



March 8, 2019

**Closing Date: Wednesday, March 27, 2019
at 6:00 p.m.**

FROM: Vice President and Corporate Secretary

**Burkina Faso, Djibouti, Ghana, Guinea, Senegal
and the
Association of African Universities**

First Africa Higher Education Centers of Excellence for Development Impact Project

Project Appraisal Document

Attached is the Program Appraisal Document regarding proposed credits to Burkina Faso, Djibouti, Ghana, Guinea and Senegal; and proposed grants to Burkina Faso, Guinea and the Association of African Universities for a First Africa Higher Education Centers of Excellence for Development Impact Project (IDA/R2019-0055), which is being processed on an absence-of-objection basis.

Distribution:

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Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC, and MIGA

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON PROPOSED CREDITS

TO

BURKINA FASO IN THE AMOUNT OF EUR 19.2 MILLION (US\$22.0 MILLION EQUIVALENT)
THE REPUBLIC OF DJIBOUTI IN THE AMOUNT OF SDR 10.8 MILLION (US\$15.0 MILLION EQUIVALENT)
THE REPUBLIC OF GHANA IN THE AMOUNT OF SDR 42.9 MILLION (US\$60.0 MILLION EQUIVALENT)
THE REPUBLIC OF GUINEA IN THE AMOUNT OF SDR 4.6 MILLION (US\$6.3 MILLION EQUIVALENT) AND
THE REPUBLIC OF SENEGAL IN THE AMOUNT OF EUR 13.1 MILLION (US\$15.0 MILLION EQUIVALENT)

AND PROPOSED GRANTS

TO

BURKINA FASO IN THE AMOUNT OF SDR 7.9 MILLION (US\$11.0 MILLION EQUIVALENT)
THE REPUBLIC OF GUINEA IN THE AMOUNT OF SDR 2.7 MILLION (US\$3.7 MILLION EQUIVALENT) AND
THE ASSOCIATION OF AFRICAN UNIVERSITIES (AAU) IN THE AMOUNT OF SDR 7.2 MILLION
(US\$10 MILLION EQUIVALENT)

FOR THE

FIRST AFRICA HIGHER EDUCATION CENTERS OF EXCELLENCE FOR DEVELOPMENT IMPACT PROJECT

MARCH 6, 2019

Education Global Practice
Africa Region
Middle East and North Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective December 28/31, 2018)

(applicable to the Republic of Guinea and Republic of Djibouti, for which Negotiations took place in January 2019)

Currency Unit	=	United States
Guinean Franc (GNF) 9,110	=	US\$1
Djiboutian Franc (DJF) 178	=	US\$1
SDR 0.72	=	US\$1
EUR 0.87	=	US\$1

(Exchange Rate Effective January 31, 2019)

(applicable to Burkina Faso, Republic of Ghana, and Republic of Senegal, for which Negotiations took place in February 2019)

West Africa CFA Franc (Burkina Faso, Senegal) (XOF) 571	=	US\$1
Ghanaian Cedi (GHS) 4.96	=	US\$1
SDR 0.71	=	US\$1
EUR 0.87	=	US\$1

FISCAL YEAR

January 1 - December 31

Regional Vice President: Hafez M. H. Ghanem, Ferid Belhaj

Country Director: Rachid Benmessaoud, Marina Wes

Senior Global Practice Director: Jaime Saavedra Chanduvi

Practice Manager: Halil Dundar

Task Team Leaders: Andreas Blom, Ekua Nuama Bentil

ABBREVIATIONS AND ACRONYMS

AAU	Association of African Universities
ACE	Africa Center of Excellence
ACE I	Africa Higher Education Centers of Excellence Project I
ACE II	Africa Higher Education Centers of Excellence Project II
AFD	French Development Agency (<i>Agence Française de Développement</i>)
ANR	National Research Agency (<i>Agence Nationale de la Recherche</i>)
BMBF	German Ministry of Education and Research (<i>Bundesministerium für Bildung und Forschung</i>)
CBA	Cost-benefit Analysis
CEFOR	Center of Excellence in Oil Fields Chemical Research
CMO	Center's Management Office
CMU	Country Management Unit
CNRS	National Center for Scientific Research (<i>Centre National de la Recherche Scientifique</i>)
DA	Designated Account
DAAD	German Academic Exchange Service (<i>Deutscher Akademischer Austauschdienst</i>)
DFG	German Research Foundation (<i>Deutsche Forschungsgemeinschaft</i>)
DFIL	Disbursement and Financial Information Letter
DJF	Djiboutian Franc
DLI	Disbursement-linked Indicator
DLR	Disbursement-linked Result
DoF	Director of Finance
ECOWAS	Economic Community of West African States
EEP	Eligible Expenditure Program
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FA	Financing Agreement
FM	Financial Management
FMS	Financial Management Specialist
GDP	Gross Domestic Product
GHS	Ghanaian Cedi
GNF	Guinean Franc
GOGLA	Global Off-Grid Lighting Association
GP	Global Practice
GRM	Grievance Redress Mechanism
2iE	International Institute for Water and Environmental Engineering (<i>Institut International d'Ingenierie de l'Eau et de l'Environnement</i>)
IAAB	International Academic Advisory Board
IBRD	International Bank for Reconstruction and Development
icipe	International Center of Insect Physiology and Ecology
ICS	Individual Consultant Selection
ICT	Information and Communications Technology
IDA	International Development Association
IDRC	Canadian International Development Research Center
IFR	Interim Financial Reports
IFRS	International Financial Reporting Standards
IPF	Investment Project Financing

IPSAS	International Public Sector Accounting Standards
IRD	Development Research Institute (<i>Institut de Recherche pour le Développement</i>)
IRR	Internal Rate of Return
ISA	International Standards of Auditing
ISMGB	Institute of higher learning for Mines and Geology, Boké, Guinea (<i>Institut Supérieur des Mines et Géologie de Boké</i>)
ITPV	Independent Third-party Verification
ITT	Institute of Tertiary Technology
KNUST	Kwame Nkrumah University of Science and Technology
M&E	Monitoring and Evaluation
MAB	Most Advantageous Bid
MAP	Most Advantageous Proposal
MESRSI	Ministry of Higher Education, Research and Innovation, Burkina Faso (<i>Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation</i>)
MIS	Management Information System
MITIC	Mathematics, Computer Science and ICT (Mathématiques, Informatique and TIC)
MoF	Ministry of Finance
MTR	Mid-term Review
NCTE	National Council of Tertiary Education, Ghana
NPV	Net Present Value
NSC	National Steering Committee
NSF	National Science Foundation (USA)
OHAHA	Organization for the Harmonization of Business Law in Africa
Ouaga I	University of Ouagadougou I (<i>Université de Ouagadougou I</i>)
PASET	Partnership for Skills in Applied Sciences, Engineering and Technology
PDO	Project Development Objective
PFA	Performance and Funding Agreement
PFM	Public Financial Management
PhD	Doctor of Philosophy
PIU	Project Implementation Unit
POM	Project Operational Manual
PPSD	Project Procurement Strategy for Development
PR	World Bank Procurement Regulations
PSC	Project Steering Committee
QA	Quality Assurance
QCBS	Quality Cost Based Selection
R&D	Research and Development
RBF	Results-based Financing
RF	Results Framework
RFP	Request for Proposal
RFQ	Request for Quotation
RFU	Regional Facilitation Unit
RSIF	Regional Scholarship and Innovation Fund
S&T	Science and Technology
SAB	Sectoral Advisory Board
SDR	Special Drawing Rights
SoE	Statement of Expenditure
SSA	Sub-Saharan Africa

STEM	Science, Technology, Engineering and Mathematics
SYSCOHADA	West African/OHADA Accounting System
TA	Technical Assistance
ToR	Terms of Reference
TTL	Task Team Leader
TVET	Technical and Vocational Education and Training
UD	University of Djibouti
UEMOA	West African Economic and Monetary Union (<i>Union Economique et Monétaire Ouest Africaine</i>)
UG	University of Ghana
UGB	University of Gaston Berger
UKRI	United Kingdom Research and Innovation
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD/US\$	United States Dollar
WACCI	West African Center for Crop Improvement
WBG	World Bank Group



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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Africa, Burkina Faso, Djibouti, Ghana, Guinea, Senegal	First Africa Higher Education Centers of Excellence for Development Impact Project	
Project ID	Financing Instrument	Environmental Assessment Category
P164546	Investment Project Financing	B-Partial Assessment

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input checked="" type="checkbox"/> Fragile State(s)
<input checked="" type="checkbox"/> Disbursement-linked Indicators (DLIs)	<input checked="" type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
27-Mar-2019	31-Dec-2023
Bank/IFC Collaboration	
No	

Proposed Development Objective(s)

To improve quality, quantity and development impact of postgraduate education in selected universities through regional specialization and collaboration.

**Components**

Component Name	Cost (US\$, millions)
Establishing New and Scaling up Well-performing existing Africa Centers of Excellence for Development Impact	209.00
Fostering Regional Partnerships and Scholarships	28.00
Enhancing National and Regional Level Project Facilitation, and Monitoring and Evaluation	13.50
Unallocated	8.00

Organizations

Borrower:	Burkina Faso - Ministry of Economy, Finance and Development Republic of Guinea - Ministry of Economy and Finance Republic of Djibouti - Ministry of Economy, Finance and Industry Republic of Ghana - Ministry of Finance Republic of Senegal - Ministry of Finance and Economic Planning
Implementing Agency:	The Association of African Universities

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	258.50
Total Financing	258.50
of which IBRD/IDA	143.00
Financing Gap	0.00

DETAILS**World Bank Group Financing**

International Development Association (IDA)	143.00
IDA Credit	118.30
IDA Grant	24.70

Non-World Bank Group Financing



Counterpart Funding	115.50
Borrower/Recipient	115.50

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Burkina Faso	22.00	11.00	0.00	33.00
National PBA	11.00	0.00	0.00	11.00
Regional	11.00	11.00	0.00	22.00
Djibouti	15.00	0.00	0.00	15.00
National PBA	3.00	0.00	0.00	3.00
Regional	12.00	0.00	0.00	12.00
Ghana	60.00	0.00	0.00	60.00
National PBA	20.00	0.00	0.00	20.00
Regional	40.00	0.00	0.00	40.00
Guinea	6.30	3.70	0.00	10.00
National PBA	6.30	0.00	0.00	6.30
Regional	0.00	3.70	0.00	3.70
Senegal	15.00	0.00	0.00	15.00
National PBA	5.00	0.00	0.00	5.00
Regional	10.00	0.00	0.00	10.00
Africa	0.00	10.00	0.00	10.00
Regional	0.00	10.00	0.00	10.00
Total	118.30	24.70	0.00	143.00

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2019	2020	2021	2022	2023	2024
Annual	0.00	20.00	20.00	35.00	45.00	23.00
Cumulative	0.00	20.00	40.00	75.00	120.00	143.00

**INSTITUTIONAL DATA****Practice Area (Lead)**

Education

Contributing Practice AreasEnergy & Extractives, Environment & Natural Resources,
Health, Nutrition & Population, Transport**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

Gender Tag**Does the project plan to undertake any of the following?**

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	Yes
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b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
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c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes
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SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)**Risk Category****Rating**

1. Political and Governance	● Substantial
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2. Macroeconomic	● Moderate
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3. Sector Strategies and Policies	● Moderate
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4. Technical Design of Project or Program	● Moderate
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5. Institutional Capacity for Implementation and Sustainability	● Substantial
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6. Fiduciary	● Substantial
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7. Environment and Social	● Low
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8. Stakeholders	● Moderate
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9. Other	
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10. Overall

● Moderate

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

☐ Yes ☒ No

Does the project require any waivers of Bank policies?

☐ Yes ☒ No

Safeguard Policies Triggered by the Project

	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Performance Standards for Private Sector Activities OP/BP 4.03		✓
Natural Habitats OP/BP 4.04		✓
Forests OP/BP 4.36		✓
Pest Management OP 4.09		✓
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10		✓
Involuntary Resettlement OP/BP 4.12		✓
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description

Schedule 2, Section I.C - Regular reports (the EEP Spending Reports) prepared in accordance with the Project Regional Operations Manual.

The Recipient shall furnish to the Association every semester starting six months after the Effective Date, regular reports (the Eligible Expenditure Program Spending Reports) prepared in accordance with the provisions of the Project Regional Operations Manual and the additional instructions referred to in Section III.A of this Schedule.

Sections and Description

Schedule 2, Section I.E, 1 - Verification of DLIs (applicable to Guinea and Djibouti)



Schedule 2, Section I.F, 1 - Verification of DLIs (applicable to Ghana and Senegal)

Schedule 2, Section I.G, 1 - Verification of DLIs (applicable to Burkina Faso)

The Recipient shall, by no later than three months after the Effective date, appoint external monitoring and evaluation experts ("Independent Verifiers") to act as third-party verifiers of the proper fulfillment of DLIs as set forth in Schedule 4 of the Financing Agreement.

Sections and Description

Schedule 2, Section I.G, 1 - Project Implementation Plans (applicable to Senegal and Ghana)

Schedule 2, Section I.F, 1 - Project Implementation Plans (applicable to Guinea and Djibouti)

Schedule 2, Section I.H, 1 - Project Implementation Plans (applicable to Burkina Faso)

The Recipient shall cause the ACEs to: (a) adopt not later than three (3) months after the Effective Date and, thereafter maintain their respective Project Implementation Plans in form and substance satisfactory to the Association; and (b) carry out the Project in accordance with the Project Implementation Plan and the Environmental and Social Management Plan.

Sections and Description

Schedule 2, Section IV.1 a & b – Specific Financial Management Covenant (applicable to Guinea)

(a) The Recipient shall no later than three (3) months after the Effective Date or at a later date agreed upon with the Association: (i) recruit an accountant with qualifications and terms of reference satisfactory to the Association; (ii) acquire a computerized accounting information system for the management of the Project; and (iii) recruit an internal auditor with qualifications and terms of reference satisfactory to the Association; and

(b) no later than six (6) months after the Effective Date or at a later date agreed upon with the Association, recruit an external auditor in accordance with the Procurement Regulations.

Sections and Description

Schedule 2, Section II - Project Monitoring, Reporting and Evaluation (applicable to the Regional Facilitation Unit)

The Recipient shall furnish to the Association each Project Report not later than forty-five (45) days after the end of each calendar semester, covering the calendar semester.

Sections and Description

Schedule 2, Section IV.1 a & b – Specific Financial Management Covenant (applicable to Burkina Faso and Senegal)

(a) The Recipient shall, within three (3) months of the Effectiveness Deadline cause each Higher Education Institution to: (i) recruit an accountant for the Project in accordance with the provisions of the Procurement Regulations; (ii) establish an internal audit committee with functions, resources and terms of reference, satisfactory to the Association; and, (iii) acquire a computerized accounting information system for management of the Project, with specifications, satisfactory to the Association.

(b) The Recipient shall, within six (6) months of the Effectiveness Deadline, cause each Higher Education Institution to: (i) submit the audit report conducted for Fiscal Year 2018, in form and substance satisfactory to the Association;



- (ii) recruit an auditor within the internal controller's office with qualifications, experience and terms of reference satisfactory to the Association, and adopt an internal audit charter and internal audit manual, including an institutional risk mapping to facilitate risk-based auditing, in form and substance satisfactory to the Association; and
- (iii) recruit an external auditor in accordance with the provisions of the Procurement Regulations.

Sections and Description

Schedule 2, Section IV.1 a & b – Specific Financial Management Covenant (applicable to Djibouti)

(a) The Recipient shall, within three (3) months of the Effectiveness Deadline cause each Higher Education Institution to;

(i) recruit an accountant for the Project in accordance with the provisions of the Procurement Regulations; (ii) establish an internal audit committee with functions, resources and terms of reference, satisfactory to the Association; and, (iii) acquire a computerized accounting information system for management of the Project, with specifications, satisfactory to the Association.

