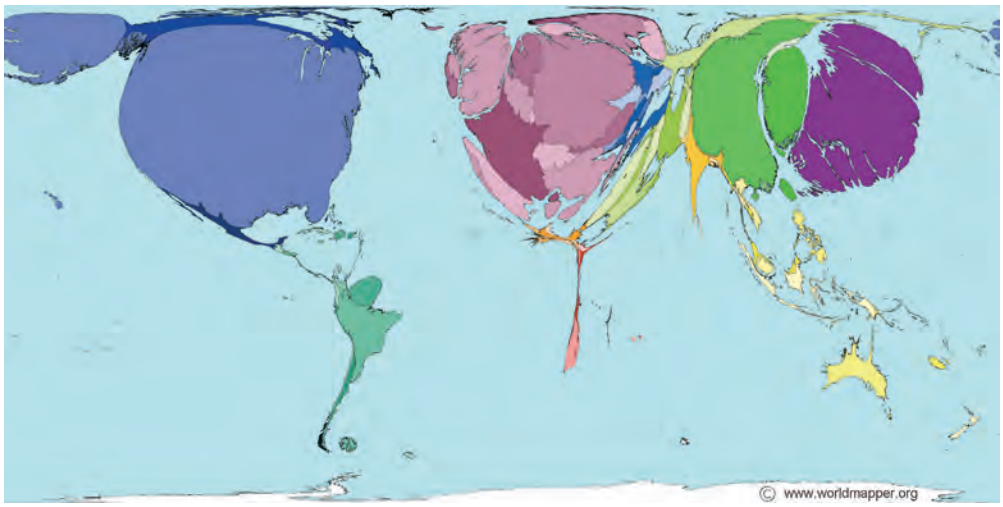
The Causes of Austerity

The severe and worsening financial austerity in Sub-Saharan African higher education, as with higher education throughout the world, begins with the presumption of an annually increasing trajectory of costs and revenue needs that will continue to rise at rates in excess of costs in the general economy: that is, at rates in excess of the prevailing rates of inflation. This tendency is due principally to the seeming inability (or at least the extreme resistance) of universities—both administrators and faculty, and in all countries—to apply technology and new management practices to offset increasing compensation costs with added productivity. This is not to say that unit costs do not go down in Sub-Saharan Africa: greatly increased enrollments have far outpaced increases in governmental revenues, suggesting a possible increase in productivity. But this seems to have been achieved in most countries mainly by ever larger class sizes, freezing or reducing faculty and staff salaries, and deferring most maintenance—which has made the universities *cheaper*—in costs per student—but not necessarily more genuinely *productive*.

It is the surging enrollments in virtually all African countries that have contributed most to the increasing revenue needs of African higher education. Surging enrollments are partly a function of

Figure 4: World Research and Development Expenditure

CARTOGRAM WITH TERRITORIES RE-SIZED
in proportion to spending levels



Source: wordmapper.org with data from UNDP 2004 Human Development Report. Copyright 2006 Sasi Group (University of Sheffield) and Mark Newman (University of Michigan).

demographics. But they are also a function of the very rapidly increasing percentages of young that are completing secondary school prepared for, and aspiring to, universities (and other forms of post-secondary education). Thus in virtually all of Sub-Saharan Africa, the rapidly increasing enrollments are driven by both forces: rapidly increasing percentages of rapidly increasing numbers in the university-age cohorts seeking college and university educations, together forces propelling the underlying increases in costs and revenue needs.

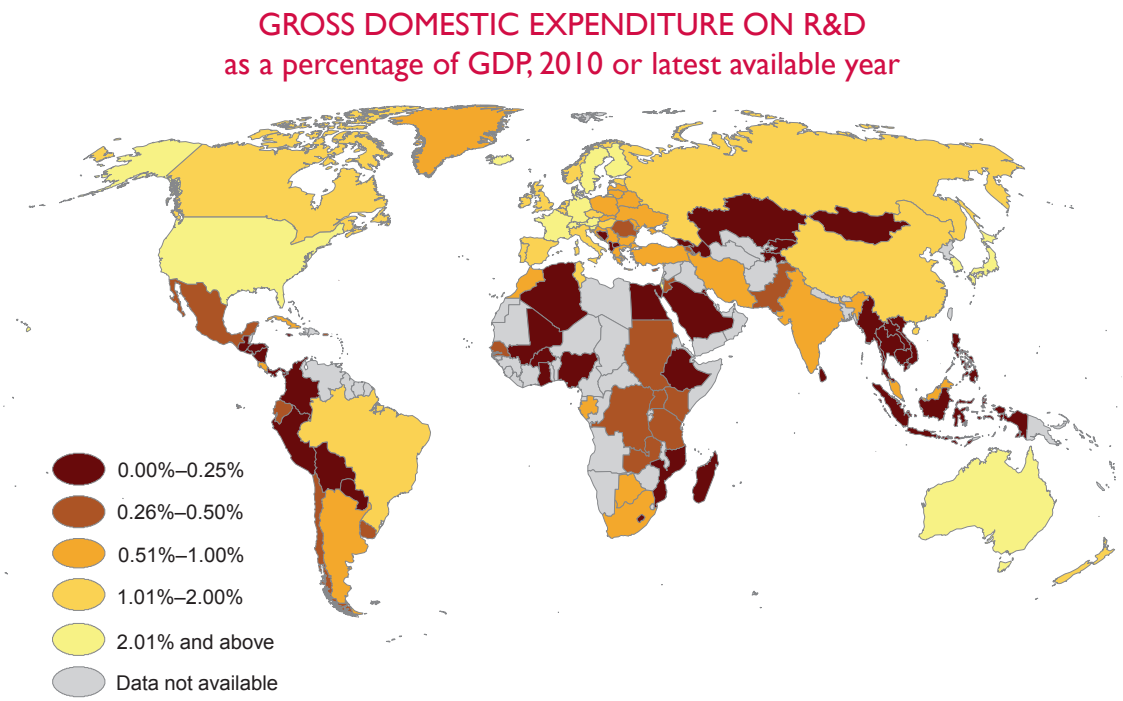
Limited Governmental Revenues

Meanwhile, in spite of recent resurgence of economic growth throughout much of Sub-Saharan Africa, the revenues available to meet these rapidly increasing revenue needs are exceedingly limited. Public revenues are constrained by the technical difficulties of taxation, especially taxation that is cost-effective and at least somewhat progressive (which places limits on value-added and consumption taxes as well as the inflationary borrowing and the printing of money). Then, to the degree to which public revenues are able to be increased year in and year out, the ability of public college and universities to claim their share of these added revenues is limited in most countries by the immense backlog of public needs that have equal or greater claims than additional revenues to higher education: claims such as elementary and secondary education, which in all African countries is funded far below the universities, or public health, or public infrastructure, or the needs of the homeless, orphaned children, the truly destitute. In short, even if public revenues could be increased every year to keep pace with the rapidly increasing costs and revenue needs of universities and other tertiary-level institutions in Sub-Saharan Africa—which is unlikely—these revenue needs are probably no longer at the front of the queue in most countries on the African continent.[20]

5: Limited Research Investment and Output

Research can create new knowledge and adapt knowledge and technology produced elsewhere in order to develop local solutions for local problems. Numerous efforts have sought to strengthen

Figure 5: A Snapshot of R&D Intensity



Source: UNESCO Institute for Statistics, October 2012

research capacity and universities in Africa through a variety of strategies such as long-term training programs (e.g., CRSPs – Collaborative Research Support Programs), establishment of African and international research centers, networks of scientific leaders (e.g., TWAS – The Academy of Sciences for the Developing World), and access to journal distributions. The AfDB is currently looking at the possibility of establishing regional networks of excellence, building upon the Regional Initiative in Science and Education (the RISE Network) model initiated in 2008 with five networks across the continent.

Africa has extremely low research expenditures even compared to % of GDP. The discrepancy is highlighted by recent reports showing the Gross Expenditures on Research and Development (GERD) as a % of GDP to be 0.4 percent in Africa, but 2.6 percent for North America, in 2007 (UNESCO Institute for Statistics, 2011). Figure 4: World Research and Development Expenditure provides a stark visual picture of the level of research expenditures in Africa relative to other parts of the world.

Moreover, South Africa and Egypt together account for half of Africa's scientific publications and an additional 25 percent is generated by Kenya, Morocco, Nigeria, and Tanzania. Most of the publications in Sub-Saharan Africa focus on agriculture and medicine.[21] It is also estimated that South Africa accounts for nearly two thirds of Sub-Saharan Africa's research and development expenditure.[22] As other development sectors have garnered more attention (health care, basic education, infrastructure), research funding in SSA has declined significantly in recent decades.[23] Figure 5 shows the range of intensity across the African continent.

African universities are important generators of knowledge for their nations. However, scientists

in Africa and in other developing countries have often been "involved in research that already had been addressed (or was being addressed), largely due to a lack of an adequate, reliable, and regular flow of knowledge and information to guide them to the frontiers of their specialties."[24] Providing scientists access to current knowledge is expensive for institutions, but not doing so may be more costly in the long run. Although scientific knowledge and technology produced in developed countries is useful, developing nations require the sciences and technologies to borrow, understand and organize knowledge and technology within their own socio-cultural context. The expertise required for adoption and adaptation is also a challenge. "It has been shown that it takes about the same economic and technical skills to become an efficient borrower of technology as it does to develop new technology."[25] Some challenges for scientific communication include the quality of scientific journals, acquisition of journals, lack of professional technical and peer support, access to reliable Internet, and bias against African science.[26]

Most countries with high enrollment ratios in higher education became 'leaders' in technology, with high levels of achievement in technology. Conversely, a large number of countries with low enrollment ratios (say less than 10 percent) are 'marginalized' in the area of technology. The work of the United Nations Development Programme has shown that the level of technological achievement depends upon the level of higher education in a given economy.[27] Most countries with high enrollment ratios in higher education have become "leaders" in technology, with high levels of achievement in technology while a large number of countries with enrollment ratios of less than 10% are marginalized in the area of technology. According to Tilak (2003), there is not a single country with an enrollment ratio in higher education of less than 10% that has achieved a high or medium level of achievement on the technology index.

6: Quality and Relevance in Learning, Discovery and Public Engagement

The concept of *quality* is hard to define in higher education where there are a variety of institution types and missions. A statement about quality implies a common standard, and this standard does not currently exist. However, there is growing interest in Africa and globally in establishing standards for quality, as evidenced by the numerous international conferences on quality assurance and accreditation organized to evaluate existing policies and practices and develop plans for improving the quality of higher education.[28] Regarding the learning mission of HEIs, it is clear that quality of higher education graduates, as measured by achievements on international tests, is an important determinant in how much higher education contributes to national development (See Chapter 2 on economic returns from investments in HE).

The concept of relevance for universities might well be defined as providing services in education, research and outreach that advance the economic and social development of the country. Relevance is important for a number of reasons. First, being relevant means that the university is improving the lives of the people in the nation by increasing human capital, providing knowledge and technologies that improve human welfare, create economic growth and enhance social stability. In a world that is increasingly connected in information flows, trade and commerce, the ability of nations to interact productively is dependent greatly on strong educational experiences. Economic development is fundamentally a product of well-trained individuals that structure public and private institutions and business, create enabling public policy, produce adequate, nutritious food and run good governments.

Equally important is that relevance should build public support for higher education institutions. Ultimately higher education must be viewed as a public good that benefits all. Work by McMahon provides strong evidence that higher education is far more than a private good. His works suggests

that two-thirds of the impact of higher education is to the families of graduates and to society generally. If society believes that higher education is an important societal benefit particularly for development, then society is much more likely to provide support.

Teaching, research, publishing, and public service are essential components of colleges and universities. The quality of an institution's faculty is critical to each one of these components. African HEIs are facing major challenges in academic staffing. A number of factors have contributed to the eroding of academic staff numbers and quality. Over several decades, higher qualified faculty have been lost to more rewarding opportunities (financially and otherwise)[29] and have been replaced by junior lecturers in many cases in order to keep up with the rising numbers of students. Also, in many countries, professors often hold more than one job outside the university to supplement their salary.[30] This multi-job reality often leads to a reduction in time spent on fulfilling the university responsibilities of teaching, research, and service.

A 2005 UNESCO review found that only half the academic staff working in the sciences and engineering in Sub-Saharan Africa had PhDs. Agricultural faculties were found to have the lowest staff qualifications. Vacancy rates at many universities are also high: currently at 30 percent on average for the continent, it is projected vacancy rates will get worse given that about 40 percent of teaching staff are nearing retirement.[31] In francophone Africa, based on a ratio of one lecturer per 22 students, teaching staff would need to grow from roughly 35,000 to 82,000 over the period 2006–15. This would mean that around 58,000 new teachers would need to be trained to maintain this ratio, taking into account retirements and other staff departures, estimated to be 30 percent. By these calculations, more than twice as many teachers would need to be trained in the 2006-2015 period than were trained from 1970 to 2005.[32] The picture is similar in Anglophone countries. Analyses of higher education vacancies in Ghana and Nigeria in 2003 indicated that about 40 percent of faculty positions in the Ghanaian universities and more than 60 percent of those in the polytechnics were vacant, while in Nigeria two-thirds of the 36,134 faculty positions were vacant. Given financial and demographic trends, it is safe to assume that vacancy rates remain high today.

A number of factors contribute to inadequate staff qualifications and numbers, including the limited number of individuals pursuing post-graduate degrees on the continent, poor remuneration of faculty, and brain drain. On average much less than one percent of tertiary students in Sub-Saharan Africa obtain PhDs, compared with a world average of three percent, and a developed-country average of four percent.[33] "Ethiopia is an extreme example: just 28 PhD students were enrolled in 2004 and only a single PhD degree was awarded in a country of 71 million people."[34]

There is increased cross-border movement among scholars, professors, and experts due to competiveness. A 1998 study demonstrated that around 7,000 Kenyans with tertiary level education had migrated to the United States; in the same year, nearly 120 doctors were estimated to have emigrated from Ghana to the United States.[35] In Ghana, between 600 and 700 physicians were known to be practicing in the U.S, a number equal to about 50 percent of the total population of doctors in the country.[36] Ethiopia also faces a major crisis with its health workforce; up to 80 percent of its physicians leave the country annually. Currently, more Ethiopian doctors are working in the United States than in Ethiopia, and one-third to a half of all graduating doctors in South Africa move to the United States, the United Kingdom, and Canada at a huge annual cost to South Africa.[37] The International Organization for Migration (IOM) estimates that 100,000 emigrants leave SSA each year, and that most are highly-educated (approximately 75 percent attended a university), i.e., roughly 10 percent of all SSA university graduates leave the continent. This represents an educational loss

of roughly US$1 billion per year. If primary and secondary educational spending is included, the estimate rises to US$3.5 billion per year. This amount exceeds the total development assistance sent to Africa.[38] In this respect, Africa is subsidizing the production of doctors, nurses, and professionals for the developed world.

The shortage of faculty in many African universities, coupled with explosive enrollment increases has resulted in skyrocketing student-teacher ratios in many institutions.[39] A number of different analyses of the faculty issue point to the need to expand the number of graduate-level degrees, especially in science-based and technology disciplines, and to find ways to bring more excellent students into those degree paths.[40]

Given the importance of faculty quality and numbers for the long-term sustainability of African higher education systems and the crisis in academic staffing on the continent, faculty development emerges as a top priority for many institutions and countries.

A key challenge to African higher education relates to the relevance and quality of the curriculum. Often a carryover from colonial times or from the early years post-independence when curriculum was first developed in many institutions, the curriculum has by and large not sufficiently evolved to prepare graduates adequately for the contemporary job market. Curriculum reform in many African countries has been a slow, burdensome process due to the problematic governance structures of higher education systems, as discussed earlier.

There are several general criticisms of the current state of curricula in many African countries and institutions. Often cited is a concern about the lack of relevance to local and regional development priorities and inadequate adaptation of curriculum to the national context. With Africa's heterogeneous societies and geography this can be a serious challenge. It is often noted that African institutions are not set up to be responsive to the needs of an evolving labor market. Most institutions do not have mechanisms to incorporate private sector, government, or other external stakeholder input into curriculum development, in a way that would provide the institutions with information about the knowledge and skills students will need upon graduation.

In cases where institutions have endeavored to tailor their academic offerings to the needs of their economies and the development agenda, the mode of instruction often still tends to be traditional, emphasizing memorization and rote learning. As a result, students may be well grounded in theory in their respective disciplines, but do not have the practical or soft skills they need to compete in the labor market. In the words of one observer, higher education tends to produce students that are "educated but unemployable." As a result, many efforts at curriculum reform are focusing on strengthening the teaching of soft skills, including critical thinking, problem solving, communication, leadership, negotiation, teamwork, etc., and on providing students with more practical learning opportunities such as internships or participation in research projects.

The Commission for Africa (2005), furthermore, emphasizes the importance of teaching the skills of entrepreneurship, given that one of the challenges in Africa is the dearth of jobs for skilled workers. Thus graduates cannot rely on being employed upon graduation; they must be prepared to create their own businesses and employment. All levels of higher education have a role in supporting the knowledge, skills, and attitudes needed for increased entrepreneurship and development.

In assessing and strengthening the quality of higher education, it is important to remain focused on the outcome of the educational process, rather than looking solely at inputs or intermediate outputs such as grade levels for individuals, percentage of students who graduate in a certain time or number of

students enrolled. One of the most important outcome measures is the higher education institution's responsiveness to the labor market.

There are outcomes of a high-quality tertiary education that are important for contributing to longer-term national development that are not directly focused on technical skills needed for a specific job.. These outcomes are often more difficult to measure, but are indeed important to how well individuals are educated and prepared to participate in broader social and economic development through time. Some of these outcomes include:

- Ability to think critically
- Ability to communicate effectively in written and oral form
- Understanding the global scope of disciplines and development
- Sensitivity to broader issues affecting development beyond the specialized disciplinary knowledge
- Understanding the culture and societies in the geographical areas of importance to national development.

These outcomes are also important in the labor market, but do not relate to specific skills or proficiencies defined by the first job a graduate receives. To measure these important outcomes is not easy, but there are measures to do so. One way of improving the quality of higher education institutions in these outcomes is to invest in processes and people who consistently focus on questions of quality within higher education institutions and in national organizations or ministries. Good universities have ways to measure and assess quality internally, but these quality assurance units are often nascent and poorly staffed in universities in lower-income countries. There also should be processes outside higher education institutions that focus on quality improvement and measurement and provide objective assessments of how well an institution is doing.

In a study on quality assurance in SSA countries, Materu (2007) found that structured Quality Assurance (QA) processes in higher education at the national level are a very recent phenomenon. Currently, 16 countries have functioning national QA agencies. However, by and large, their purpose has been to regulate the sector rather than to enhance accountability and quality. There are many challenges to developing effective national QA agencies, the foremost being technical capacity, i.e., (trained and credible staff at agencies and academic staff at higher education institutions who support internal quality systems. Program accreditation is labor-intensive and costly. The estimated total annual cost for a national QA agency varies from US $200,000 in Cameroon to US $2.3 million in South Africa; personnel represents the majority of the cost.[41] Finally, the effectiveness of QA processes depends on the ability to impose sanctions, as incentives have not garnered much change. Although little is known about the impact of QA on the quality of graduates, employer attitudes towards graduates, and research outputs of tertiary institutions, the use of QA measures is rapidly growing in Africa and around the globe.

In 2009, the African Association of Universities launched the African Quality Assurance Network (AfriQAN) to provide assistance to institutions concerned with QA. A constitution was formulated and endorsed during the first AfriQAN Annual General Meeting held in Accra, Ghana in November 2009. In April 2010, AfriQAN was formally registered in Ghana as a legal entity, with the Secretariat temporarily hosted at the Association of African Universities (AAU) in Accra. Among the priorities for cross-border collaboration on issues of QA are mutual recognition of accredited status, recognition of degrees, mobility of students and faculty, cooperation for peer reviewers and external examiners, and regional accreditation.[42]

The extent and substance of a HEI's public engagement is an important element in overall quality and relevance considerations. To have curricula that is related to contemporary issues in society and in employment preparation, requires substantial interaction with the private, public and civil society sectors. This need to engage with these sectors is also essential for high quality research programs. See the section above where the McKinsey Study is summarized about this important public engagement issue.

7: Information and Communications Technology (ICT) and the Potential of E-Learning

Across the world, technological advances, especially information technology and digital media, are contributing to what is often a dramatic restructuring of most global service industries ranging from banking and health care to retail and media. However, higher education across the world is still broadly structured and delivered as it has been for generations. Faculty produce content, organize it into curricula, deliver it to aggregated sets of students, and certify acceptable understanding. In the classroom, the teaching model of a professor lecturing to a (potentially large) group of students gathered together in a single hall remains the primary model used today in universities both in developed and developing countries as it has been for centuries. Distance education has now existed for some time and has seen growing numbers of students in recent decades, but it still occupies a relatively a small niche in the instructional universe.

However, the pace of technological change in how education is delivered in the developed world is accelerating. This section provides an in-depth review of some of the most notable of these changes and considers the potential implications for the ongoing and future development of higher education in the developing world, sub-Saharan Africa in particular. Given the attention that is being focused now on the "disruptive" role that technology is playing in higher education across the globe, this section provides a fairly detailed overview of this challenge and opportunity relative to the previous six discussed above.

International Status and Trends in E-Learning

"*The future is already here, it's just not very evenly distributed.*[43]" This quote describes well the situation in higher education. In some parts of the world, technology has clearly changed how knowledge is collected, organized, and shared. For example, according to one leading consulting firm,[44] the majority of book publisher sales will be digital e-books by 2017 and online education has attracted hundreds of thousands of students.[45] In the United States, a recent survey indicates that 6,714,792 students (about 32% of all students) in U.S. degree granting post-secondary institutions are taking at least one online course.[46] This represents 417% increase from 2002 until 2011.[47]

Still, a large number of students entering a university or college today will have largely the same experience as the students that attended decades before. New technologies, in particular digital media and information technologies most closely aligned with content creation and delivery that have dramatically changed other content industries, are only recently beginning to change education. Why have the institutions so closely associated with youth and new ideas been so resistant to change to date? Part of the answer is that the classroom-based teaching model has worked well for a very long time and cost pressures have only recently become intense.

The world of higher education is starting to change, however. New technologies—especially digital media, social collaboration, management systems, and assessment technology—are increasingly prevalent. U.S. higher education institutions are at the forefront of the development of online courses, curriculum and degrees. The proportion of chief academic leaders that say online learning is critical to their long-term strategy is now at 69.1 percent – the highest it has ever been. [48]

In the United States, the traditional lecture approach is giving way in many classrooms to a hybrid model where physical gatherings are supplemented by online content, discussions, and activities. At a few universities some courses are delivered entirely online for on-campus students. For example, Virginia Tech delivers all introductory math classes including calculus with online interactive courses. At a number of U.S. universities—including many in the top tier—the typical student experience *already* includes a significant amount of online learning.[49]

Technology is, of course, the essential enabling factor, but the motivation for using it more broadly and deeply in higher education than in previous years include:

1. Public universities and colleges are under pressure to do more with less because of reductions in state appropriations and the need to increase the number of students and degrees. Most institutions are getting pushback on tuition increases and, in any case, are concerned about limiting access due to tuition levels.

2. Students across the globe are increasingly digitally-proficient and sophisticated, and students in many parts of the world expect a university experience that reflects their expectations of a connected, information on-demand world. In developed countries, today's students have grown up in an era with wireless communications common and social media tools pervasive and expect the same if not better infrastructure at their universities.

3. The rapid growth in the availability of remotely hosted and cloud-based media and communications services enable individual departments and faculty to adopt sophisticated technological tools without the involvement of centralized IT departments.

The challenging economic environment for most non-profit U.S. higher education institutions, especially the large public university systems, is well recognized.[50] For example, at most traditional not-for-profit colleges or universities tuition does not come close to covering the full cost of a student's education nor do research grants reimburse the school fully for the research done there. To keep operating these universities and colleges include a mix of state and federal government support, philanthropic donors, and other revenues.[51] New technology is looked at not just for cost savings but also as potentially enabling new models of developing, delivering, and monetizing their unique content.[52]

Meanwhile the ongoing commoditization of a broad swath of underlying information technology infrastructure components—including storage, bandwidth, compression, mobile devices, media management, social and community tools—has led to the availability of more and more sophisticated cloud-based services ranging from the likes of large companies like Microsoft, Google, and Apple to startups like Udacity, Coursera, and Kahn Academy. These are providing new options for faculty and departments to acquire technology and services without the need to involve a university's centralized IT department. Moreover, many individual universities have and are developing courses. Such decentralization of technology infrastructure comes with both costs and benefits to be sure. However, the speed and agility decentralization brings to institutions is important to factor in thinking about future resource investment in technology (e.g., departments may now need more not less technology funds if a centralized group is not providing support). This decentralized option adds to a considerable base of university-specific technology enhancements in the form of "conventional" online offerings of well known universities and myriad "course redesign" projects improving learning and reducing cost for on-campus students.

