I. Introduction and Context

Country Context

1. Sub-Saharan Africa has an unprecedented opportunity for transformation and sustained growth. GDP growth in Sub-Saharan Africa has accelerated from an average annual rate of 2.0 percent during the 1990s to 5.5 percent in the last decade. Even though growth declined as a consequence of the global financial crisis, it has rebounded in 2010 thanks to prudent macroeconomic policies and financial support from multilateral agencies. This remarkable economic turnaround is the result of increasing macroeconomic stability, of reforms which have whittled away market imperfections and most consequently, of rapidly increasing global demand for the natural resource based commodities exported by sub-Saharan countries. Coming after more than two decades of stagnation, the recent spurt of economic performance is an encouraging development.

2. Despite this strong economic growth, Africa faces significant development challenges. Key among them is an undiversified production structure. Adding value to production and diversifying national economies by stimulating development of new competitive sectors is a significant challenge. Notably, the countries need to capitalize on the commodity boom to ensure domestic economic spillovers in the form of well paid jobs and seek to move into value-addition activities.
Also progress on the Millennium Development Goals (MDGs) has been rapid in some countries (such as Ethiopia, Ghana, and Tanzania). However, a disproportionate number of African countries will fall short of most of the MDGs, especially with regards to the health MDGs such as Maternal Health, where Mortality rate is 500 per 100,000 and child health where 3.8 million children below the age of 5 die annually. Food security and low productivity in agriculture is another considerable challenge, especially in the Sahel region where an estimated 15 million people are at risk for food security. Additionally, weak governance, state fragility, youth employment and climate change are substantial development challenges facing African countries.

3. There are immediate skill shortages in addressing Sub-Sahara Africa’s development challenges. African economies face unmet demand for highly skilled technicians, engineers, medical workers, agricultural scientists and researchers, particularly in the growing sectors of extractive industries, energy, water, environment, infrastructure, and in service sectors, such as hospitality, banking, and ICT. For instance, the extractive industries demand specialized civil, electrical and petroleum engineers as well as geologists, and environmental and legal specialists. Positions that are currently filled by expats. Another example of critically needed skills is the lack of health workers with the necessary training to oversee pregnancies and deliveries (Maternal and Child Health – MDG4&5), or treat infectious diseases. Further, agriculture experiences a revival in investments. However, these investments do not deal with the development of human capital - a critical element in the transformation of African agriculture. The lack of crop and animal scientists, as well as veterinarians, and agronomists has become a bottleneck in transforming agriculture in Africa. In sum, a number of development challenges will not be overcome without initiatives to produce the necessary high quality and relevant skilled human capital.

4. In the medium run, sustained economic growth and competitiveness for Africa requires more skilled labor and applied industry related research to increase technology absorption, total factor productivity, and generate new competitive sectors. Unsurprisingly, Africa is at the bottom of almost every knowledge economy indicator. For instance, it contributes with 0.07% of global patents applications, an indication of the continent’s technological leadership. The region has the lowest researcher-to-population ratio in the world with less than 100 researchers per million inhabitants compared to about 700 in North Africa, 300 in Latin America, and 1,600 in Central and Eastern Europe. Improving these indicators is not top priority for today’s economic growth. Nevertheless, while addressing specific immediate skill shortages, there is a case for investing into a foundation for future knowledge-based economic growth in Africa. Such investment would generate more high quality professionals with higher order skills, entrepreneurial spirit, and a research capacity, especially within life sciences, “hard” sciences, and technology. Part of the driving force of the East-Asian economic miracle was a relatively rapid build up of technical and technological workforce prepared by an ever-improving education and applied research system. These are also capacities which SSA requires for sustaining economic growth. These capacities will also be important for diversifying the African economies by increasing the likelihood of new economic growth sectors with higher value added. Nobody foresaw the creation of a US$100 billion IT-Business Processing Outsourcing industry capable of sustaining an estimated 12 million middle-income jobs in India, when 4 IITs were established in the 1950s.

Sectoral and Institutional Context

5. The tertiary education systems of Africa are currently not capable of responding to the immediate skill needs or supported sustained productivity-led growth in the medium term. The reasons are under-development of the tertiary education systems in Africa, no critical mass of
quality faculty and excellence, insufficient sustainable financing, inappropriate governance and leadership, disconnect with the demands of the economy, and inadequate regional integration.