Sections and Description

Schedule 2, Section IV.1 – Specific Financial Management Covenant (applicable only to Ghana)

The Recipient shall, within three (3) months of the Effectiveness Deadline submit, in form and substance satisfactory to the Association, the FY 2017 and FY 2018 audit reports for the National Council of Tertiary Education (NCTE).

Sections and Description

Schedule 2, Section IV. 1(c) (Applicable to 2iE in Burkina Faso) - The Recipient shall, within six (6) months of the Effectiveness Deadline, cause Institut International d'Ingenierie de l'Eau et de l'Environnement (2iE) to: (i) adopt a governance reform of its governing board, satisfactory to the Association; and (ii) ensure that said 2iE maintains a credible and sustainable medium-term financing plan, satisfactory to the Association.

Conditions

Type Effectiveness	Description The Performance and Funding Agreements have been executed in form and substance satisfactory to the Association on behalf of the Recipient and the Higher Education Institutions. ARTICLE V, 5.01. (a)
Type Effectiveness	Description The Project Regional Operations Manual has been endorsed by the Recipient in form and substance satisfactory to the Association. ARTICLE V, 5.01. (b)



Type Effectiveness	Description Performance and Funding Agreements have been duly authorized or ratified by the Recipient and the Higher Education Institutions and are legally binding upon the Recipient and the Higher Education Institutions in accordance with their terms. ARTICLE V, 5.02 (applicable to Burkina Faso, Djibouti, Ghana, Guinea and Senegal)
Type Effectiveness	Description The Recipient has recruited a senior accountant with qualifications and terms of reference satisfactory to the Association. ARTICLE V, 5.01 c (only applicable to Guinea)
Type Disbursement	Description Any DLI or DLR under Category (1) until and unless the Association has received from RFU or the Independent Verifiers, the EEP Spending Reports confirming that the DLI and DLR have been achieved and containing a proposal for disbursement under each Withdrawal. Schedule 2, Section III, B, 1 (b) (applicable to Burkina Faso, Djibouti, Guinea, Senegal, Ghana)
Type Disbursement	Description For RSIF grants and scholarships under Category (2) unless: (i) the Subsidiary Agreement has been executed in form and substance satisfactory to the Association on behalf of the Recipient and ICIPE; and (ii) the Recipient has submitted a legal opinion, satisfactory to the Association, confirming that said Subsidiary Agreement has been duly authorized or ratified by the Recipient and ICIPE and is legally binding upon the Recipient and ICIPE in accordance with their terms. Schedule 2, Section III, B, 1 (c) - (applicable to Burkina Faso, Senegal and Ghana)



I. STRATEGIC CONTEXT

A. Regional Context

1. **Sub-Saharan Africa (SSA)¹ is home to the largest share of the global poor and demonstrates the widest poverty gap.** Of the 767 million people globally, living below the extreme poverty line in 2013, 389 million (51 percent) were in SSA. Although the overall global number of the extremely poor is decreasing (dropped to 736 million in 2015) and is expected to continue to decrease, the share of the global poor residing in SSA is expected to be about 87 percent in 2030, should economic growth over the next 12 years follow historical growth patterns. Three of the predominant attributes of the profile of the poor are that they are poorly educated, young, and employed in the agricultural sector. The common drivers of inequality which need to be addressed to reduce the poverty gap are: slow human capital accumulation; disparities in access to jobs and income-generating opportunities; and unsuccessful government interventions that attempt to address market-based inequalities (such as taxes and transfers).
2. **Between 2003 and 2013, SSA experienced remarkable economic growth with an average annual real gross domestic product (GDP) growth rate of 5.3 percent, largely driven by a commodity price boom. This growth, however, did not translate into significant poverty reduction,** partly due to high population growth, limited creation of jobs and an unequal distribution of the benefits of such economic growth. The pace of economic growth in SSA has increased recently – rising from 1.5 percent in 2016 to 2.6 percent in 2017, although this remains the lowest level of economic growth observed in the region in more than two decades. While SSA has tremendous potential for growth, recent trends and a modest outlook moving forward reflect, in part, insufficient progress on structural reforms.
3. **To achieve strong economic growth and reduce poverty, increased productivity across key economic priority sectors, economic diversification, and implementation of structural reforms are needed.** Human capital development is essential for increasing productivity and promoting economic diversification. Currently, SSA economies are highly dependent on unskilled labor and natural resources, preventing the region from moving up the value chain and becoming more specialized in knowledge-intensive, and high value-added activities. An additional challenge relates to low institutional capacity in the region to train sufficient numbers of professionals with the technical and critical thinking skills (such as high-order cognitive skills) required to incorporate new knowledge and technologies into products and services.
4. **A range of priority economic sectors face shortages in workers with high-level (postgraduate level) skills as well as limitations in applied research which is needed to increase productivity.** The skills and applied research shortages in priority sectors include: in the energy sector (skills and applied research for power generation, transmission, and renewable energy); within extractives (skills for mining, oil, and gas); skills for sustainable urban planning, transport, sustainable agriculture, health and environment (coastal resilience, climate change, and assessments related to infrastructure and mining); in education, there is a skills shortage in teacher training in science, technology, engineering and math education); and a marked shortage of advanced digital skills for the information and communication technology (ICT) sector (both in the ICT sector and cross-cutting into other sectors). Other important areas where high-level skills

¹ The operation is focused on five countries: Burkina Faso, Djibouti, Ghana, Guinea and Senegal



are needed are those fields focusing on more policy-relevant research on Africa's development challenges that can inform policymakers and public debate, for example the fields of statistics and quantitative economics. The region also faces technical skills shortages in the areas of procurement, financial management (FM), and safeguards (environmental and social), affecting the design and implementation of development projects financed by governments and development partners. In development projects, this results in an overreliance on expatriates and international consultants for the design and implementation of projects.

5. **Human resource capacity in SSA remains particularly low in the science and technology (S&T) fields.** A survey of executives shows that for the indicator "Availability of scientists and engineers" Nigeria and Mauritania rank 79th and 137th, respectively, out of 137 countries globally.² In 2010, the share of researchers in Senegal and Ghana engaged in engineering and technology-related research was 2 and 13 percent, respectively, compared to 62 percent (2013) in Singapore. In 2014, the number of researchers per one million inhabitants in South Korea was 6,899 compared to only 88 per one million inhabitants in SSA. While it is home to 14 percent of the world's population, SSA's share of global expenditure on research and development (R&D) was only 0.8 percent in 2014, and this figure had remained unchanged for the prior five years.³

6. **Improved productivity can be achieved by equipping the workforce with relevant S&T skills and ensuring they have the competencies necessary to develop, adapt and apply solutions to sectoral challenges in Africa** (e.g., in supporting industries in producing higher value-added products and services). If African higher education institutions are transformed to deliver international-quality training and applied research, becoming more dynamic and internationally connected, such training and research could be increasingly undertaken in Africa. Thus, African talent would be more likely to stay in the region and in turn increase institutional capacity in the region to adopt more technology, deliver innovative services and support evidence-based policy making.

B. Sectoral and Institutional Context

7. **The education systems in SSA face important challenges at all levels.** While significant gains have been observed in increasing access to primary education in the region, major efforts are still needed to ensure that all children have access to quality basic education – as this provides the foundation for an individual's success in post-basic education. Continued and increased efforts are also needed to increase access to and improve the quality and relevance of secondary, technical and vocational education and training (TVET) and higher education, to combat youth unemployment and underemployment and to build overall capacity in the region.

8. **Key challenges facing the higher education sector in the region include the following:**

- (i) **Low quality of higher education programs.** Global higher education rankings provide some indication of the quality of universities and the programs they offer. The most widely used

² Data from The Global Competitiveness Report 2017-2018.

³ World Bank Open Data and UNESCO Institute for Statistics.



rankings show that, in SSA, only a few South African universities feature in the top 500.⁴ International accreditation assessments of education programs in engineering undertaken in the context of the World Bank-financed Africa Higher Education Centers of Excellence Project (ACE I) (P126974) highlight the following as key drivers of poor quality programs: (a) the educational objectives of programs and student learning outcomes are not clearly stated nor are they assessed; (b) there are no periodic reviews of the competencies of graduates that are in demand by employers; (c) programs provide few hands-on practical projects/opportunities, placing an emphasis on theoretical knowledge; (d) student admissions processes do not adequately capture the preparedness of students for technical fields such as engineering; (e) weak processes exist for selecting and determining the basic coursework for various fields of study; and (f) no mechanisms exist to ensure that teaching and assessment procedures are followed. These shortcomings are found to be more important than, inter alia, limited qualifications of the faculty and limitations in the teaching and learning environment (for example, limited internet connectivity, and insufficient and inadequate equipment and laboratories for teaching and research).

- (ii) **Limited impact of postgraduate education (including linkages with labor-market needs of the priority sectors) and applied research on economic development.** Key sector stakeholders, such as companies and line ministries in the region who stand to benefit significantly from the availability of skilled graduates and relevant research outputs, are usually not active participants in the education or research programs and activities of most SSA universities. Their absence contributes to a mismatch in the demand for and supply of skills, and a misalignment of applied research with priority sector needs. As a result, graduates and research outputs of these academic programs have only a limited impact on addressing challenges that the priority sectors face. There is inadequate engagement on the part of industry stakeholders in, for example, curricula development, advisory boards at universities, the identification of research topics and the provision of internships to students. Without steering postgraduate programs and applied research towards development impact, the continent will not maximize its benefits from its human resources.
- (iii) **Limited supply (quantity) of higher education graduates, particularly from master's and Doctor of Philosophy (PhD) programs in priority sectors.** The region has experienced a massive expansion in student enrollment in higher education, with many public universities in Africa experiencing increases in enrollment far beyond what they were designed to accommodate. In the region, higher education enrollment increased from 2.5 million in 2000 to 7.4 million in 2015. Despite this significant expansion in enrollment, gross higher education enrollment rate remains low at 9 percent (compared to 74 percent in the developed world). There is a noticeable gender gap with 10.5 percent of men in the relevant age-cohort enrolled compared to only 7.5 percent for women. Further, only six percent of total enrollment is in master's degree programs and one percent in PhD programs. In West Africa, the share of higher education students enrolled in Science, Technology, Engineering and Math (STEM) programs, which are critical fields for economic growth and development, is as low as 9 percent in some countries, according to available data. The share of female enrollment in STEM fields with respect to the overall

⁴The rankings consulted are Times Higher Education, QS World University, and the Shanghai Rankings. An exception is Makerere University, from Uganda, which placed 401-500 in the Times Higher Education Ranking.



enrollment of higher education students in STEM programs is also extremely low – accounting for just 5 percent in Niger and 8 percent in Ghana. Such low higher education enrollment rates, coupled with a shortage of skilled labor, points to the significant need for a strategic expansion of the higher education sector.

9. Other major challenges observed which limit the quality and relevance of higher education include:

- (iv) **Limited regional higher education integration:** Regional higher education integration – which to date has been limited – is advantageous as no one country can afford to fund quality higher education in all the areas required for the development of their economies and challenges they face. As such, it is inefficient and a missed opportunity if knowledge and skills acquisition are not generated as public goods to solve common regional problems. Further, the limited demand for higher education at a national level results in little competition among higher education institutions, and hence there is lower value-for-money (whether public or private). To date, there has only been limited regional coordination in higher education, leading to the unnecessary duplication of efforts and inefficient public investments. Governments and most institutions are yet to develop a regional vision, strategy and capacity to support the development of a competitive regional market for higher education. A practical issue stemming from the lack of regional integration is the cumbersome nature of mutual and international recognition of accreditation.
- (v) **Ineffective governance and inefficient management of higher education institutions:** Weak institutional governance is often manifested in internal conflicts between faculties and departments, faculty and student strikes, and non-merit-based appointments. Weak governance stems from: a lack of pro-active, transparent, and professional leadership; political interference; and decisions motivated by other non-academic (including personal and political) objectives. The lack of a consistently maintained academic calendar with timely admissions and exams – combined with limited management information systems (MIS), weak FM and procurement at the institutional level – often lead to low quality programs and, hence, graduates with low competency levels. Specifically, the lack of reliable and timely data results in poor planning, lack of accountability of institutional leadership, an inefficient use of resources, and difficulties in assessing institutional performance.
- (vi) **Inadequate financing for higher education:** The provision of quality higher education cannot be sustained without additional contributions from affluent households and the private sector. Public funding for higher education is scarce across the region – and, by itself, is insufficient to finance the expansion of and improvements in higher education. With the exception of Senegal, Sierra Leone, Ghana, Côte d'Ivoire, and Gabon, government investments in higher education in West and Central Africa are less than 1 percent of GDP. Most students enrolled in higher education in SSA come from relatively affluent households that can contribute more towards covering the costs of higher education particularly at the postgraduate level. Currently, public funding in SSA targeting low-income students is insufficient. Further, public funding is not specifically channeled to strategic areas of higher education where private investments are not forthcoming (such as STEM). Moreover, institutions do not give adequate attention to supplementing public funding through non-budgetary services (e.g., student fees, consultancies, private donations, and international R&D competitions).

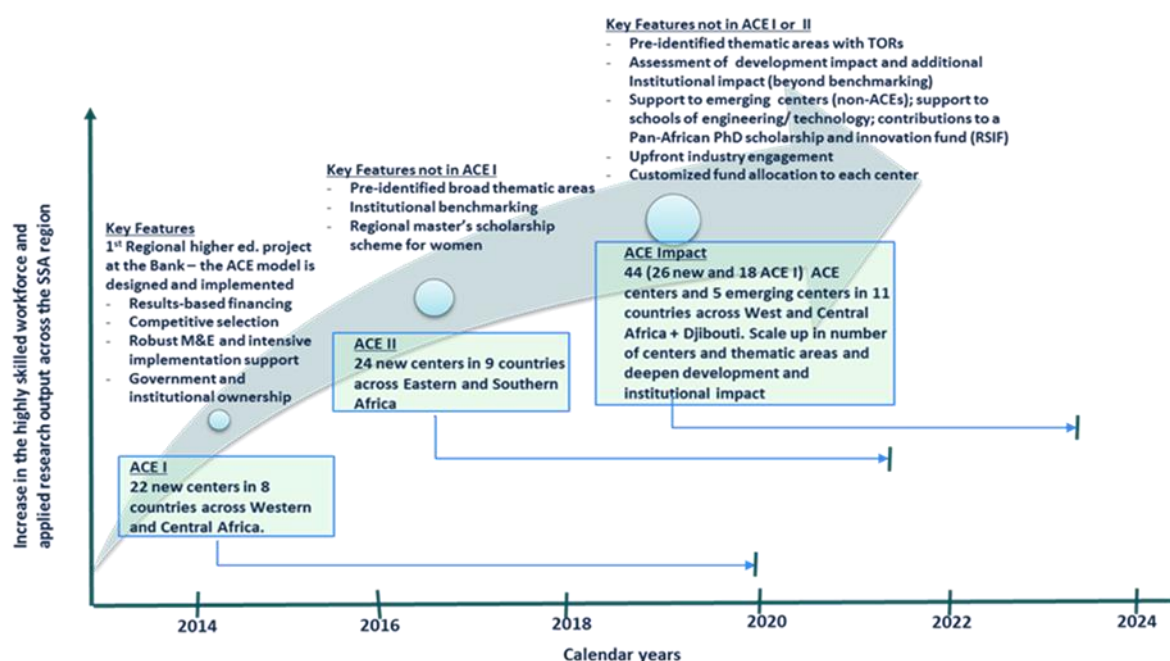


10. **As a result of these challenges facing the higher education sector in SSA, programs offered at the postgraduate level are generally not responsive to the region's needs for skills, training and knowledge.** Limited provision of high quality and market-relevant academic programs and the small number of graduates with skills critical for the priority sectors consequently lead to many students from the region seeking postgraduate degrees to make the decision to obtain them outside of SSA. Available data indicate that in 2016, of the almost 200,000 higher education students from West and Central Africa studying outside their countries, fewer than 20 percent were studying in SSA. For example, out of the 23,000 Cameroonians pursuing their studies abroad, only 8 percent are doing so in SSA. Similarly, in 2016, 50,000 of Nigeria's 65,000 outbound students were pursuing their studies outside of SSA.
11. **While the tuition and living costs of these outbound students is expensive for the region, the loss of talent has even more significant implications.** It costs the region an estimated US\$3.6 billion per year to cover the costs of these students pursuing their studies abroad. When these students do not return to the region but choose to work abroad upon graduation, the region suffers a further talent deficit. Without a timely expansion of quality postgraduate programs, the future quality and relevance of higher education in the region will be undermined through a lack of qualified faculty. The student population in higher education institutions in West and Central Africa is expected to double every ten years over the next 30 years which will increase the stress on these institutions and further negatively impact quality and relevance.
12. **Addressing the challenges in the higher education sector will require interventions at the national and regional levels.** A number of such efforts have been undertaken or are currently underway. At the national level, the World Bank is supporting national higher education programs in several SSA countries. For example, in West Africa, there are currently International Development Association (IDA)-funded higher education projects in Senegal (P123673), Mali (P151318), Burkina Faso (P164293) and Côte d'Ivoire (P160642). These projects aim to address key challenges faced by the national higher education system - related to employability, access and equity, and the quality of higher education- with a focus on the undergraduate level and government capacity for accreditation and financing. At the regional level, the World Bank launched its first regional higher education intervention in SSA through a series of ACE Projects. The ACE I project (P126974), was launched in 2014 in West and Central Africa, with additional financing (P153111) in 2016 for Côte d'Ivoire and supports 22 centers in total. This was followed by the ACE II project (second phase - P151847) was launched in 2016 in East and Southern Africa and supports 24 centers.
13. **The proposed Africa Higher Education Centers of Excellence for Development Impact (ACE Impact) Projects target West and Central African countries (including Djibouti) and consists of two proposed projects - across 12 countries.** Both projects will have the same technical design, including common evaluation and selection schedule and processes, project operational manual (POM), as well as implementation arrangement structures. The regional facilitation unit (RFU), which will be hosted at the Association of African Universities (AAU), will be responsible for regional coordination and monitoring and evaluation (M&E) activities for both projects (it will be financed under the First ACE Impact project through a regional grant).
14. **The primary differences between the two proposed projects are: the list of participating countries; and the preparation schedule.** The proposed First ACE Impact project (P164546) will support