THE EFFICACY OF E-LEARNING

Online learning is not new. Indeed it has been used in some learning environments for decades. However as discussed elsewhere in this report, a collection of complementary advances in technology (user interfaces, bandwidth, storage, assessment, analytics, etc.) have enabled a new wave of innovation around online courses. It is still too early to assess conclusively how these latest tools and techniques are affecting learning outcomes; however, some studies have been published on the effectiveness of online learning compared to face-to-face learning. While every online learning effort is different and may or may not be as effective as traditional approaches, the data suggest that if done well, online can be as effective as in-classroom learning. For example, a U.S. Department of Education sponsored meta-study of 45 separate studies concluded that, on average, online is at least as effective as in-classroom and, importantly, hybrid approaches that combine both online and face-to-face are considerably more effective than either alone for certain groups of students. The full title of this study along with two other comparative reports is below:

- "Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies," U.S. Department of Education, Office of Planning, Evaluation, and Policy Development Policy and Program Studies Service, Revised September, 2010.
- "A Comparative Study of the Effectiveness of an Online and Face-to-Face Technology Applications Course in Teacher Education." Chia-Ling Kuo - Kent State University, Hongbo Song - Yantai University, Renee Smith and Teresa Franklin - Ohio University. International Journal of Technology in Teaching and Learning, 2007.
- "Students' Perceptions of Online Learning: A Comparative Study." Karl L. Smart and James J. Cappel. Central Michigan University, Journal of Information Technology Education, 2006.

Technology and the Architecture of a Modern University

The acceleration of the digital transformation of higher education is likely to continue. It is therefore critical to consider what should be done now to help foster the most positive outcomes from this transformation. While the opportunity is great, there is also a risk that emerging new models of higher education will be applied inappropriately with negative consequences for students.

Massive Open Online Courses (MOOCs): A Catalyst for Increased Attention to E-Learning's Potential

In 2012, after about a year of operation, several online higher education startup companies including Coursera, Udacity, and edX each registered over a million users. The leader in terms of registered students, Coursera surpassed 4 million in the summer of 2013 with 1.3 million signing up for the platform's *free* courses each month. A typical course on one of these platforms will attract tens of thousands of students with the most popular routinely registering over 100,000. A significant share of those registering for courses come from outside the United States. In fact, all of the major service providers report that more than half their students are registering from countries abroad. That said, later analysis in Section 3 of this chapter notes that only a very small percentage come from sub-Saharan Africa. It is also important to note that MOOCs do not confer credit nor do they charge for enrollment.

While the large number of registered students is widely discussed, all of the large free course service providers have very low course completion percentages, typically of the order of about 5%. It appears that many people indicate their interest in a topic by registering for courses but very few actually complete the course work. Whether this retention rate is a cause for concern or not certainly relates to student learning intentions in the first place but is also likely related to the current lack of any formal credit for most courses offered, and the fact that the courses require no financial investment from the student (i.e., they are free).[53] Among the most important priorities for all of the online MOOC providers and associated universities is the issue of credit and integration with existing degree programs, online or in-class.

Especially in the context of educational capacity and the needs of a large and diverse region like sub-Saharan Africa, it is also very important to recognize that there is a large gap between free online courses and producing well-trained and *certified* scientists, engineers, medical, and other professionals—a few courses do not enable one to lead a major construction project, contribute to new materials research, or conduct even the simplest surgery. To date, essentially all the available courses are repackaged courses from existing institutions. As good as many of these courses might be, the vast majority of online offerings today do not respond to the diverse content and training needs of global communities. Furthermore, intellectual property constraints may challenge local adaptation to countries and cultures that are possibly very different from the original source material. There is also as yet little in the way of structured curricula or clinical real-world projects or labs; and, perhaps most importantly, local certification remains an open question.

Part of the excitement about MOOCs, however, is that they have shown the way to reach not a few dozen but thousands of students with relatively high quality education content. Moreover, data analytics on the responses of tens of thousands of students (of whom the provider has much background information concerning education levels, economic status etc.) allow designers to learn about the education process in ways never before available. Such large data analytics has the potential to advance both "traditional" education as well as online delivery. In addition, with all the tools and platforms now available online, students now have the tools to self-organize truly global learning groups around topics of interest and shared experience. In addition, unlike typical classroom communities that form over a semester, the nature of digital communities is such that online courses create the opportunity for ongoing engagement and sustained discussion around topics of shared interest that extend well beyond the term of the course.

Coincident with the emergence of MOOCs has been a large amount of investment in recent years in "edutech" startups and enterprises[54]. Most of these investments are targeting the delivery of education as a service, but the common theme among almost all is a technology strategy that leverages standard tools and technology developed in the private sector to improve education. This visible investment is a part of a larger picture of distributed investments by universities in which private sector software is combined with locally developed software addressing specific identified needs of the institution. As has been the case in other domains, "home-grown" solutions that may have much broader application often lack the investment or the mechanisms to generalize and refine them, which would allow them to be adopted by a broader audience, a challenge that the APLU is working to address at this time.

From an industrial organization point of view, this new wave of technological innovation means that a single university no longer needs to be a single centralized integrated content production, delivery, and certification system. Instead high quality education content can be designed and produced in one institution, delivered via another's platform, and certified by yet a different institution. With regard

to future educational capacity building in Africa, such structural change is likely to be as important as pedagogical changes.

While the MOOCs may be a vanguard of technological change, they are hardly the answer to Africa's challenges. They have drawn wide attention to the field of online learning with huge student numbers and exciting massive data analytics for understanding the learning process. MOOCs attract hundreds of thousands of students but completion rates are very low, and those who do complete generally already have a higher education degree. While online and distance learning has been around for decades, the emergence of the MOOCs in the new communication environment has invigorated the interest in how online learning can be designed to meet the challenges of quality and quantity that face both developed and developing countries.

Technology and Learning at the Modern University

The recent acceleration in activity regarding new technology in higher education is based not on a single new advancement in, for example, video delivery but in a collection of improvements in technology, pedagogy, and importantly in robustness and scale that have coalesced in the last couple of years.

There are various approaches to technology-based learning, whether delivered on a massive scale or in small-scale seminar-type classes. To make more concrete what can be done, below is a description of some of the more common elements of online courses in recent years:

- Series of very short video presentations (typical segments are relatively short – usually under 10 minutes in length, often much shorter, using high definition video and graphics) that can be streamed or downloaded,

TECHNOLOGY INTEGRATION, NOT SUBSTITUTION

There appears to be a growing body of evidence that when new digital education technologies are integrated with traditional classroom-based education, educational outcomes are better. Therefore, while the burgeoning demand in Africa for higher education likely necessitates new models of higher education, at the same time it is important to acknowledge that:

1. A residential experience for students has value beyond what happens in classes; no summation of online courses is the same as a residential education.
2. Faculty-student interaction is incredibly important for certain educational goals and for certain students; digital interaction is not a perfect substitute for face-to-face exchanges
3. Some disciplines in higher education require a heavy experiential component such as surgery, architecture, mechanical engineering, or clinical psychotherapy and are not today candidates for full digital or online education processes.

The future of higher education is likely to see a lot of hybridization of both online and traditional forms of delivering higher education—varying the amount of online vs. in-class experience in accordance with curricula, location, and expense.

- Short quizzes or assessments that immediately follow each video segment that are typically graded in real-time using automated means,
- Sophisticated student discussion forums that include participant profiles, quality ratings, and "following" features (similar in function to that found in popular social media tools such as Twitter, Facebook and LinkedIn),
- Online cloud-based delivery that requires only a broadband internet connection and a standard browser, and
- The ability to monitor student answers, degree of participation, and overall performance as a tool to tailor content and feedback directly in specific students and their individual learning capacity and needs.

These core structural elements have been successfully applied to technical topics such as computing and engineering courses where automated assessment of homework and examinations is straightforward, and also in areas with less categorical assessment, such as the sciences and humanities.

In this new era of online courses, higher education institutions also have the benefit of a growing range of vendors and internet-based platforms from which to choose. There are now extensive libraries of open-source modules for online course management, content delivery (including rich media), and student interaction. Such systems still need to be installed on servers (typically cloud-based virtual systems), administered, and maintained. This need has led to the emergence of a community of education system integrators—both independent and as part of larger IT companies. Some have taken the open-source code and developed proprietary implementations that package core features and simplify deployment and maintenance. Moreover, especially in the context of Africa, all the major purveyors of MOOCs have highly proprietary terms and conditions that claim ownership of course content and prohibit sharing or remixing of material.

There are also proprietary learning management systems that are increasingly able to inter-operate with the basic media and data storage systems and that bring the benefits of numerous custom extensions into common university IT systems.

E-Learning[55] in Higher Education in Africa

The Current Situation. The potential of e-learning resonates very well in Africa. The imperative for advancing e-learning is high and the last decade has seen a growing awareness of the importance of e-learning to address the education challenges. For example, the number of participants attending the annual e-Learning Africa conference that began in 2006 has doubled over the last five years[56] with increased public and private sector participation and improvements in the quality of discussions. There has also been significant capacity building carried out in regional projects such as the Partnership for Higher Education in Africa's (PHEA) Educational Technology Initiative (ETI)[57] along with the South African Institute for Distance Education (SAIDE)[58]. In addition, the Association for Development of Education in Africa (ADEA) Working Group on Distance Education and Open Learning (WGDEOL)[59] and the Commonwealth of Learning (COL)[60] have contributed to improved awareness.

This section describes a wide range of developments focused on connecting many African countries to the global broadband network, on-going rollout of national networks and several regional e-learning initiatives. It also exposes the lack of needed data and information on connectivity and e-learning activities across the broad sweep of Sub-Saharan institutions of higher learning.

Beyond improved access to educational resources at lower costs, there are political and social imperatives for equity and social justice that are driving e-learning—particularly in order to create

opportunities for millions of young boys and girls and other age cohorts who have not had the opportunity to enroll for higher education.

The urge to increase enrollment rates, especially to fill skills gaps in key areas, is evident. Some countries are rapidly setting up universities and colleges through private investment and/or public funding. As a result, as discussed in other sections of this report, there has been a rapid growth of the student population entering higher education.

While e-learning by itself will not solve all Africa's educational challenges or the broader challenges of ever-increasing numbers of students, inadequate faculty size, insufficient funding for educational materials and equipment and the low research capacity in Africa, it certainly has the potential to contribute to improved higher education. In addition to increasing access to educational content and lowering cost, online education presents opportunities for the re-examination of out-of-date curriculum and experimentation with teaching and learning.[61]

The development of the ICT sector in the last decade, in particular growth in mobile subscribers and increased use of fixed and mobile broadband Internet has ushered new opportunities for online learning in Africa. There has also been some effort by higher education institutions to establish Learning Management Systems that increase the availability of course materials and educational resources available through local networks.

The development of e-learning has been spurred on by the efforts of various organizations to harness its potential for the advancement of teaching and learning. Among some of the major initiatives include:

- The South African Institute for Distance Education (SAIDE), with funding from the William and Flora Hewlett Foundation, has been implementing an Open Educational Resources (OER) initiative that is aimed at raising technical, management, and policy issues of online learning resources in the region. OER Africa[62] works at the tertiary level, and sometimes at the post-graduate level, in four areas: agriculture; health; teacher education, and foundation programmes, such as English and literacy, learning and thinking skills.[63]

- The Partnership for Higher Education in Africa (PHEA) and in particular its Educational Technology Initiative (ETI) was a multi-year initiative addressing higher education and especially e-learning in African universities.[64] Workshops and reports indicate substantial progress in adoption of e-learning methodologies, Learning Management Systems, etc., at the participating universities.[65]

- The African Virtual University[66] is a Pan African intergovernmental organization. Seventeen African governments have signed its charter to become members. AVU operates in 27 countries and has more than 53 partner universities in Africa. It houses over seventy Bachelor of Education modules in mathematics, physics, chemistry and biology. The AVU has graduated 43,000 students since its inception in 1997, mostly by brokering programmes from Australian, Canadian and United States universities. More recently, the entity changed its model by focusing on developing and delivering quality relevant and contextualized courses in collaboration with African partner universities. As at 2011 the AVU has also trained some 600 students in various certificate programmes and currently has 4,000 students registered. AVU has made considerable progress in promoting access to online resources throughout Africa filling the gaps in OER modules for

Bachelor's degree education in three major languages of the continent—English, French and Portuguese. The Rector of the AVU states:

> *"The African Virtual University (AVU) is continually considering emerging technologies and innovative practice in an attempt to unlock the potential of distance and e-learning in Africa. A program consortium model was adopted in 2011 for which OERs play a central role. The organization is considering integrating the MOOCs into a vast multinational e-learning project involving 27 universities in 21 African countries, funded by the African Development Bank. We are currently preparing a feasibility study on how to integrate MOOCs into our consortium program model."*[67]

- At the national level, institutions in Ghana, South Africa and Uganda are also pioneering the development of online modules. The University of Ghana and Kwame Nkrumah University of Science and Technology (KNUST) have been promoting OER in the health sciences in Ghana. Their work involves the creation of awareness among students and faculty, production of media-rich interactive OER modules, and adaptation of OER from other institutions. Additionally, both universities proposed modifications to academic practices and official policies to promote Creative Commons (CC)-licensed content.

- South Africa is likely the lead country in e-learning in sub-Saharan Africa. The University of Cape Town's free courseware project and Open Director, the University of Western Cape's free content and online course tool (KEWL[68]) and collaboration amongst mathematics teachers and educators from nine South African universities to create OER are among the examples of successful initiatives in the country as is an Open Courseware Initiative.[69] In addition, Open and Distance Learning institutions like UNISA have increased the use of ICTs for improving choice of access to educational resources throughout Africa.[70]

- In Uganda, the ELATE Programme works on the use of OER for delivery of teacher's education with a focus on current trainees and newly qualified teachers.[71]

- The Higher Education Management Information System (HEMIS) that covers data on graduation and withdrawal rates, resources and their distribution is increasingly becoming interrelated with e-learning information and platforms at some universities. Online education content management systems such as Moodle, Sakai, WebCT and Blackboard have built-in tools that can generate student test records, which in turn can easily be integrated into a Higher Education Management Information System. South Africa has a comprehensive Higher Education Management Information System[72] under the Department of Higher Education and Training (DHET). All of the institutions that participated in the PHEA ETI used Moodle as their institutional LMS, and all have seen growing use of e-learning via their LMSs over the past three years.[73] The majority of countries, however, lack tools that draw on e-learning platforms and allow colleges and universities to report accurate and timely data on students, courses, qualifications, staff and other resources.

Although the use of Learning Management Systems such as Moodle and Sakai is improving, progress in sharing resources within universities and across the various national universities is minimal due to limited buy-in from content creators (teachers) and absence of the necessary skills base to develop robust online learning systems.

Other applications of information and communication technologies in the higher education sector in Africa are not specifically related to e-learning opportunities, yet they make a significant contribution to their diffusion. Information and communication technologies are helping African research and education institutions as not only consumers but also contributors to global online resources. Examples of African generated repositories include the African Journal Online (AJOL) and the Database of African Theses and Dissertations (DATAD). AJOL hosts more than 400 journals on its website, covering twenty-five disciplines and spanning almost the full range of the sciences and social sciences. The Database of African Theses and Dissertations (DATAD)[74] was established in 2002 by the Association of African Universities through grants from the Ford and Rockefeller Foundations and works towards building a regional database of theses and dissertations to improve accessibility to the work of African scholars both within and outside the continent.

There are also repositories that are being developed at the national level. These include Digital Information South Africa (DISA) that Rhodes University maintains and provides a freely accessible, online scholarly resource that focuses on the socio-political history of South Africa, especially the period of Apartheid from 1950 until the first democratic elections in 1994. Kenya Open Data[75] offers access to data from various agencies and sectors including information, education, energy, health, population, poverty, water and sanitation and is another initiative that provides access to rich online resources. The Kenya Open Data represents a new trend where governments play a major role in making access to digital information, paving the way for the participation of the private sector and the academia in creating online repositories.

Access to advanced databases, applications and services such as grid computing are at early stages in the region due to inadequate bandwidth and other challenges such as low level of collaboration between researchers. The United Nations Scientific and Cultural Organization (UNESCO) and Hewlett Packard have been supporting grid-computing applications in a dozen African countries: Burkina Faso, Cameroon, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Morocco, Nigeria, Senegal, Tunisia, Uganda and Zimbabwe.[76] A capacity that harnesses distributed computing and leverages national broadband networks is being built in Ghana, Morocco, Senegal and Tunisia.

Sophisticated applications pertaining to climate change modeling, disaster monitoring and prevention, tropical disease, telemedicine, biotechnology and genomics are becoming increasingly important to address long-standing poverty, population growth, and environmental degradation and conflict challenges in the continent. However, lack of adequate broadband connectivity has hampered the actual implementation of these advanced applications.

These examples suggest that African higher education institutions are already working on strengthening their use of ICTs and expanding e-learning opportunities. At the same time there is a need for deeper investment to spread best practice and resource sharing across the continent.

Challenges to E-learning in Africa

As noted above, the development of e-learning in Africa faces significant political, institutional, capacity, and ICT access and supportive infrastructure challenges.

Political challenges. In many African countries the overall political environment and policies on education and ICTs in particular put a major constraint on the development of e-learning in Africa. The absence of educational policies that address the role of the ICT sector and inadequate regulatory and legislative frameworks in the ICT sector can also hamper the development of e-learning. Poor

EDUCATIONAL TECHNOLOGY SKILL SET FOR EDUCATORS

- Developing instructional materials for online environment
- Technological development, as well as the use of a mix of technologies for online learning
- Strategies for marketing of online courses
- Strategies for evaluation of the process and outcomes of online learning
- Education about specific technical processes (such as integrating multimedia applications)
- Use of social media for peer support, feedback, and mentoring
- Management of workload, particularly related to course design
- Working knowledge of the range of student support services
- Knowledge of important institutional policies and administrative procedures pertaining to online learning. [92]

policy and regulation within the ICT sector presents barriers to access. Tax policies and laws also affect the cost of technology.

That said, almost all African countries have developed national ICT policies and implementation plans that emphasize the use of ICT in education. Kenya in particular provides explicit support to its National Research and Education Network (KENET), which provides advanced connectivity to universities, and is currently exploring options for improving Learning Management Systems and sharing course materials across member universities. However, except for a few countries such as Ghana, Kenya and Tanzania whose policies in education provide some detail on how to integrate ICT in education, national policies lack adequate detail on how to integrate ICTs in higher education.

Institutional challenges. The most significant institutional challenge is lack of ownership of e-learning projects due to limited awareness of the opportunities. There has been a common tendency to use technology experts to lead and implement ICT in education projects, with a resultant focus on engineering or software skills rather than content and pedagogical skills. People who are trained in and understand education play a secondary and often peripheral role. The absence of platforms for experimentation and exchange of information also means that educators and education managers have been unable to expand e-learning opportunities other than by seeking external support and advice.

The increasing adoption of e-learning poses other institutional issues such as revision of staffing guidelines and job descriptions that recognize e-learning kinds of work. Elements of policies to address these issues would include performance management, remuneration, criteria for promotion, and the question of Intellectual Property Rights (IPR) and copyright on works created during the course of employment.

Capacity Challenges. The absence of capacity in ICT and its use in education is widespread. In addition, given the nature of the field, integrators who can work across multiple intra-institutional areas (for example, teaching and learning policy, network architecture, libraries, and e-learning technology, to name a few) are especially important and especially rare. African universities in particular face a critical

shortage of skilled ICT workers. The situation is compounded by a lack of professional development opportunities for educators on educational technology use and a wide range of associated skills (see Box above).[77] Other challenges include: lack of integration of educational technologies in teacher training institutions and the high turnover of skilled technical personnel, as institutions are unable to pay salaries that are competitive with the private sector.

Technology Access Challenges. Many of the innovations in e-learning coming out of the United States, Europe and other technologically advanced parts of the world, require adequate infrastructure and a robust and fast connection to the Internet, which is currently lacking in many African institutions. In addition to lack of adequate bandwidth, the costs of bandwidth and devices remain the critical challenges to the effective use of e-learning and other applications in Africa, despite the fact that the cost of computers has seen a significant reduction over the last decade due to reduction of taxes and availability of low-cost devices such as tablets, feature phones and smart phones.

Bandwidth access and high tariffs are the most critical challenges facing educational and research institutions due to limited coverage of fiber and wireless networks and high tariffs that were set by largely monopoly operators on local and international bandwidth. While competition between submarine cable operators has brought multi-terabits to the borders of the countries and has also helped reduce the historic costs of connectivity by over 50%, the continent still uses only 1 Tbps of the 25 Tbps of capacity available via submarine cable.

A survey by e-Learning Africa in 2012 confirms the preoccupation with access to high bandwidth. Seventeen percent of the survey respondents said having adequate bandwidth is the most significant constraining factor to e-education, followed by the lack of financial resources, inadequate human resource capacity and limited electricity, all at 11%.[78] The continent's connectivity landscape is quickly evolving, however, and it is fair to assume that even five years from now bandwidth access across the continent will be much greater than it is today, given the increase in private and public sector investment in connectivity.

Software is another area of expense to higher education institutions. Purchasing site licenses and support services can result in significant upfront costs that may at first glance appear prohibitive and unnecessary. Fortunately, there are several open source options available for most software applications, which, under certain circumstances, can be cheaper to maintain and tend to be well supported by their respective online communities.

Supportive Infrastructure challenge. The inadequacy of electric power supply in Africa continues to be a major problem, which has a huge impact on access to devices and on their running costs. The problem with electricity is severe in some countries where steady supply of electric power is a luxury. The World Bank estimates that 28 countries in Sub-Saharan Africa have lower than a 30% electrification rate. Moreover, the distribution networks tend to be very limited and, where available, actual supply of electricity is intermittent, often leading to damaging of ICT equipment.[79]

Addressing the Challenges

Bandwidth Tariff Barriers. The past two decades have seen improvement of regulation in the communications sector in Africa with the creation of more transparent and stable legal and regulatory frameworks, with an emphasis on establishing national regulatory authorities and opening certain market segments, such as mobile voice, to competition and overseeing the privatization of the incumbent operators.

However, the regulatory provisions on pricing and spectrum availability have not been friendly to the e-learning environment. The high price of fiber network is one of the key regulatory barriers for creation of research and education networks and rolling out advanced education technology applications in the region. The national infrastructure is not competitively priced either, due to the continued dominance of incumbent operators and lack of access to fiber infrastructure on energy grids or on rail and road networks.[80] The basic right to establish self-owned networks is another issue especially under monopoly regimes where only the monopoly provider has the right to build infrastructure. The challenges of regulation are not specific to e-learning and therefore need to be addressed within the context of the development of national research and education networks.

Improving Access to Devices. Another important aspect of the use of ICT in education concerns the devices through which educators and learners access learning materials and collaborative platforms. There is no reliable data on computer resources available to faculty and students in the region, but the indication is that—with on-going budget cuts and despite the rapid rollout of tablets to replace desktops and laptops—it is increasingly becoming more expensive to equip universities and to keep them up to date with ICT equipment. This is not just a matter of hardware and software purchases, but also the recurrent costs associated with maintenance and support—a key challenge to higher education institutions in Africa.

The Electricity Challenge. Access to electricity is one of the most overlooked but critical problems facing the continent and creating a setback to the gains in the ICT sector in Africa. It is common to see even in the most ICT-savvy countries like Kenya, Uganda and Rwanda that electricity problems threaten access to online resources. Moreover, power surges, brownouts, unreliable and unpredictable power supply are a day-to-day phenomenon in West Africa.

About 60% of the population in Africa lacks domestic access to electricity[81] and the lack of affordable and reliable stable electrical supply impacts the rollout of ICT in education and other development initiatives. Access to electricity has not been addressed well in the last decade and the power sector has not grown as fast as access to the mobile phones and the Internet. While renewable technologies such as solar chargers and wind turbines allow for low scale supply of electricity, African countries need more sustainable energy sources to facilitate e-learning.

The Human Resources Challenge. The dearth of people who are technically competent to design, operate, and maintain advanced data communication networks has been a challenge in most countries. Furthermore, as shown in Box 2 above, there is a specific skills set at the intersection of education and technology needed for e-learning. The scarcity is compounded by competition with a rapidly growing private sector able to offer much better terms of employment and resistance of colleges and universities to design their syllabi for employability.

Many countries have established ICT-related academic institutions that provide degree programs in computing (computer engineering, computer science, information systems, information technology, and software engineering) and networking. The private sector and companies such as CISCO and Oracle have also been active in implementing certification programmes that aim to bridge the skills gap when students complete academic programmes. Almost all African countries have CISCO academies that provide certification in internetworking technologies.

Despite these developments, most African countries still lack a critical mass of information society skills for promoting ICTs for social and economic development. The computing and networking programmes tend to be theoretical and unable to meet the cutting-edge needs of public and private institutions

that often demand state-of-the-art ICT solutions. The skills gap is evident especially in managing large-scale e-government projects. Besides there has been limited training on the deployment of educational technology platforms like course management systems.

The Quality Challenge. Multimedia materials and particularly the Web can improve both the online learning experience and students' ability to retain information. Web usability—learnability, memorability, efficiency, handling of user errors, and user satisfaction—is thus an important factor. In this context, good instructional design is vital and involves a wide range of issues including choice of instructional media, the clustering and sequencing of learning, and the range of exercises, activities, and assessments required to cover a particular course.