6. Tertiary education in Sub-Saharan Africa is under-developed and has been a low priority for the past two decades. A strong focus on basic education has gradually led to a depletion of quality faculty and physical facilities within higher education as well as a backlog of reforms. Access to tertiary education remains the lowest in the world; only 5% of the relevant age group attends tertiary education. This is just one-fifth of the world average of about 25 percent. In regards to quality, not a single Sub-Sahara African university features in the rankings of the world’s best 500 academic institutions (excluding South Africa). With substantial improvements in basic education and strong economic growth, it is now time to invest in a targeted manner into post-basic education in Africa.

7. In order to be sustainable, increased investments into tertiary education will have to come from households and companies. Public funding is scarce and will not be able to indiscriminately backroll expansion and improved quality of higher education. This limitation has in 33 low-income SSA countries led to a per student expenditure decline from US$ 6,800 in 1980 to US$981 in 2010 (or most recent). Further, the majority of higher education students come from households that can contribute in a substantial way to the costs of higher education. Public funding should increasingly be targeted to low-income students or strategic areas of higher education where private investments are not forthcoming. Institutions should supplement public funding with fees, royalties, donations, etc. Furthermore, limited public programs could in a strategic manner incentivize private institutions to provide education in new areas of public policy interest, such as rural areas, S&T disciplines and post-graduate programs.

8. Tertiary institutions in Africa face severe constraints in terms of attaining critical mass of quality faculty. The average percentage of staff with PhD in public tertiary education institutions in Africa is estimated to be less than 20 percent (based on 10 countries in the region). Most departments do not have more than 1 or 2 senior professors. This prevents departments and universities from establishing vibrant research environments. The low salaries of faculty, lack of research funding and equipment as well as limited autonomy provide disincentives for professors to stay in African universities. This is particularly challenging for fragile and post-conflict countries where faculty often have left the country. There is a need to invest in a selective manner in faculty and a specific need to train faculty from fragile countries, preferably using institutions in Africa.

9. Governance and leadership is integral to the development of a tertiary education system that responds to the needs of an economy. Legal frameworks for governance and leadership in many African countries are generally commensurate with the development of good governance by requiring merit-based selection of chief-executive officers (Rectors/Vice-Chancellors), existence of governing bodies, academic autonomy, and reasonable financial autonomy. However, some countries have legal frameworks and governance practices that are not conducive for good governance. In these cases, policy changes are recommendable to ensure an arms-length between the government and the institutions, provide reasonable financial autonomy, and enhance accountability of the institution and the governing body. Further, dynamic and empowered institutional leadership is a critical drive of institutional excellence. In some settings, poor governance framework and leadership have led to disruption of basic functioning, such as students or faculty strikes and months delay of classes or exams. Investments into tertiary education should ensure that the governance framework is conducive to excellence, and take into account leadership quality in the selection of institutions to support.
10. There is a significant gap between labor market demand and programs offered by tertiary education institutions. This has led to high unemployment among graduates, mostly temporary, but still of significant economic and political influence. The gap is a result of several factors: (i) inertia in opening new degrees, including new Science and Technology degrees closely responding to emerging labor market needs; (ii) students have little or no work experience when graduating; (iii) limited employer input into curricula or the teaching-learning process; (iv) lack of focus on general employability skills, such as learning-to-learn, problem-solving, project and team-work, and communication skills; (v) degrading learning equipment and infrastructure for teaching; (vi) overall limited learning of students due to low teacher effectiveness, and the level of preparation of students entering from secondary education, and (vii) preparing and assisting graduates finding a job. These factors are in turn associated with the above sector shortcomings on lack of reforms, financing, and governance. Improving relevance and lowering unemployment is feasible and requires a concerted effort increase interaction between employers and faculty, place students in internships during studies, introduce new education programs and reshape curricula of existing programs, and invest in faculty training and learning resources together with increased measurement and accountability of graduates’ employment success.

11. Nurturing fast growth of private higher education is critical to offer more educational possibilities for youth. Over 1000 private non-university institutions have emerged in SSA, and private institutions now cater for 1 in 4 students. Growth of private institution takes place mostly in urban areas and low-cost bachelor programs oriented towards professional jobs. Public policy and funding could be oriented towards stimulating private growth and supporting equitable access, while focusing on public funding on areas of lower private return for institutions, but high social return, such as expensive life-sciences, science and technology disciplines, and post-graduate courses.