16 ACE centers (referred to as ACEs) and two Emerging centers of excellence (Emerging centers) in Burkina Faso, Djibouti, Ghana, Guinea and Senegal. Emerging centers are centers (non-ACE centers) that are selected through a non-competitive process to receive support to strengthen their programs mostly at the undergraduate and master's degree level in a priority field. The First ACE Impact project countries were selected based on the following criteria: (i) country readiness, and (ii) expressed interest – countries that expressed interest in participating in the project first are prioritized; and (ii) planned elections – those countries with planned elections in February – March 2019 were also prioritized. The second ACE Impact project (P169064 – under preparation) will support 28 ACE centers and three Emerging centers in Benin, Cameroon, Côte d'Ivoire, Niger, Nigeria, The Gambia and Togo. Figure 1 below provides an illustration of the key differences between ACE I, ACE II and ACE Impact I and II projects.

Figure 1. ACE I, ACE II and ACE Impact (I and II) and the key features



Note: The arrows show the duration between start and expected end dates of project implementation.

15. **The ACE projects aim to build regional capacity to deliver high quality postgraduate courses and to conduct and disseminate international caliber applied research focused on addressing development challenges in SSA.** Given the limited resources available to support postgraduate training and applied research in SSA, the ACE projects are designed to increase specialization and excellence of higher education. This will build regional capacity essential to Africa's development. The ACE projects leverage institutional and national strengths to serve regional needs. To achieve results, the ACE projects use a regional model with the following elements: transparent and competitive selection of centers; a strong focus on regional collaboration, networks and student recruitment; strong government and institutional ownership; results-based financing (RBF) with independent verification of results; a robust M&E protocol; intensive implementation support using regional and international subject matter experts; and the



development of partnerships across institutions, private sector/industry actors and academics. Results from ACE I and II projects are encouraging (see Boxes 1 and 2 below).

16. **Each ACE center contributes to the broader regional project goal of strengthening and regionalizing higher education in SSA.** An ACE center consists of a group of faculty members from multiple academic departments led by a recognized center leader and with a network of external sector and academic partners. The education and applied research activities of the center focus on a single thematic area that is critical for development, for instance, climate change, maternal and infant health, and Information technology. ACE centers aim to recruit a high-quality regional student body and work towards: producing a highly trained workforce with skills tailored to the needs of the sector(s) they serve; partnering with industry and sector stakeholders to identify regional needs; and disseminating research results both in international publications and through appropriate regional channels.

Box 1. ACE I Results

Centers supported under the ACE I project have achieved strong results over four years of implementation: (i) 30 programs have attained international accreditation (200 percent of the target of 15 programs) and several top-performing ACEs have emerged; (ii) 16,000 short-term, 8,500 master's and 2,000 students have enrolled in postgraduate programs, including 8,200 regional students (92 percent of the target of 8,900 regional students (a regional student is an African student from a country outside of the country of study)); (iii) 4,200 students and faculty have participated in an internship in a company relevant to their field of study (72 percent of the target of 5,900 internships); and (iv) US\$41.2 million has been generated by the 22 ACE I centers through competitive R&D grants, scholarship competitions as well as student fees and testing services (515 percent of the target of US\$8.0 million).

Progress made on the part of ACEs confirms that targeted applied research contributes substantially to development outcomes. For instance, the ACE Center for Genomics of Infectious Diseases in Nigeria tested in 2014 the first Ebola patient in the country within six hours of receiving the individual's blood sample. This proved to be critical and timely for the successful containment of Ebola in the country.

Box 2. Preliminary Results from ACE II

Under the ACE II project, preliminary results from the Centers demonstrate good progress: (i) more than 1,100 master's students and 715 PhDs have enrolled in the ACEs of which over 600 are female; (ii) US\$23 million has been generated in external revenue within the two years of implementation; and (iii) 158 memoranda of understanding (MoUs) on research and training collaboration have been entered into by the ACEs with regional and international universities and research institutions. The Center for Innovative Drug Development and Therapeutic Trials for Africa at Addis Ababa University, Ethiopia, for example, obtained two grants with its partners, King's College London (US\$1.5 million), and University of Sussex (US\$1 million) funded by the National Institute of Health (UK) for their research and to support PhD students and post-doctoral fellows.

17. **The proposed ACE Impact I project builds on lessons learned from the ACE I and II projects and emphasizes the largest remaining challenge of increasing impact on development.** The lessons learnt are detailed in Section F of this document. With the success of the established model, the proposed project will scale up the impact on production of quality, employable graduates and applied research in well-



performing existing centers, and support new centers, including in countries that did not participate in ACE I. Further, the project represents an evolution by targeting a larger impact on development through: (a) specific targeting of pre-identified skills and knowledge gaps for the region (power engineering, ICT, environmental sciences etc.); (b) ensuring mandatory upfront and continuous engagement with the key economic sector/industry players; (c) increasing focus on institutional change in the university, beyond one center of a university, including a focus on strengthening engineering and technology schools; (d) allowing less competitive (Emerging) institutions to benefit from regional networking with the ACE centers; (e) directly linking with a series of other World Bank and government supported regional initiatives; and (f) building the project into a multi-partner platform for enhancing Africa's higher education sector.

18. **By adding the ACE Impact I and II projects to the existing ACE I and II centers, the World Bank would be supporting a total of 90 centers of excellence across SSA.** This support will serve as a needed catalyst for building a highly skilled workforce and generating the applied research skills and knowledge required to drive SSA's economic transformation. In developed and emerging economies, universities continue to be pivotal in driving change through similar centers of excellence concepts, although often in larger quantities. For example, the Government of India supported 135 engineering colleges to improve the quality of their programs/training offered under the World Bank-financed Technical Education Quality Improvement Program (P102549). Further, it is common to find many specialized centers in a single world-class university. For example, KTH Royal Institute of Technology, a top-ranked Swedish university, currently has more than 50 such centers.

19. **The proposed ACE Impact I project is aligned with the Partnership for Skills in Applied Sciences, Engineering and Technology (PASET), which seeks to build – from the technical/vocational level to higher education and research – a technical and scientifically skilled labor force to support priority sectors in SSA.** Two of the main initiatives under PASET are the Regional Scholarship and Innovation Fund (RSIF) and the Regional Benchmarking of SSA Universities. The ACE I and II projects have provided the framework within which PASET's regional scholarship fund has been nurtured and is now supported as a World Bank-financed project - Africa RSIF for Applied Sciences, Engineering and Technology (P165581) – the RSIF project. Under the proposed ACE Impact I project, participating countries may allocate up to US\$2 million of the ACE Impact I IDA envelope to the RSIF.

20. **Most higher education systems in the region lack accountability in the performance of their higher education institutions.** However, under PASET's Benchmarking initiative, a strong momentum has been generated from several governments and universities in the region to strengthen the availability of data which can be used for performance assessment. About 31 universities (most of which host ACE centers) across 12 countries participated in the PASET Benchmarking exercise in 2016. The benchmarking exercise compared universities on 60 indicators including those related to access, gender, quality of faculty, governance, financing, research, graduate outcomes and technology transfer. Benchmarking exercises coupled with student engagement surveys and graduate tracer study tools currently under development could help to establish greater accountability and improved performance in higher education institutions in the region.



C. Relevance to Higher Level Objectives

21. **The proposed ACE Impact I project will contribute to the World Bank Group (WBG) twin goals and relevant World Bank strategies.** The proposed project aims at reducing higher-level skills gaps, enhancing learning, and improving applied research and technology uptake in the priority sectors. The Thematic Areas of the Centers are presented in Annex 6. Therefore, it will ultimately increase productivity, spur economic growth, provide better opportunities of social mobility of children from low and middle-income families through higher education, and thereby reduce poverty. As such, the project fits squarely within the WBG twin goals of eliminating extreme poverty and boosting shared prosperity, in a sustainable manner, as well as the World Bank's 2020 Education strategy "Learning for All".

22. **The project is part of the World Bank's Africa Regional Integration and Cooperation Strategy (FY18 – FY23) and the WBG Middle East and North Africa Regional Strategy.⁵** At the core of Africa Regional Integration and Cooperation strategy is the goal to ensure that the regional workforce is equipped with the skills and applied technical knowledge to tackle various development challenges while harnessing the advantages of a regional approach. The objectives of the strategy, which include competitiveness and productivity and human capital and access to services are well aligned with the ACE Impact project. Further, the proposed project will help establish a competitive regional market for higher education in which ACE centers will be strengthened to provide quality postgraduate education in specific fields within specific priority sectors. ACE centers and their host institutions will receive support to develop their own regional strategic plans to help them attract the right profile of students and faculty from the region (and beyond) and establish the necessary student affairs services to cater to both nationals and non-nationals of the ACE host countries. The proposed project will also increase the production of advanced digital skills, an objective of the Africa region's digital moonshot strategy. The proposed project is also well aligned with the pillars of "Renewing Social Contract" and "Regional Cooperation" of the WBG Middle East and North Africa Regional Strategy by strengthening skills that match market demands, building greater citizen trust and inclusive and accountable service delivery, as well as promoting a regional education initiative. The project is included in the Country Partnership Strategies for the countries involved.

23. **The project is also aligned with the strategies of regional economic communities including the Economic Community of West African States (ECOWAS)** as well as national development strategies across countries in the region. The project was endorsed by the ECOWAS Ministers of Higher Education in September 2017 with the objective of sharing human and university resources through these regional centers of excellence. In addition, countries in West and Central Africa have increasingly highlighted the importance of higher education in their economic growth and development.

24. **The ACE Impact I project has benefited from extensive consultations on project design and scope.** Throughout project preparation, governments in West and Central Africa have contributed to the identification of priority skills and research gaps that should be addressed through the project and to the refinement of the project design. Through discussions with leading science research funding agencies in

⁵ World Bank. 2018. Africa - Regional integration cooperation assistance strategy for the period FY18-FY23 (English). Washington, D.C. Report No. 121912-AFR : World Bank Group:
<http://documents.worldbank.org/curated/en/700111528428661825/Africa-Regional-integration-cooperation-assistance-strategy-for-the-period-FY18-FY23>



Europe, Asia and North America, the expectations for centers, supported through the ACE Impact project (also known as ACE Impact centers) – towards sustainability, good governance and global partnerships – have been developed, and internationally recognized academic expertise in SSA has been identified.

25. **The proposed project also responds to those areas (in terms of training, capacity-building and research) which have been identified for national and regional support in collaboration with participating governments, sectoral leaders in the region and the World Bank’s Global Practices (GPs).** In addition to the broader priority areas of engineering, agriculture and health, the project will provide financing to establish regional higher education centers of excellence within the following pre-identified areas: coastal resilience (coordinated with the West Africa Coastal Areas Resilience Investment project (P162337)); environmental science and applied impact assessment (Environment and Natural Resources GP); housing/land development and Urban planning, (both coordinated with the Social, Urban, Rural and Resilience GP); transport/logistics (coordinated with the Transport GP); digital development- ICT (coordinated with the Digital Development GP); power (transmission and generation) and renewable energy (solar) (coordinated with the Energy and Extractives GP); water (coordinated with the Water GP); nursing and professional health workers (coordinated with the Health, Nutrition and Population GP); education, training and leadership (internally coordinated within the Education GP), procurement (coordinated with the Governance GP); and quantitative economics (coordinated with the Office of the Chief Economist of the World Bank).

26. **These cross-GP collaborations are in addition to existing efforts supported under ACE I and II – that support existing ACE centers that are jointly supervised by the Education GP and partner GPs, such as the Poverty and Equity GP for training in statistics.** The proposed project will capitalize on the World Bank’s and the governments’ sector knowledge and networks to meet the need for sector training and applied knowledge in partnership with the private sector and civil society. These synergies – strengthened through targeted partnerships – will contribute to a single, coherent large-scale ACE platform that benefits from substantial technical and financial support delivered through sector partners, international universities, and development partners.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

27. The project development objective (PDO) is to improve the quality, quantity and development impact of postgraduate⁶ education in selected universities through regional specialization and collaboration.

PDO-Level Indicators

28. The PDO-level indicators are:

- Number of students (national and regional) enrolled in specialized master’s, PhD and short-

⁶ In this project, postgraduate is defined to include master’s and Ph.D. degrees, and short-term professional courses.



term professional courses/programs in the ACEs (Quantity of Education & Regional Specialization)

- Number of ACE programs and ACE host institutions that obtain international accreditation (Quality of Education)
- Percentage of ACE host institutions with a comprehensive strategic plan for regionalization (Regional Specialization and Collaboration)
- Number of ACEs that have had substantial development impact (as measured by an independent evaluation of each center's impact on development at mid-term and end of project)
- Number of students and faculty participating in internships in relevant institutions (Development Impact of Education)

B. Project Components

29. **The proposed project consists of three components: Component 1: Establishing new and scaling-up well-performing existing ACE centers for development impact; Component 2: Fostering regional partnerships and scholarships; and Component 3: Enhancing national⁷ and regional project facilitation and M&E.** Component 1 will aim to strengthen capacity in 16 ACE centers and their host institutions (supply-side), while Component 2 will aim to strengthen non-ACE institutions in the region and allow students to benefit from the capacity in the ACE centers (demand-side). Centers under Component 2 will be known as Emerging centers. Component 3 will aim to support national and regional facilitation of the project and M&E related activities. Financing for Components 1 and 2 will be result-based, while financing for Component 3 will be input-based.