A significant investment is therefore required to ensure the quality of e-learning by increasing the capacity of educators in instructional design, development of learning materials for online environment and better course presentation. There is also a need for setting up quality assurance mechanisms that are able to assess online and hybrid learning environments as well as traditional classroom environments. Furthermore, there is a need for innovative assessment frameworks that consider the interactive online learning environment.

Recent forms of e-learning – and in particular the use of big data – provide some unique opportunities to improve the quality of education. E-learning platforms that have developed in recent years have the ability to collect massive amounts of information about how students interface with the learning material. This data collection supports two important functions. First it allows for personalized learning. In other words, the flow of the course for each student can be shaped automatically based on frequent feedback loops – questions posed to the student to ascertain mastery of concepts. This allows individualized instruction where students who demonstrate mastery can move on to more advanced material while those having problems in an area can be directed to remedial instruction. Second, the data collected are an excellent source of information for scientists in the education field to identify patterns in the learning process that have never been visible in the same way in the lecture environment. Both of these e-learning attributes hold significant promise for improving the quality of instruction.

The MOOC Challenge. As discussed in the first part of this section, there is a wave of enthusiasm for open online courses sweeping the world. Literally millions of people are registering for a growing number of courses. According to statistics provided by Coursera, currently the most prominent provider of MOOCs, every country in Africa has enrollments in their courses, albeit many merely a handful. In all, Coursera indicates that 64,000 people have registered for their courses from Sub-Saharan Africa, about 2% of the worldwide total. The top six Sub-Saharan African countries have enrolled 34,000 people, over 50% of the total (in order of enrollments: South Africa, Nigeria, Ghana, Kenya, Ethiopia, and Uganda). The completion rate for students enrolling in these countries is 14%.[82] This appears to be substantially higher than Coursera's average global completion rate.

While it is tempting to see MOOCs as a profound opportunity to dramatically improve access to higher education in Africa, it is necessary to be cautious, not only as regards Africa, but elsewhere as well.[83,84] Indeed, the challenge to policy-makers, donors, academics and entrepreneurs in Africa is to ensure that the worldwide shifts towards online education at the tertiary level reduce rather than increase the "digital divide." With regard to Africa:

- MOOCs are strongly dependent on high and reliable bandwidth for delivery of rich multimedia materials and videos. Except in some urban areas in Africa, it is likely to be some time before

bandwidth is adequate and affordable for the great mass of African citizens, especially those in rural areas.

- Equally, the limited and unreliable access to electricity hinders accessibility to MOOCs.

- While smartphones are adequate for accessing such courses, as discussed in the commentary on m-learning below, they are not necessarily appropriate for extended and meaningful on-line learning, so there will be a demand for PCs and tablets on a large scale.

- The worldwide take-up of MOOCs appears to be largely by individuals wishing to gain knowledge of specific topics, rather than fully-fledged higher education degrees or diplomas, which arguably should be the basis for broad support of the higher education sector in Africa.

- The "free" nature of MOOCs cannot last forever, especially if such courses evolve into courses with formal evaluation by accredited institutions.

- Further, although by definition MOOCs are "open," all the major purveyors of MOOCs have highly proprietary terms and conditions that claim ownership of course content and prohibit sharing or remixing of material. Furthermore, by participating in a course the user agrees to grant providers a sweeping license to do what they want with the user's content. These restrictions assume critical importance with regard to adaptation of "western" content to African circumstances.[85]

- Valuable longitudinal research into learning and communications paradigms in developed Western countries and Africa suggests significant divergence in terms of values, definitions of social aspects and realities, and cultural approaches. "At the heart of this plurality are inherently different world-views."[86,87] This research calls for adaptation and alignment of the MOOC to African reality if the technological advances are to realize their full potential in Africa.

- Finally, the data that is collected from students who participate in the MOOCs may well be available only to the MOOC platform providers and thereby restrict the analysis by the institutions providing the courses or by independent scientists interested in the performance of MOOCs and e-learning.

The African Mobile Revolution and its implications for E-learning

Over the last decade, Africans have gained mobile access at a tremendous pace. Reportedly, there are 650 million mobile phones in Africa. According to the latest figures from the International Telecommunications Union,[88] 63% of the African population has access to SIM cards with 5% having access to mobile broadband and 16% with Internet access. The broadband wireless network is another fast growing segment in Africa, with mobile companies focusing on rolling out competitive data services. The Global System for Mobile Association (GSMA) estimates that there will be over 160 million people (15% penetration) on 3G networks in Africa by 2016.[89]

In this context, "mobile learning" or "m-learning" has been on the agenda for at least ten years. As the prevalence of mobile devices—especially feature phones and smartphones—has exploded, so has the hype surrounding their potential for learning. Advantages include easy access to knowledge,

improved communication between teacher and student, the ability of individual students to learn in their own way and wider access to academic and industry experts from home or classroom, overcoming distance and costs at the same time.[90]

However, there are challenges that remain to be addressed. Professor John Traxler, a prominent researcher and expert on m-learning, while noting the huge potential, offers a sanguine view of the reality of m-learning in Africa. Most of the projects and pilots in Africa have taken place in South Africa. A handful of undocumented projects may have taken place in francophone Africa and a handful in the Arab north. Most projects are fixed term and mainly small scale, urban and text-based. It is hoped that current initiatives will move forward from the first decade of pilots and trials by enlarging the community and providing some more sustainable foundations.[91] In a recent Planet Earth presentation in the UK House of Lords, Professor Tim Unwin, a prominent expert in ICT for development expressed the strong view that "mobile devices are absolutely not the solution for African education."

In short, while experiments on the use of the mobile network for e-learning abound, there is an absence of large-scale applications to harness the ubiquitous cellular network for advancing education in developing countries. Mobile technologies (including mobile phones, smartphones, tablets, the mobile Internet and social media) can certainly complement the e-learning process but for the near future cannot replace high bandwidth connectivity.

Summary of the E-learning Challenge/Opportunity

Despite the cautionary remarks above, in Africa as elsewhere in the world, the adoption of online education offers real e-learning opportunities for students. There is the opportunity for higher education educators to upgrade their materials and learning methodologies and offer the potential to draw larger numbers of African learners into the higher education learning arena.

Conclusion

African higher education faces significant challenges that will require major reform. But while there appears to be a fairly common appreciation of the many challenges that face African higher education institutions and systems, there is far less consensus on what the priorities for investment should be. Making decisions about what to prioritize when there are so many pressing challenges is never an easy task. The next chapter identifies our recommendations for prioritization of investment. To achieve reform, bold and innovative leadership will be needed in Africa, and development assistance must work to support the reform initiatives of African leadership. There are many African leaders both in and outside of academia who care deeply about the future of higher education in their countries and are eager to drive change.

ENDNOTES

1. World Bank, 2013.
2. UNESCO Institute for Statistics, 2010.
3. GER for higher education is defined as the number of students enrolled in HEIs expressed as a % of the 5 year age group population starting from the official secondary school graduation age.
4. World Bank, 2013.
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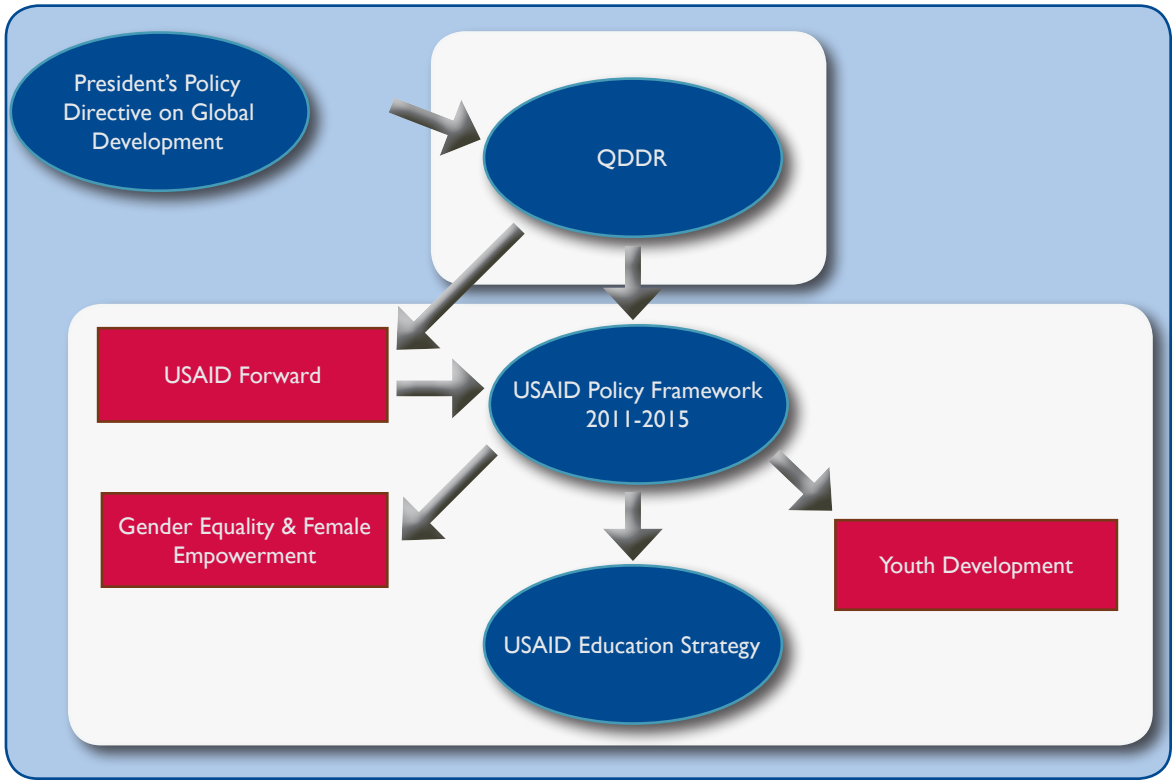
CHAPTER IV

Understanding the USAID Policy and Strategy Context

In recent years, USAID has issued a number of policies, frameworks and strategies that are intended to guide the Agency's work. Some of these are cross-cutting Agency-wide policies, and some are more targeted to certain sectors or issues. The recommendations made in this report take a number of these policies and strategies into consideration. Figure 6: The USAID Context gives an overview of the USAID policies and strategies that were given particular attention in this analysis. Throughout the report, where we align with USAID, we make note, and where we may differ, we also make note and explain why. The following sections give a brief overview of the most relevant and critical points of these Agency documents.

Figure 6: The USAID Context



USAID POLICY FRAMEWORK 2011-2015

In 2011, USAID issued its overall policy framework for 2011 through 2015.[1] This document is the first in what will become a regular exercise every four years, in parallel with the Quadrennial Diplomacy and Development Review (QDDR) calendar. The purpose of this policy framework is to define development priorities, translate the Presidential Policy Directive on Global Development and the QDDR into operational principles, and put forth the agenda for institutional reform known as *USAID Forward* to prepare the Agency to respond to the development challenges of the 21st Century.

The framework acknowledges a number of important trends that define the context in which USAID operates. Three of these are particularly important with regard to investment in higher education in Africa:

- In the last several decades a new "aidscape" has emerged with many different development actors and donors. When USAID first began its work, on average, developing countries received aid from two donors. In 2008, the average was 28 donors. This new landscape requires partnership, collaboration, coordination, and in some cases, division of labor.

- The importance of and access to knowledge has fundamentally changed in recent decades. "Cellular phone networks and the use of other mobile technologies have exploded. Virtual libraries, global research networks, the internet, and open-source software applications are giving communities in developing countries growing access to the world's knowledge and technical tools…. This trend offers enormous opportunities for development cooperation. Donors can play a new, important role by setting up platforms to attract and aggregate solutions from large, open networks of solution-holders, many of whom are in developing countries."[2]

- By 2050, the world population will grow by two to four billion people. While in many parts of the world, the "youth bulge" will be subsiding in the coming years, it remains a prominent challenge in Africa where half of the future population growth is likely to take place. This trend means that education, training, and providing opportunities to youth become all the more important in order to "transform the challenge of the 'youth bulge' into an opportunity for robust growth and development."[3]

The document lays out seven operational principles that are to be applied across the Agency's entire portfolio. The principles are the following:

1. Promote gender equality and female empowerment
2. Apply science, technology, and innovation strategically
3. Apply selectivity and focus
4. Measure and evaluate impact
5. Build sustainability from the start
6. Apply integrated approaches to development
7. Leverage "solution-holders" and partner strategically

These operational principles cut across USAID's seven areas of focus: Food Security; Global Health; Global Climate Change; Broad-Based Economic Growth; Democracy; Humanitarian Assistance; and Crisis, Conflict, and Instability.

USAID FORWARD

In 2010 USAID launched a set of reforms collectively called USAID Forward to strengthen the agency's core competencies and to lay the foundation for USAID to better address current development challenges. The USAID Forward reforms are focused on seven areas, which can be loosely divided into two categories – those that focus primarily on rebuilding the Agency's internal capacity and those that focus on how the agency does business with developing countries and the global development community. Of course, there is overlap between these two categories, as some of these goals have an explicit internal and external focus.

Building the Agency's Capacity:

- Rebuilding the Agency's policy and strategy development capacity
    - A number of actions have already been taken to address this goal, including the creation of the Bureau for Policy, Planning, and Learning (PPL) to work closely with Missions and Bureaus in the shaping of policies and strategies. In addition, the Agency has introduced *Country Development Cooperation Strategies (CDCS),* which are five-year strategies in each country of operation, intended to align USAID's investments with the top development priorities in a country. The Agency is also developing guidelines and training for project design in order to create more adaptive programs and foster more adaptive management practices (such as the regular assessment of changing conditions, the implementation of course correction as needed, and the flexibility to invest in opportunities to achieve results).

    - An integral part of improving policy and strategy development capacity is a renewed emphasis on research and evidence as the foundation of policy making and strategy planning. "An evidence-based approach to development must underpin business processes at all levels of USAID…." This renewed emphasis has led to the creation of *Evidence Summits,* "USAID-sponsored events that connect empirical research to important policy or operational decisions facing the Agency."

    - USAID has also been reevaluating its planning and reporting requirements and has issued guidance to streamline its foreign assistance, attempting to minimize redundancy and improve efficiency.

- Restoring the Agency's budget management capacity
    - This area of reform addresses the need to tie budget decisions more directly to policy priorities, determined on the basis of strategy and evidence. To this end, the Agency established the Office of Budget and Resource Management (BRM) to provide the Administrator with budgetary options and recommendations.

- Strengthening the monitoring and evaluation of the Agency's programs
    - In 2011, USAID released a new Evaluation Policy with guidelines for how to measure progress, outcomes and development impact. The policy states that all "pilot" or "proof of concept" projects as well as all large projects—those equal to or greater than the average project size (measured in terms of project cost) for the operating unit—will be evaluated. The goal is for at least three percent of the program budget of each operating unit to be devoted to external evaluation, and for evaluations to be published to a publicly available online database called the Development Experience Clearinghouse.

- Attracting and retaining talent at USAID

Changing the Way the Agency Does Business:

- Fostering innovation
  - USAID's focus on innovation is twofold. Under USAID Forward, the Agency is "partnering with new institutions, academics, experts, entrepreneurs, and the private sector to develop new ways of doing business to increase impact."[4] It is also investing in "pioneering scientific, technological, and innovative approaches to development challenges" in order to produce new solutions.[5] Among the initiatives USAID identifies as part of the new USAID Forward approach to fostering innovation are the Development Innovation Ventures, the Grand Challenges for Development, and the Higher Education Solutions Network. These initiatives represent new "innovative" ways of doing business and focus on seeking pioneering ideas and programs in which to invest.

- Supporting capabilities in science and technology
  - This goal has an internal and external dimension; it is concerned with building science and technology capacity both within the Agency as well as in developing countries. To strengthen the Agency's capacity, under USAID Forward an Office of Science and Technology has been established within the Bureau for Policy, Planning and Learning and a Science and Technology Advisor has been appointed. The Agency is also attracting more scientific and engineering professionals into its ranks and is attempting to cultivate a knowledge culture within the Agency. At the same time, the Agency is helping to build scientific capacity overseas "through cooperative research grants, improved access to scientific knowledge, and higher education and training opportunities."[6]

- Building local capacity and broadening the partnership base
- A goal of USAID Forward is to expand the Agency's work with local organizations in developing countries in order to strengthen their capacity and reduce the need for foreign aid in the long term. USAID Forward aims to triple its investment in local governments, businesses and NGOs by 2015, to roughly 30 percent of their global funds. To achieve this, the reform effort is focused on strengthening partner country local civil society and private sector capacity. In addition, USAID Forward plans to increase competition and broaden the Agency's partner base by expanding investments in US-based small and disadvantaged businesses and small NGOs.

USAID'S EDUCATION STRATEGY

It is in the context described above that USAID undertook strategic planning for its education section in 2010/2011, producing the USAID Education Strategy 2011-2015. The strategy specifically highlights the following strategic principles that align with the principles laid out in the overall USAID Policy Framework:

1. Selectivity
   - Emphasis will be placed on the potential of a country program to "realize significant reform, achieve rapid results, lead to broad-based impact, or be taken to national scale from local or regional levels."
   - USAID will undertake assessments of need based on a series of indicators across countries.
   - The strategy aims to increase USAID's focus on Africa up from 38 percent of non-Critical Priority Country resources.
   - Under this strategy, USAID will work to phase out education programs that fall under

a threshold of $2 million annually, unless a small investment can be "justified in terms of its demonstrably high impact on policy reform, system strengthening, program integration, or innovation piloting."

- USAID will assess its comparative advantage and potential contribution in a country relative to other bilateral and multilateral donors operating there.

2. Focus
   - Depending on the needs of the country, USAID will emphasize investment in one level of education or another. For example, in countries with "high potential for rapid economic growth and increased integration with the global economy," the priority focus will be on tertiary education. In countries that have "both the capacity and commitment to work simultaneously on basic and tertiary education, programs may be larger-scale with an emphasis on system strengthening."[7]

3. Country ownership
   - In keeping with the principles of USAID Forward, the USAID Education strategy emphasizes the need to "assess and seize opportunities for reliance on host country planning and implementation systems" and whenever possible "support initiatives and innovative ideas presented by host country governments and civil society"[8] that contribute to the goals of the USAID Education strategy.

4. Division of labor and donor mix
   - The strategy acknowledges the importance of coordinating and working with other donors as well as with host country governments and other in-country partners, including the private sector. Ideally, it is noted, this coordination should be country led. However, in cases where that does not happen, efforts to coordinate should be made in order to maximize allocation of talent and resources.

5. Innovation, science and technology
   - The strategy strongly encourages the use of science, technology and other innovations in the Agency's education programs. Emphasis is also placed on the use of information and communication technologies both to improve teaching and learning and to improve the management of education systems and institutions.

6. Enhanced evaluation practices
   - The Evaluation Policy (January 2011) will guide the Agency's education programming. This guidance affects not only program monitoring and evaluation, but also includes building local capacity for evaluation and integrating evaluation into program design.

7. Sustainability
   - The strategy places an emphasis on building capacity in developing countries to provide basic services in education, which includes working both with public institutions as well as with community organizations and the private sector. "It is through such interweaving of diverse interests that education quality, relevance and sustainability is [sic] more likely to emerge."[9]

8. Gender Equality
   - The strategy aims to create education programs that promote gender equality.

Given these principles, the Education strategy highlights a number of changes to be expected and trade-offs to be anticipated, several of which are particularly worthy of note. These include:

- Increased reliance on host country leadership;
- Increased demand for evidence of success;
- More strategic coordination with other donors and the private sector;
- Discontinued funding over time of a number of education sub-sectors or specialties as a result of a more focused strategy;
- Investments to prioritize "contexts where interventions are realistically and measurably achievable in a 3-5 year timeframe (even within a longer-strategic context);"[10]
- Programs "more closely linked to economic growth and transparent, democratic governance reforms because of the powerful correlation and synergies between them."[11]

" A daunting challenge facing developing countries in meeting competitiveness demands is how to improve equity and expand access to tertiary and workforce development programs and at the same time to maintain and improve their quality and relevance."

USAID Education Strategy 2011

Following an overview of these broad principles and expected changes, the strategy lays out three major goals for its education programming. These goals are:

1. Improved reading skills for 100 million children in primary grades by 2015
2. Improved ability of tertiary and workforce development programs to produce a workforce with relevant skills to support country development goals by 2015
3. Increased equitable access to education in crisis and conflict environments for 15 million learners by 2015

Higher education, along with workforce development, is thus the focus of Goal 2.

Under each goal, the strategy provides "illustrative results" as examples of the types of activities USAID could contribute to attaining the goal, recognizing that the precise nature of activities pursued to work towards each goal will depend on local context and needs. The illustrative examples for Goal 2 are the following:

1. Increased access to vocational/technical and tertiary education and training for underserved and disadvantaged groups
2. Improved quality of tertiary education and research in support of country development priorities
3. Improved relevance and quality of workforce development programs.

Overall, USAID's Education Strategy highlights many of the challenges facing higher education in developing countries that are discussed in this report with regard to sub-Saharan Africa and provides a similar picture of the context within which these challenges must be addressed.

The recommendations provided in this report take into account the goals laid out in the USAID Education Strategy and the general principles that underpin this strategy as well as USAID's broader strategic direction. They also attempt to prioritize a few concrete actions to take and areas to specialize

in, under the broad goal put forward for higher education within the strategy. In the few cases where what we suggest might conflict with the current relevant strategies and policies of USAID, or where we may have a different understanding of an issue, we make this clear in the recommendations.

Finally, in regards to mechanisms to be used to address higher education challenges, USAID's Education strategy emphasizes the need to engage in partnership: "USAID's education programs will be strengthened by systematic and purposeful outreach to a variety of partners, including other U.S. agencies, host country governments and civil society, other international donors, multilateral organizations, foundations and the private sector."[12] Given this emphasis on partnerships, and USAID's long history in funding partnerships among higher education institutions to build the capacity of developing country higher education institutions, our recommendations pay particular attention to the use of partnerships for capacity building of African higher education.

ENDNOTES

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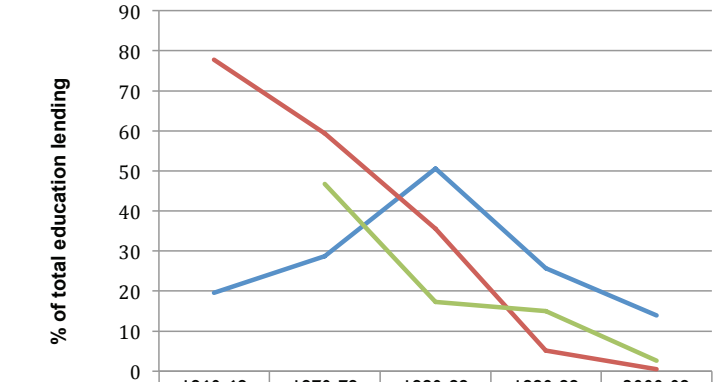
CHAPTER V

The Broader Development Assistance Landscape for African Higher Education

According to the World Bank (2012), international aid in support of higher education in SSA is on average US$600 million annually, or one quarter of all international aid to the education sector in SSA. The relatively low share reflects the current emphasis given by most donors on the development of basic education and the achievement of Education for All. In addition to the small amounts of aid, two main factors limit the impact of aid. First, *only 26% of aid to higher education goes directly to African universities and research centers*. The remainder is provided through scholarships abroad or is accounted for by directly imputing student costs in the donors' universities. Second, *aid is highly fragmented, owing partly to the lack of donor coordination*. On the other hand, aid is increasingly supporting the education sector as a whole and is being provided in the form of overall or sector-budget support. Governments then have more flexibility in how they allocate their own budget to education. However in economic crisis situations, aid to higher education is likely to be competing with other priorities such as poverty alleviation, food subsidies, or energy.

Figure 7: Percentage of Educational Lending for Tertiary Education by Major Development Banks, 1960s to 2000s



	1960-69	1970-79	1980-89	1990-99	2000-09
World Bank	19.6	28.7	50.6	25.7	13.9
IDB	77.8	59.4	35.6	5.1	0.5
ADB		46.8	17.3	15	2.6

Source: Johanson and Shafiq, 2010. Data for 1960s to 1990s based on Kapur and Crowley, 83-84. Data for 2000-2009 are from World Bank and ADB. Note: IDB last column refers to 2000-2005 only.

This section provides a brief overview of the donor landscape in African higher education, examining first aid from multilateral donors followed by a review of the higher education portfolios of some of the major bilateral donors, with a specific focus on Africa.

MULTILATERAL DONORS

At present, the World Bank has emerged as one of the most important agencies shaping the policies of higher education in Africa. So too has the African Development Bank (AfDB), which has included higher education as one of its four strategic pillars in addressing human capital development on the continent. As discussed previously, the World Bank initiated economic rate of return (ERR) studies in the 1980s showing that primary education had a higher individual rate of return than higher education, resulting in widespread divestment in postsecondary budgets. This narrow interpretation of the ERR for higher education has since been retracted.[1]

Since 2000, development aid to higher education in Africa has begun to increase, although there are widely different approaches to development aid for higher education with little shared understanding about the links between education and development. There is also a lack of clarity and congruence between donor interests and African government priorities. The impact of development aid, furthermore, seems to be limited by a lack of coordination among donors which results in a high fragmentation of effort.[2] The following section describes investment in and/or policies for higher education by the World Bank, the African Development Bank (AfDB), and the Partnership for Higher Education in Africa (PHEA).