12. Building and sustaining capacity and excellence in tertiary education in resource-constrained African economies is particularly difficult. This is particularly challenging for smaller countries. For these African countries, a regional approach may offer part of the solution, particularly in critical, capital-intensive disciplines because: (a) few if any Sub-Saharan country will for the foreseeable future be able to establish sufficient critical mass of quality faculty on their own to attain academic excellence in the full range of specialties necessary to cater to specific skill needs for development. Only by pooling and concentrating talent and knowledge regionally can such centers of excellence attain quality; (b) quality universities are expensive. Few if any African countries will have the persistent means to fund centers of excellence; through regional collaboration and division of labor/investments can groups of African countries financially sustain quality universities; and (c) it would enhance regional cross-country collaboration to achieve economies of scale enhance the knowledge spillovers from research on common sub-regional problems.

Relationship to CAS

13. The proposed tertiary education program is under Pillar 1 of the World Bank Africa Strategy strengthening competitiveness and employment. This pillar includes a focus on investments in “areas of highest growth potential, a healthy and skilled workforce, women’s empowerment, and regional integration programs”. Consultations for the strategy revealed that education was the area in which the World Bank could make the biggest difference in helping Africa create jobs. People mentioned the urgent need to improve universities, increase academic contact with countries outside Africa, develop technical programs, and provide means to expand
access to higher education, including scholarships.”

14. The program is also aligned with the Regional Integration Assistance Strategy which coordinates interventions for regional public goods. This strategy foresees the proposed operation to facilitate economies of scale in the use of facilities, equipment, and staff in specialized fields of study; share innovations in curricula, pedagogy, and approaches to teaching, learning, and research across countries; and enhance cross-border research networks. The Regional Project will also ensure alignment to Country Assistance Strategies and portfolios.

15. National country strategies across Africa increasingly emphasize tertiary education for development. This is evidenced through the increasing dialogue between Ministry of Higher Education and donor community as well as increasing initiatives on higher education on the continent.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

16. The Project Development Objective is to strengthen the capacity of selected universities and their partner institutions to deliver high quality training and applied research at the regional level within areas of Science Technology Engineering and Mathematics (STEM), Health and Agriculture that are of particular relevance to Africa’s development.

17. The higher order objective is to meet the labor market demands for skills within specific areas where there are skill shortages affecting development outcomes and economic growth. Further, the project will, on a demand basis, invest in well performing universities that can start building a foundation for Africa to increase knowledge and technology absorption, and build knowledge-based competitive advantages.

Key Results (From PCN)

18. The proposed operation will have indicators for each of the program components, with its targets tailored to each aspiring Africa Center of Excellence (ACE). Preliminary key performance indicators are:

- Capacity to training:
  - No. of graduates from short-term specialized courses
  - No of students in new specialized Master and PhD programs
- Relevance to development:
  - Amount of revenue in joint research and consultancy
  - No. of Students with at least 3 months internship/placements
- Delivered regionally:
  - Share of non-national students and training of non-national faculty
- High quality of education:
  - International Accreditation
  - Research output

19. Intermediate outcome indicators will inter-alia capture equity aspects.

III. Preliminary Description
Concept Description

20. The project consists of two components; the first is to build capacity in competitively selected institutions to produce in-demand high skilled labor and applied research. The second will facilitate the regional impact through talent and labor mobility and support of M&E and project management activities.

Component 1: Producing in-demand specialized high skilled labor

21. Component 1 will support selected institutions to become Africa Centers of Excellence in STEM, Health and Agricultural Sciences within areas that are pertinent to developing graduates and knowledge solutions to enhance African development.

22. An estimated 5-15 higher education institutions will be selected through an open, transparent and merit-based selection process to become an African Center of Excellence (ACE). The selection process will entail three steps, namely; (a) Preparation of a long-list of potential ACE candidates (higher education institutions) based on criteria of potential for excellence. This draft list will be shared broadly for consultation; (b) call for proposals to those institutions on the long list, and (c) evaluation of proposals by independent African and international experts, and (d) submission of institutional proposals of a short-list of institutions.