Table 1. Overview of ACE Impact I Project Components and Sub-Components

Component 1	Component 2	Component 3
Establishing new and scaling-up well-performing existing ACEs for development impact	Fostering regional partnerships and scholarships	Enhancing national and regional project facilitation, and M&E
Sub-component 1.1 Support to establish new centers of excellence Sub-component 1.2 Support to scale-up well performing ACE I centers	Sub-component 2.1 Support to emerging centers (non-ACEs) for networking, regional technical assistance and improving learning environment Sub-component 2.2 Support for PhD scholarships through the PASET Regional Scholarship & Innovation Fund	Sub-component 3.1 Support for project facilitation and M&E at the regional level Sub-component 3.2 Support for national level coordination (Burkina Faso and Ghana) by government designated national higher education agencies

⁷ Support for national level coordination will be provided in Ghana and Burkina Faso



Component 1: Establishing new and scaling up well-performing existing Africa Centers of Excellence for development impact (Total: US\$209 million equivalent; of which IDA and government contributions are 50 percent each)

30. **Component 1 aims to build and strengthen the capacity of 16 competitively selected centers and three Schools of Engineering located in higher education institutions across West and Central Africa and Djibouti.** Component 1 has two sub-components: Sub-component 1.1 will establish 10 new ACE Impact centers for skills development and knowledge generation (through applied research) to address development challenges, that are not addressed under the ACE I project. Sub-component 1.2 will provide additional support to six well-performing ACE centers participating in the ongoing ACE I project (these ACE Impact centers will be referred to as *renewal centers*) to scale-up impact on development challenges, to strengthen regional collaboration, and ensure that these ACE centers are fully fiscally sustainable. Additional funding will support three engineering and technology institutions hosting ACE centers from Sub-components 1.1 and 1.2, to strengthen institutional impact.

31. **Each ACE Impact center (*new and renewal*) supported through Component 1 will focus activities on a specific regional development challenge.** See below for pre-identified regional development challenges, while Annex 6 lists all funded Thematic Areas. Each of these centers is targeted in scope and will deliver postgraduate education and applied research programs developed in coordination with relevant stakeholders. While the center workplans are focused, a multidisciplinary approach will be essential to achieving the goals of each center.

32. Provided below are details on key aspects of establishing the new ACEs and scaling up the renewal centers: (i) strategic objectives and activities; (ii) strategic and competitive selection process; (iii) pre-identified (targeted) regional development challenges; and (iv) funding of the ACE Impact centers and the institutions in which they are hosted:

- (i) **ACE's strategic objectives and activities:** Each center under Component 1 will scale-up postgraduate education, applied collaborative research and outreach to address regional development challenges. This will be achieved through: higher quality postgraduate education addressing the skills gap and tackling priority applied research questions; leading regional education networks; and delivering short-term courses, for example, a two-week course for mid-career professionals. In consultation with stakeholders, the centers will update and/or launch new postgraduate (master's and Ph.D.) degree programs that are accredited to meet international quality standards. The centers will offer curricula that ensure that students have the in-demand competencies upon graduating from their degree programs, including analytical, digital skills, and entrepreneurial competencies. Partnerships with national, regional, and global sectoral actors will ensure that the ACEs focus their activities on education and research to solve specific problems associated with development challenges. Centers will disseminate their research findings to policymakers and companies and also through international peer reviewed journals. Further, each center will be required to have policies backed by specific interventions in place to: (a) increase the number of females within their student body, faculty and academic leadership. The activities include additional training, mentoring, and funding of female students and faculty as well as regional peer learning among centers, as described in a guidance note to centers on promotion of women in STEM; and (b) ensure the overall well-being of their student population. Under this project, greater emphasis will be placed on ensuring ACE host institutions are incentivized to undertake several



activities, including those that promote: good governance; data collection and management; and regionalization of their institutions towards making their institutions regionally (and globally) competitive.

- (ii) **Strategic and competitive selection of ACEs:** The evaluation and selection process which covered proposals from all countries participating in both ACE Impact I and II projects was rigorous, transparent, merit-based and consistent with international standards for higher education and research funding organizations. The evaluation process consisted of a two-stage desk evaluation (individual expert evaluations and a panel evaluation) and site visits that were performed by several independent evaluation experts from SSA, the diaspora and across the globe. The selection process was designed to ensure that selected ACE Impact centers will collectively address many of the region's specific development challenges and promote a balanced portfolio of ACEs in terms of new and renewal centers and their focus areas, countries and language groups participating in the project. Of the 105 eligible proposals submitted, the Ministerial level of the Project Steering Committee (PSC) selected 44 ACEs under ACE Impact I (16 centers) and II (28 centers) projects based on the recommendations of evaluation experts, using objective rules (see Section III A for the description of the two-level PSC).
- (iii) **The pre-identified (targeted) regional development challenges:** Although all centers will address a regional development challenge, 15 of the 44 ACE Impact I and II centers were selected to address pre-identified shortages of skills and knowledge towards solving regional development challenges. In consultation with regional governments, the private sector, and other regional stakeholders, a set of Terms of Reference (ToRs) with expected educational and applied research outcomes were prepared for each of the following 11 pre-identified thematic areas: water, digital development (ICT), power and renewable energy (energy), urban design, coastal degradation, social risk management (includes environmental science and applied Impact assessment), education, transport-logistics, quantitative economics, procurement and nursing/health professionals. At least one proposal was selected within each area with the exception of procurement (one proposal was of low quality) and social risk management (no proposals submitted). However, two of the selected centers will receive add-on funding to offer programs in social risk management.
- (iv) **Center funding:** The governments, selected universities and the World Bank have defined the allocation of funds to the centers based on the funding needs of each center (taking into consideration the thematic area) and the host country's priorities. Each center's funds have been distributed across a set of disbursement-linked indicators/results (DLIs/DLRs). These DLI's are pre-identified indicators that once achieved by the center and independently verified, the center will qualify for disbursement of a pre-determined amount for each specific DLI. The disbursements will be made against the center's eligible expenditure program (EEP) which is part of the annual budget of its host institution. The EEPs consist of salaries, scholarships and operating costs. A detailed description of the disbursement approach is provided in the Fiduciary sub-section, under Section IV. B. Each university will sign a performance and funding agreement (PFA) with its government. These agreements will include the following stipulations:
- New centers may allocate up to 25 percent of funding for civil works;
 - At least 15 percent of the funds will be invested in partnership activities. Partnership agreements between ACEs and their partners will include a detailed workplan, budget and agreed results;



- Up to 10 percent of the amount of funding will go towards the ACE host institution's activities which will be included in the implementation plan and annual workplans of the ACE;
- Government and institutional contributions (in-kind, staffing and financing) for the center's establishment and sustainability are expected; and
- Based upon performance, the amount of funding provided to each center and usage of the funding can be adjusted by the World Bank in consultation with the respective ACE host government. At mid-term, expected to be two years after signing the performance contract, there will be a thorough evaluation of performance and the grant supporting each center will be reviewed. In particular, it is expected that poor performing centers will have their grant reduced by 50 percent of the uncommitted amount that is above half of their grant. Three years after signing, it is planned that half (50 percent) of the remaining undisbursed institutional grant will be removed. This additional funding will be made available to institutions that are performing well. These gradual and automatic reductions in grant amounts seek to reduce the risk of having large funds committed to institutions that are slower in achieving results and implementation.

Sub-component 1.1: Support to establish new centers of excellence (Total: US\$129 million; of which IDA and government contributions are 50 percent each)

33. **Sub-component 1.1 aims to support the establishment 10 new ACE Impact I centers and increase the number of quality centers and relevant programs offered in the region and to introduce new thematic areas that do not exist in ACE I.** All ACE Impact I countries, except Djibouti, will have an ACE Impact center. This sub-component will fund new centers between US\$4 million and US\$8 million (average US\$5.3 million) to each center to fund its activities. The funding allocation to each center depends on the thematic area, the overall funding needs indicated in the center's proposal, the funding envelope of the center's government and the government's priorities (see Component 1 above for the detailed description of the expected activities). The release of IDA funds will be linked to the achievement of seven DLIs: (a) Institutional readiness results (DLI1); (b) development impact of the ACE Impact Center (DLI2); (c) quantity of students with focus on gender and regionalization (DLI3); (d) quality of education and research through international accreditation, research publication and improved teaching and research infrastructure (DLI4); (e) relevance of education and research through externally generated revenue internships and entrepreneurship (DLI5); (f) timeliness and quality of fiduciary management (DLI6); and (g) Institutional impact- to be accomplished by the ACE host institution (DLI 7). The disbursement amount by result is uniform across centers and countries for DLI3, DLI4, DLI5, and DLI 7, because a unit cost can reasonably be established for these results, for instance unit cost for a student or a research publication. Disbursement amounts for DLI1, DLI2, and DLI6 differ by center because they are relative to the center's funding envelope, because the results are related to the overall performance of the center, notably implementation readiness, impact of center and fiduciary management, see Section VI Results Framework and Monitoring.

Sub-component 1.2: Support to scale-up well performing ACE I centers (Total: US\$80 million; of which IDA and government contributions are 50 percent each)

34. **Sub-component 1.2 aims to provide additional funding and support to six existing ACEs (currently supported under ACE I) to enable them to scale-up their activities and deepen their development impact.**



All participating ACE I countries (Burkina Faso, Ghana and Senegal) in ACE Impact I have at least one of their ACE I centers participating in this sub-component as a renewal center. Funding under this sub-component will help these centers to: strengthen productive partnerships with industry, sectoral stakeholders, ministries and policymakers; boost their regional leadership of regional networks; allow centers to lead efforts in the training of quality postgraduate students and maintain their international accreditation; and act as drivers of applied research solutions to development challenges in the region. The funding to renewed centers are from US\$2 million – US\$ 4.5 million, with an average funding of US\$3.6 million. This is equivalent to approximately half the amount of funding previously provided under ACE I, with the expectation that most of these centers will not require capital intensive civil works at the levels they needed in ACE I. Further, these ACEs will be supported to increase their fundraising efforts to become fully sustainable after this round of funding. The allocation to each center depended upon the thematic area, overall funding needs indicated in the center's proposal, the funding envelope of the center's government, and the government's priorities. While the release of IDA funds will be linked to the achievement of the same seven DLIs listed under Sub-component 1.1 above, the DLI amounts for each center under this Sub-component 1.2 will vary between ACEs to customize to the center-specific objectives. The center specific amounts are provided in the POM.

Additional support for Social and Environmental Risk Management Training

35. **Burkina Faso will give add-on funding of US\$2.5 million to an ACE Impact center under Component 1 to develop and offer training in Social and Environmental Risk Management.** The center will achieve its objectives through: (i) creating a regional network of academics and practitioners in social and environment risk management; (ii) conducting training for agencies of infrastructure and natural resources projects; and (iii) facilitating regional sharing of experiences and learning in safeguards risk management, grievance redress mechanisms (GRMs) and benefit-sharing. Graduates will be equipped with comprehensive and interdisciplinary knowledge in environmental and social sustainability and will deepen their understanding of the role of environmental and social risk assessment and management in project development and implementation.

Additional support to engineering and technology ACE host institutions

36. **Three institutions that are selected to host an engineering or technology-focused centers with capacity in other engineering disciplines will receive additional funding of US\$15.5 million equivalent in IDA support.** Ghana, Burkina Faso and Djibouti each have an institution that fits the profile. This funding will support an institution-wide strengthening of the engineering and technology programs within their College or School of Engineering (CoEngg).⁸ The CoEngg are expected to meet the same seven DLIs just as its ACE/Emerging center to incentivize the scaling-up of enrollment of undergraduates (including enrollment of females); achieving international quality standards; introducing new academic programs; promoting project-based learning and innovative pedagogy; establishing new laboratories; enabling technology transfer and business/entrepreneurship; building linkages to business programs; enhancing teaching and research capacity; and promoting institutional transformation in terms of policies and operations. This type of support did not exist under ACE I or ACE II.

⁸ The term College/School of Engineering (CoEngg) is used generically here, and may refer to a Faculty, a Polytechnic within a university, or other similar organizational structure.



Component 2: Fostering Regional Partnerships and Scholarships (Total: US\$28 million equivalent of which the IDA contribution is US\$17 million and government contribution is US\$11 million)

37. **Component 2 seeks to expand the regional impact of the ACEs funded under Component 1 by providing demand-side funding for partnering institutions and regional students to purchase training and consulting services from the ACEs that are most relevant to their teaching and research goals.** Component 2 has two sub-components: Sub-component 2.1 will finance regional institutional partnerships through support to Emerging centers, while Sub-component 2.2 is optional and will finance governments' contribution towards the PASET RSIF.

Sub-component 2.1: Support to Emerging centers (non-ACEs) for networking, regional technical assistance and improving learning environment (Total: US\$22 million; of which IDA and government contributions are 50 percent each)

38. **Sub-component 2.1 will support two Emerging centers to develop regional institutional partnerships with ACEs (under Component 1) and other relevant international partners to strengthen the capacity of their higher education institutions.** These Emerging centers will be in the form of a department/school or a multidisciplinary center within an institution. Participating countries eligible for support under this sub-component are those that have not yet received support to establish ACE I centers, notably Djibouti (transport-logistics, supply chain management and ICT) and Guinea (mining).

- (i) **Strategic objectives and activities:** Supported institutions will receive funding to strengthen, through partnerships, both undergraduate and postgraduate (focus is more on master's level than PhD) education programs that will provide training to their students and develop in them the skills which will be useful in addressing national development needs of the country hosting the center. Emerging centers to be established under this sub-component will receive support for activities including: regional technical assistance (TA) to strengthen academic programs and curriculum design; faculty scholarships and training; costs of visiting faculty; TA for institutional policies and practices; improving teaching and research resources; and other regional engagements.
- (ii) **Strategic and non-competitive selection of Emerging centers:** The two Emerging centers, selected non-competitively, will receive funding based on their strategic importance for achieving national development objectives (see Table 2 for thematic distribution of centers). Although non-competitive, these institutions, in conjunction with national higher education authorities, were required to submit strong proposals with specific strategic targets in order to receive financial support under this sub-component as Emerging centers. They received upfront proposal writing support. To strengthen the academic support base of these two centers they will each be mapped to the regional network of an ACE Impact center supported under Component 1, that is focusing on a similar thematic area.
- (iii) **Emerging center funding:** The government, selected Emerging center institutions and the World Bank will discuss the allocation of funding to the centers based on the funding needs of each center and the priorities of the host country of the centers (see Table 3 for estimated country allocations for all Sub-components). Each center's funds will be distributed across the relevant DLIs/DLRs. These centers will be expected to meet the same seven DLIs as ACE Impact centers, with a large share of the DLIs to incentivize results for improved undergraduate and master's programs. Similar to disbursements under Component 1, up to a capped amount will be disbursed against specific



EEPs (salaries, scholarships and operating costs) in the annual budget of each center and its host institution, conditioned on the achievement of the specified DLIs. Each institution will sign a PFA with its government. These agreements will include requirements stipulating that:

- At least 30 percent of funding for each center under this sub-component will be invested in regional partnerships (with new or renewal ACEs that have been selected to receive support under Component 1) and international institutional partnerships (with other institutions outside the ACEs and the region - especially for sectors for which no ACE Impact center exists). Funds can be used to cover regional TA to strengthen academic programs, curriculum design, institutional policies and practices; faculty scholarships and training; and costs of visiting faculty; and
- The remaining 70 percent of the funding will support investment in teaching, learning and research equipment and other hardware necessary for regional partnerships and supporting institutional transformation.

Table 2. Distribution of Centers (New, Renewals & Emerging) by Country and thematic cluster

Thematic area	Burkina Faso	Djibouti	Ghana	Guinea	Senegal	Total
STEM	1	1*	5	1*	2	10
Agriculture	-	-	1	-	1	2
Health	2	-	2	1	1	6
Total	3	1	8	2	4	18

Note: *These cells denote Emerging centers. Annex 1, Table A1.1 provides detailed information on all centers.