The World Bank

From 1990 to 2009 the World Bank lent over US$7.64 billion for 337 education projects with tertiary education components in 106 countries. In the ten years from 1999-2009, Bank lending for tertiary education averaged US$315 million per year. The Africa region accounted for 17% of these funds after East Asia and the Pacific (21%) and Latin America and the Caribbean (39%).

World Bank programs and projects in higher education related mainly to the following:

- Increasing institutional diversification;
- Strengthening science and technology research and development capacity;
- Improving the quality and relevance of tertiary education;
- Promoting greater equity mechanisms to assist disadvantaged students;
- Establishing sustainable financing systems to encourage responsiveness and flexibility;
- Strengthening management capacities; and
- Enhancing and expanding ICT capacity to reduce the digital divide.

Countries in which the Bank is currently active in higher education include Ethiopia, Mauritania, Uganda and Mozambique.

The World Bank (2007) prescribes the following educational policy priorities for lower-income countries: improving the quality of higher education, aligning curricula with labor market demands, and encouraging employers to identify human resource needs so that higher education is better able to produce a cadre of experts able to adopt, adapt and diffuse science and technology. Policy priorities for middle-income countries include increasing higher education enrollment rates; ensuring the relevance of academic disciplines and curricula to market needs; and acquiring international qualification and transferability of degrees.[3]

The African Development Bank

Higher education is seen as a critical component of AfDB's Human Capital Development Strategy for 2012-2016. This is particularly so given the need for an estimated four million teachers and one to two million additional health workers. Investments in human capital are also seen as a means to provide increased returns on the Bank's investments in infrastructure. In this regard, ensuring that the requisite skilled workforce (e.g., engineers, technicians, managers) is in place to install and maintain infrastructure investments will ensure the sustainability of, and returns to, these investments.

The following represent some of the envisaged policies:

- To improve competitiveness and employment opportunities, the "Bank will invest in skills development to support private and public sector investments in infrastructure and other economic sectors."

- Investments in higher education will focus on better matching the supply and demand for skilled workers to address youth unemployment.

- The Bank will also facilitate the strengthening of Science and Technology including scientific research and innovation work being carried out by regional African Networks of Excellence. Areas of focus will include biotechnology, engineering, and ICT. In this regard, the Bank has begun the process of funding programs in Kenya and Uganda.

- The Bank will also promote Regional Integration through regional centers of excellence and regional networks of knowledge.

- The Bank will support higher education to increase the supply and quality of teachers and health workers.

Regional Coordinating Mechanisms

The "African Innovation Outlook"

The African Union (AU) Commission and NEPAD's Planning and Coordinating Agency jointly launched the African Innovation Outlook (AIO) in 2011. The AIO publication is one of the outcomes of the NEPAD Africa Science, Technology and Innovation Indicators (ASTII) program involving 19 African countries. The ASTII initiative is one of the components of the AU/NEPAD Africa's Consolidated Plan of Action for science and technology. The project is funded by the Swedish International Development Agency (SIDA).

The participating countries in the first phase of initiative were: Algeria, Angola, Burkina Faso, Cameroon, Egypt, Ethiopia, Gabon, Ghana, Kenya, Lesotho, Malawi, Mali, Mozambique, Nigeria, Senegal, South Africa, Tanzania, Uganda, and Zambia. SIDA has supported the initiative since its start in 2007 and technical expertise has been provided by the Research Policy Institute (RPI) at Lund University under a SIDA grant.

Some highlights of the AIO publication:

- R&D intensity, as measured by domestic expenditure on research and development as a percentage of GDP, is very low in many countries, ranging from 0.2% to 0.48%. Only Malawi, South Africa, and Uganda scored over 1% of R&D intensity, which was the African union's target to achieve by 2010.

- With the exception of Ghana, Malawi, and South Africa, the business sector accounts for less than 10% of domestic R&D expenditure. In countries such as Mozambique, Mali, Tanzania, and Senegal, the dependence on foreign sources of funding is very high (40% or more).

- South Africa and Tanzania lead in terms of the participation of women in R&D with 40% of researchers being female.

- The data shows evidence of innovation both in small and large firms though the propensity to innovate is higher in large firms.

- Many firms that innovate do not perform R&D, raising the issue of the source of such innovations.

The overall goal of the ASTII initiative is to contribute towards improving the quality of science, technology, and innovation policies at national, regional, and continental levels by building national higher education and other public and private systems for collecting and analyzing data that would inform such policies.

The participating countries have shown great commitment by contributing human and financial resources for conducting the national surveys. The support by RPI and collaboration with UNESCO and the OECD National Experts on Science and Technology Indicators (NESTI) program has been instrumental in assuring quality and adhering to international standards on indicators.[4]

NEPAD's Science and Technology Program

Improving access to and the quality of science and technology across Africa is seen by NEPAD as a key element in improving human resource development. In this regard, science and technology offer many benefits for the continent, from improving education and knowledge sharing, to increasing exposure for African innovation, to improving the living conditions of residents.

NEPAD's Science and Technology Consolidated Plan of Action (CPA) has a number of programs and projects which are grouped into two core areas: research and development; and mechanisms to improve policy and promote technological innovation.

The R&D clusters are the following: biodiversity, biotechnology and indigenous knowledge; energy, water, and desertification; material sciences, manufacturing, laser and post-harvest technologies; ICT, space science and technologies; and mathematical sciences.

The second core area, mechanisms to improve policy and promote technological innovation, is clustered into the following programs: African science, technology and innovation indicators initiative (ASTII); improving regional cooperation in science and technology; building public understanding of science and technology; building a common African strategy for biotechnology; and building science and technology policy capacity.

In order to ensure successful implementation of the programs described above the following institutional mechanisms have been created:[5]

- African Ministerial Council in Science and Technology, responsible for establishing policies, priorities, and strategies for science and technology cooperation.

- Steering Committee for Science and Technology, made up of senior technocrats from each of the five African regions, to oversee the development and implementation of program activities.

- AU Commission – to provide political and policy leadership for the implementation of the CPA.

- NEPAD Office of Science and Technology – to provide overall technical and intellectual leadership for the implementation of the CPA. Its role includes mobilizing and directing technical expertise, establishing and promoting networks and centers of excellence, and providing technical leadership for the establishment of the proposed African Science and Innovation Facility.

- With regard to both the ASTII and the CPA, it is evident that much thought has gone into identifying the policy and implementation requirements for an appropriate science and technology development. However, while it is clear that higher education institutions must have a major role to play, little has thus far been said about what this role might be, especially for universities.

BILATERAL DONORS

This section provides a brief overview of the funding priorities of major bilateral donors in the higher education sector. Overall, since 2000, we have seen an increase in overseas direct investment to Sub-Saharan Africa to post-secondary education and training. Table 5 provides a comparison by region of ODA investments.

Table 5: Proportion of Total Overseas Direct Assistance from Bi-Lateral Sources for Post-Secondary Education and Training (% Total)

REGION	1999 - 2000	2007
Arab states	35	51
Central and Eastern Europe	45	72
Central Asia	38	47
East Asia and Pacific	39	47
Latin America and Caribbean	31	33
South and West Asia	21	16
Sub-Saharan Africa	17	22
AVERAGE	30	36

Source: Johanson and Shafiq, 2010. From OECD-DAC (2009) in UNESCO 2010.

United Kingdom, Department for International Development (DFID)

In 2006, DFID committed £15 million to its "Developing Partnerships in Higher Education (DelPHE) Program" through 2013. The DelPHE program provides funding to support partnerships among higher education institutions and other institutions focused on the Millennium Development Goals (MDGs).

In their 2012 annual report, DelPHE indicated that its funding is allocated across all of DFID's PSA countries, with the majority distributed to Uganda, Ethiopia, Tanzania, Nigeria, Malawi and Kenya and the least to Lesotho and Democratic Republic of Congo. Further, the report states that 68% of DelPHE partnerships are led from African higher education institutions, which is in line with the DelPHE program aims of a funding split of two thirds in Africa and a third in Asia.[6]

By the end of the program in March 2013, it had funded 200 partnerships with the majority in Ethiopia, Uganda, Malawi, Ghana and Nigeria.

Swedish International Development Cooperation Agency (SIDA)

SIDA provides core funding to develop facilities and human capacities to encourage research and teaching. In its Research Cooperation, SIDA is committed to working long-term with Uganda, Tanzania, Rwanda, Ethiopia, Mozambique and Bolivia. "The research cooperation also aims at strengthening the institutional capacity for research management and the university. This is done through improved library services, improved research commission, strengthened ICT infrastructure, administration and finance reform and improved program coordination."[7]

SIDA also supports the International Association of Universities (IAU) for its activities, particularly those that focus on developing country higher education institutions. According to IAU, future activities for the 2011-2015 grants will help by "organizing capacity building workshops on data collection and management in universities as well as on ways for faculty members and researchers in universities to interact more productively with educational planners and vice versa."[8]

In terms of investment at an institutional level, the following three examples illustrate SIDA investments in higher education:

Uganda - Makerere University is one example of a SIDA-funded institution. The investment to Makerere University is largely dedicated to research and human resources capacity building, PHD/ masters training, and infrastructure (libraries, ICT and laboratories). Some of the results from the partnership include 121 PhDs and 35 masters completed since the assumption of the cooperation with SIDA in 2000.[9]

Ethiopia - In order to strengthen capacity at national, university, and research institution levels, with the aim to improve the country's ownership and quality of research and research management systems, SIDA's bilateral research cooperation provides financial support to the two universities that the Ethiopian government has identified to take responsibility for research training. These universities are Addis Ababa University, which received approximately US$22 million for 2009-2014 and decides independently which areas are to be given support, and Haramaya University, which received USD$2.5 million for 2010-2014 for a smaller number of MSc- and PhD-programs mainly in agriculture.

In addition to these two main universities, Armauer Hansen Research Institute (AHRI) is receiving USD$2.8 million for 2009-2014 to develop and sustain as a center of excellence in biomedical research and capacity building in Ethiopia and the region. According to SIDA, major projects that were completed in 2009-2011 include projects on anti-tuberculosis-drugs, bovine tuberculosis, and HIV incidence, as well as capacity building for Good Clinical Practice in East Africa. The funding helps build capacity by focusing on PhD training of staff and sandwich-basis[10] collaboration with Swedish universities.[11].

Rwanda - In the period of 2007- 2011, the research cooperation invested approximately US$19.4 million in the program with the objective of enhancing the research capacity at the National University of Rwanda in medicine, environment (5 PhDs), ICT, applied mathematics, peace and conflict research (6 PhDs), and education (4 PhDs).

Canadian International Development Agency (CIDA)

In 2008-2009, Canada's international assistance to Africa was $2.1 billion, meeting CIDA's goal of doubling its efforts. CIDA focuses on Ethiopia, Ghana, Mali, Mozambique, Senegal, Sudan, and Tanzania. CIDA's education assistance focuses on primary and secondary education in order to secure the future of children and youth, and it has a significant commitment to technical and vocational education and training (TVET) in Africa.[12] CIDA invests $140 million annually in skills training development around the world, and has launched Skills for Employment initiative that will invest $95 million over a three to four year period to strengthen skills in Africa, Asia, and the Americas. The Skills for Employment[13] initiative aims to:

a) help developing countries build the skilled workforce necessary for economic growth,
b) strengthen local training institutions in partnership with Canadian community colleges,
c) enable students to acquire quality vocational and technical skills, and
d) support the Agency's strategies for children and youth and sustainable economic development.

Norwegian Agency for Development Cooperation (NORAD)

In 2009, Norway spent 1.7 billion NOK (approx. $287 million) on education, which is 9.2% of the Norwegian development aid budget. This funding was distributed among basic education (60%), secondary education (2%), higher education (19%), and education in general (19%).[14] The Norwegian Programme for Capacity Development in Higher Education and Research for Development (NORHED) announced in 2013 that it will fund 46 joint projects between higher education institutions in developing countries and Norway. Twelve out of the sixteen countries represented by these projects are in eastern parts of Africa. The bulk of the funding will go to institutions in Ethiopia, Uganda, Malawi, and Tanzania. The annual NORHED budget is 150 million NOK (approx. $25 million), and funding for individual projects will be around 7 to 18 million NOK (approx. $1 to $3 million) for a period of up to five years.[15]

NORAD also recognizes the importance of Technical and Vocational Education and Training (TVET) to equip students with knowledge and practical skills that enable them to perform specific types of work. In many developing countries, many with general secondary and higher education qualifications are unemployed. NORAD sees the increasing importance of educating for entrepreneurship, and supports TVET[16] in order to:

- Reduce unemployment though internship arrangements with local craftsmen,
- Promote economic growth and better living conditions in developing countries,
- Create relevant, demand-driven programs that match learners' and labor market needs, and
- Provide education to those who have left school early.

French Development Agency (AFD - Agence Française de Développement)

AFD supports several vocational training programs, in addition to basic and primary education. In order to increase the effect on growth and employment, AFD has proposed to increase support for the development of training programs beyond primary education.[17] Some of the current AFD vocational training projects include:

- Support to the International Institute of Engineering Water and Environment (2IE), Burkina Faso - Training for African Engineers, Non-sovereign loan, €4.7 million, 2008[18]
- Creation of the National College of Tourism, Tanzania – improving competitiveness of businesses in hospitality sector, Grant €4.7 million, 2003[19]

- Construction of the National Engineering School of Bizerte, Tunisia – strengthen existing skills in the country and increase youth employability, €15 million, 2010-2013[20]
- Extension and Modernization of Higher Education Institutions, Cameroon[21] –
- University of the Mountains, Non-sovereign concessional loan €7.72 million, 2012
- Catholic University of Yaounde, Non-sovereign concessional loan €10 million, 2012
- Higher Institute of Technology Central Africa – Non-sovereign loan €4 million, 2009

Germany Society for International Cooperation (GIZ, Gesellschaft für Internationale Zusammenarbeit)

In education, GIZ committed a total of $308 million in 2011 to Africa.[22] The most recent available data on the OECD (Organisation for Economic Co-operation and Development) indicate that Germany disbursed nearly $222 million for post-secondary education in Africa in 2011.[23]

The German BACKUP (Building Alliances, Creating Knowledge and Updating Partners) Initiative – Education in Africa helps African countries acquire greater international funding from the Global Partnership for Education, a "partnership of donor countries and developing countries, international institutions, the private sector and civil society organizations" founded in 2002.

China

Unlike Germany and Japan, China is not a Development Assistance Committee country. For this reason, coupled with the Chinese government's reluctance to release information, exact estimates about Chinese aid to Africa do not exist. An organization named AidData, however, recently compiled a database of 1,673 Chinese projects in 51 African countries with $75 billion in official financial commitments, based on media reports on Chinese-backed projects in Africa from 2000 to 2011. In the process, AidData discovered that education ranks as one of the lowest priorities for Chinese donors.

Conclusion

In his 2010 review of aid to higher education, globally, Varghese provided a critique of development assistance to higher education, which included the following:

- Aid to higher education is spread too thinly. For example, of the 200 projects operated and reported by the OECD, 93% were budgeted at less than $1 million, and 67% were budgeted at less than $100,000. The spreading of funds too thinly results in little hope of achieving visible impact.[24]

- Most aid money in higher education is often utilized at the institutional level to support selected faculties, centers, or some areas within a department. This may not contribute significantly to the overall improvement of the institution. There is clearly a need to extend institution-wide support to revitalize and reform institutions.

- Higher education planning is often subjugated to school planning in Ministries of Education. In addition, in the higher education sector, institutional plans take precedence over system-wide plans. External funding needs to support efforts to draw up plans aligned with existing sector-wide plans (e.g., EFA, Fast Track Initiative, etc).

- One of the reasons why institution-wide and system-wide reforms in higher education did

not gain enough support in Africa was because the donor community realized the difficulties associated with reforming the system in the absence of 'indispensable structural reforms.' Due to the difficult political economy of introducing system-wide higher education reforms, the donors have either given up supporting reforms or have started funding institutes or faculties with sound proposals for introducing change.

- One of the difficulties confronted in research, especially that supported by bilateral cooperation, is that it tends to be centrally managed in donor countries. This means that donor countries often influence recipient countries to follow their own agenda in terms of research priorities.

This assessment is compatible with our understanding of the landscape and review of the broader literature. Our recommendations for future USAID investment in African higher education stem from these perspectives.

ENDNOTES

1. World Bank 2002; Collins 2011
2. World Bank 2010; Cloete et al. 2011
3. World Bank, 2007
4. http://www.sida.se/English/Partners/Universities-and-research; NEPAD: African Innovation Outlook 2010. NEPAD Planning and Coordinating Agency, Pretoria]
5. http://www.nepad.org/humancapitaldevelopment/science-and-technology
6. DelPHE, internal management report, 2012
7. http://sida.orbelon.com/research-cooperation/what-we-support/bilateral-cooperation.aspx
8. http://www.iau-aiu.net/content/sida-approves-funding-iau
9. http://www.sida.se/English/current-topics-archive/2013/Makerere-University
10. "Sandwich programs" are those where time away from the home institution is sandwiched between time spent at the home institution or in the home country. Often it can involve a semester of preparation at the home institution, a year or so overseas for training, and then field research back in the country of origin.
11. http://sida.orbelon.com/research-cooperation/what-we-support/bilateral-cooperation.aspx
12. http://www.acdi-cida.gc.ca/acdi-cida/ACDI-CIDA.nsf/eng/FRA-28155032-SFM
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19. http://www.afd.fr/home/projets_afd/education/projets-education/projets-formation-professionnelle/creation-du-National-College-of-Tourism-a-Dar-Es-Salaam
20. http://www.afd.fr/home/projets_afd/education/projets-education/projets-formation-professionnelle/ecole-nationale-dingenieurs-de-bizerte
21. http://www.afd.fr/home/projets_afd/education/projets-education/projets-formation-professionnelle/soutenir-l-extenstion-et-la-modernisation-d-etablissements-de-qualite-d-enseignement-superieur
22. Development Aid at a Glance – Statistics by Region (Africa), 2013 edition
23. "Disbursement" is distinguished from "commitment."
24. Varghese, 2010:183

CHAPTER VI
Recommendations for Action

SUMMARY

This section provides recommendations for USAID investment in African Higher Education, based on the issues identified and topics discussed in this report. This section is broken down into three main categories of recommendations. First, two general recommendations are given on the development and management of USAID's higher education portfolio. This is followed by four priority areas of focus at the institutional level. Finally, four programmatic high priorities at the country level are given. Specific recommendations follow each priority area. The recommendations are outlined below, followed by brief discussions of each.

Recommendations to USAID on the Development and Management of the Agency's Higher Education Portfolio

1. Concentrate USAID Investments: focus on a few countries, combine system level interventions with comprehensive long-term institutional partnerships
2. Intervening at the Institution-level: Higher education partnerships should be at the core of USAID's efforts in HICD and these partnerships should be long-term and comprehensive.

Programmatic High Priorities at the Institutional Level

1. Professional Development of Faculty and Staff
2. Strengthening the Capacity of Institutions to Use Labor Market Data to Improve Quality and Relevance
3. Strengthening the use of and experimentation with e-learning in African higher education institutions
4. Supporting the Search for Other-than-Public Revenue for Higher Education

Programmatic High Priorities at the Country Level

1 Assessing and Improving Overall Quality of Higher Education Institutions
2. Assessing and Improving the Responsiveness of HEIs to the Labor Market
3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education
4. Working with ministries on finding solutions to the finance challenges of higher education

Recommendations to USAID on the Development and Management of the Agency's Higher Education Portfolio

1. *Concentrate USAID Investments: focus on a few countries, combine system level interventions with comprehensive long-term institutional partnerships.*

Capacity building efforts that are spread too thinly will be ineffective at addressing the complex challenges facing higher education in SSA, and thus it is critical that USAID have an intentional, concentrated approach and focus efforts strategically in a few countries. As the challenges of higher education in SSA are both institutional and systemic, USAID should coordinate programmatic efforts at both levels in the countries of focus.

2. *Intervening at the Institution-level: Institutional partnerships should be at the core of USAID's efforts in HICD in higher education and these partnerships should be long-term, comprehensive and focused on making a transformational difference.*

We urge USAID to invest in long-term and comprehensive partnerships at the institutional level to build human and institutional capacity. Comprehensive transformational partnerships must focus on strengthening administrative systems as well as academic programs and establishing and managing transformational partnerships requires leadership expertise in organizational performance improvement and change management. Transformational partnerships should be between African higher education institutions and U.S. higher education institutions at the core, should include leaders with expertise in institutional performance improvement (either inside or outside of the partnership), should adopt a comprehensive approach, should engage private, civil, and public sectors, and should have a long-term commitment and built in flexibility. Establishing and managing transformational partnerships requires leadership expertise in organizational performance improvement, strategies to mitigate inequality, effective training using an HICD framework, and streamlining and tailoring of management of partnerships.

Programmatic High Priorities at the Institutional Level

1. Professional Development of Faculty and Staff

Given that African universities suffer from a shortage of qualified academic staff and high student-teacher ratios, effective faculty and staff development is critical to improving institutional capacity. Four specific recommendations emerge from this priority area. The first is that individual training of faculty should be done using USAID's HICD framework. This means that faculty training should not only focus on the individual, but should focus on training individuals to fill important institutional needs. The second recommendation on faculty development is that it take into account both the recruitment of new faculty and the retention and development of existing faculty. This involves establishing a broad support structure for faculty development to maximize the effectiveness of individual training efforts. A third recommendation is that faculty development efforts go beyond strengthening disciplinary knowledge to developing essential skills in active teaching, research, leadership and management, and technology. A final recommendation on faculty development is that incentive structures and policies be created to encourage faculty to invest in areas that align with institutional goals.

2. Strengthening the Capacity of Institutions to Use Labor Market Data to Improve Quality and Relevance

It is essential that HEIs understand what skills and competencies are demanded by the labor market so that they can better equip their students for employment. Two specific recommendations follow this priority area—the first being that USAID invest in quality assurance mechanisms to assist HEIs in improving quality. Mechanisms at the institutional level, such as Quality Enhancement Units, can lead and facilitate work on quality issues. The second recommendation of this section is for USAID to assist African HEI's in developing ways to interact with stakeholders in the public, private, and civil society sectors. Engagement with leaders in these sectors has the potential to both improve the quality of teaching, research, and outreach within an HEI, and provide opportunities for students to interact with professionals in their prospective fields.

3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education

It is clear that recent technologies are leading to new and effective ways of teaching for many students. There are many indications that new technologies offer the potential to make significant positive changes to the quality of teaching and access to education. Leading this transition are U.S. universities that are now sorting their way through the different delivery models, their effectiveness, their costs and their institutional policies. While the pace of technological change in how education is delivered in the developed world is accelerating, higher education institutions in Africa are finding themselves increasingly resource-constrained to engage in these new educational models.

There are three main recommendations related to support for e-learning in Africa. First, USAID's e-learning investments should focus on increasing the use of e-learning tools by existing African universities rather than focus on developing fully online alternatives. Second, investments should incentivize international collaboration and public-private partnerships to promote the adoption of innovative, scalable approaches to blended learning. Third, USAID should give consideration to establishing regional centers of leadership for the development and implementation of e-learning in African Higher Education.

4. Supporting the Search for Other-than-Public Revenue for Higher Education

Available public revenue in SSA cannot keep up with the increasing costs and revenue needs of HEIs, and African institutions are turning to other sources for revenue, such as parents and students (through tuition or other related fees), donor country aid, externally-funded research grants, and philanthropy. Although cost-sharing programs are deeply controversial in SSA, many institutions turn to them as revenue needs continue to increase in the face of surging enrollments. Three specific recommendations falling under this priority area and regarding the development of partnerships between U.S. and sub-Saharan African HEIs are 1) develop innovative public-private partnerships to support the funding of African higher education institutions, 2) strengthen the capacity of African institutions to develop a variety of cost-sharing mechanisms where they currently do not exist, and 3) build capacity to enhance planning and budgeting at the institutional level. It is important to recognize that in many countries, institutions may have very limited authority to develop cost-sharing mechanisms because authority over such decisions lies at the ministerial level. In those cases, efforts to devolve authority to the institutional level ought to be supported; devolving authority (over hiring, compensating and negotiating with faculty) from the government to institutions or systems is indeed the first step to building capacity at the institutional level to address the challenge of increasing non-public funding for higher education.

Programmatic High priorities at the Country level

The next section focuses on the need to tackle system-level challenges and discusses four programmatic high priorities for USAID investment at the country level. These priority areas should be considered in conjunction with the institutional level priorities.

1. Assessing and Improving Overall Quality of Higher Education Institutions

It is recommended that USAID invest in the strengthening of higher education Quality Enhancement and Accreditation (QEA) processes at the country level in focus countries. The quality of higher education is a critical factor in how productive investments in higher education institutions ultimately prove to be. It is undisputed that quality matters a great deal in education in general, and in higher education in particular. Therefore, efforts to measure learning outcomes and cognitive skills development and adjust educational processes to achieve desired outcomes will be critical in assuring that higher education is contributing as much as possible to economic growth. Many countries and African continental organizations already have accreditation units and processes established, so these recommended investments will need to be tailored to existing conditions and contexts.