23. To identify initial beneficiary institutions, a panel of African sectoral regional organization leaders met with the Bank team in December 2011. There was agreement on a set of criteria, which will still was further refined at another stakeholder consultation meeting in March 2012, as the basis for the identification of an ACE- “long list”. Institutions on the long list will have to demonstrate in their EOI that they meet the requirements, mainly referring to quality, financial sustainability, regionality and government commitment. Once selected, the institutions will received support in the form of two sub-components:

24. Sub-component 1: Building training and research capacity. This will be achieved by implementation of an institutional plan designed by the institution and reviewed by external experts. The plan will consist of an institutional specific mix of the following elements: (i) developing and offering new specialized short-term programs for nearly or just graduated professionals to prepare them for a job or for further professional development, possibly through e-learning; (ii) offering faculty development courses for faculty from other institutions; (iii) developing new or strengthening existing education programs, in particular post-graduate programs; (iv) increasing quality and relevance of existing teaching through revision of curricula based upon industry advice; (v) enhancing the research capacity of institutions to produce more applied research within the focus areas of the ACE for innovation and R&D; (vi) developing partnerships and outreach with the private sector and related communities to ensure linkages with relevant regional labor market and communities; (vi) international benchmarking and accreditation; (vii) improving management, governance, and leadership, and (viii) improving equity and reducing gender gaps, increasing admission of talented regional students and faculty.

25. Sub-component 1.1 will finance the following inputs: (i) shorter-term training of faculty and administrators, (ii) upgrading of qualifications of faculty (masters and PhD training); (iii) provision of learning resources and research equipment, (iv) linkages with private sector to ensure relevance of curricula and work-place learning, (v) minor rehabilitation for extension of existing facilities (the
need for construction will be reviewed during the preparation phase; however, no land acquisition will be undertaken), (vi) workshops, operating costs, conferences, and travel, and (vii) consultant services.

26. Sub-component 1.2: Sharing the gains across the region with partner institutions. This sub-component seeks, through networking with other higher education institutions, to raise quality of education in partner institutions and disseminate research findings to impact more beneficiaries. It will support developing of new or strengthening of existing partnerships between each ACE and (i) other higher education institutions located either in the host country or other African countries; (ii) other sector-specific institutions that deliver training or services in the area of expertise of the Center, and (iii) existing research and training networks in Africa the areas of STEM, Health or Agricultural Sciences. Linkages to existing networks will lead to joint research and training programs. Such partnerships will be achieved through clear memorandums of understanding where students and faculty temporarily rotate between each ACE and partner institutions improving their learning and teaching capacity (for example by being exposed to different learning environments, new knowledge and specialized learning resources such as libraries or laboratories) whilst simultaneously contributing towards the capacity development of the institutions they are visiting (contributing towards curricula development, faculty training, and or assisting in research etc). This sub-component will finance the following inputs: (i) travel and workshops, (ii) limited learning resources; (iii) consultant services, and (iv) operational costs.

Component 2: Facilitating regional impact

27. Sub-component 2.1 Talent and faculty Mobility. This sub-component will facilitate talent mobility and labor through scholarships and support to visiting students from partnership institutions (and vice versa) to gain exposure to different learning environments whilst simultaneously building capacity in the visiting institutions.

28. Sub-component 2.2 M&E and project management will aim to provide reasonable timely, sufficient, precise, and reliable information to assess and improve the performance of the selected institutions and the project. Further, there will be a strong focus on implementation support for project management, information sharing, and fiduciary capacity building. It will also finance financial and possibly technical audits.

Implementation Arrangements

29. The Project activities will be implemented by the selected Africa Centers of Excellence. The ACE will establish a team with an ACE coordinator, undertake take and develop fiduciary functions and capacity with project management and coordination support from the Regional Coordination Secretariat and technical assistance from existing staff and selected consultants as necessary.

30. A Regional Coordinating Secretariat will be responsible for funds under Component 2 which will be disbursed against a work plan and procurement plan. The Regional Coordinating Secretariat will be selected from among regional organizations involved in capacity building in Africa and has a long term mandate in higher education. It will be responsible for overseeing implementation of tasks, networking, monitoring and evaluation for the ACEs.
31. The project will operate under the overall guidance and oversight of a Project Steering Committee (PSC). The main task of the PSC will be to provide oversight and guidance on the project and direct ACEs to ensure the achievement of the project objectives. The Program Steering Committee (PSC) will consist of a small number of distinguished Africans representing a cross section of academia, the business world, and policy makers interested in the advancement of STEM, Agriculture and Health in Africa. These implementation arrangements described below are preliminary and will be further refined during the course of Program preparation.

32. The Program will be financed by the World Bank, in collaboration with other development partners. In accordance with existing World Bank guidelines, funds under Component 1 and 2 will mainly be channeled through national governments, and disbursed directly to the aspiring ACEs, based on agreed work plans, for them to implement the program.

IV. Safeguard Policies that might apply

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V. Tentative financing

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VI. Contact point

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