Sub-component 2.2: Support for PhD scholarships through the PASET Regional Scholarship & Innovation Fund (RSIF) (US\$6 million from IDA)

39. **Sub-component 2.2 will finance regional scholarships through the PASET RSIF to support primarily the training of the next generation of faculty for higher education institutions in the region. Three countries (Burkina Faso, Ghana, and Senegal) will finance a US\$2 million contribution to the RSIF.** This sub-component will build institutional capacity, to support improvements in the quality and quantity of academic staff in the region's higher education institutions, ultimately increasing academic capacity of these institutions.

40. **The RSIF, a competitive pan-African Scholarship program, provides PhD scholarships to top-performing master's students with the aim of creating a strong pipeline of faculty and researchers in applied sciences, engineering and technology fields.** Five countries (Côte d'Ivoire, Ethiopia, Kenya, Rwanda and Senegal) have taken the lead in committing US\$2 million each to the RSIF established by African governments in 2015. The RSIF, through the World Bank-financed Africa RSIF for Applied Sciences, Engineering and Technology Project (P165581), approved by the World Bank in 2018, received US\$15 million and US\$10 million from the World Bank and South Korea, respectively. The RSIF seeks to serve as a pan-African platform that will scaleup the African-led fund to finance the continent's top students in S&T to pursue their studies in Africa, while providing them with opportunities through a sandwich program⁹ to carry out part of their research at top international partner institutions. Under the ACE Impact I project,

⁹ RSIF scholars will have the opportunity to carry out their PhD work in both their host institutions and in a partner institution abroad.



the funds allocated to the RSIF will be disbursed directly to the RSIF established and managed under the World Bank-financed RSIF project (P165581), pursuant to subsidiary agreements signed between each contributing country and the implementing entity of the Fund (the International Center of Insect Physiology and Ecology- *icipe*). The RSIF project will be responsible for supervision (including technical, fiduciary and safeguards) of all funds transferred to the Fund from the ACE Impact I project. The RSIF team will provide information/data on key indicators to report on progress and outcomes in the ACE Impact I project's *Implementation Status and Results Report (ISR)* and *Implementation Completion and Results Report (ICR)*.

Component 3: Enhancing National and Regional Project Facilitation, and Monitoring and Evaluation (US\$13.5 million equivalent from IDA)

Sub-component 3.1: Regional-level project facilitation and monitoring and evaluation (US\$10 million)

41. Through a regional IDA grant of US\$10 million, Sub-component 3.1 will fund the AAU, which will continue as the RFU, to facilitate the ACE Impact I project's regional activities and support the centers under the project. Activities will include: M&E activities such as development of an online M&E database platform, verification of results, benchmarking of ACE host universities, and graduate tracer studies; site supervision visits of ACEs by independent experts; communications, safeguards support, capacity-building; and knowledge-sharing and networking among ACEs and governments. The RFU will also liaise with ongoing regional and national initiatives in order to strengthen the ACE regional networks, including through digital networking platforms.

Sub-component 3.2: National-level project facilitation (US\$3.5 million)

42. This sub-component will finance project implementation support at the national level in the countries where the ACE Impact I investments exceed US\$25 million. These are the National Council for Tertiary Education (NCTE) for Ghana and the Ministry of Higher Education, Research and Innovation (*Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation*, MESRSI) for Burkina Faso. These are the national agencies responsible for tertiary education in those two countries. The objective is to provide national level support to the centers, within their respective countries. The MESRSI of Burkina Faso currently hosts the Project Implementation Unit (PIU) of its IDA -Funded national higher education project (mentioned earlier in the document). This same MESRSI-PIU will play the national facilitator role for ACEs in Burkina Faso. Performance of these national level facilitation agencies will be measured by the degree to which the ACE Impact centers in the respective countries achieve the project objectives including compliance with fiduciary, safeguard and anti-corruption guidelines. The activities will include supervision and training related to educational, research, implementation, fiduciary and safeguards aspects; as well as national M&E and minor TA.

Unallocated (US\$8 million)

43. **An amount of US\$8.0 million (IDA credit) will be designated as unallocated funds.** At the mid-term review (MTR) of the ACE I project, a restructuring of the project was necessary in order to allocate funding from less-performing centers to better-performing ACEs in the same country. In the case of Cameroon where there is one ACE I center, a partial cancellation of funds took place due to low performance. This process was difficult. To avoid this process of removing or cancelling funds from poor



performing centers, a varying amount of each country's funding envelope will remain unallocated. The funds will remain within each country. These unallocated funds will be allocated during project implementation to either: (i) centers and host universities that are producing strong results to further improve overall impact; or (ii) unforeseen but necessary activities critical for the achievement of the PDO. Following an evaluation of the performance of ACE centers at mid-term review under the proposed project, the World Bank in discussion with governments will decide which ACE centers will receive the unallocated funding within each country's funding envelope.



Table 3. IDA Funding allocation for participating countries showing estimated breakdown by components/sub-components (US\$ million equivalent)

Participating Countries and the RFU	Source	Components												Unallocated
	IDA Credit/ Grant	Component 1 New and Renewal ACEs (ACE Impact centers)						Component 2 Regional partnerships & Scholarships				Component 3 Natl. & Regional level facilitation & M&E		
	Total Funding (\$US million)	Sub-comp. 1.1 New Centers			Sub-comp. 1.2 ACE I Renewals			Comp. 1 Total (US\$ mil)	Sub-comp 2.1 Emerging Centers		Sub-comp 2.2 PASET RSIF	Comp. 2 Total (US\$ million)	Comp. 3 Total (US\$ million)	Unallocated Total (US\$ million)
		No. of ACEs	Amount (US\$ million)	Add-on (Soc. Risk management) Amount (US\$ million)	No. of ACEs	Amount (US\$ million)	Add-on (*COENGG) Amount (US\$ milionl)		No. of Centers	Amount (US\$ million)	Amount (US\$ million)			
Burkina Faso	33	2	16	2.5	1	4	4	26.5	0	0	2	2	1.5	3
Djibouti	15	0	0	0	0	0	6	6	1	7	0	7	0	2
Ghana	60	5	32	0	3	16.5	5.5	54	0	0	2	2	2	2
Guinea	10	1	5	0	0	0	0	5	1	4	0	4	0	1
Senegal	15	2	9	0	2	4	0	13	0	0	2	2	0	0
AAU	10	-	-	-	-	-	-	0	-	-	-	0	10	-
Total	143	10	62	2.5	6	24.5	15.5	104.5	2	11	6	17	13.5	8



44. Based on the current IDA envelope and consultation between the World Bank and participating national governments, project components will be financed as indicated in Table 4 below.

Table 4. Funding envelope and sources of funding for participating countries (equivalent US\$ million)

Country	Sources of Funds			
	Total Project Cost	Govt. Funding*	IDA Credit	IDA Grant
Burkina Faso	59.5	26.5	22	11
Djibouti	28	13	15	
Ghana	114	54	60	
Guinea	19	9	6.3	3.7
Senegal	28	13	15	
AAU	10			10
Total	258.5	115.5	118.3	24.7

Note: *The countries' contribution to the project cost is the estimated amount required for the salaries of the staff of the ACEs and other university personnel.

45. The proposed project will use an Investment Project Financing (IPF) lending instrument with RBF for Sub-components 1.1, 1.2 and 2.1 following the successful experience of this approach under ACE I. RBF through DLIs has been an effective and innovative tool under ACE I to focus university teams around the expected results of the project. In particular, the significant resources linked to the attainment of international accreditation, internships, regional students' recruitment, and revenue generation constituted an important incentive towards achieving these results. Further, the RBF approach necessitates a stringent verification process of students, learning infrastructure and equipment, etc. which disciplines all partners in the reporting and attainment of the results. The specific results (or DLRs) expected under each DLI are presented in Section VI. The expected results under ACE Impact I are similar to the expected results in ACE I and II, but with a few improvements. A matrix showing the differences in the DLRs for ACE I, II and ACE Impact projects is provided in Annex 3.

C. Project Beneficiaries

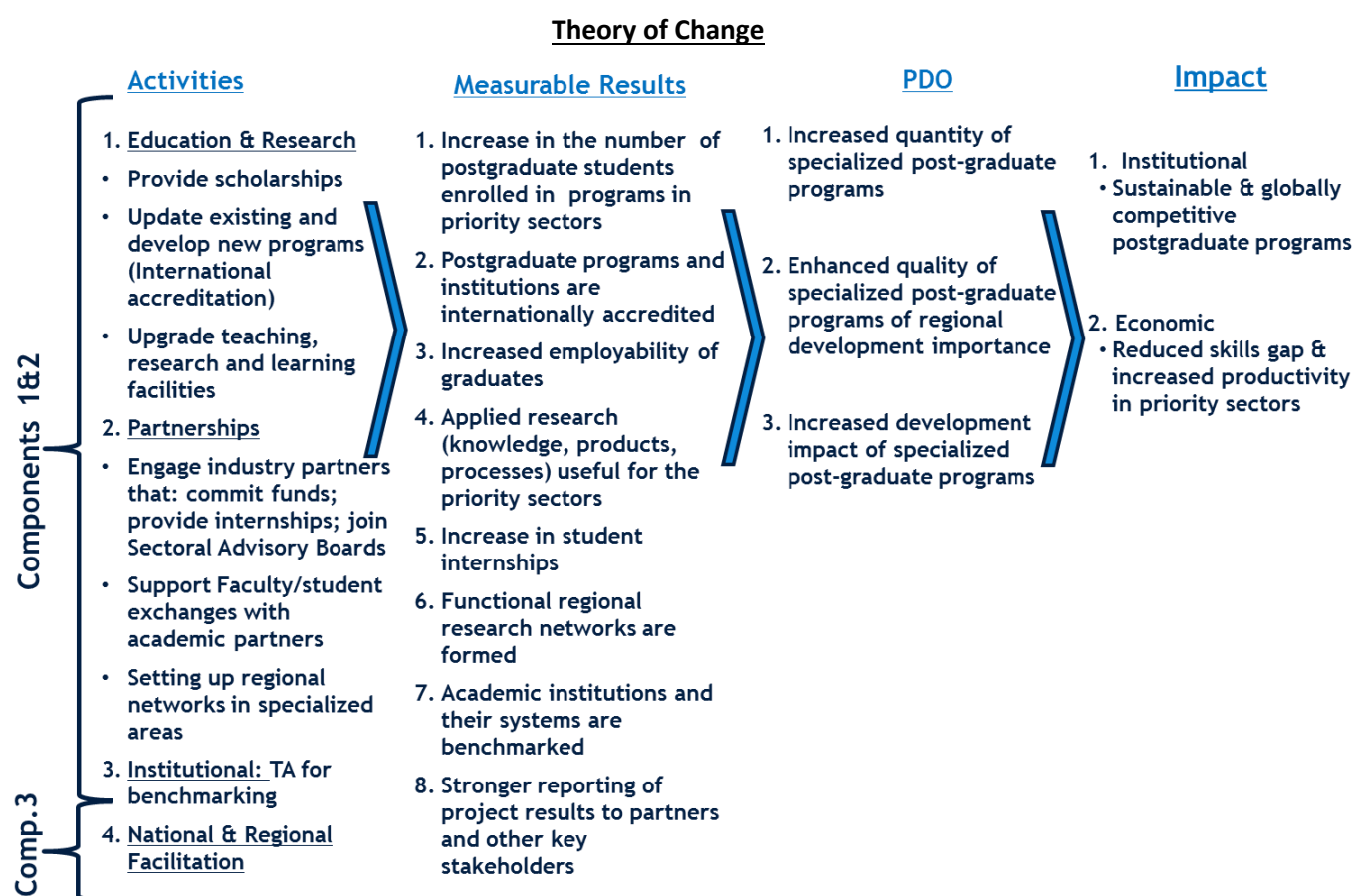
46. The proposed project aims to benefit the following:

- (i) Students in the selected ACEs and those enrolled in the ACE host institutions, as well as students in partner institutions across West and Central Africa and Djibouti. Further, current and future students will have an expanded choice of quality and development-related education programs within West and Central Africa;
- (ii) Faculty and staff from the ACEs, host institutions and partner institutions who improve their qualifications and teaching and research conditions;



- (iii) Employers and other knowledge partners, including Ministries and public entities, who will have easier access to highly skilled professionals and to applied research for solutions to pressing development challenges; and
- (iv) The general population in West and Central Africa and Djibouti who will benefit from a network of dynamic university centers focused on the generation of skills and applied research to drive development.

D. Results Chain





E. Rationale for World Bank Involvement and Role of Partners

Rationale for World Bank Involvement

47. **The World Bank is well placed to play a leading role in supporting the expansion and quality improvements in higher education in West and Central Africa and Djibouti through a regional-level project because of its experience, funding, convening power and fiduciary oversight.** First, the World Bank brings a wealth of experience from its higher education work across the globe and can draw upon lessons from both national and regional projects from SSA and other regions, most notably the ACE I and ACE II projects. The World Bank has substantial expertise across several sectors and has undertaken in-depth analyses on the state of higher education and the skills gap across various economic sectors in the countries and region as a whole. Second, due to the World Bank's strong financial standing, it provides adequate funding in the form of credits and grants, with favorable terms, to participating countries to support such a regional project. Third, the World Bank's convening power is critical in bringing together the relevant stakeholders from governments, industries, universities and research institutes, regional bodies (ECOWAS, AAU, West African Economic and Monetary Union (*Union Economique et Monétaire Ouest Africaine*, UEMOA)) and other development partners to collaborate on the project. Fourth, the World Bank's history of strong fiduciary oversight makes it appealing for the participating governments and development partners.

Role of Partners

48. **The proposed ACE Impact I project is expected to benefit from a variety of co-financing support actions from bilateral partners that have been investing in the region over the years with similar objectives to those of the ACE projects.** Co-financing will be used to support project activities, and additional funding is anticipated in the form of top-up awards to targeted centers. Leading global research funding agencies are expected to launch targeted calls and actions to support bilateral and multilateral collaborations between researchers at the ACE Impact centers and those based internationally.

49. **French Development Agency (*Agence Française de Développement*, AFD)¹⁰ is preparing a EUR 6 million grant to support regional collaboration activities aligned with the ACE Impact objectives and activities.** AFD's grant will support three primary focus areas: (i) under Component 1: Support activities, including technical support to reinforce industry-ACEs linkages through operational partnerships with the private sector or equivalent, for health; (ii) under Component 2: Regional and international thematic networking activities to strengthen or create sustainable research networks, between ACEs, Emerging centers and other universities (outside of the ACE Impact project) through scholarships, short-term mobility of researchers and support to joint projects – key thematic areas include: environment and mining, digital development, health, and renewable energy; and (iii) under Component 3: Providing targeted TA to ACE Impact centers and host institutions to support Quality Assurance (QA) (Academic, research, governance)

¹⁰ AFD is also considering solely funding (in Cote d'Ivoire) and co-funding (with the World Bank in Benin and Nigeria) ACE Impact II centers.



and optimal use of scientific equipment. The grant will also fund cross-cutting activities and communications to support research and to highlight PhD students and ACE Alumni. Activities to be funded are: mobility schemes embedded in thematic research areas, TA and capacity building missions and regional workshops. The implementation scheme is currently being discussed with the World Bank and the centers to address critical needs (aligned with the DLIs), avoid duplication and minimize complexity. The AFD grant will fund: research performing organizations, higher education institutions and QA experts to support these interventions. The appraisal of the AFD grant is expected in 2019.

50. **Research chairs supported by development partners will provide additional resources and academic capacity to ACE Impact centers.** The Canadian International Development Research Center (IDRC), the German Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*, BMBF) and the German Academic Exchange Service (*Deutscher Akademischer Austauschdienst*, DAAD) are considering financing research chairs at selected ACE Impact centers. These research chairs will further strengthen faculty capacity at the centers, leverage the centers' resources to accelerate research programs anchored in world-class academic practices and deepen partnerships with collaborators in the funding country.