2. Assessing and Improving the Responsiveness of HEIs to the Labor Market

Measuring the responsiveness of higher education to the labor market is critically important for reasons of systemic and institutional efficiency. Such assessments can inform relevant government agencies and individual higher education institutions about how effectively scarce resources are being used in producing graduates that contribute to the labor market and the economy. Although there is evidence of attempts in SSA generally and South Africa specifically to measure the responsiveness of education and higher education to the labor market, these have been mainly undertaken on an ad hoc basis by universities and other research institutions. There is no evidence of any SSA country undertaking systematic evaluations of the relationship between education and work as there are in such countries as Australia, Canada, UK, USA, and South Korea.

3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education

Higher education places great demands on telecomm facilities. In many countries in Africa these demands are not being met. In part, this is due to regulatory regimes which are not friendly to such demands. The political will for widespread regulatory reform could have a major beneficial impact on the adoption of e-learning. Sustainable investment on infrastructure and e-learning resources requires the full awareness of policy makers of the implications of connectivity, applications, services and e-learning. E-learning needs to be integrated into the broader policies of education and ICTs. Donor assistance could help support dialogue between higher education advocates and other stakeholders involved in setting telecom regulations.

4. Working with ministries on finding solutions to the finance challenges of higher education

It is inevitable, given serious public resource constraints, that the higher education sector must look at alternative mechanisms for generating funding to improve access and equity. Among the funding mechanisms that need to be considered are some form of cost-sharing and the development of loan schemes that are efficient in terms of cost recovery. Work also needs to be done in many countries to revise funding formulas for higher education to promote the more effective utilization of scarce financial resources to achieve national higher education objectives. Finally, consideration needs to be given to strengthening the private sector component of higher education, including supporting the development of national policies and regulations for the operation of private higher education, strengthening quality assurance and accreditation programs for private HEIs, exploring alternate

funding models for private HEIs, and supporting research into the external efficiency of private higher education in SSA.

RECOMMENDATIONS TO USAID ON THE DEVELOPMENT AND MANAGEMENT OF THE AGENCY'S HIGHER EDUCATION PORTFOLIO

Concentrate USAID Investments: Focus on a few countries, combine system level interventions with comprehensive long-term institutional partnerships

USAID's Education strategy states that "unless a small investment can be justified in terms of its demonstrably high impact on policy reform, system strengthening, program integration, or innovation piloting, USAID will phase out education programs in countries where these fall below a threshold of $2 million annually." We agree with this approach and recommend that USAID concentrate its investments in higher education in a few countries in order to tackle challenges in a more comprehensive and holistic manner.

Addressing the complex challenges facing African higher education calls for significant restructuring of the systems and institutions, dealing with the root causes as opposed to the symptoms of the problems. The kind of institutional and systemic restructuring needed calls for deeper and more long-term investment. Capacity building efforts spread too thinly and done too hurriedly either do little to build sustained capacity or, worse, can lead to diminished capacity overall due to mimicry (as discussed in detail in Appendix A). Thus is it critical that USAID channel its higher education funding into a set of focus countries and within them on a set of responsive institutions. Considerations to be given in the determination of focus countries are discussed in Appendix B.

Given the need to address challenges at both the institutional and system levels, we recommend that USAID implement two parallel programs in focus countries: one that involves engagement with the national statutory body that governs higher education (the relevant ministry or the national council for higher education) and other appropriate in-country policy makers and thought leaders; and a second that engages with one or more institutions of higher education. These programs should be separate (and may operate with different goals and over different time scales) but should be run in coordination with each other.

Further in this report we highlight four opportunities and challenges for higher education that have emerged as among the most pressing issues across many African higher education systems and institutions and that are areas where USAID and/or U.S. higher education engagement would be particularly useful. These four priorities do not fall neatly at one level or the other; almost all require changes to be made at an institutional level and a system level. This is why system and institution-level programs need to be run in coordination.

The following sections detail our recommendations for the design and management of effective programs at both the institution and system levels.

Intervening at the Institution-level: Higher education partnerships should be at the core of USAID's efforts in HICD and these partnerships should be long-term and comprehensive.

USAID has a long history of supporting partnerships between U.S. higher education institutions and developing country higher education institutions. Over the decades of USAID investment in higher education through partnerships, the Agency has supported many different kinds of collaborations, from small, short-term collaborative projects to long-term, well-funded, institution-building partnerships. In

THE PARTNERSHIP GAMUT:

FROM TRANSACTIONAL TO TRANSFORMATIONAL

Sutton et al (in press) provide a useful classification of the array of partnership models. They describe a continuum from very simple student exchanges that they call transactional to very complex partnerships that are labeled transformative. At the transactional end of the continuum, partnerships are relatively easy to manage and benefit primarily the individual, although with faculty exchange there may be research and teaching benefits to the institutions. Transactional partnerships often build human capacity but do not tend to have much of a transformational impact on an institution.

At the other end of the spectrum, transformative partnerships usually involve substantial planning and build multifaceted relationships between the institutions, involving multiple components of the institutions. As one moves along the continuum from transactional to transformative, partnerships become increasingly complex with integrated objectives, have greater dependence on a longer-time frame, require diverse funding to achieve goals and require greater levels of individual and institutional trust to be successful.

some notable cases, this has involved the building of institutions almost from the ground up.

The term "partnerships" has been applied to nearly all of these collaborative efforts between institutions and individuals. It is a catch-all term that is used to describe very different types of arrangements. In recent years, furthermore, partnerships have become almost a mantra of development agencies in terms of how best to implement programs. Indeed, the value of partnerships is well articulated in the USAID Education Strategy and is strongly supported by USAID Forward. Partnerships are effective mechanisms in development because the challenges that need to be addressed are so complex and involve multiple actors de facto.

Naturally, the scale of a partnership affects the impact one can expect. So, while there is a strong desire by institutions and people everywhere to constantly strive to do more with less, it is important to assess what can reasonably be achieved with different levels of depth and breadth of effort.

Our recommendation is that USAID continue to rely on partnerships as a mechanism to build human and institutional capacity in developing countries. We further recommend that USAID focus their investments in higher education partnerships in a way that supports long-term and comprehensive collaboration between and among institutions. To distinguish this type of partnership from other kinds of collaborations, we borrow terminology put forth by Sutton (2010) and call such partnerships "transformational."[1]

Why Transformational Partnerships?

We understand USAID's long-term development goals to include strengthening host-country institutions so that they can lead and guide their own development processes. USAID Forward is a clear indication of movement towards this long-term goal. This is why we recommend that USAID focus on supporting transformational partnerships.

As is widely appreciated, institutions are difficult to change, even when filled with individuals who desire to see changes within their institution. An external partner, especially one that is skilled at facilitating strategic planning, change management, and institutional performance strengthening, is an

effective means to bring about institutional change. Organizations in both the private and public sectors seeking to reform themselves often bring in external assistance to help identify what changes may be needed or to drive or support the process of change. External partners can help both with internal and external challenges. Internally, they serve as facilitators, mirrors to help with self-reflection necessary for strategic planning, and knowledge resources. With regard to external challenges, partners can provide legitimacy, help strengthen the voice of the institution trying to redefine or expand its role, and sometimes assist with connections to external agents that can facilitate reform.

Another important reason to support transformational partnerships is that African universities are comparatively isolated from global knowledge flows and have access, on average, to far fewer resources than in many other parts of the world. Partnerships with other universities provide a way for African universities to tap into global knowledge networks and gain access to resources they might not otherwise have. For many developing country partners, this increased access to resources and knowledge is a critical step in creating new and reforming old programs, up-grading curriculum, accessing new technologies and science, and exploring new administrative models. A partner often brings a new set of resources into play and can build the capacity to access new funding resources. These benefits, of course, depend on the way partnerships are established and operate.

Finally, higher education institutions (and institutions in general) do not always know what additional challenges will be forthcoming. Therefore, long-term and comprehensive partnerships provide a way of dealing with unanticipated challenges. In a sense, partnerships become a resilience mechanism. More narrow technical assistance projects that are focused on a set of pre-defined deliverables cannot respond in the same way.

Anatomy of an Effective Transformational Partnership in Higher Education

Quite a bit has been written on what makes an effective partnership.[2] Drawing on this literature and on interviews with African Vice-Chancellors and other senior leaders in African higher education, we lay out guidelines for the basic structure of the kinds of transformational partnerships we are recommending be the focus of USAID investment.

1. **Higher Education Institutions at the Core of the Partnership.** The core of the partnership should be between (two or more) institutions of higher education, rather than between an institution of higher education and some other kind of entity. As higher education institutions are relatively unique organizational types, a partner that has a deep understanding of what a higher education institution is and does is essential to help facilitate reforms and build capacity. Other entities do not generally have the depth of knowledge and understanding of a fellow institution of higher education. Partnerships between higher education institutions often have the added benefit of outlasting external funding.[3]

   We recommend, in particular, that the core partnership be between one or more African universities and one or more U.S. universities. In our engagement with African academic leaders, they expressed a strong desire, and offered strong reasons as to why it makes sense, to have partnerships with U.S. universities. They particularly focused on the need for their institutions to become more relevant, improve their ability to solve national and regional problems, and contribute more effectively to development. They see U.S. universities as prime and perhaps leading models of such engagement. U.S. universities also have vast experience in partnering with the private sector that African universities want to learn from (see below). Africans see the information, science, and technology frontiers as domains where they can benefit greatly from

U.S. university experience in areas such as biotech, intellectual property rights, and ICT. They also look at the remarkable success of the "innovation ecosystem"—the partnership of government, private sector and universities—in the United States, highlighted in the PCAST report[4], and want to engage to create similar successes in Africa.

2. **Partnerships Need the Leadership of Experts in Institutional Performance Improvement and Change Management.** It is important to acknowledge that higher education institutions around the world are managed for the most part by people who have been trained primarily for academic work, not administrative leadership. Senior leaders of universities are almost all former faculty members trained in specialized academic fields and often have only the management experience they gain as they advance up the administrative ladder. Furthermore, just because an individual is a talented administrator and leader within their own (often relatively stable) institution, does not mean they know how to manage major transformational change at an institution in a very different context. Therefore, there is a critical role for individuals that specialize in change management and institutional performance strengthening to play in partnerships that are focused on undertaking major efforts to institute reforms. (Engaging such experts is likely to provide benefits to both the developed country partner and the developing country partner. This mutual benefit and mutual "capacity building" is helpful in leveling the playing field among partners, which is likely to enhance the partnership's effectiveness overall.)

3. **A Comprehensive Approach.** Partnerships should be comprehensive, engaging the gamut from university-wide administration to individual faculty in a specific department or school. In other words, if a selective and focused approach is taken, then partnerships should go deep and focus on supporting changes that impact the entire institution, as well as engaging in different academic departments of an institution.

   It is essential, however, in focusing on top-level administrative issues, that partnerships have an impact on strengthening teaching, research and/or public engagement. These are the missions of universities and are the functions that provide better educated graduates, leaders, and employees, solve important development problems, and inform the public about significant issues and how to address them. These are the outcomes that matter to advancing development and therefore need to be at the center of partnership work. That said, it is recognized that better planning, more efficient administrative systems, and mechanisms to keep in touch with alumni, for example, are all important aspects of a well-functioning higher education institution and have an important impact on teaching, research, and public engagement. A comprehensive approach tackles these administrative challenges through the lens of how they will address the need to foster better learning, more and relevant research, and focused public engagement programs.

   Naturally, the scale of a transformative partnership will impact its ability to transform. Small but transformative projects may change a department but are not likely to change an institution. To reform an entire institution requires longer-term, comprehensive programs that combine an academic focus with a focus on broader institutional management issues.

4. **Private, Civil, and Public Sector Engagement.** USAID rightly places strong emphasis on engaging the private sector along with universities to generate innovation and we wholeheartedly support that approach, especially in the context of a partnership with a developed-country

university. Private sector engagement has the potential to increase the relevance of African higher education to workforce needs, a need voiced often by African educational and political leaders. In addition, with regard to research, private sector engagement can help shorten the time from discovery to commercialization.

A recent review by the Association of African Universities (AAU) of university-industry linkages in Africa concluded that African higher education institutions are taking the initial steps to form and deepen these linkages but are very much limited by meager institutional budgets, insufficiently developed systems of intellectual property rights (IPR) management, and inadequate marketing strategies.5 The review found that most institutions of higher education lack policies and mechanisms for interacting with the private sector, nor do they have sufficient academic staff who hold doctorate degrees or have entrepreneurial skills to attract private sector interest. Experience has shown that a well-conceived partnership with a developed-country university can help mitigate some of these challenges. Indeed, a goal of the partnership should be to develop the capacity among African HEIs to attract the private sector and negotiate the terms of relationships.

ADDITIONAL RECOMMENDATIONS ON ENGAGING THE PRIVATE SECTOR

- Utilize partnerships with U.S. universities to strengthen African universities' capacities in areas identified that limit private sector interest in such partnerships. This includes strengthening capacity to form policies that create mutual benefit from public–private linkages, improving IPR regulations, and of course, strengthening human capacity and improved research capacity to attract private sector engagement.
- Draw on the considerable experience resident within USAID from the Global Development Alliance (GDA) efforts to improve the engagement of the private sector in development partnerships.
- HEIs should develop an array of mechanisms to engage the private sector though such things as advisory boards, boards of directors, curriculum committees, and processes of curriculum development, research priority setting, and work force analysis. Partnerships with U.S. HEIs who have considerable experience interacting with the private sector can help facilitate this work.

USAID distinguishes the Global Development Alliance (GDA) approach from that of traditional Public-Private Partnerships (PPPs) because, unlike PPPs, the GDAs require each partner to co-design and co-manage the project and to contribute their own capacities and resources to achieve the goals of the project. The partners share risks and rewards of the products of the partnership. 6 The goal of private sector engagement is not to have the private sector set the agenda of public universities nor is it to remake the public universities in a private sector mold, but rather to engage the strengths of both sectors in a collaborative manner that increases the effectiveness of both. The U.S. model provides some excellent principles for guidance.7

But universities need to be engaged not just with the private sector. Building strong public-private sector partnership at the institutional level is a fundamental first step to creating a strong national "public university-private sector-government" relationship that is critical to economic growth. As referenced in Chapter 2, in their comprehensive review and analysis of universities and economic development in Africa, Cloete et al8 highlighted the importance of having a common

understanding and appreciation of the role of the university in development among government leaders, university leaders, and society broadly. Partnerships that engage the government, the university, and the private sector (including civil society organizations) are critical to creating that common understanding and shared agenda. Donors can help facilitate this by funding transformational partnerships with a mission to engage the private sector and government at the same time.

5. **A Long-Term Commitment and Built-In Flexibility.** One of the challenges for higher education investment (both domestically and internationally) is that the full impact of the investment is not realized immediately, but over a lifetime. A Bachelor's degree takes four to five years to complete, a Master's another two, and a Ph.D., depending on field and country, an additional four years or more on average. Research generated through advanced degrees or by faculty at research institutions may take several decades to yield societal benefits or, in the case of certain forms of scientific research, to prompt development of a commercially viable product.[9] Furthermore, as the name suggests, transformational partnerships focus on institutional reform, which takes time and is riddled with challenges and complications. For such partnerships to succeed, they depend on trust among the partners, which also takes time to build. Support to transformational partnerships should therefore be long-term and flexible to accommodate changes over time. They also depend on investing effort in thoroughly assessing institutional constraints and opportunities, engaging all kinds of stakeholders in and outside of the university. To be done well, this assessment cannot be done in a superficial, hurried manner. It requires careful planning and genuine engagement of stakeholders.[10]

The five characteristics discussed above are the defining elements of the kind of partnerships we recommend that USAID invest in to build institutional capacity. Table 4. Comparison of Partnership Types below provides a summary of some of the issues discussed above and the possible points of focus and scales of partnerships.

What follows is a highlighting of some of the most critical best practices for establishing and managing partnerships based on analyses of past capacity building partnerships in higher education as well as a discussion of issues related to the management of these kinds of partnerships.

Best Practices and Strategies for Establishing and Managing Transformational Partnerships

1. **Leadership has Expertise in Organizational Performance Improvement.** In all partnership types, if the goal is institutional reform of some kind, it is important to engage partners who understand how to change institutions and how to build institutional capacity. It should not simply be assumed that U.S. faculty or U.S. university administrators automatically know how to be drivers of institutional change. Many can offer knowledge about what works in their systems and many are also skilled at facilitating consultative processes to help institutions identify problems and propose their own informed solutions. But it is essential to have at least one individual on the project – and preferably in a leadership role – who has specific expertise in organizational performance improvement. There are many such people both inside and outside of academia and their knowledge and skills should be brought to bear in this work. This expertise includes anticipating and understanding resistance to change from individuals and organizations (for example, unions) in the institution and having knowledge of best practices for change management. It also includes knowing how to set up monitoring and learning systems within an organization to assess performance progress and make decisions on the basis of

Table 4: Comparison of Partnership Types

PARTNERSHIP TYPES	ACADEMIC-FOCUSED PARTNERSHIPS	INSTITUTIONAL MANAGEMENT-FOCUSED PARTNERSHIPS
TYPICAL FOCUS	• Research • Teaching (improving pedagogy, development of online-education) • Curriculum development • Public engagement projects	• Administrative and institutional management issues such as: - Private sector engagement - Management of funds - Tracking students • Can also be combined with an academic focus.
LEVEL AND TYPE OF ENGAGEMENT; KEY CONCLUSIONS	• Usually faculty-driven and focused primarily on academic issues, not institutional management issues. • Can either be very small in scale among a handful of faculty on both sides, or very large in scale and have broader-based institutional buy-in. • Research: Collaborative research provides an important opportunity to developing-country academics to access resources (not just funding) they might not otherwise be able to access. U.S. faculty can also help host country faculty to strengthen their capacity to write grants for future research funding. • Teaching: A number of U.S. institutions are on the cutting edge of e-learning and can make important contributions to e-learning in other parts of the world. • Curriculum development: U.S. faculty are particularly good at engaging the private sector in identifying needs for relevant curriculum. They also contribute their disciplinary knowledge to the task. • Public Engagement projects: have ranged from the dissemination and commercialization of research outputs to training outside the university, to serving as consultants for policy analysis.	• Primary focal point is the university administration. • Senior university leaders are usually individuals with an academic background, thus their training has been in an academic field, not usually in management. • For more comprehensive, larger-scale partnerships, it would be likely that the partnership is engaged both at the faculty level and the university administration level.
FRAME	• Can vary greatly depending on what is expected to be achieved. • More intensive and long-term effort is needed to achieve larger-scale institutional change. • HEI partnerships can be utilized to address development problems in the short-term. • Easier to align with funding from sectors outside of education, as the focus of such partnerships tends to be on an academic sector such as health, climate change or agriculture.	• Can vary greatly depending on what is expected to be achieved. • If the goal is substantial institutional reform then a long-term time frame is needed as well as greater resources. • Important to match expectations to funding levels and time frames. • Shorter-term projects can also be done, such as training a university in a student tracking system.

information. These skills are important for any partnership that is attempting to bring about significant institutional changes. Appendix A discusses a framework for capacity building that is fundamentally different from the approach typically taken and that further elaborates on these critical issues.

2. **Strategies to Mitigate Inequality.** Successful partnerships operate on the basis of shared decision-making, reciprocity, mutual benefit, and collaborative determination of goals and projects. Given the structural imbalances evident in many partnerships between developed country institutions and developing country institutions, these operating principles are more easily said than done. One way to address the issue of imbalances between partners is through the management of funding to the partnership. Following USAID Forward, the Agency should consider funding mechanisms that allow the developing country partner to manage some (or, given a sufficiently robust track record and established mechanisms of oversight, all) of the funds available to the partnership. Another factor that contributes to greater equality is having a long-term commitment to the support of the partnership. Time allows the partners to build trust and mutual understanding of cultural and policy differences that foster a more equitable relationship.

3. **Incorporating Training Effectively into Institutional Capacity Building.** As discussed in the introduction to this section, we strongly recommend that the training of individuals be done within an HICD framework – a framework that puts institutional capacity building at the center. Furthermore, while individual training can and should be done in several different ways (in country, in the United States, or in a third country) in order to meet the different needs of individuals and contexts, training in the United States provides unique benefits that have been identified in numerous studies, including some contracted by the Agency.[11] In particular, it has been well-documented that long-term training in the United States is more effective at developing the "soft skills" so important to successful institutional transformation compared to either short-term training or to training in other countries.12 Furthermore, U.S. training, compared to in-country training, also tends to provide a stronger base of technical expertise.

   There have been a number of lessons learned about how best to organize training overseas in order to ensure that scholars return to their home countries or institutions and make significant contributions to improved institutional performance. Two key studies on this topic are "Generations of quiet progress: the development impact of U.S. long-term university training on Africa from 1963-2003" and "Agriculture Long-term Training: Assessment and Design Recommendations."[13] Among the best practices these reports highlight are the use of sandwich programs that encourage or require students to do their research back home or in some cases as part of their coursework; the use of mentoring to help young professionals make the most use out of their training and institutions make the most use out of the people they train;[14] and the selection of students on the basis of institutional needs, not solely the merit of the student. The existence of a long-term partnership helps to facilitate the implementation of many of these best-practices.

4. **Streamlining and Tailoring USAID Management of Partnerships.** USAID should simplify its administration of partnerships to reduce transaction costs. We understand that policies and practices with regard to managing funded programs and projects are being reviewed in the Agency

Table 5: USAID's HICD Framework.

The handbook for implementing USAID's Human and Institutional Capacity Development (HICD) Framework provides the following overview of the distinction between an HICD approach and traditional training.	
TRAINING	**HICD**
An event	A process
Follow-up with individual performers	Continuous measurement process
Based on learner needs	Based on organizational needs
Evaluated by individual performance	Evaluated by organizational performance
Focus on one or few individuals	Focus on systems approach to improve performance
Single type of performance solution	Multiple types of performance solutions
Training needs assessment	Performance assessment
Results-oriented at participant level	Results-oriented at organizational level
Can be ad hoc	Must be systematic

Source: Human and Institutional Capacity Development Handbook -- A USAID Model for Sustainable Performance Improvement. http://pdf.usaid.gov/pdf_docs/pnadt442.pdf.

with the goal of improving AID's practices. This is a positive step. More direct management of programs may be one way to simplify the management challenges. It is also important for the Agency to better understand the differences between higher education institutions and other kinds of institutions it interacts with, like NGOs, the private sector and government. Tailoring management practices to these different entities will help advance the goals of the Agency more effectively. As discussed above in reference to thinking about capacity building differently, USAID might also consider tailoring its M&E practices to different kinds of projects. Capacity building efforts cannot be measured and evaluated in the same way as the delivery of goods and services.[15]

PROGRAMMATIC HIGH PRIORITIES AT THE INSTITUTIONAL LEVEL

In the previous section, we focused on recommendations to USAID on how to design and manage its institutional capacity building programs differently. These recommendations entail not just a tweaking of existing practice, but a rethinking of approaches and timeframes. The central lesson is that higher education development is a long-term exercise and requires a broader approach rather than a collection of small and narrow projects.

In this section, we highlight four opportunities and challenges for higher education that have emerged as among the most pressing issues across many African higher education systems and institutions. These have been selected also because they are areas where USAID investment and/or U.S. university

engagement can be particularly impactful, either because of our comparative advantage in these areas or because without donor assistance these investments might not be made given the many other pressing demands on African governments. Obviously, given the points made above, we do not recommend that these be determined a priori as the focus of long-term institutional partnerships or system-level interventions. Instead we recommend that the problems to be addressed and opportunities to be pursued be identified through the processes discussed above and also in Appendix A. We are suggesting, however, that our research and conversations with African academic leaders indicate that one or several of these four opportunities and challenges would likely emerge as priorities determined by individual African institutions, ministries, and higher education councils.

Given this, we would recommend that USAID focus on strengthening its technical expertise in these priority areas. Furthermore, while the recommendations below identify certain potential "solutions," they are intended as options and ideas, based on evidence, for consideration. Each country or institution that engages with USAID, however, will need to define its own challenges and should be given the space to chart its own solutions.

1. Professional Development of Faculty and Staff

As discussed in Chapter 3 above, it has been stated that there is a crisis in academic staffing in many African higher education institutions. A number of factors have contributed to the eroding of academic staff numbers and quality. Over several decades, higher qualified faculty have been lost to more rewarding opportunities (financially and otherwise) outside of academia and have been replaced by junior lecturers in many cases in order to keep up with the rising numbers of students.[16] A 2005 UNESCO review found that only half of the academic staff working in the sciences and engineering in Sub-Saharan Africa had PhDs. Agricultural faculties were found to have the lowest staff qualifications. Vacancy rates at many universities are also high: currently at 30 percent on average for the continent, vacancy rates are expected to increase given that about 40 percent of teaching staff are nearing retirement.[17] In francophone Africa, based on a ratio of one lecturer per 22 students, teaching staff would need to grow from roughly 35,000 to 82,000 over the period 2006–2015. This would mean that around 58,000 new faculty would need to be trained to maintain this ratio, taking into account retirements and other staff departures, estimated to be 30 percent. By these calculations, more than twice as many faculty would need to be trained in the 2006-2015 period than were trained from 1970 to 2005.[18] The picture is similar in Anglophone countries. Analyses of higher education vacancies in Ghana and Nigeria in 2003 indicated that about 40 percent of faculty positions in the Ghanaian universities and more than 60 percent of those in the polytechnics were vacant, while in Nigeria two-thirds of the 36,134 faculty positions were vacant. Given financial and demographic trends, it is safe to assume that vacancy rates remain high today.

A number of factors contribute to inadequate staff qualifications and numbers, including the limited number of individuals pursuing post-graduate degrees on the continent, poor remuneration of faculty, and brain drain. On average much less than one percent of tertiary students in Sub-Saharan Africa obtain PhDs, compared with a world average of three percent, and a developed-country average of four percent.[19] "Ethiopia is an extreme example: just 28 PhD students were enrolled in 2004 and only a single PhD degree was awarded in a country of 71 million people."[20]

The shortage of faculty in many African universities, coupled with explosive enrollment increases in many countries in recent years has resulted in skyrocketing student-teacher ratios in many institutions.[21] A number of different analyses of the faculty issue point to the need to expand the

number of graduate-level degrees, especially in science-based and technology disciplines, and to find ways to bring capable students into those degree paths.[22]

Given the importance of faculty quality and numbers to the long-term sustainability of African higher education systems and the crisis in academic staffing on the continent, faculty development emerges as a top priority for many institutions and countries. This is an area where USAID can make important contributions. Given that US universities are among the best in the world and US-style education has a number of unique features that many seek to emulate, US higher education institutions have much to offer working in partnership with African institutions to address some of these challenges.

Transformative partnerships that last over many years provide a number of ways for faculty in African institutions to integrate into the global academic environment and continue their own professional development, which is so important to keeping up to date in their academic careers. Partnerships that are focused on human and institutional capacity development will naturally engage in issues of faculty development. We recommend that partnerships begin with a rigorous assessment of an institution's situation and priorities. This assessment will identify areas to focus on that can increase the capacity of the institution to contribute to development. These institutional needs would then form the basis for making decisions about which faculty development activities to implement and how to do that well. Faculty development activities, such as developing a center or leader for faculty development within the institution (discussed further below), might best be done in the partnership framework. Most U.S. higher education institutions have faculty development programs and can be helpful in developing similar programs in African higher education institutions that fit their contexts.

What follows is a discussion of key issues related to faculty development with recommendations on how to approach support for faculty development efforts.

1A. Individual training of faculty (long-term or short-term) should be done using USAID's HICD framework. This requires a clear understanding of the institution's needs and a longer-term plan for the institution.

Following the HICD framework, individuals targeted for training need to be selected not only on the basis of their academic abilities, but also on their potential to fill important institutional needs. Faculty development should be oriented to a broader vision of what an institution needs for overall excellence, not only what an individual faculty member desires. Institutional capacity building is more than improving the knowledge, skills, and attitudes of employees at institutions. If the institution has no vision, no strategic plan, no effective human resource system, nor any of the other organizational factors that enable highly-trained employees to have a positive impact within the institution, staff capacity building might not lead to institutional performance improvement or impact on the sector. There is a need to take a broader approach to faculty development that focuses on alleviating overall institutional performance barriers.

In the context of higher education institutions, it is critical that the assessment of needs and the development of a long-term institutional plan be done with the engagement of a broader set of stakeholders, including the private, public, and civil society sectors. Ideally, the process of engaging stakeholders is not conducted as a one-time "snapshot in time" assessment, but rather the process is used as a step towards building sustained, ongoing engagement with private, public and civil society stakeholders. More about the importance of building sustained relationships to stakeholders is discussed in the section on strengthening the ability of institutions to respond to the labor market.

In countries where the partnership is centered around a major public university, the faculty development strategy should be oriented towards fulfilling the institution's role in a differentiated system. Therefore the broader requirements of the university system in the country need to be considered in determining faculty development needs.

With regard to how best to do the training, there are many factors that come into such a decision, including the student's and the institution's needs and the purpose(s) of the training. There are a number of good reasons to fund overseas training, following best practices to ensure the return of students to their home country[23], even if the costs are greater. These reasons are discussed in Chapter 3. This is especially the case in the context of a partnership because it helps to build the long-term relationships that factor into continued collaboration between institutions long after external funding has ended. Not all training should be done overseas, however. Any substantial faculty development effort will likely benefit from utilizing a variety of training options suited to the needs of the individual, the institution, the expected time frame, and the goals of the training.

Finally, within the HICD framework, training is just one part of the capacity building process; equally important is broader support during and after an individual has received training. Any training program in support of faculty development needs to also consider the broader support structure that will accompany the training in order to maximize the impact of training on institutional performance improvement. The next recommendation builds further on this point

1B. A comprehensive faculty development strategy needs to take into account both recruitment of new faculty as well as retention and development of existing faculty. Establishing a broader support structure for faculty development can help maximize the effectiveness of individual training efforts.

There are a number of best practices in regards to developing an overall faculty development strategy that takes into account recruitment, retention and individual capacity strengthening:

- Organize for faculty development by creating special centers for this purpose, or by appointing a faculty member or administrator to oversee faculty development activities with staff support. A particular focus of a center like this could be to drive efforts to attract and nurture faculty from groups which are underrepresented at a given institution, whether women, minorities, or even international faculty. In addition, a center might also focus on establishing active faculty networks and collaborations with leading scholars and programs elsewhere, i.e., at nearby research universities, nationally ranked undergraduate colleges, and professional associations, and promoting faculty development through academic consortia. The center can also play a role in increasing the capacity of faculty to compete effectively for outside grants, fellowships, and other professional development opportunities, as well as strengthening the capacity of faculty to manage intellectual property issues.

- Define the disciplines and knowledge sets that are most likely to make the greatest contributions to the institution's development and focus on these in faculty development programs to build critical mass in high priority areas. One of the keys for retaining good faculty is that they have a critical mass of colleagues with which to work. This critical mass does not need to include a large number of faculty. Having as few as 3-4 faculty members as colleagues in the same general area is often enough to maintain faculty presence and engagement over time.

- Provide opportunities for existing faculty in African higher education institutions to identify particular faculty in the same field in Africa, in the United States, or elsewhere, as mentors and

support ways for these faculty to connect with these mentors. This kind of connectedness would assist faculty in feeling less isolated in a higher education institution.This could be achieved by providing access to professional networks, participating in teaching or taking online courses with these mentors, gaining access to international databases used for research and teaching, and attending international academic meetings. Sabbaticals could be used to deepen this relationship with key faculty in other countries or higher education institutions. Arrangements for faculty exchanges for a semester every other year is another way to provide African faculty with ways to learn from other excellent faculty and gain experience in teaching, research and public engagement from other perspectives.

- Create a research network funding program on key topics which are critical to the nation's or region's development. This would be a competitive grants program that would provide support for collaborative research among African faculty and students. Research funding would provide faculty opportunities to contribute to development priorities, keep current in their respective fields, and assist in strengthening curricula.

- It is important to link professional development efforts with other major commitments: e.g., at the macro level with the priorities and key goals of the institution's academic plan; at an intermediate level with departmental and program outcomes assessment initiatives; and at the micro level, with evaluation results and individualized professional development plans for each faculty member.

1C. Faculty development must go beyond strengthening disciplinary knowledge. Faculty development efforts must focus on a suite of essential skills, among them: active teaching; research; employment of new technologies in teaching; and the skills necessary to acquire external financial support.

While there is certainly a need to strengthen the quality of academic knowledge among African faculty by training more African faculty to the masters and doctoral level, there are a number of other critical priorities for faculty development on the continent. Faculty development efforts must therefore focus on a suite of essential skills, among them: active teaching; research; employment of new technologies in the classroom; and the skills necessary to acquire external financial support. What follows is a discussion of some of the most critical skills development priorities:

- **Leadership and management skills:** Many observers of African higher education institutions (within and outside the institutions) have noted the need for strengthened management and leadership skills among university administrators. Thus an important part of faculty development is the cultivation of the next generation of African higher education leaders, preparing faculty for increasingly responsible managerial roles as chairs, assistant and associate deans, and potential chief academic officers. Governance of institutions affects all aspects of the quality of higher education; institutional strengthening investments must tackle broad governance challenges in order to see sustainable impact in other more specific efforts to strengthen departments or programs.

- **Student-Centered Teaching:** Reforming teaching practices to promote "student centered teaching" (or "active learning,") is, for many institutions, a daunting challenge, but one that is commonly cited as a necessity to improve the relevance of African higher education. Passive learning in lecture halls does not develop the skills needed to join the contemporary workforce.

A concerted effort is needed to improve the use of active teaching techniques in many African institutions, even in the context of large class sizes. Given the limited technologies that are currently available in many African classrooms, pedagogical training must take account of the circumstances in which African faculty are likely to teach.

This means that long-term training of African academics must focus on pedagogy. If training is done with an overseas institutional partner, attention must be given in the training on instructional technologies and methods that can be used to enhance student-centered teaching. Academic training has long been critiqued for the relatively little attention given to teaching future academics how to teach. The focus, instead, is primarily on acquiring disciplinary knowledge. It is as though it is assumed that teaching skills will be learned along the way.

In addition to long-term training, another way to enhance the use of active teaching is to have a center for teaching on campus that engages faculty and students on active learning strategies. A faculty development strategy that is intent on improving the teaching capacity of faculty must be deliberate about pedagogical training.

To supplement training efforts, teaching awards (either monetary or simply just recognition) can also provide incentives for change. Teaching awards could come with funding for faculty to attend conferences focusing on teaching, assessment, involving students in research, and other key related professional development matters.

- **Use of Technology:** Training of faculty at this time of fast-moving advances in and adoption of e-learning technologies must include at the very least an introduction to these new e-learning technologies. It is perhaps the newer faculty, rather than the seasoned faculty, who will be adopting e-learning technologies and driving innovations in the use of e-learning in combination with the "traditional" classroom. The importance of technology to the future of higher education globally is discussed in Chapter 3 and recommendations regarding the support of technology and e-learning are discussed further below.

1D. A comprehensive faculty development strategy will also examine the incentive structure for faculty and create policies that better align incentives for individuals with the goals of the institution.

Academic incentive structures generally provide few incentives for faculty to invest in their teaching. Promotions are usually based on research outputs or administrative leadership. Given the great need to increase the quality and numbers of students trained in Africa, it may be worth considering ways to incentivize and better support teaching – as well as research and public engagement. This could be as simple as providing funding for faculty to attend conferences focusing on teaching, assessment, involving students in research, and other key related professional development matters. It could also include a revision of policies to determine promotions and compensation.

Of course, not every higher education institution can or needs to pursue all of these strategies and not every one of these initiatives is right for each individual institution, but these are some important issues to consider in evaluating an institution's particular professional development needs.

2. Strengthening the Capacity of Institutions to Use Labor Market Data to Improve Quality and Relevance

As indicated in other sections of this report, the quality of higher education is important to maximizing the impact that higher education has on economic growth. One important aspect of overall quality is how well university graduates do in finding employment and in making significant contributions in their work. In judging this aspect of quality, it must be remembered that unemployment is not only a problem of how well people are educated; it may also be a problem of public policy, resources endowments, lack of investment capital, etc. that constrains the labor market and the level of overall employment. However, it is important that HEIs understand the labor market better—particularly what skills and competencies are demanded by hiring firms and organizations.

To address quality concerns, it is important that there be some leadership given at the institutional level to these important issues. This attention to quality must be a concern for overall leadership at the campus, college and department level. If there is increased attention being given at the national level in terms of assisting HEIs to improve their quality and to assess quality levels over time, HEIs will need to find ways to respond to and take advantage of these national initiatives to enhance and judge quality at the HEI level.

2A. We recommend that USAID assist HEIs in improving quality by investing in quality assurance mechanisms internal to the institution.

Exactly how quality assurance processes should be institutionalized in each HEI of focus will depend on the context of each HEI. In many universities around the world, there are units being established that lead and facilitate work on quality issues – often called Quality Enhancement Units. Some objectives of these units include:

- Leading in preparing for accreditation reviews by national or disciplinary groups
- Assisting units to develop appropriate measures of quality, including learning outcomes measures, research output impacts, outreach outcomes, etc.
- Developing and implementing processes to collect high priority data on quality concerns and making these data available to relevant leaders and institutions
- Responding to groups wanting information on issues related to quality such as government agencies, rating organizations and private firms
- Facilitating interaction with various stakeholders to assure appropriate engagement with these groups by the institution, colleges and departments and facilitating follow up on the input of these stakeholders

These Quality Enhancement Units should be located at the institutional level and have an overall mission of being helpful to academic and administrative units, rather than being a judge of their quality levels. They should be staffed with people who understand university culture and who know how to evaluate educational outcomes.

USAID can make an important contribution to African higher education by supporting the development of such units at targeted institutions. Such work is particularly appropriate in the context of a comprehensive partnership, as recommended in other parts of this report. U.S. HEIs have dealt with quality evaluation for many years at the institution level as well as at the unit level and therefore have significant experience to share.

When USAID provides program support to any group, there is usually a requirement that these programs develop and implement an evaluation plan related to the inputs provided, outputs produced and impacts experienced. This same kind of monitoring and evaluation capacity more broadly focused is important to develop in HEIs. These Quality Enhancement Units can also develop into more mature and ongoing monitoring and evaluation units that can address a variety of issues, including developing data on high priority concerns for leaders to use in decision making and systematically obtaining information and data from stakeholders of the HEI.

2B. We recommend that USAID assist African HEIs in developing ways to more closely interact with stakeholders in the public, private and civil society sectors.

As already stated, the responsiveness of the HEI to the labor market is an important aspect of overall quality. There are ways that national level surveys and data panels can provide important information about the match of HEI graduates' skills and understandings with employers' demands and needs, and these issues are discussed further below. If these kinds of data systems are developed, individual HEIs can then analyze these results and incorporate the information developed into university operations.

Interacting with stakeholders – private sector representatives, government officials and people from civil society organizations – can also assist in better preparing students, designing research and developing more effective outreach programs. Some of these interactions could include:

- Having these stakeholders regularly review curricula to assess how well what is being taught relates to needed student preparation for employment. HEIs usually review curricula, but that review often is an internal process. Having various relevant stakeholders review the curricula can bring an applied sense to what is being taught that best prepares students for employment. This also helps HEIs to build ongoing relationships with various stakeholders.

- Providing opportunities for these stakeholders to teach courses or parts of courses and interact with students periodically over a semester or academic year. This kind of program can give students access to leaders of the public, private and NGO sectors both in a classroom setting and in more informal ways. This interaction can provide students with a sense of what is expected from employees by the leaders of these institutions and how these leaders think and operate. These interactions can particularly help students to be better prepared to work productively outside the HEI.

- Developing internships or cooperative education programs to assist students in gaining experience in the employment world so they can modify their course selection to better suit their plans for employment. Internships and cooperative education programs provide real benefits to the students, the firms and organizations participating, and the HEI. Students can use these experiences to learn what employment is like and build relationships with firms and organizations that can have lifelong benefits. In addition, the private sector firm, government agency or civil society institution that provides these internships can assess whether they should hire these students for long term work. The HEI also benefits by obtaining feedback from the students and firms about the experiences and modifying their curricula and other educational experiences to better prepare students.

- Having stakeholders interact with research and outreach faculty about the most significant constraints in their public, private or civil society institutions. Many research programs in African

HEIs will be focused on applied work. To do applied research well requires that researchers understand the problems and context of the situation involved. Interacting with various stakeholders is a key to better analysis of problems and how they might best be solved. In addition, engaging with stakeholders can also inform researchers of the consequences of adopting research results.

- Developing ways to obtain employment information from these organizations who are hiring graduates of the HEI. At the institutional level, it is important to better understand the employment trends and situations of the groups hiring graduates. This process of learning where graduates are going and what their employment experience is can be partly done by tracer studies, as discussed later in this chapter. Interacting with the stakeholders discussed in this section would provide additional richness, in an anecdotal sense, to more systematic surveys about the experiences of graduates.

Developing meaningful engagement with leaders from government agencies, the private sector and civil society institutions will not only be useful in improving the quality of teaching, research and outreach activities, it will also help build an advocacy base for higher education within the public and private sector which is critical to the sustainability of HEIs over time.

3. Strengthening the Use of and Experimentation with E-Learning in African Higher Education Institutions

It is clear that recent technologies are leading to new and effective ways of teaching for many students. There are many indications that new technologies offer the potential to make significant positive changes to the quality of teaching and access to education. Leading this transition globally are U.S. universities that are now sorting their way through the different delivery models, their effectiveness, their costs and their institutional policies. While the pace of technological change in how education is delivered in the developed world is accelerating, higher education institutions in Africa are finding themselves increasingly resource-constrained to engage in these new educational models.

Although MOOCS have been grabbing the headlines, there is a large gap between free online courses and producing well-trained and certified scientists, engineers, and medical professionals—a few courses do not enable one to lead a major construction project, contribute to new materials research, or conduct even the simplest surgery. As good as the content of these free online courses might be, the vast majority of online offerings today do not respond to the diverse cultures and training needs of global communities. Africa needs African online education that draws from the African experience, presented in an Africa context and with an African message. Indeed, beyond the cultural difference, there are real concerns that recent technologies and interest in MOOCs can be utilized in such a way as to have a negative impact on students – particularly students with limited means and students who need a little extra support to make the most of their educational opportunities. The experience at San Jose is a good example of the pitfalls.

The future of higher education is likely to see a lot of hybridization of both online and traditional forms of delivering higher education—varying the amount of online vs. in-class experience in accordance with curricula, location, and expense. The future is not likely to be MOOCs, but a much more intense use of technology in education, combined with more "traditional" approaches.

In Africa the potential of e-learning resonates strongly. The imperative for advancing e-learning is high and the last decade has seen a growing awareness of the importance of e-learning to address

the education challenges. In addition to increasing access to educational content and lowering cost, online education presents opportunities for the re-examination of out-of-date curriculum and experimentation with teaching and learning. State of the art course material from U.S. universities and others can be molded by Africans to the African context to increase overall course quality and provide access to a greater number of students.

All over Africa, higher education institutions and other organizations are already exploring how to use e-learning to address these challenges. While this report likely does not capture the full extent of activity on the continent in this area, there are significant challenges to taking full advantage of e-learning potential on the continent. These challenges include political challenges such as the absence of educational policies that address the role of the ICT sector and tax policies and laws that affect the cost of technology; institutional challenges such as the lack of ownership of e-learning projects due to limited awareness of the opportunities, tendency to use technology experts and not pedagogical experts, and absence of platforms for experimentation by educators; capacity challenges such as the absence of ICT capacity (especially ICT for education capacity) and lack of professional development opportunities for educators on educational technology use; technology access challenges such as internet connectivity costs, software costs are high and bandwidth is low in many institutions.

The latter constraint often surfaces as a reason not to invest in online education. "Access to the broadband network remains one of the most significant limiting factors to effective use of e-learning and other applications in Africa. For instance, a survey by e-Learning Africa in 2012 confirms the preoccupation with access to high bandwidth. Seventeen percent of the survey respondents said having adequate bandwidth is the most significant constraining factor to e-education, followed by the lack of financial resources, inadequate human resource capacity and limited electricity, all at 11%."[24] The continent uses only 1 Tbps of the 25 Tbps of capacity available via submarine cable; so there is no technical constraint on international bandwidth. The difficulties that need to be addressed are a result of inadequate policy and regulatory frameworks.

Because the development of e-learning in Africa is often externally driven, there has been limited opportunity for organic growth of learning resources that meet local requirements for measurement and assessment and desired learning outcomes. Available open educational resources (OER) may not always match methods or subject matter as taught locally. Faculty do not have adequate time to search for and adapt learning resources to their curriculum. This situation is compounded by an absence of quality assurance frameworks overall and in particular for online learning environments.

Despite these challenges, it is important to recognize that access to bandwidth is changing quickly. It should not be assumed that e-learning is not worth investing in today because of present bandwidth challenges. As bandwidth rolls out across the continent and the cost of devices becomes less and less, the emphasis must thus swing to effective exploitation of ICT resources. In the short term, African institutions and systems will need to think creatively about how to modify e-learning to fit current technological constraints. And many already are. Furthermore, Africa has the highest number of mobile phones per capita of any region of the world and the potential for m-learning should be explored as a complimentary approach to investments in e-learning. There is tremendous potential in e-learning and donor support can help African institutions partner with others who are also exploring in this area and who are likely to have greater resources to bring to the table in this process of exploration and experimentation.

3A. USAID's e-learning investments should focus on increasing the use of e-learning tools by existing African universities rather than focus on developing fully online alternatives.

Investments in e-learning in Africa should focus on strengthening the capacity of African universities to use online resources to increase the quality and efficiency of content delivery on campuses. The reasons for focusing on blended learning models versus fully online models are many. As discussed in earlier sections of this report, several studies suggest evidence that blended learning is more effective than either fully online or traditional lecture-based approaches. There is also evidence that the majority of students require more support and structure than fully-online models tend to provide.

Blended learning can be used to address a variety of institutional, faculty, and student needs. For institutions, blended courses can be part of a strategy to compensate for limited classroom space. By significantly increasing the use of technology for gateway courses in particular, where enrollment levels are very high, the quality of courses could be improved while also allowing for faculty resources to be reallocated to higher level classes.

Blended learning is also a way to catalyze changes in teaching methods and promote more active teaching in the classroom. Faculty that begin to engage deeply with new teaching technologies often modify their teaching approaches and begin to implement more active teaching methodologies. Therefore, blended learning affects both quality and access. For students, blended courses offer the increased flexibility of online learning combined with the social and instructional interactions that may be required for certain kinds of learning goals (e.g., lab sections and other hands-on learning). "If an institution's blended learning strategy can be designed to address the needs and dynamics of all three constituencies (institution, faculty, and student) simultaneously, then blended learning can become a powerful force for institutional transformation."[25]

3B. Incentivize international collaboration and public-private partnerships to promote the adoption of innovative, scalable approaches to blended learning.

African universities generally do not have the resources to compete in developing high quality courses online; donors can provide funding to enable African universities to collaborate with others for mutual benefit. Integrating technology into African classrooms and institutions would be facilitated greatly by engaging U.S. or other developed-country partners who are also exploring the possibilities of this new technology. Institutions in the United States or elsewhere that have been experimenting with e-learning for several decades, and that are investing fairly significant resources into e-learning technologies on their own campuses could be a tremendous resource for African universities. Development assistance can help bring African institutions into partnerships and consortia focused on expanding e-learning adoption. Without development assistance to support deeper collaboration with parts of the world that have greater resources to experiment with and expand the use of new technologies, the digital divide in this area could grow larger very quickly.

International collaboration could also be fruitful in the development and adaptation of large-scale open educational resources (OER) for African higher education institutions. Free sharing of OER is happening between African higher education institutions and those in the north as exemplified in increasing use of the MIT Open Courseware (OCW). There are efforts towards the extension of the OCW through face-to-face learning. An example is the MIT–African Internet Technology Initiative (MIT-AITI) initiative that allows MIT students to integrate computers and internet technology into the education of students in African schools[26]. Experience indicates that learning how to adapt e-learning

will be more likely to happen through experimentation on the ground by learners and teachers than by simple access to online tools; therefore collaboration between south and south and north and south needs to encourage partnerships between higher education institutions in the development, adaptation and use of online learning resources.

In addition to incentivizing partnerships with other higher education institutions with a focus on e-learning, USAID investments should also incentivize private sector engagement in these efforts.

E-learning can be an important tool for improving the workforce relevance of African higher education and engaging the private sector in higher education. Currently, the private sector has been less active in implementing e-learning solutions for tertiary education in Africa. The indication is that the private sector has a major role in growing the corporate training and job skills segment in Africa. Experiences of institutions such as 2iE that focus on the African job market indicate that the potential for online learning for creating job-related skills is very large. 2iE is blending online learning with traditional modes and is experimenting with flexible pay-as-you-go mobile payment for courses, an innovation that is familiar to students and families.[27]

THE I-HUB MODEL

In Nairobi, the i-Hub presents an interesting model for IT innovation and entrepreneurial activity. While the hub concept is not exclusive to Kenya – indeed there are some 40+ in the subcontinent – the Nairobi example is said to be one of the most successful and creative. The i-Hub engages the local IT community and provides a platform for support of creative IT business development, training and innovation. Presently there is scant linkage between the i-Hub in Nairobi and higher education institutions. If higher education is to gain access to and interact successfully to develop e-learning tools, it could be facilitated by strong relationship with the IT sector in-country. Presently there seems to be a tension between higher education and the i-Hub community that could be addressed by facilitating partnership or by creating such a structure within the university community. The attractiveness of a partnership goes beyond the mechanics of e-learning development. Given the startup activities at the i-Hub, the potential exists for private sector engagement that could make curriculum more practical, provide universities a more entrepreneurial role and encourage private sector partnerships with higher education. In short make universities more relevant.