51. **Additional support for academic partnerships with international collaborators** is expected from leading research funding agencies and research organizations following the selection of ACE Impact centers. These agencies and organizations will share the list of selected ACE Centers with a focus on researchers who have ongoing collaboration with African partners. Research funders including the French National Research Agency (*Agence Nationale de la Recherche*, ANR) (France), German Research Foundation (*Deutsche Forschungsgemeinschaft*, DFG) and BMBF/DLR (Germany), United Kingdom Research and Innovation (UKRI) and United States National Science Foundation (NSF) who have committed to workshops with ACE Impact centers on research topics of common interest and anticipate supporting research collaborations between their national researchers and ACE Impact centers. DAAD has supported a study tour to Germany for selected center directors to facilitate connections and future collaborations. Research organizations including the National Center for Scientific Research (*Center National de la Recherche Scientifique*, CNRS) and French National Research Institute for Sustainable Development (*Institut de Recherche pour le Développement*, IRD) already provide financial support to researchers associated with centers planning on responding to the Call for Proposals.

52. **Several public and private sector partners in relevant sectors are expected to commit financial resources to ACE Impact centers.** Industry and sectoral stakeholders are essential for ensuring long-term financial and academic sustainability of ACE Impact centers.

F. Lessons Learned and Reflected in the Project Design

53. **The ACE Impact project benefits from lessons learned under the ACE I and ACE II projects as well as other World Bank-financed projects in other regions and global best practices.** Key drivers for successful ACE centers have been: capable faculty teams; strong government and university ownership;



and visionary center directors that have attracted relevant international partners as well as additional donor funding. Despite these achievements, the development impact of these centers can be further strengthened through: (i) more targeted selection of centers to more effectively respond to the regional demands for skills and research; (ii) improved upfront linkages to industry; (iii) increased institutional impact on the ACE host university; and (iv) better coordination with regional and international partners. The outcome of consultations with ACE I center leadership, experts involved in evaluating the current centers, national governments, Ministers of education, and World Bank staff (both at the country and GP levels) were incorporated into the design of the ACE Impact I project (see Table 5 for the summary of stakeholders consulted during project preparation). Lessons learned which have been incorporated into the project's design, particularly in the Call for Proposals stage, evaluation and selection processes, the DLI disbursement and verification protocols and project implementation, include, *inter alia*:

- (i) **Strengthened regional focus:** While ACE I centers have been successful in recruiting regional students (approaching the ACE I project set target of 30 percent), there continues to be a need for stronger regional engagement of centers, including improved industry/sectoral partnerships and strengthened political buy-in. The ACE Impact projects will incorporate a strong regional engagement through various channels, including ECOWAS' participation on the PSC, and the introduction of a two-tiered regional steering committee wherein the Committee meets annually at the Ministerial level and more frequently at the government representative level.
- (ii) **Stronger national government and ministerial ownership:** It was evident during the preparatory phase of the proposed project that some Ministers responsible for higher education and from countries participating in the ACE I project were not fully aware of the ACE I project nor the accomplishments of their national ACE I centers. ACE Impacts in addition to the national steering committees (NSCs) will convene an annual Ministerial PSC meeting to ensure that Ministers are fully informed of the progress of the overall program and to ensure stronger ownership of the achievements of their national centers. It is envisioned that each participating government, as part of the mandate of its NSC, will develop a national plan aimed at supporting the sustainability of their centers beyond the World Bank's funding. The NSC and national focal points will be critical in ensuring bottlenecks affecting their ACEs are solved at the country level.
- (iii) **Improved institutional ownership:** In the ACE I project, there appears to be a reasonable correlation between an ACE center's success and the institutional support they receive. In the ACE Impact center selection process, there will be a stronger focus on the evaluation of institutional support for proposed centers, and the design of DLIs that provide incentives to encourage institutional support for center activities.
- (iv) **Strengthened institutional impact:** Successful ACE I centers implemented policies and practices aligned with global best practices for higher education. However, there is limited evidence that operational excellence of these centers has positively influenced institutional transformation beyond the centers. ACE Impact will proactively encourage institutional impact: each proposal must identify specific anticipated interventions; and DLIs will reward the adoption of best



practices at the institutional level. At least 10 percent of each center's funding will be allocated to activities at the ACE host institutional level. In addition, under Component 1 substantial additional funding will be available to selected Colleges of Engineering and/or Technology – beyond that provided to the ACE Impact centers – with the specific purpose of strengthening the institutional impact of the project.

- (v) **Improved sectoral commitment to ACE Impact centers:** Given the scope of ACE Impact centers, a rapid implementation startup is essential to successfully complete the proposed workplan and achieve the DLR targets. The ACE Impact projects require that proposed centers (including the Emerging centers) identify upfront:

- **A Sectoral Advisory Board (SAB)** to help guide the academic and applied research programs of the center;
- **Industry/sectoral partners**, who will collaborate on applied research, provide internships for students, hire program graduates, and contribute financially to the long-term sustainability of the center; and
- **Regional and Global Academic collaborators**, who contribute the necessary technical expertise to deliver the proposed teaching and research activities of the center.

Furthermore, in the proposal evaluation phase, the expert evaluators will consider sectoral commitment both in the written proposal and through meetings with sectoral stakeholders during the on-site evaluations of potential ACE centers.

- (vi) **Strengthened strategic networking:** University-based research centers, whether in Africa or globally, rely upon networking to deliver on their work plans. Building relationships to recruit students, to strengthen capacity and impact across West and Central Africa and Djibouti, and to disseminate research results that address development challenges is integral to the success of ACE centers. The design of DLIs will provide incentives to ensure that centers focus on these critical activities.
- (vii) **Increased gender-balance focus:** While progress is being made, targets for female postgraduate students under the ACE I project are not being fully achieved. There are also no female directors of ACE I centers, and female faculty members are rare participants in ACE activities. Partly to an explicit selection process that promoted selection of centers with female directors or deputy directors, there are now four female ACE Impact center directors or deputy center directors (an intermediate outcome indicator). Addressing gender imbalances is an explicit part of the design of the Call for proposals template, implementation plans and the design of the selected DLIs will provide incentives to encourage greater female participation in all aspects of the centers.
- (viii) **Stronger World Bank GP engagement:** In addition to the evolution of expectations for ACE Impact centers based on lessons learned from the ACE I project, the World Bank ACE Impact team has prioritized greater internal World Bank GP engagement to strengthen the focus of ACE Impact centers in addressing key development challenges. During the project preparation



phase, the project team led by Education GP worked closely with other GPs (and other stakeholders) to develop ToRs for 10 targeted priority thematic areas. During project implementation, it is anticipated that GPs will be involved in providing implementation support to centers within their sector. At the center level, the inclusion of GPs in implementation support will result in stronger linkages with ongoing World Bank-financed projects, improved knowledge transfer, and career opportunities for graduates. Such engagements will complement national projects in higher education and other sectors. A working group composed of GP focal points will further disseminate implementation results and strengthen regional and cross-disciplinary knowledge sharing among ACE Impact centers.

- (ix) **Inclusion of unallocated funds:** During the implementation of the ACE I project, at mid-term, it was determined that four centers had been performing below expectations. Although it was in the project's and governments' interest to reduce these centers' funding and reallocate the funds to better performing centers within the same country, this proved to be a difficult process. Consequently, under the ACE Impact I project, each center will receive a smaller funding envelope at the beginning of implementation, and then well-performing centers in need of additional funding will be rewarded with the unallocated funds at the mid-term point in project implementation.
- (x) **M&E improvements:** The proposed improvements to the ACE I project M&E process to be considered in the ACE Impact projects include: (a) a closer review by the RFU of the center submitted data for the reporting; (b) institutionalizing a Call and Email Test by the centers prior to the submission of results for verification; (c) maintaining strong and regular communication with the M&E officers at the centers throughout the verification process; (d) deepening the DLIs/DLRs definitions, expectations and scope of measurement (setting up a list of Frequently Asked Questions); (e) the RFU undertaking regular communication and coordination with the third party verifiers; (f) shortening the process for the verification of short-term students (a protocol and guidance for this is proposed); (g) institutionalizing M&E help desks and clinics for specific M&E challenges faced by centers; (h) breaking down language barriers by financing regional university collaboration and a flow of students assisted by scaling-up language course; (i) redefining the process for research publication verification; and (j) setting up an online M&E database platform with features for data submission, analysis and reporting.
- (xi) **FM-Related DLIs:** During the verification of the FM DLRs in the ACE I project many challenges were identified. Opportunities to address these challenges have been incorporated into the ACE Impact projects and cover strengthening web transparency, audit committees and internal audit units.
- (xii) **Other FM lessons:** While the ACE I regional workshops provide an opportunity to clarify many aspects of the FM arrangements, further efforts will be made to ensure the transfer of knowledge from the ACE Impact *renewal centers* under Sub-component 1.2 to the new centers under Sub-components 1.1 and 2.1 by leveraging and establishing knowledge sharing platforms (periodic workshops, secured online sharing of files, and Questions & Answers).



- (xiii) **Procurement DLIs.** There are lessons related to the use of procurement DLIs: (a) The timely submission of procurement audits DLI under the ACE I project has worked well and there have been consistent improvements in these audits over the course of the ACE I project. This DLI has been incorporated into the ACE Impact I project; (b) Improved incentivization of procurement planning - The DLI for timely, quality procurement has been reformulated to better incentivize Centers to improve procurement planning and procurement attribution; (c) Upfront hiring of project management and procurement capacity is part of the first DLI to ensure adequate capacity.

Table 5. Stakeholders consulted during project preparation

Stakeholder	Activities
In-Country Stakeholders <ul style="list-style-type: none"> National governments (Ministries, agencies in charge of Higher Education and Research, line ministries) Universities (management, faculty & students) and national research institutes 	<ul style="list-style-type: none"> Consultations on overall project National Workshops (10 out of 11 countries) 3 Project Steering Committee meetings ACE I project regional workshop
Regional Bodies <ul style="list-style-type: none"> ECOWAS AAU UEMOA 	<ul style="list-style-type: none"> Consultations on the project ECOWAS Technical and Ministerial Meetings Consultations with AAU on regional facilitation
World Bank <ul style="list-style-type: none"> GPs and Office of the Chief Economist Country Management Units (CMUs) 	<ul style="list-style-type: none"> Consultations on ToRs for Pre-Identified Regional Development Challenges (10 GPs) Consultations on national participation and IDA allocation
Development Partners <ul style="list-style-type: none"> AFD and IRD (France) IDRC (Canada) BMBF (Germany) 	<ul style="list-style-type: none"> Consultation on AFD Co-financing Consultations on project design Consultations on partnerships post selection
Research Funding Agencies <ul style="list-style-type: none"> ANR, CNRS (France) DAAD, DFG (Germany) UKRI (UK) NSF (US) Japan Society for the Promotion of Science (JSPS) and Japan Science and Technology Agency (JST) (Japan) 	<ul style="list-style-type: none"> Workshops and consultations on project design and partnerships with international academics and industry
Industry/Sectoral Players <ul style="list-style-type: none"> ICT-oriented companies (Intel, Microsoft, Orange, Digital skills, Ericsson, Vodafone) Solar energy companies West African Health Organization (WAHO); West African Power Pool (WAPP) National Instruments Royal Academy of Engineers (UK) 	<ul style="list-style-type: none"> Consultations on skills and applied research needs within various sectors Discussions on potential areas of collaboration



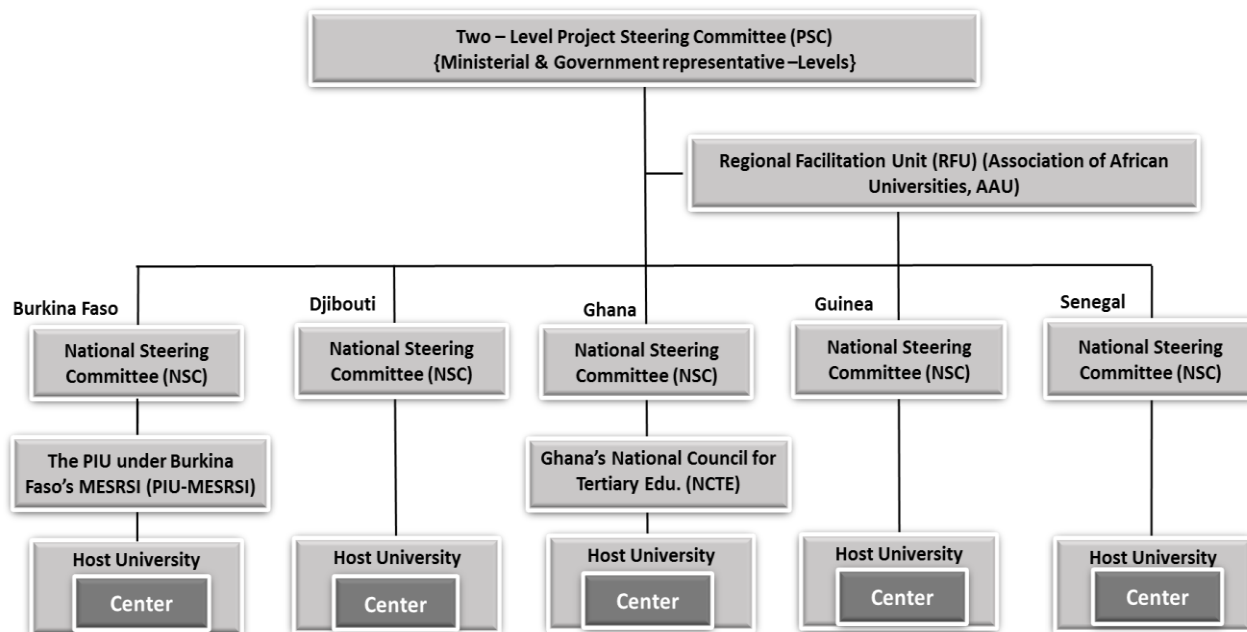
III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

54. **Project implementation will draw heavily on the successful experience of ACE I and II, where established implementation and supervision structures have been developed over the last four years.** The ACE I project ISRs show a continuously satisfactory performance on progress towards achievement of the PDO and overall implementation progress. This is due to a working implementation model established through the project that incorporated several lessons along the way. Key elements of this working model are: (i) direct responsibility for implementation of the selected ACE center proposals led by the ACEs; (ii) strong regional coordination and TA at the regional level through the AAU; and (iii) consistent accountability and implementation support through the national and regional project steering committees. The implementation arrangements for the proposed ACE Impact I project will build upon these working structures and further strengthen the implementation arrangements for the additional three new countries to ensure that the project is not adversely affected by the increase in number of centers and participating countries (see Annexes 1 and 4) for further details on these implementation arrangements for ACE Impact I project).

55. **The project's organogram is presented below.** See Annex 1 for more details on the roles and responsibilities of each of the key stakeholders represented in the organogram:

Figure 4. Organogram of the proposed ACE Impact Project



Note: Solid lines represent reporting lines; For Ghana and Burkina Faso, NCTE and MESRSI-PIU will coordinate at the national level.



56. **Each selected higher education institution – whether benefitting from Component 1 or Sub-component 2.1 - will implement its own ACE Impact sub-project.** Each ACE Impact center will have an implementation team established to manage the project on a day-to-day basis. Each center will be responsible for its own strategic and implementation plans, fiduciary and M&E activities. The team will be led by the center director, who will be a recognized educator/researcher with expertise in the academic focus area of the center. The center director will be supported by a deputy director and faculty from all departments contributing to the center. Each center team will also consist of key staff members specializing in procurement, FM, M&E, communications and an industry engagement who will support the center's day-to-day operations and assist with fiduciary tasks. The host university will provide to the centers administrative support and assistance on the safeguards tools to be developed by the centers. The center team will be advised by a SAB (composed of high-level representatives from the center's industry/sector partners) and an International Academic Advisory Board (IAAB) (comprised of leading academics from around the world). Both the SAB and the IAAB will contribute to the development of the education programs of the center, and will also provide advice, insight and oversight for the applied research program. A student representative (non-staff) will be designated to represent the students of the center and will participate in the center's staff meetings. ACE Impact centers supported under Component 1 will also lead regional networks in their areas of specialization (i.e., serve as research hubs). Each center will sign a partnership agreement with each of its partners with a detailed workplan, budget and expected outcomes. Annually, and based on a consultative approach, each center will develop a workplan (aligned with its implementation plan) that describes the education, research and operational activities that will be accomplished.

57. **Each national government participating in the ACE Impact I project will establish a National Steering Committee (NSC) facilitated by the Ministry or agency responsible for higher education.** The Committee will be tasked with undertaking a semi-annual review of implementation performance, and implementation planning and support. The NSC will review the FM and procurement annual audit reports (follow-up on recommendations in audit and review adherence to national procurement and FM guidelines), implementation plans, annual workplans, annual budgets, unaudited Interim Financial Reports (IFRs), and results (achievements of DLRs and fund utilization) of the center(s) and national facilitation agency (in the case of Ghana and Burkina Faso). The NSC will be the national level advocate for the center(s) and will foster linkages between the center(s) and government bodies and line ministries. The NSC will not be tasked with day-to-day implementation of the centers' sub-projects at each institution. While the composition of the NSC will be at the discretion of each participating country, it is anticipated that the Minister or head of agency in charge of higher education will designate a chair who will convene the committee, which will include members from the Ministry of Finance (MoF) as well as the relevant line ministries for the focus areas of each ACE Impact center in that country (e.g. health, water, transport, energy etc.).

58. **The ACE Impact PSC will provide overall guidance and oversight for the project.** The PSC is responsible for ensuring that the PDOs are achieved. The PSC will be comprised of two levels: Ministerial and government representative. The Ministerial-level PSC will be comprised of the Ministers in charge of



higher education in the participating countries, whereas the representative-level PSC will be comprised of representatives (senior advisors) appointed by these Ministers. Representatives from the ECOWAS Commission and UEMOA, other relevant regional bodies where necessary, recognized African and international academicians, vice chancellors (2), sector representatives, and key private sector stakeholders will be selected to participate in the PSC meetings. The Ministerial-level PSC will be the highest decision-making body within the institutional structure of the project. The representative level PSC will oversee the implementation of the decisions of the Ministerial level. An ACE Impact focal point may also be appointed to support their respective PSC representatives in their duties. The Chair of the PSC will rotate to the government hosting the meeting.

59. **Under Component 3, a regional grant will be given to the AAU (the RFU), which will be responsible for facilitating support to Components 1 and 2 and the overall regional facilitation of the ACE Impact I project.** This funding builds upon the AAU's experience in a similar role for ACE I. The workplan for AAU will be determined annually between the World Bank and the PSC. The AAU coordinated the call for proposal and the evaluation and selection of the centers. During implementation, AAU will: (1) facilitate semi-annual project meetings; (2) promote partnerships among centers and between centers and partners (academic and sectoral) outside of the ACE networks; (3) coordinate TA and support to centers from subject-matter experts and other capacity-building activities; (4) coordinate project M&E and support related activities, including benchmarking exercises and graduate tracer studies; (5) facilitate verification of achievement of DLRs; (6) serve as the secretariat of the PSC and facilitate and fund its meetings and functions; and (7) develop key documents such as the POM and ToRs for consultants hired to work on project related activities;

60. **Small project teams in place at the NCTE (Ghana) and MESRSI-PIU (Burkina Faso) will facilitate implementation of the Ghanaian and Burkinabe elements of the ACE Impact I project, respectively.** This is necessary due to the larger number of centers that Burkina Faso and Ghana will host which will require a consolidated facilitation at the national level. These two countries also have the funding to support these agencies in this regard. The NCTE is playing a similar coordinating role for the three ACE I Ghanaian centers. The MESRSI-PIU is also already playing a similar role under the IDA-funded national higher education project. The NCTE and the MESRSI serve on the ACE I PSC and will do the same for the proposed ACE Impact I project.

61. **Africans in the diaspora will be heavily integrated into project implementation.** A significant number of the proposal evaluators for the project were academic researchers and administrators from the diaspora who currently work in reputable institutions outside Africa. Several international subject matter experts recruited to work alongside their local counterparts in providing implementation support are drawn from the diaspora. Under the ACE I project, several center directors and other members of the center leadership teams have extensive and successful career experiences in Europe and North America, and many of the academic partnerships that the centers have secured involve members of the diaspora. The ACE Impact I project will continue to reap the benefits of the diaspora through partnerships, visiting professorships, consultancies, and advisory bodies.



B. Results Monitoring and Evaluation Arrangements

62. **The project will support systematic and continuous collection and analysis of performance data on agreed measures and indicators** to: (i) measure progress towards the achievement of the PDO, and (ii) ensure project activities are implemented as planned using the appropriate procedures. Importantly, disbursement to the ACE Impact centers will be linked to the achievement of DLRs. The RFU will oversee the overall M&E for the project, as well as ensure that a robust M&E database system is developed and institutionalized and that all data are publicly available online. M&E will be carried out at both the center and regional levels of project implementation. Each center will undertake M&E functions utilizing existing administrative arrangements. The ACE Impact I project will support strengthening of M&E capacity at both the center and RFU levels through TA and consultancies.

63. **M&E Mechanisms and Tools.** The design of the M&E arrangements under the ACE Impact I project reflects not only lessons learned from the ACE I project, but also preliminary best practices demonstrated by the ACE II project. To measure progress of individual ACE Impact centers, and the overall project, a Results Framework (RF) and list of DLIs have been prepared (see Section VI). The project's M&E tools include: The RF (indicators, baselines, annual targets, and persons responsible for monitoring each indicator and timeline) and the M&E Plan. Additional review mechanisms of the centers' RFs and their tracking tools will include the following: (a) institutional progress reports and internal quality and efficiency audit reports; (b) external verification of DLR achievements by an independent third party; (c) information regarding research publications and accreditations from internationally recognized bibliometric databases and the accreditation agencies themselves; and (d) interactions with stakeholders, including students. The results will be submitted online to avoid discrepancies and to ensure efficiency in the verification process. During the MTR of the project, the DLIs/DLRs and their allocation amounts, as well as any issues related to undisbursed funds, will be re-examined.

64. **Third-Party Verification and Disbursement.** Each center will prepare a report on progress made with respect to results and outcomes and submit it through an online portal to the RFU. Based on these center level reports, the RFU will prepare bi-annual reports on implementation progress towards the achievement of DLIs and project outputs and outcomes. Achievement of the agreed DLRs for all the centers will be verified by certified Independent Third-party Verifiers (ITPV) who will provide in a report, information on the actual amount per DLI that has been successfully verified. Drawing on the experience of implementing of the ACE I and II projects, the ACE Impact I project will use ITPVs that have already demonstrated their effectiveness. ITPVs will be selected competitively using World Bank competitive selection processes. The World Bank will review each ITPV report. Detailed results verification processes will be included in the POM.

65. **Capacity building for data collection, monitoring and analysis.** Support will be provided to improve the availability, reliability, and timeliness of data. Such support is a critical consideration since disbursements will be linked to the agreed performance indicators. Capacity building for data collection, monitoring and analysis will be provided through the RFU. Each center will be required to report its M&E



capacity in its implementation plan. ACE I implementation confirmed that the data requirements and M&E capacity exist at the university level, but that this capacity will need to be improved. An assessment of M&E capacity will be undertaken following the selection of centers and an action plan developed. The action plan will detail interventions to mitigate M&E capacity shortfalls in the centers, particularly at the new centers under Sub-components 1.1 and 2.1. In addition, adequate on-the-job training will be provided to the centers' M&E staff through the RFU, particularly in the first year of implementation. The capacity of the regional-level M&E staff based at the RFU, who will be responsible for aggregating the RF of the ACEs and providing insights on achievement, will also be reinforced as needed.

66. **Development of Peer-to-Peer Learning.** As supported under ACE I, the ACE Impact I project will continue to support M&E Peer-to-Peer Learning in which well-performing M&E specialists from the ACE I project selected to participate in the ACE Impact I project under Sub-component 1.2, will be requested to share good practices, and strategies for addressing challenges and bottlenecks with new M&E specialists. This peer-to-peer learning has been found to be highly effective and contributes to capacity development at the center level.

C. Sustainability

67. **Ensuring sustainable financing for the ACEs will be an ongoing, long-term challenge.** Sustainability beyond the term of World Bank funding will require a long-term sustainability plan and revenue generation from, *inter alia*, student fees, institutional (and governmental) support, research grants, consulting fees, short-term courses, corporate partnerships and other sources. National governments participating in the ACE Impact I project have demonstrated their commitment to the project. However, this support must be continually leveraged to ensure that the standard of the laboratory facilities and equipment, faculty development, research expertise and curricula remains high at the centers.

68. **ACE centers typically receive funding over a relatively short four- to five-year period to enable them to build a large-scale academic program focused on high quality postgraduate education and applied research.** ACE I centers have been slow to develop sustainability plans and to achieve DLRs related to sustainability. ACE Impact I project addresses these concerns related to center sustainability through its integration and consideration at each stage of the project's lifecycle and in various activities. These activities include the: proposal development and improvement; annual workplans that will be developed; annual center site visits by experts as part of ongoing implementation support; DLIs; and implementation support arrangements with the national government and institutional ownership of the centers. The project has also prioritized sustainability in its engagement with global funding agencies and development partners to mobilize additional funds. Workshops and webinars on sustainability will be part of the TA available to each ACE Impact center.

69. **Institutional infrastructure developed through the ACE Impact I project will be sustainable during the medium-term and will lay the foundation for long-term benefits.** Physical infrastructure,



including civil works, teaching and research facilities, and major laboratory equipment, will require ongoing investment to maintain standards. Moreover, the upgrading of faculty qualifications, and the expansion of academic programs and curricula will require continuous improvement in the teaching and research facilities beyond the lifetime of the project. These future investments will depend on the ability of participating centers and their host institutions to generate funds to support recurrent expenditure.

70. **The ACE Impact I project will incorporate a strong focus on institutional impact beyond the activities of the centers.** Under Components 1 and 2, institutions will be required to implement actions based on best practices in higher education management to improve university leadership, management and operations. These policies and practices should be sustainable in the medium- and long-term and will provide a framework for continuous institutional improvement and sustainability.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

(i) Technical Design

71. **The technical design of the ACE Impact I project is based on globally-recognized approaches for building higher education excellence.** Some of these specific approaches include:

- (a) Competitive funding of higher education is the main vehicle in high performing systems for achieving specific education goals, such as increased graduate employability and the scaling-up of postgraduate education. The center selection and implementation processes incorporate lessons learned through oversight of global competitive funds in higher education, from science and engineering research funding programs in middle- and high-income countries and from the ongoing ACE I and ACE II projects. The competitive selection process also provides a platform for identifying visionary center leaders, who are innovative and have the capacity to lead the implementation of the center plans beyond the life of the ACE Impact I project.
- (b) The RBF approach which demonstrated results through implementation of the ACE I project, will be utilized in the proposed ACE Impact I project. This approach uses DLIs to incentivize centers to work towards results.
- (c) The project is expected to lay a foundation for improvements in governance in higher education, research groups and institutions. This will be key to achieving transformation and excellence in higher education.
- (d) The ACE Impact I project design is skewed towards STEM fields, that is, most of the centers are in STEM-related fields. The project will strengthen selected institutions to improve the quality of STEM programs and applied research and incorporate digital skills competencies (across disciplines) in their curricula which are key in supporting economic development.



(e) The project design aims to support higher education institutions in the region to be competitive and marketable to the student population in the region.

72. **The project will proactively address climate change issues affecting the region.** Temperatures over West Africa have risen significantly over the past 20 years. In Burkina Faso, monthly high temperature averages now regularly exceed the previous maximums of 35°C, particularly in the north. The number of extremely dry and wet years are expected to increase through the course of this century, and semi-arid areas will become more arid. In Ghana, droughts negatively impact socio-economic growth and are projected to become more severe as a result of climate change. In Djibouti, critical rainfall periods and the Hays-Dadaac or winter rains are projected to decrease. In addition, flooding, mostly due to a rise in sea-level is a recurring natural hazard that has become more frequent and with increased impact in recent years throughout the region.

73. **The substantial increase in the occurrence of these hazards in the region poses a significant risk to vulnerable populations and hence the need to mitigate these risks.** For example, particularly in rural regions where water is scarce due to drought, women and girls are negatively impacted the most as they tend to be tasked with the responsibility for finding water for their families. The ACE Impact I project will incorporate a two-pronged approach to addressing climate and disaster risks: (i) provide training and undertake applied research in climate change and related fields; and (ii) implement strategies during project implementation to mitigate the impact of climate hazards on the project.

74. **Currently, there is limited institutional capacity and systems in place in the countries participating in the project to identify and respond to disruptions from climate hazards.** In order to increase the resilience of these countries in the face of extreme events identified above, the relevant government line ministries will need to include risk reduction strategies for hazards and vulnerabilities into their future planning and concrete actions to be taken. However, there are limited numbers of experts trained in these fields in the region. Through the project, countries will be able to train and produce experts and the research required to develop identification, prevention, mitigation and adaptation strategies to reduce the countries' vulnerability to extreme events and improve their ability to prevent and respond to these events. Several of the centers will train highly skilled graduates and mid-level professional workers and will undertake research in areas including coastal resilience, water (irrigation, drylands), renewable energy and programs addressing environmental issues (sanitation, mining).

75. **Given that the project will support civil works for improving education and research facilities and purchase of equipment, there is the potential risk that these investments are physically damaged in the case of these extreme climate hazards occurring.** These risks will be reduced through the development of tailored guidelines for the construction of buildings and installation, and the maintenance of equipment that take into consideration the potential impact of natural hazards in each participating country. Thus, each center undertaking upgrade/construction of buildings such as laboratories, training centers, and students' hostels will incorporate adaptation measures for safe and sustainable buildings in extreme temperature-, drought- and flood- prone areas. These measures in flood-prone areas may include drainage improvement, terracing for flood control to improve resilience, elevating equipment and



investing in more water-resistant equipment and technologies. Further, the project will strengthen regional networks built around specialized research areas across the centers, support internet connectivity and the use of technology (ICT) in delivery of courses towards minimizing disruptions in the delivery of services (teaching and research), should climate events negatively affect any of the centers.

(i) Economic and Financial Analysis

76. The economic and financial analysis provides the rationale for investing in higher education in SSA countries and estimates the economic internal rates of returns (IRR) to education. The empirical results on the returns to higher education from the ACE I project indicate that obtaining a higher education degree is associated with higher earnings¹¹ (returns are 2.4 percent for Burkina Faso, 30 percent for Cameroon, 30 percent for Ghana, and 15 percent for Nigeria). A cost-benefit analysis (CBA) of Component 1 demonstrates an IRR of approximately 3 percent in Burkina-Faso, 30 percent in Cameroon, 28 percent in Ghana, and 15 percent in Nigeria. Due to lack of detailed data, the returns cannot calculate the returns to the specific targeted professions funded in this project, such as engineering and medicine, where surveys indicate high private sector demand and low unemployment. In Burkina Faso, as elsewhere, the calculated average returns therefore represent national averages, including humanities and social science disciplines that are in low demand on the West African labor market. Globally, private returns to higher education (14.6 percent) are higher than the returns to primary education (11.5 percent). The average rate of private returns to higher education in SSA is 21 percent; higher than any other region due to the much lower percentage of higher education graduates in the general population in SSA. Returns to higher education in the region are on average 29.7 percent (2011) in Niger, 21.8 percent in Senegal (2011), and 28.7 percent (2012) in Ghana.