One possible approach for deeper engagement of the private sector in e-learning in African higher education institutions would be to support the establishment of regional "e-Hubs" – centers of e-learning entrepreneurship – housed with African universities that would drive innovations in e-learning within institutions and would provide assistance to other institutions in the country or region that wish to expand their use of technology in learning. These e-Hubs could creatively integrate universities with i-Hubs (see further description below) to bring creative IT capacity to campuses and engage the private sector. USAID might consider piloting an effort to deepen linkages between African technology hubs and higher education institutions, with an emphasis on exploring the possibilities in the e-learning sector. The concept of e-Hubs might best be developed within the context of establishing a center of leadership on e-learning as described in Recommendation 3 below.

In sum, targeting countries where connectivity is greatest, USAID investments in e-learning to incentivize innovative, scalable approaches to blended learning in African higher education institutions

should capitalize on the resources available at higher education institutions in other parts of the world and within the private sector.

3C. Establish regional centers of leadership for the development and implementation of e-learning in African Higher Education.

There are very many initiatives involving technology in higher education in sub-Saharan Africa. While there are some consortia working across countries, there are many isolated programs, which do not coordinate and scale up to promote e-learning.

We recommend the establishment of at least two regional centers of leadership (as opposed to centers of excellence)[28] for the development and implementation of e-learning in African Higher Education. Such centers would fulfill the role of incubators for experimentation with e-learning and m-learning in local conditions. The center of leadership could focus on identifying the most promising directions for future exploitation of technology within a holistic model of higher education in sub-Saharan Africa; building human capacity through a variety of means including post graduate programs, short courses, online courses, etc.; fostering partnerships between higher education institutions and the private sector in the delivery of appropriate courses, adapting existing and designing new e-learning methods to upgrade skills in the areas with high employment prospects; and developing tools, content, processes and pedagogy that meet the needs of African higher education institutions and providing a repository for sharing learning objects. It would be reasonable to consider a center of excellence for the three primary languages: Francophone, Anglophone and Lusophone.

4. Supporting the Search for Other-than-Public Revenue for Higher Education

In response to the austerity faced by many African institutions in Sub-Saharan Africa—as in most of the world—academic leaders are turning to other-than-governmental revenue to make up for the inability of public revenue to keep pace with their annually increasing costs and revenue needs. The principal other-than-governmental revenue sources are:

Parents and students in the forms of: (a) tuition fees (covering a portion of the costs of instruction); (b) fees for what may once have been governmentally- or institutionally-born costs of food and lodging;, and (c) other educationally related fees for books, computer access, and the like that may be shifted to parents and students as public revenues become increasingly insufficient.

Donor countries such as the US, UK, France, Germany, Japan, the Nordic countries, and most recently China, of which funding tends to go to certain countries, certain institutions, and for certain programs;

Governmentally or externally-funded research grants, which also benefit only certain research programs at certain faculties in certain universities and may do little to ameliorate the overall austerity of the recipient university or of the country's higher education system as a whole (and besides are likely to be even more constrained by inadequate governmental revenues compared to university operating budgets);

Instructional entrepreneurship such as non-credit short courses in such high demand fields as the English language, management, accounting, and information systems management: again benefiting certain departments and faculty members—but also doing little for the university as a whole or for institutions with less market power;

Philanthropy, which has been moderately successful in a few of the more prestigious South African universities and is aspired to by universities in several other countries that have formed foundations

to attract contributions from alumni diasporas practicing in Europe or North America in fields like medicine or agricultural science; not likely to be a significant source of operating revenue net of the very considerable costs of cultivation and fund raising for colleges and universities in Sub-Saharan Africa.

Cost-Sharing

The only substantial and continuing source of other-than-governmental revenue for the support of higher education generally is cost-sharing. Cost-sharing is both a statement of fact—that higher educational costs are necessarily shared among governments (mainly taxpayers), parents, students (mainly through part-time employment and loans), and philanthropists or donors—as well as a term used to describe a worldwide shift of the costs of higher education from a predominant or even an exclusive reliance on governments and taxpayers to a greater and greater reliance on parents and/or students. The forms of cost-sharing relevant to African higher education are:

- The imposition of a tuition fee in countries or public higher education sectors where instruction was formerly free or tuition fees only nominal, or the very substantial increase in tuition fees where they have already been introduced—in effect further shifting higher educational costs from taxpayers to parents and / or students.

- The introduction of a fee-paying track in public universities, in which some students remain entirely or mainly governmentally-supported, usually on the basis of an examination, while other students who are deemed eligible but who did not score high enough on the entrance examination to merit a free or very low fee governmental place are admitted at what are essentially full cost fees. This dual track tuition fee originated in the so-called transitional countries of Russia and the other countries emerging from the former Soviet Union, as well as from the other formerly communist countries of East and Central Europe. This policy was a way to keep within the constitutions the laws that assured all regular students of a free university education but to covertly acknowledge the financial imperative of charging tuition fees at least to some students. Dual track, or parallel, tuition fees were introduced to East Africa by Uganda's Makerere University, and soon spread to Kenya, Tanzania, and other African states, which recognized the dual track tuition fee as a way to supplement the limited and insufficient governmental revenue without confronting the politically and ideologically treacherous introduction of a tuition fee for all students.

- The introduction of, or substantial increase in, the fees charged for food and lodging—which has never had the political resistance of the shift of instructional costs via a tuition fee, and which therefore may precede the imposition of tuition fees in the direction of greater cost-sharing.

- The freezing of governmental grants or subsidized loans where these forms of financial assistance are common, and especially where inflation is endemic, as the government's expenditures on financial assistance can decline in real inflation-adjusted terms without the more politically contentious need to actually cut the financial aid.

- Similarly, a shift in financial assistance from grants to loans: a regular practice and a significant form of shifting costs from taxpayers to parents and students in the United States and the United Kingdom, but less common in Sub-Saharan Africa where student loan schemes are far smaller and less successful.

- Where student loans are extensive, as in South Africa and Kenya, a reduction in governmental subsidies via an increase in the rate of interest (or other adjustments in income contingent forms of repayment obligations) constitutes a theoretical way to further shift costs toward students—but political resistance is formidable, and South Africa seems in 2013 to be moving in the opposite direction.

- The encouragement and partial subsidization of a demand absorbing and tuition fee dependent private sector, particularly when coupled with a limitation on the size of the public sector (a principal form of cost-sharing in South America and much of East Asia) is a final way to advance a policy of cost-sharing and to accommodate the surging enrollments in Sub-Saharan Africa at less cost to governments.

Cost-sharing in Sub-Saharan Africa

Cost-sharing in public colleges and universities, especially in the guise of tuition fees, remains deeply contested in Sub-Saharan Africa. Its proponents maintain that at least a modest tuition fee is affordable to many or even most families—particularly with generally-available student loans and targeted (means-tested) student assistance. Furthermore, as the free or very low tuition continues to be partaken of predominantly by middle and upper middle class families (i.e., those who have finished high school and passed the higher education entrance exams) and paid for by all citizens (through value-added and consumption taxes and inflationary deficit financing), most economists and policy analysts believe that a measure of cost-sharing can actually advance equity. However, the most important (and least politically charged) rationale for some cost sharing is simply that African governments do not have the resources to continue meeting all of the rapidly increasing revenue needs of public colleges and universities, especially in the face of the surging enrollments, and considering all of the other compelling needs for public revenues, such as elementary and secondary education, public health, social welfare, and public infrastructure.

Opponents of cost-sharing maintain that the surging enrollments and other needs can be accommodated mainly through higher taxes on corporations and the financially well-off and through cutting wasteful governmental expenditures—especially those associated with patronage and corruption—as well as wasteful expenditures in the universities themselves. They maintain that ensuring access to higher education must be at the very highest priority; that most African families cannot afford any tuition fees; and that student loans simply do not work and thus do not effectively supplement governmental revenue. Finally, some opponents see the push for cost-sharing as coming largely from the World Bank and the rich nations advancing the so-called Washington Consensus in favor of liberal capitalism.

Austerity and Cost-Side Solutions

Although the proponents of cost-sharing and other solutions on the revenue side—coming both from donor countries and development agencies and from African politicians and university leaders—continue to advocate for additional revenue via tuition and other fees, most would also maintain that some of the solution to the worsening austerity of Africa's colleges and universities can and must come from resource reallocation and other often painful efficiency measures. Some point to institutions that have been added, and sometimes promoted to full university status, with insufficient budgets, faculty, infrastructure, or clear demonstration either of national need or the ability of the government to afford the expansion. Non-teaching staff in many universities tend to be large; instructional loads among faculty often uneven; and the authority of deans and department chairs

frequently compromised by faculty and civil service agreements and political interference. And the potential savings from massive expansion of instructional technology—difficult to realize even in countries with near ubiquitous access to computers and ample Internet bandwidth—are even more problematic in Sub-Saharan Africa.

It would be easy to overestimate the savings that can realistically be made from added productivity, as colleges and universities everywhere are difficult to change and particularly resistant to efficiencies, especially when promoted by management, and perceived to come from outside the university culture (and even more so from outside of the country, as from the World Bank or other donor agencies). And it is more than likely that virtually all of the obvious cuts and efficiencies have long been made—with the principal exceptions being the politically difficult shedding of less productive and less critical faculty and staff, and the equally difficult large-scale adoption of courses and degree programs via the Internet. Nevertheless, there are almost certainly efficiencies that are being adopted throughout the world that might alleviate a bit of the austerity of Sub-Saharan Africa's colleges and universities. Most of these are changes in governance that strengthen the hands of college and university heads and deans of faculties to reallocate resources, alter workloads, shed unnecessary staff, differentiate salaries, outsource certain non-academic functions such as the provision of food and lodging, and maintain short-term savings for future investment (rather than lose all unspent resources at the close of every fiscal year). Major impediments to such efficiencies in most countries (in Africa and elsewhere) include the power of regional politics, and resistance of faculty and staff to changes that might threaten jobs.

In the end, the goals of expanding capacity, enlarging accessibility, and improving the quality of higher education—both of teaching and learning and of research—will require from African governments a combination of increased public revenues, the politically difficult acceptance of modest advances in cost-sharing, and the equally difficult strengthening of university management. African countries accepting such steps will also need material and technical help from donor agencies and partnerships with colleges and universities in the US and other countries committed to strengthening higher education in Sub-Saharan Africa.

In light of this discussion, we recommend the following:

4A. Develop innovative public-private partnerships to support the funding of the African higher education institution

4B. Strengthen the capacity of the African institution to develop a variety of cost-sharing mechanisms where they currently do not exist; and

4C. Build capacity to enhance planning and budgeting at the institutional level

It is critical to note that in some countries, the task of developing cost-sharing mechanisms and enhancing planning and budgeting will not lie at the institutional level because authority for such matters resides at the government level. In those cases, the focus of support should be on efforts to devolve governing authority to the institutions.

Efforts to achieve these capacity building priorities would likely entail:

- Examining and assessing academic appointment, promotion, and workload policies;
- Studying faculty development practices;

- Examining and assessing policies and procedures for expanding student access through institutionally-delivered financial assistance
- Strengthening institutional research capabilities for the purpose of addressing such issues as student persistence, time-to-completion, and appropriateness of selection criteria;
- Examining policies and procedures for effective partnerships with the private, public and non-profits sectors;
- Studying the costs and benefits of alumni and development offices and how African universities might acquire fund raising capabilities.

Summary of institution-level priorities

In sum, the institution level priorities for USAID investment that we have identified include the following:

1. Professional Development of faculty and staff
    - Individual training of faculty and staff (long-term or short-term) should be done using USAID's HICD framework. This requires a clear understanding of the institution's needs and a longer-term plan for the institution.
    - A comprehensive faculty and staff development strategy needs to take into account both recruitment of new faculty and staff as well as retention and development of existing faculty and staff. Establishing a broader support structure for faculty development can help maximize the effectiveness of individual training efforts.
    - Faculty development must go beyond strengthening disciplinary knowledge. Faculty development efforts must focus on a suite of essential skills, among them: Active teaching; research; employment of new technologies in teaching; and the skills necessary to acquire external financial support.
    - Developing a comprehensive faculty development strategy requires examining the incentive structure for faculty and creating policies that better align incentives for individuals with the goals of the institution.
2. Strengthening the Capacity of Institutions to Use Labor Market Data to Improve Quality and Relevance
    - Assist African HEIs to improve quality by investing in quality assurance mechanisms internal to the institution.
    - Assist African HEIs in developing ways to more closely interact with stakeholders in the public, private and civil society sectors.
3. Strengthening the use of and experimentation with e-learning in African higher education institutions
    - USAID's e-learning investments should focus on increasing the use of e-learning tools by existing African universities rather than focus on developing fully online alternatives.
    - Incentivize international collaboration and public-private partnerships to promote the adoption of innovative, scalable approaches to blended learning.
    - Establish regional centers of leadership for the development and implementation of e-learning in African Higher Education.

4. Supporting the Search for Other-than-Public Revenue for Higher Education
    - Develop innovative public-private partnerships to support the funding of the African higher education institution.
    - Strengthen the capacity of the African institution to develop a variety of cost-sharing mechanisms where they currently do not exist.
    - Build capacity to enhance planning and budgeting at the institutional level.

PROGRAMMATIC HIGH PRIORITIES AT THE COUNTRY LEVEL

As discussed above, there is a need to tackle system-level challenges in concert with institutional level challenges, since bottlenecks often exist at both levels. Given the need to address challenges at both the institutional and system levels, we recommend that USAID implement two parallel, but coordinated, programs in focus countries: one that focuses at the institutional level and one that involves engagement with the national statutory body that governs higher education (the relevant ministry or the national council for higher education) and other appropriate in-country policy makers and thought leaders. This section discusses the priorities for the latter: investment at the country-level.

1. Assessing and Improving Overall Quality of Higher Education Institutions including Responsiveness to Labor Markets in Sub-Saharan Africa

The quality of higher education is a critical factor in how productive investments in higher education institutions ultimately prove to be. It is undisputed that quality matters a great deal in education in general, and in higher education in particular. Therefore, efforts to measure learning outcomes and cognitive skills development and adjust educational processes to achieve desired outcomes will be critical in assuring that higher education is contributing as much as possible to economic growth.

In assessing and strengthening the quality of HE, it is important to remain focused on the outcomes of the educational process, rather than looking solely at inputs or intermediate outputs such as grade levels for individuals, percentage of students who graduate in a certain time or number of students enrolled. One of the most important outcome measures is the higher education institution's responsiveness to the labor market. Although this may be difficult to measure with precision quantitatively, there are a variety of ways to monitor responsiveness to the labor market. Other outcomes of a high-quality tertiary education that are important for contributing to longer term national development include:

- The ability to think critically
- The ability to communicate effectively in written and oral form
- Understanding the global scope of disciplines and development
- Sensitivity to broader issues affecting development than ones relevant to the degree received
- Understanding the culture and societies in the geographical areas of importance to national development.

These outcomes can give an indication of how well individuals are educated and how prepared they are to participate in broader social and economic development through time. They are also important in the labor market, but do not relate to specific technical knowledge or proficiencies defined by the first job a graduate receives. Measuring the achievements of these outcomes is not easy, but there are ways to do so. Graduates' achievements in these areas can also serve as a comparative measure across different institutions and in different countries.

One way of improving the quality of higher education institutions is to invest in processes and people who consistently focus on questions of quality in national organizations or ministries. These processes in many countries involve accreditation of institutions and particular programs. While accreditation is important, it is equally important that accreditation processes focus on providing resources and assisting institutions and programs in strengthening the quality of their educational outcomes. Given this approach, we refer to these processes as quality enhancement and accreditation. These quality enhancement and accreditation processes are extremely important because in many countries, public and often private funding is based on the outcomes of these assessments. Given the increase in the number of HEIs in Africa, some sense of the quality of HEIs is essential to employers and other stakeholders interacting with universities and technical colleges.

Discussions about quality enhancement and accreditation provide a framework for determining what outcomes are desired from HEIs at the national level. This conversation allows public, private and civil society institutions to articulate their interests in higher education outcomes and policies. In turn, the conversation around national quality enhancement and accreditation provides an opportunity for HEIs to voice their perspectives about what is being requested of their institutions, how those expectations might be incorporated into their institutions, and what challenges they may encounter. The discussions and decision processes surrounding the questions of quality and accreditation are important in developing a more explicit and coherent higher education policy framework.

1A. We recommend that USAID invest in strengthening higher education Quality Enhancement and Accreditation (QEA) processes in the countries of focus at the country level.

Quality enhancement and accreditation processes for both institutions and individual academic programs should develop outcome measures to use in accreditation assessments. These outcome measures attempt to measure how well graduates can perform various tasks and how well they understand broader issues. The outcome measures developed at the national level for institutions and programs should be developed with the full cooperation of the institutions and individual programs to be assessed, in addition to private and public sector stakeholders.

Many countries and African continental organizations already have accreditation units and processes established, so these recommended investments will need to be tailored to existing conditions and contexts. These investments would likely focus on the following:

- Working with higher education systems and governments to ascertain what responsibilities national QEA units should have.
- Defining what organizational form these units should take—whether they are to be part of a government ministry or be a separate more independent unit possibly established by the higher education institutions within the nation.
- Educating and training leaders and staff within the QEA units.
- Assistance in establishing educational outcomes to be achieved by graduates and how these can be measured.
- Rules and regulations about the consequences of accreditation outcomes for both institutions and individual programs.
- Developing a system which works to assist higher education institutions and individual programs to better prepare for QEA visits and to continuously improve their quality.

Quality enhancement and accreditation processes are relatively new to higher education systems and institutions in many countries, including some higher-income nations. There are a variety of measures and processes used at the national level in different countries to assess and strengthen quality, so there are many useful examples from which to learn as these systems continue to develop in Africa.

In many countries, the most appropriate first step in increasing investments in this area would entail organizing a national-level workshop that would bring the key stakeholders together to assess goals and examine how other nations are doing quality enhancement and accreditation work. To invest wisely in developing and/or strengthening quality enhancement and accreditation processes in countries, it is important to bring together the full range of relevant stakeholders involved, not only those in HEIs, but also those in educational policy development and employers from private, public and civil society organizations. These workshops, if organized well, would involve not only the various relevant stakeholders in a country, but also people who can speak about relevant experiences from other countries. These kinds of workshops can provide a way for the various stakeholders to work together on developing a draft plan for developing and/or strengthening the quality enhancement and accreditation work in the country of focus.

There are several resources to draw from in developing national level workshops and seminars in quality enhancement and accreditation. In some parts of the world, foundations have been established to assist national units and HEIs in learning how quality assessment and accreditation work is done in various programmatic fields. For example, the Accreditation Board for Engineering and Technology (ABET) accredits applied science, engineering, computing and technology programs at many institutions in the U.S. and in other countries. As a way to assist countries and institutions developing accreditation programs, ABET has established an independent institution – the ABET Foundation – which seeks to assist in understanding and preparing for accreditation in these science, engineering, and technology fields. The ABET Foundation provides technical assistance, training, workshops and other services that help institutions develop and prepare for accreditation reviews.[29]

There are other experienced people available through such foundations and other institutions who can provide technical assistance for national and institutional level units in preparation for and implementation of programs in these areas.

2. Assessing and Improving the Responsiveness of HEIs to the Labor Market – Country Level Recommendations.

In both industrialized and developing countries, labor markets are dynamic. People are constantly changing their jobs, learning new skills from their work or formal courses, moving to new locations and in and out of the labor force, and changing the hours they work. At the same time, enterprises are being established, are growing and dying, are altering the size of their workforce, are recruiting strategic new skills and are training some of their existing staff with the required incremental skills.

The education and training system does not need to attempt to identify every future skill vacancy and then train someone to fill it. In any event, it is not possible to predict with accuracy the future demand for or supply of skills. There are, however, some basic features of the evolving global economy that must be kept in mind as African universities prepare themselves and their students for the future.

An important part of the attempts to obtain a closer match between the supply of and demand for skills in the labor market, is obtaining a better understanding of the relationship between the education and training system and the labor market. In particular, we need to know more about the relationship

between education qualifications and jobs; the impact of education and training on labor productivity; the relationship between education and earnings; and the effects of education on inequality.

Studying labor market outcomes can be an effective way of enhancing a country's understanding of these education-economy/education-labor market relationships and how to adjust HEIs' educational processes to more closely fit the nation's need for educated people.

The most common forms of studies relating to labor market outcomes are graduate surveys and/or tracer studies. The ILO (2005)[30] defines a tracer study as an "impact assessment tool where the impact on targets is traced back to specific elements of a project or program so that effective and ineffective project components may be identified." Schomburg (2003)[31] noted that tracer studies or 'graduate surveys' are commonly used to analyze the relationship between higher education and work. They provide quantitative structural data on employment and career, the character of work and related competencies, and information on the professional orientation and experiences of their graduates.

Although there is evidence of attempts in SSA generally and South Africa specifically to measure the responsiveness of education and higher education to the labor market, these have been mainly undertaken on an ad hoc basis by universities and other research institutions. There is no evidence of any SSA country undertaking systematic evaluations of the relationship between education and work as there are in such countries as Australia, Canada, UK, USA, and South Korea.

2A. Invest resources to work with Sub-Saharan African governments of focus, specifically Ministries of Education or Commissions or Councils of Higher Education, Economic Ministries, and in-country statistics agencies, to develop and implement processes to assess on an ongoing basis the responsiveness of higher education to the labor market.

In SSA, there appear to be few countries that have made attempts to consistently assess the responsiveness of the education and training system in general, and higher education in particular, to the labor market.

Measuring the responsiveness of higher education to the labor market is critically important for reasons of systemic and institutional efficiency. Such assessments can inform relevant government agencies about how effectively scarce resources are being used in producing graduates that contribute to the labor market and the economy.

The evidence suggests that governments or independent organizations, rather than higher education institutions, should take responsibility for evaluating the responsiveness of higher education to the labor market, in order to minimize the impact of subjectivity on the part of institutions. However, HEIs should make efforts to assess the experience of their own graduates in terms of employability and whether and what skill sets were developed that they utilized in employment.

The case for USAID to encourage governments to systematically assess the responsiveness of higher education to the labor market is strong primarily because it can substantially enhance the utilization of scarce public resources as well as contribute to improving the 'internal efficiency' of higher education institutions.

As is the case for investments in quality enhancement and accreditation and in developing and strengthening systems to assess the responsiveness of higher education to labor markets, it is critical that all stakeholders have an opportunity to participate fully. In this case, the relevant stakeholders

are HEIs, government agencies focused on higher education policy and regulation, institutions hiring graduates, and statistical units or private sector firms involved in developing data about employment, wages, and skills needed in the labor market. If tracer studies are to be developed at the national level, all of these groups should be engaged in designing such studies. If more sophisticated national panel studies are to be developed, these groups will also need to be involved in advising the decision process and in determining the most important data to be collected and how it should be reported.

To involve these groups together and work on the process of deciding what kind of policies should be developed, USAID should consider as a first step convening workshops in the countries of focus, if appropriate to the country in question. These workshops could be used to demonstrate good international practice (including that of other African nations) in the area of assessing the responsiveness of higher education to the labor market, and enable countries to draw appropriate lessons for their specific situations.

These workshops should include people from Ministries, HEIs, national statistical units and employers, and should focus on, among other things, how to develop plans for assessing responsiveness of higher education to labor markets in the countries represented. How each nation would develop or modify their assessments of higher education responsiveness to labor markets would vary, depending on the current assessments being used and their individual institutional and legal frameworks. However, these initial plans would be useful in finalizing how these assessments can best be done in follow-up work.

USAID can then follow up with supporting countries who demonstrate the greatest interest and commitment to further develop and implement assessments of HE's responsiveness to labor markets. As these investments are made, it would be important to learn from these experiences and use that new knowledge in other countries with similar challenges.

3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education

Higher education places great demands on telecomm facilities. In many countries in Africa these demands are not being met. In part, this is due to regulatory regimes which are not friendly to such demands. The political will for widespread regulatory reform could have a major beneficial impact on the adoption of e-learning. Sustainable investment on infrastructure and e-learning resources requires the full awareness of policy makers of the implications of connectivity, applications, services and e-learning. E-learning needs to be integrated into the broader policies of education and ICTs. Donor assistance could help support dialogue between higher education advocates and other stakeholders involved in setting telecom regulations.

3A. Facilitate discussions between policy makers and higher education institutions to design policy to align telecom regulations with the needs of higher education.

As part of this effort, support to the development of a model framework for accessibility, bandwidth, and costing for ICT in higher educational institutions would help guide this dialogue. There are several potential partners to engage with in this work, including the World Bank, African Development Bank, African Union Commission, and the Association of African Universities.

4. Working with ministries on finding solutions to the finance challenges of higher education

It is inevitable, given serious public resource constraints, that the higher education sector must look at alternative mechanisms for generating funding to enhance access and equity. Among the funding

mechanisms that need to be considered are some form of cost-sharing (as described in detail in the preceding sections) and the development of loan schemes that promote access and equity and are efficient in terms of cost recovery. A third issue relates to the development of a funding formula for higher education that can promote the more effective utilization of scarce financial resources and enable governments to achieve broader objectives of the higher education system (e.g., appropriate human resource development). Finally, consideration needs to be given to strengthening the private sector component of higher education.

In the light of the coverage of 'cost-sharing' in earlier sections, this sections examines the potential for the other three financing issues, namely, the development of a loan scheme; the establishment of a higher education funding formula; and the introduction of policies to strengthen private HE.

4A. Support the development of student loan schemes and build capacity to enhance planning and budgeting at the system level.

Important lessons can be drawn from the South African and Kenyan experience with regard to designing and implementing an effective student loan scheme. These schemes are directed at students from poor households who are identified as having potential to succeed at university. They undergo means testing, and if successful, obtain a loan for study at university. These loans are income-contingent and must be paid back when the student graduates and gains employment. In South Africa, part of the loan is converted to a grant on the basis of success. The South African and Kenyan schemes are specifically designed to address issues of equity, although there is criticism of the Kenyan scheme because it does not provide adequate loans to poor students in the private higher education sector.

4B. Support the development of a higher education funding formula to promote more effective utilization of financial resources and attainment of higher education objectives.

The funding framework developed in South Africa in the post-apartheid era re-conceptualized the relationship between institutional costs and government expenditure on higher education. This framework is seen as a distributive mechanism, that is, a way of allocating government funds to individual institutions in accordance both with the budget made available by government and with government's policy priorities.

The funding framework developed for higher education in South Africa has a number of important implications for equity and efficiency including enhancing predictability, ensuring recognition of budget constraints, and promoting institutional autonomy and equity. First, funding predictability is enhanced by providing indicative allocations to universities for a three year period as part of the country's Medium Term Expenditure Framework (MTEF) – this three-year allocation system enhances certainty of revenue flows a key ingredient for effective institutional planning. Second, funding is provided within the context of the country's overall budget constraints which are clearly spelled out for each three year period. Third, funding is not linked to programs except in the broad sense of encouraging the institution to address the critical skills shortages facing the country – however, the process is not prescriptive, thus protecting institutional autonomy. Finally, the funding formula provides an incentive to encourage institutions to accept individuals from 'previously disadvantaged' backgrounds, i.e., students from households that were prevented from accessing higher education in the previous apartheid era.

4C. Support the development of national policies and regulations regarding the effective operation of private higher education institutions; strengthen quality assurance and accreditation procedures for private HEIs; assist governments in exploring alternative funding models for private higher education; and support research into the external efficiency (that is, responsiveness of higher education to the labor market) of private higher education in SSA.

It is evident that private higher education is expanding at a rapid rate particularly in light of the public sector's inability to substantially increase access. The private higher education system in Africa accounts for about 22 per cent of students in higher education, still significantly lower than that of Asia and Latin America.

Some emerging realities of private higher education in Africa include the following:

1. There is increasing 'privatization' of public higher education institutions (e.g., introduction of tuition fees) as well as the growth of private HEIs;

2. There are at least three types of private HEIs (PHEIs) in Africa. These are universities, colleges, and "other" HEIs, mostly in the area of vocational and professional training.

3. Some of the PHEIs are registered and recognized by public authorities (e.g., Kenya, South Africa, Zambia, Zimbabwe) while others are not (e.g., Cameroon).

4. The ownership patterns vary substantially by country: multinationals; collaboration with foreign HEIs; religious organizations; private firms; and collaboration with institutions in the same country.

5. African PHEIs typically have either a commercial orientation or a religious orientation. It seems the primary objectives of establishing a university are reflected in each university's curriculum. The for-profit institutions cater to the private business enterprises. Courses in business administration, computer sciences, accounting, marketing, economics and communication are very common in for-profit PHEIs.

6. In general, the private universities of recent origin offer courses that require less investment in terms of infrastructure and equipment. This contrasts with some of the private initiatives in other countries, such as India, where engineering and medical colleges, which require a high level of investment in infrastructure and other facilities, are common in the private sector.

A number of urgent challenges need to be addressed to promote the effective functioning of private HEIs in the region. These include:

1. More effective government regulation in several countries to ensure quality. Although little is known about quality of programs, anecdotal evidence suggests extremely poor quality in many private HEIs across a number of countries. At the same time, there is evidence of high quality in several, mainly large institutions, in a few countries.

2. Data collection by government on, inter alia, the number of institutions, enrollment, programs, and graduates;

3. Research into possible government funding of PHEIs, especially with regard to student grants/ loans and infrastructure financing.

4. Research into the 'external efficiency' of private higher education, i.e., the extent to which PHE students are able to access gainful employment in their respective labor markets.

Summary of System-Level Priorities

In sum, the system level priorities for USAID investment, paralleling the institution-level priorities, include the following:

1. Assessing and Improving Overall Quality of Higher Education Institutions including Responsiveness to Labor Markets in Sub-Saharan Africa
    - Strengthen higher education Quality Enhancement and Accreditation (QEA) processes in the countries of focus at the country level.

2. Assessing and Improving the Responsiveness of HEIs to the Labor Market – Country Level Recommendations
    - Work with SSA governments of focus, specifically Ministries of Education or Commissions or Councils of Higher Education, Economic Ministries, and in-country statistics agencies, to develop and implement processes to assess on an ongoing basis the responsiveness of higher education to the labor market

3. Strengthening E-Learning and the Use of Information and Communications Technology in Higher Education
    - Facilitate discussions between policy makers and higher education institutions to design policy to align telecom regulations with the needs of higher education.

4. Work with ministries on finding solutions to the finance challenges of higher education, including:
    - Supporting the development of student loan schemes and building capacity to enhance planning and budgeting at the system level;
    - Developing a higher education funding formula to promote more effective utilization of financial resources and attainment of higher education objectives;
    - Strengthening private higher education – by supporting the development of national policies and regulations regarding the effective operation of private higher education institutions; strengthening quality assurance and accreditation procedures for private HEIs; assisting governments in exploring alternative funding models for private higher education; and supporting research into the external efficiency (that is, responsiveness of higher education to the labor market) of private higher education in SSA.

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3. Regarding external funding and partnerships, it is important to point out that universities across the globe are partnering for research, public engagement and faculty and student exchanges, without any external assistance. However, African universities are largely left out of those arrangements due to a lack of resources – which is why external funding for partnerships is important. African universities' disconnect from global knowledge flows is a large part of the quality challenge facing African HEI.

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6. USAID. Partnering for Impact: PPPs and USAID's Global Development Alliance Approach. http://idea.usaid.gov/sites/default/files/attachments/PPPs_vs_GDAs.pdf

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8. Cloete, N. at al. (2011) Universities and economic growth in Africa. Center for Higher Education Transformation (CHET) South Africa. For the executive summary see: http://chet.org.za/files/uploads/books/CHET%20HERANA%20Synthesis/CHET%20HERANA%20Synthesis%20Executive%20Summary.pdf?download=1

9. Pardey, P.G. and J.M. Beddow (2013) Agricultural Innovation: The United States and the changing global reality. Chicago Council on Global Affairs.

10. The duration of external funding is a crucial factor affecting the success of higher education partnerships. Many analysts and participants have concluded that success in achieving the objectives set forth in research and development partnerships requires support for long-term engagements with a minimum of 10 years. Johanson and Saint predict that support for 20 years or more will be needed to meet the training needs for agricultural scientists in Africa. (Richard Johanson and William Saint (2007). Cultivating Knowledge and Skills to Grow African Agriculture. A Synthesis of Research Commissioned by the World Bank.)

11. Gilboy et al. (2004) Generations of quiet progress: the development impact of U.S. long-term university training on Africa from 1963 to 2003. Aguirre International for USAID under the Global Evaluation and Monitoring IQC.; Gilboy, Andrew; Flora, Cornelia; Raphael, Ron; and Pathak, Bhavani. 2010. Agriculture Long-term Training: Assessment and Design Recommendations. BIFAD (2003) Renewing USAID Investment in Global Long-Term Training and Capacity Building in Agriculture and Rural Development. Report to Administrator Natsios.

12. Gilboy et al. 2004 and 2010.

13. Ibid.

14. BIFAD (2003) Renewing USAID Investment in Global Long-Term Training and Capacity Building in Agriculture and Rural Development. Report to Administrator Natsios.

15. See Appendix A for more discussion of this point.

16. http://test.acui.org/uploadedFiles/Programs/Professional_Development/Teferra.pdf

17. MCC report

18. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/03/14/000333038_20080314035107/Rendered/PDF/429110PUB0High101OFFICIAL0USE0ONLY1.pdf

19. MCC report.

20. (USAID 2006: 175); MCC report – p. 58.

21. MCC Report. "For example, the University of Malawi had 58 students per teacher in basic science compared with a plan of 29 students. The University of Zambia had twice as many students per staff as planned in science. The University of Lagos had 46 students per teacher compared with its plan of 29 students. Student-staff ratios almost doubled from 15:1 to 29:1 between 2000 and 2008 at the University of Ghana. In many cases overcrowding has replaced underutilization as a management challenge." P. 58.

22. UNESCO 2010: 370; ANTSI: 32; Tettey: 5; World Bank 2009: 89; MCC report.

23. The following best practices have been identified for funding graduate education outside the home country:

    - The MSc or PhD thesis research should be conducted in the home country on a problem that matters to the local or regional development context;
    - When it makes sense, allow for basic graduate courses to be taken in Africa or online to reduce costs and time away from home;
    - Require and incentivize regular contact between the student and the home institution during graduate education abroad;
    - Encourage and support the establishment of a mentoring program to link the student to senior leadership in the university;
    - Encourage and support participation of the individual in relevant African and global networks.

    USAID's 2010 report on long-term training in agriculture is a useful guide in developing these long-term educational programs – in any sector – and recommend USAID carefully consider the recommendations in that report regarding long-term education discussed above.

24. E-learning Africa 2012 report, http://www.elearning-africa.com/media_library_publications_ela_report_2012.php

25. http://blended.online.ucf.edu/about/benefits-of-blended-learning/

26. http://ocw.mit.edu/courses/special-programs/sp-772-internet-technology-in-local-and-global-communities-spring-2005-summer-2005/index.htm

27. An extensive discussion about 2iE business model is available at Michael Trucano's blog – http://blogs.worldbank.org/team/michael-trucano

28. The distinction between "center of leadership" and "center of excellence" is made in order to emphasize that the focus of the center should not be on excellence at one institution, but rather an outward focus: strong leadership in one institution with a mission to promote and support change at many.

29. http://www.abet.org/abet-can-help/

30. International Labor Organization, 2005, Thesaurus 2005, Geneva

31. Harald Schomburg, 2003, Handbook for Graduate Tracer Studies, Centre for Research on Higher Education and Work, University of Kassel, Germany

CONCLUSION

Reforming institutions and strengthening institutional capacity is one of the most difficult tasks in development. It is one thing to build a road, a school, or a hospital; but to get human beings "to use the physical stuff available to produce the flows of improved services (learning in schools, water to farmers, cures for patients) that lead to desirable outcomes for citizens has proven much more difficult."[1] This challenge expresses itself in numerous other ways. Even when policy reforms are enacted, for instance, it is an entirely different question whether the reforms are *implemented*. There are, unfortunately, many examples of this challenge. While transforming institutional norms, cultures, and practices takes time, such efforts are essential in the context of a larger development push.[2]

A number of scholars have argued that poorly performing institutions are a pervasive problem in developing countries in part because of the way donor-funded development has traditionally been practiced. In their analysis of this challenge, Andrews, Pritchett and Woolcock (2012) argue that "development interventions—projects, policies, programs—create incentives for developing country organizations to adopt best practices in laws, policies and organizational practices which look impressive (because they appear to comply with professional standards or have been endorsed by international experts) but are unlikely to fit into particular developing country contexts." As a result of these donor-driven incentives, organizations often wind up *mimicking* reform, but not genuinely *pursuing* reform. They do so because it enhances the organization's perceived legitimacy and therefore ensures support for the organization, even when the so called best-practices do not demonstrably improve performance (as measured by end results, not quality or efficiency of process).

These strategies of mimicry add up to what Andrews *et al* call "capability traps: a dynamic in which [entities] constantly adopt reforms to ensure ongoing flows of external financing and legitimacy yet never actually improve."[3] As a result, externally-funded development projects can in fact undermine the capacity of developing country institutions.

It is possible, however, to create the right conditions and incentives to build institutional capacity with external assistance (financial and/or technical). To do so, though, requires some careful thought and attention to the role of external assistance.

USAID's Human and Institutional Capacity Development (HICD) policy represents a sophisticated understanding of the needs and challenges of institutional performance improvement and provides some good guidance on designing and managing capacity building programs. Although the policy is strong, it does

not seem to be implemented very often. Indeed, most of the individuals we spoke to in preparing this report, both in and outside of the Agency, who work or have in the past worked on human and institutional capacity development projects in higher education, were completely unaware of the policy or even of the concept of HICD as defined in the framework. Therefore, considerable work needs to be done to expand the understanding and implementation of the HICD framework.

We conclude with these remarks to point out that while we have, in this report, identified a number of programmatic priorities for investment based on our research and experience, we feel that our most important recommendations are those focused on *how* we ought to approach higher education capacity strengthening, rather than on *what* we should invest in.[4]

Lastly, we wish to close by saying that we hope this report can serve to stimulate dialogue with the Agency and with our African colleagues on the way forward from here. This is certainly not the first word, and most definitely not the last. There is much more to be examined and discussed.

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2. One documented example is of the adoption of public financial management reforms in Africa, where "the higher level and surface processes changed (e.g., how budgets were written and new accounting techniques were adopted) but how the core processes determining how money was actually spent remained impervious to reform." Andrews (2011) from Andrews, et al., 2012.
3. Andrews, et al., 2012.
4. Appendix A offers some further discussion of this question of how.

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APPENDIX A

Rethinking Program Design and Management Frameworks to Better Fit Institutional Capacity Building

A number of scholars have argued that poorly performing institutions are a pervasive problem in developing countries in part because of the way donor-funded development has traditionally been practiced. In their analysis of this challenge, Andrews, Pritchett and Woolcock (2012) argue that "development interventions—projects, policies, programs—create incentives for developing country organizations to adopt best practices in laws, policies and organizational practices which look impressive (because they appear to comply with professional standards or have been endorsed by international experts) but are unlikely to fit into particular developing country contexts." As a result of these donor-driven incentives, organizations often wind up *mimicking* reform, but not genuinely *pursuing* reform. They do so because it enhances the organization's perceived legitimacy and therefore ensures support for the organization, even when the so called best-practices do not demonstrably improve performance (as measured by end results, not quality or efficiency of process).

These strategies of mimicry add up to what Andrews *et al* call "capability traps: a dynamic in which [entities] constantly adopt reforms to ensure ongoing flows of external financing and legitimacy yet never actually improve."[1] As a result, externally-funded development projects can, in fact, undermine the capacity of developing country institutions.

It is possible, however, to create the right conditions and incentives to build institutional capacity with external assistance (financial and/or technical). To do so, though, requires some careful thought and attention to the role of external assistance.

What follows here are guidelines and recommendations based on the work of Andrews, Pritchett, and Woolcock as well as the project planning approach being developed within the CGIAR, called Participatory Impact Pathways Analysis (PIPA). It is also informed by our own analysis of USAID programs, policies, and practices.

PDIA is a framework that synthesizes the recommendations and analyses of a number of scholars and development practitioners from different sectors and disciplines. The framework is discussed in depth in "*Escaping Capability Traps through Problem Driven Iterative Adaptation (PDIA)*" and the authors summarize it as follows:

(i) "Aim to solve particular *problems* in particular local contexts via

(ii) the creation of an authorizing environment for decision-making that encourages experimentation and positive deviance, which gives rise to

(iii) active, ongoing and experiential (and experimental) learning and the iterative feedback of lessons into new solutions, doing so by

(iv) engaging broad sets of agents to ensure that reforms are viable, legitimate and relevant—that is, are politically supportable and practically implementable."

These four aspects of the framework are summarized here:

1. The first step in building institutional capability should be to ask: what is the problem that needs to be solved? Focusing on problems and ensuring that the problems are locally defined and not defined solely by external partners can help minimize the external prescription of solutions. The process of defining the problem engages people to "assess the ambiguities and weaknesses of incumbent structures, to identify areas where these need to be broken down and de-institutionalized, and to look for better ways of doing things."

   One strategy that is increasingly used within the CGIAR system[2] for defining problems is called Participatory Impact Pathways Analysis (PIPA).[3] PIPA has all participants in a project, including project staff, key stakeholders, and the ultimate beneficiaries, construct together their program theory, which identifies problems to be addressed and makes explicit the many assumptions that go into defining the problem and the causal pathways that form the problem. Another tool for helping institutions and their stakeholders define problems is the "5-why technique," which pushes agents to identify a problem and then answer why it is a problem five times.[4]

   There are many different strategies, in other words, to helping organizations identify problems in a deep and deconstructive way.

2. It is important in attempting to build capacity for the external partner not to be the problem-solver, but to rather help facilitate the problem solving process. Externally-defined solutions are often not well-matched to the complexity of the local situation. "External agents may possess potential answers but those answers must still be experimented with through a process that *empowers the search* for technically viable solutions to locally perceived problems."[5] Often, a successful outcome is some kind of hybrid solution - bringing together ideas from many different places. An overemphasis on the implementation of best practices from the start goes contrary to this searching process. Often the search for solutions is as capacity strengthening as the implementation of the solutions. The perceived or real pressure to adopt external solutions and best practices is so great, that external partners must pay careful attention to this in their interactions with local partners, otherwise the risk is that solutions are adopted at the surface level but are not actually put into practice – again, mimicry.

The pressure to solve problems quickly, too, is a challenge. Successful, genuine reform is more often than not incremental, in order for the reforms to be politically acceptable and within reach of available resources.

3. A critical factor in making the search for solutions work is the establishment of learning mechanisms in order to assess the impact of the different steps taken toward reform. Again, external agents can play a key role in supporting the reform process by helping support the development and use of learning mechanisms. Different from traditional M&E which is usually done in relation to a pre-established plan (and therefore prescribed solutions at the start of the project) as well as done largely to satisfy the external partner's interest in assessing the project, this approach uses monitoring to provide immediate feedback loops to determine future action and further experimentation.

4. Finally, it is very important that the process of institutional reform does not follow a top-down approach. "Change primarily takes root when it involves broad sets of agents engaged together in designing and implementing locally relevant solutions to locally perceived problems."[6] Those at the top often have the most to gain from things staying the same; those at the bottom or even outside the institution usually have more incentive for things to change, but don't have the power to bring about change. Thus the reform process must engage both ends of the spectrum. This is another reason to invest deeply in institutions in order to get broad stakeholder input in a meaningful and sustained way.

While USAID's HICD policy handbook incorporates some of the principles of PDIA already, what is needed is to put these principles into practice more often. To do so, some fundamental changes to the way USAID awards and manages funding would need to be made. These might include:

1. *More time to respond to RFAs.* Short timeframes to respond to an RFA undermines the ability of developing country institutions to lead in the development of proposals. If one is to be serious about partnering with developing country institutions, more time is needed for partners to talk and jointly write the proposal, rather than having those entities (usually in developed countries) that are capable of responding quickly to RFAs draft proposals and find partners who are willing to "sign on" to what is proposed. This is especially important for capacity building efforts.

2. *Planning grants.* Planning grants that require this type of consultation and problem-identification would help give entities time and resources to do this work. Consultation and problem identification should not be a onetime thing done at the start of a project, however. Ongoing consultation throughout project implementation should be expected.

3. *Building in flexibility and rethinking M&E.* Grants need to be managed with the built-in expectation of course adjustment as implementation proceeds. This should not be penalized, although it needs to be managed. The monitoring and evaluation of capacity building programs also needs to be re-examined in this context. The principles of PDIA that apply to monitoring and evaluation should be given serious consideration in a review of the Agency's M&E framework as it applies to capacity building work.

ENDNOTES

1. Andrews, et al., 2012.
2. CGIAR: Consultative Group on International Agricultural Research.
3. PIPA was developed from work carried out by the Institutional Learning and Change Initiative led by the CGIAR. A paper describing the approach will soon be published in the Canadian Journal of Program Evaluation.

4. Consider the following example of this approach:

- The problem is that our students do not have the right skills upon graduation because the curriculum is not relevant.
- *Why does it matter?* Our students have difficulty finding jobs. Industry winds up hiring people from other places.
- *Why does it matter?* It is very costly to our country. We are investing resources into training but that training is not meeting needs.
- *Why does it matter?* This lack of relevance of our curriculum means that our institution does not get adequate financial support.
- *Why does it matter?* Without support, we cannot engage in research the way our faculty would like. We become even less relevant.
- *Why does it matter?* Industry does not see us as a partner in solving their needs and therefore doesn't seek out ways to work with us to improve our curriculum. We cannot expect them to come to us; we need to actively engage industry and government in shaping curriculum.

5. Greenwood, Suddaby and Hinings 2002: 60 in Andrews et al 2012.

6. Andrews et al., 2012.

APPENDIX B

Guidelines for selecting countries and institutions for focused investment

Focused investments will be more productive if they are made in countries and institutions that desire assistance in reforming and strengthening their higher education institutions, have demonstrated a commitment to this through their own actions and use of their own resources, and have the potential to impact large numbers of students. A process for assessing which countries and institutions to select for higher education investment programming should be developed based on specific criteria which indicate where such investments would be successfully implemented to maximize the contributions higher education institutions make to advancing national development goals. Some possible evaluative criteria can be taken from data already available while other criteria will be based on the best judgment of experts in the field.

The process of selecting countries needs to be tied to the process of selecting institutions if the primary focus of investment is ultimately on the institution rather than at the level of the entire system. Special attention should also be given to any existing regional plans that focus on the continent's higher education systems and institutions. We suggest the following criteria for assessing the focus of investment:

Questions to Consider at the Country Level:

1. Are there indications that national leadership is committed to strengthening higher education through policies proposed and implemented? Investment programs consistent with priorities of the nation's leadership will be more likely to have internal financial and political support for sustained impact if the investment program is considered as a high priority at the national level. Do national-level policies, plans, and activities reflect an understanding of higher education as playing a critical role in innovation and development, as a partner with the private sector, government and civil society?

2. *Is there a plan for higher education at the national education level? How was this plan developed?* Having a plan for higher education development that was developed through consultation with stakeholders is indicative that there has been national attention given to the sector and that there has been some analysis about priorities and programs that need to be implemented. Does the plan highlight the need to connect higher education to other sectors of society?

3. What is the present financial commitment to higher education in the public sector budget in countries with similar economic and educational levels? While this criterion may be useful in a broad comparison of commitment, unique national conditions may need to be considered to interpret these data.

4. *Do mechanisms for accreditation and other quality control processes exist?* Higher education systems require substantial attention to quality and relevance to contribute effectively to development. The attention to quality and relevance is often enhanced by outside accreditation processes. Nations that have developed these mechanisms are more likely to be interested in quality and relevance improvement programs that enrich their own accreditation efforts.

5. *What is the gross enrollment ratio for secondary school systems within the nation?* Research has shown that if these GERs and graduation rates are relatively high for the primary and secondary systems, higher education investments tend to have greater impact on economic growth relative to investments in the secondary and primary sectors.

6. Are higher education institutions within the countries sufficiently autonomous from government to be free to make administrative decisions, set curriculum, conduct research, and pursue public engagement activities? Higher education institutions need autonomy to embrace transformation, develop new ideas, teach new approaches, and engage in objective work on development challenges with a minimum of public sector control.

Questions to consider at the institutional level:

Some of these questions also involve country-level policy issues.

1. Is there strong leadership at the institution that will engage deeply and help to drive institutional reform efforts? Are there capable managers at the institution who can manage the partnership and projects that the partnership undertakes? Leadership and management are not the same sets of skills and both are required for success in leading institutional change. Obviously, the purpose of investing in capacity building is to further develop such capacity, but one needs a few key people in the right positions in order to drive the work that needs to be done. This is perhaps the most important of all the criteria identified here. If an institution does not have leadership that is willing to lead institutional change, then it is not a good choice to invest deeply in that institution.

2. *Does the institution have the potential to impact other higher education institutions in the country and region?* For the most part, we recommend that USAID focus on large public universities in developing countries because those are the universities that will produce the academics that will teach in the country's other higher education institutions. Choosing large institutions, furthermore, means that larger numbers of students are more directly impacted. However, having said this, smaller innovative institutions sometimes have a greater potential for reform because they do not have the bureaucratic challenges of a large and established university. The answer to this question will depend greatly on the larger context in each country.

3. Has the higher education institution developed, or is it committed to develop, financial mechanisms, other than through public funding, to support HE? Does it have the autonomy to do so? It is clear that financial sustainability is critical to higher education institutional development in the medium and longer term. Funding of higher education institutions from public sources will not keep pace with the financial needs of higher education institutions facing the large increase in demand for their services, especially if they provide access to the underserved. Assessing ability, plans, and progress to identify and engage other funding options is indicative of a country's commitment to address this important challenge.

4. *Are there indications that the higher education institution is outwardly focused?* Some indicators for this criterion might be the involvement of the private sector and external stakeholders in advisory activities, students in internships, faculty in consultancies, research that is focused on development priorities, engagement of private and public sector leaders in curricula design and program development, or a focus on regionalization or internationalization.