77. The high returns on investment in higher education on specific regional skills shortages will support the SSA growth and competitiveness. Despite investments in higher education, SSA is not achieving sufficient returns. In addition, the quality of the education delivered in SSA countries tends to be lower than countries in other regions. For instance, available data shows that countries such as Senegal, Ethiopia and Malawi where government expenditure on tertiary education as a percentage of GDP ranges between 1.5 to 2.4 percent, have scores between 1.5 and 4 for the aspect “quality of tertiary education” of the Global Competitiveness Index¹²; while other countries like Jamaica, Lebanon and Estonia have scores higher than 4.4 with lower investment ranging between 0.71 to 1.37 percent of GDP. Each country faces several challenges making it difficult to afford the interventions needed to ensure that their higher education systems can compete internationally. Furthermore, studies show that: a one percent increase in the stock of higher education (the number of people having completed higher education) leads to a 0.35 percent increase in industrial production, and that a one percent increase in the number of

¹¹ World Bank - Africa Higher Education Centers of Excellence (2014): “Project Appraisal Document”, Internet: <https://hubs.worldbank.org/docs/ImageBank/Pages/DocProfile.aspx?nodeid=19316701>, p.97.

¹² The 5th pillar of the Global Competitiveness Index from WE FORUM (2017) assess the quality of higher education of 137 countries. Scores range from 1 to 7 which is the highest.



engineering or natural sciences graduates leads to a 0.15 percent increase in agricultural production¹³. In addition, a one-year increase in average higher education levels would raise annual GDP growth in Africa by 0.39 percentage points, and eventually yield up to a 12 percent increase in GDP. The private rate of return to another year of schooling in higher education is 15.2 percent for men and 16.8 percent for women. Returns to higher education across the region are, on average, higher for women than for men.

78. **A CBA undertaken in the context of project preparation shows that the proposed project is economically viable** for both IRRs and the Net Present Values (NPVs) of costs and benefits for combined estimates of the quantifiable components for the project. For an estimated present discounted value of benefits for the overall project of US\$229.7 million, the corresponding NPV of program benefits is US\$35.88 million. The IRR associated with this NPV is 24.7 percent. Overall, the cost-benefit ratio implies that for every US\$1 invested the return is US\$1.20. Therefore, although data to measure all likely benefits are not available and given the high opportunity costs for project participants, the NPV from the quantifiable benefits outweigh the NPV of costs, and the results support investment in the project. Moreover, the cost of an ACE center represents a small portion of government expenditure on higher education. The ACE Impact I project will be implemented over the course of four and a half years, with each center being awarded an average of US\$4 to US\$6 million within that period. If one assumes that in a year a center of excellence will receive US\$4 million, each ACE only represents between 4.6 and 6.8 percent of public expenditure in a given year on higher education in Benin, 4.4 to 6.6 percent in Cameroon, and 0.7 to 1.1 percent in Ghana (see Annex 7 for further details on the economic analysis).

79. **Public financing is necessary due to absence of private financing for STEM and post-graduate studies and substantial spillover effects.** For example, in Nigeria, less than 1 in 20 post-graduate students are enrolled in self-financed studies, and the majority of those studies are in business management or accounting. Further, very few non-government institutions invest in post-graduate studies and research due to the low private returns and lack of public funding to these activities. However, post-graduate education in thematic areas of high relevance to development can have high economy-wide returns through economic spill-overs on: (i) adoption of new technology which benefit co-workers and users, such as new tablet apps; (ii) quality of policy making from applied and communicated research, for example within climate change or water usage; (iii) quality of higher education through higher quality and relevance of teaching staff with post-graduate studies; (iv) diffusion of new labs, products and processes, such as rapid in-country diagnosing of infectious disease or new drought-resistant crops.

¹³ D. Bloom, D. Canning, and K. Chan (2006): *"Higher Education and Economic Development in Africa"* Internet: <http://ent.arp.harvard.edu/AfricaHigherEducation/Reports/BloomAndCanning.pdf> (Last accessed: March 9, 2018).



B. Fiduciary

(i) Financial Management (FM)

80. **At the national level, each selected higher education institution will implement its own ACE Impact sub-project.** Each ACE Impact I host institution will house an ACE Impact implementation team that will manage both the technical and the fiduciary aspects of its own sub-project. At the regional level, the AAU, in its role as the RFU, will receive a grant to support overall project facilitation as indicated under Component 3, supporting the centers under Components 1 and 2. AAU will be responsible for all fiduciary aspects associated with the use of the grant it will receive. In addition, under Component 3, the NCTE (Ghana) and the MESRSI-PIU (Burkina Faso) will also receive funding for national level coordination of the centers within their respective countries.

81. **Brief highlights from FM assessments of centers and risk mitigating steps.** An assessment of the FM arrangements has been conducted for each of the implementing entities (AAU, NCTE, MERSRI-PIU under Component 3 and the selected centers under Component 1 and Sub-component 2.1). The assessments were conducted for the centers and their implementing teams at the following participating Universities: **Burkina Faso:** *Institut International d'Ingenierie de l'Eau et de l'Environnement (2iE), Université de Ouagadougou I (Ouaga I), and Université Nazi Boni (UNB); Djibouti:* University of Djibouti (UD); **Guinea:** *L'Institut Supérieur des Mines et Géologie de Boké (ISMGB), and Université Gamal Abdel Nasser de Conakry; Ghana:* Kwame Nkrumah University of Science and Technology (KNUST), University of Ghana (UG), University of Energy and Natural Resources, University of Development Studies, and University of Cape Coast; and **Senegal:** *Université Cheikh Anta Diop (UCAD), and University of Gaston Berger (UGB).*

82. **The objective of the assessments was to determine whether these entities have adequate FM arrangements (including planning and budgeting, accounting, internal control, funds flow, financial reporting and auditing).** The FM arrangements are acceptable if they are considered capable of (a) correctly recording all budgets, transactions and balances; (b) supporting the preparation of regular and reliable financial statements; (c) safeguarding the entity's assets; and (d) reflecting auditing arrangements acceptable to the World Bank. The FM assessments were carried out in accordance with the FM Manual for World Bank IPF Operations that became effective on March 1, 2010 and was last revised on February 10, 2017. In this regard, a review of the FM arrangements has been conducted for the above implementing entities and briefly summarized below. The detailed summary of the completed FM assessments and suggested measures to address identified inadequacies and risks are described in Annex 2.

83. There are adequate FM arrangements in all the implementing entities provided the following capacity strengthening measures are implemented:

- (a) **Accounting Staff.** An accountant will be recruited for the centers at UNB, Ouaga I, and 2iE in Burkina Faso; UGANC in Guinea; and UCAD and UGB in Senegal. Staff will need to be reassigned at NCTE in Ghana. A senior accountant will be recruited before effectiveness at ISMBG in Guinea.



Financial Management Specialist (FMS) will need to be recruited at the Institute of Tertiary Technology (ITT) ¹⁴in Djibouti, UGANC in Guinea, and the new UCAD centers in Senegal

- (b) **Computerized accounting information system.** The existing system for AAU and all universities in Ghana have been assessed as being adequate and functional. All other centers will need to either acquire new accounting software or upgrade their existing software to support project specifics.
- (c) **FM Manual.** All centers will prepare FM manuals as part of the first disbursement.
- (d) **Internal Audit.** An internal controller will be recruited at UNB, Ouaga I, and 2iE in Burkina Faso. An internal audit unit will be established at ITT in Djibouti. An internal auditor will be recruited at UGANC and ISMBG in Guinea and also at UCAD and Mathematics, Computer Science and ICT (Mathématiques, Informatique and TIC, MITIC) in Senegal.
- (e) **Audit committee.** All centers will maintain a functioning audit committee throughout the life of the project.
- (f) **External Audit.** All centers will recruit an external auditor within three (3) to six (6) months of effectiveness.
- (g) **Project Account.** All implementing entities will be required to open a separate bank account to deposit and manage project funds.

84. The conclusion of the FM assessment is that the proposed FM arrangements, including the mitigation measures for the project, meet the World Bank's minimum FM requirements under Policy and Directive for IPF operations, and, therefore, are adequate to provide, with reasonable assurance, accurate and timely information on the status of the project required by the World Bank (IDA). The overall FM risk for the project is rated Substantial.

85. **EEPs will consist of salaries, scholarships and the operating costs of each university hosting center.** The World Bank Guidance Notes on IPFs with DLIs dated April 2018, World Bank policy and procedures for IPFs, including procurement, FM, safeguards policies and anti-corruption guidelines apply to this project. Based on experience implementing the ACE I project, the ACE Impact I centers' budgeted expenditures will consist of salaries for faculty, technical and administrative staff, scholarships, consultant fees, travel (accommodation, transportation, per diem), training cost, conference fees, workshops and seminars, communication, recruitment, marketing, and operating costs, and funds to support investment proportion in learning equipment, civil works and other goods (vehicles, reagent, etc.). Since these expenditures are considered as non-procurable items, the World Bank's Procurement Regulations will not apply. Upon achievement and verification of DLRs, the World Bank will disburse funds to each center against its EEPs, as evidenced in its semiannual IFRs. The definition of EEPs for each university will be

¹⁴ ITT is the institute within which the Emerging center sits.



included in the POM. Remaining non-EEP related expenditure, although funded by the respective institutions/governments will still be accounted for and monitored under the project.

86. The allocated amounts for the DLIs will vary from center to center but in all cases will be less than the amount of the EEPs. The eligible expenditure amount, as ascertained in the EEP Statement, will form part of the IFR submitted for disbursement, and exceed the DLR allocated amount. EEPs will be audited as part of each ACE Impact center's annual financial statement audit.

(ii) Procurement

87. For all Implementing Agencies, procurement under the proposed project will be carried out in accordance with the following World Bank procedures: (a) the World Bank Procurement Regulations (PR) for IPF Borrowers, dated July 2016 and revised in November 2017, and August 2018; and (b) "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006 and revised in January, 2011 and as of July 1, 2016 and other provisions stipulated in the FAs.

88. Each component of the project will have its own procurement arrangements. Procurement activities under Component 1 and Sub-component 2.1 will be implemented by the selected education institutions in the Borrower countries, and the World Bank funds will be disbursed against a set of DLIs to finance the non-procurable expenditures as defined under the EEPs. Other expenditures, the non-EEPs, including procurement of goods and civil works under the project will be procured together with the institutions' other operating requirements and needs, following the institutions' own procurement procedures. These non-EEPs will be financed by the institutions'/governments' own funds and therefore, the procurement plans for those activities will not be prepared in STEP nor will they be reviewed and cleared by the World Bank. If any such procurable expenditures are at any point to be included for World Bank-financing, the center and its host institution shall be required to follow the PR as stated in World Bank Guidance on IPF with DLI (dated April 25, 2018) Section III and Annex 2 for the entire budget line of each of such procurable expenditures. The procurement plans for such procurement activities will be prepared, reviewed and cleared in STEP, as well as any prior review procurement. Contributions towards Sub-component 2.2 will be disbursed directly upon project effectiveness to *icipe*, the RFU for the World Bank-financed Africa RSIF for Applied Sciences, Engineering and Technology project. Component 3 will finance inputs-based expenditures for facilitation, coordination and study activities by AAU, NCTE and MESRSI-PIU, and these institutions will follow the World Bank's Procurement Regulations and use the World Bank's e-procurement system when implementing the activities under the project.

89. Consistent with the above procurement arrangements, a Project Procurement Strategy Document (PPSD) was drafted based upon procurement assessments of the various institutions. The countries' context in terms of bureaucracy, economic condition, currency stability, financial constraints, technology, and inadequate national market for high value and complex procurements, identified minor safeguards issues, coupled with the countries' economic, procurement, and safeguards policies will



impact the approach and response to the market and the execution of contracts. The capacities of the AAU, NCTE and MESRSI and identified procurement risks will impact the procurement implementation. Thus, timely and adequate execution of the mitigations will help improve procurement implementation under the project. The studies and analysis show that there are opportunities for both national and international firms under the project in each of the countries. In addition, the World Bank carried out a limited procurement assessment of a select number of the ACE Impact I centers (in Ghana and Burkina Faso). The limited assessment focused on select centers hosted in universities that did not participate in the ACE I project and so are not familiar with the program. The full summary of the completed procurement assessments and suggested measures to address identified inadequacies and risks are provided in Annex 2. A brief summary is given below.

90. **AAU, each center, MESRSI-PIU and NCTE will have in place adequate capacity to ensure the timely implementation of procurement activities.** AAU will also have the responsibility of procurement activities under the regional level activities (under Component 3) they will support and in accordance with the PR and using STEP for procurement planning and prior reviews. AAU will also engage a well-qualified and experienced procurement consultant proficient in World Bank procurement requirements and procedures, to undertake procurement at AAU. The procurement consultant will more importantly act as an advisor to the ACE Impact centers, supporting them in procurement related activities. The limited assessment indicated a lack of staff that are solely dedicated to the centers' project procurement activities. The universities will delegate a dedicated procurement staff from the Department or hire one to handle procurement activities for the centers.

91. **Since the centers will utilize their own institutions'/national procurement guidelines, the government will be the primary responsible for oversight with limited strategic oversight by the World Bank's procurement team.** Given the peculiarities associated with procurement of science equipment and research supplies, centers may propose separate guidelines that are specific for procurement of science goods and allow the centers to be efficient in implementing their projects on schedule. Such additional guidelines will be consistent with the general principles of procurement, included in the Procurement Manuals of the centers and subject to approval by the World Bank procurement specialist in the country. To ensure compliance by the centers and to monitor their procurement activities, the National Steering Committee will review the procurement audits of the centers within their respective countries at least once a year. Overall, the procurement risk rating for the project is High.

C. Safeguards

(i) Environmental Safeguards

92. **The civil works within the project will mainly consist of construction of new buildings or other facilities within the current boundaries of university campuses of the selected centers; or extensions of current buildings and facilities; or rehabilitation of old buildings and facilities, including repair of buildings that do not meet current building standards.** In addition to encouraging investment in knowledge and skills in priority areas pertinent to the region's development, the project activities will



have positive impacts in terms of promoting awareness among all national stakeholders about the environmental and social issues of project activities, respect for the environment and the key principles of sustainable development. The potential negative environmental impacts associated with soil and water pollution, liquid and solid waste, occupational health and safety and community safety are expected to be moderate and limited in time and space. There are appropriate mitigation measures which are defined for managing these negative impacts that will be implemented during construction and maintenance phases.

93. **The project is classified as Category B in accordance with the World Bank's Operational Safeguards Policies and triggers the following safeguards policies: Environmental Assessment OP/BP 4.01 and Physical Cultural Resources (OP/BP4.11).** Each of the five countries has prepared an Environmental and Social Management Framework (ESMF) which defines the key steps to be taken for each site-specific physical investment. All the ESMFs have been consulted on and validated and disclosed in-country and by the World Bank.¹⁵ The selection of the participating institutions (under both Component 1 and Sub-component 2.1) has been completed. To manage environmental and social impacts, once the specific locations of project activities within the selected institutions are known, an Environmental and Social Impact Assessment (ESIA) or an Environmental and Social Management Plan (ESMP) will be prepared, consulted upon, reviewed, approved and disclosed before commencement of any eligible activities. These safeguards documents will be prepared for each eligible investment. AAU will hire a consultant who will support the centers in developing these safeguards tools.

94. **Regarding the triggering of Physical Cultural Resources (OP 4.11) and particularly chance finds, the project may carry out activities in areas of cultural significance and heritage that could impact and/or lead to the discovery of ancient antiques and other physical resources.** As part of the proposed ACE Impact I project, this will also concern buildings of historical value and which would be the subject of rehabilitation works. To mitigate these risks, contracts for civil works involving excavations will incorporate procedures for dealing with situations in which buried physical cultural resources are unexpectedly encountered. As a precautionary measure, the chance finds procedures guidance note has been included as an annex to the ESMF and subsequent ESIA/ESMPs as required.

(ii) Social Safeguards

95. **The project does not trigger any of the social safeguards policies.** The project expects to support only minor construction and rehabilitation works, that will take place within existing university campuses. The project will not finance any sub-projects resulting in the involuntary acquisition of land, loss of physical and economic assets, and/or loss of livelihoods. Mitigation measures for any social impact that

¹⁵ The country-respective ESMFs were disclosed November 28, 2018 in Burkina; November 26, 2018 in Djibouti; November 30, 2018 in Ghana; on December 3, 2018 in Guinea, and on November 29, 2018 in Senegal.



may arise because of the minor rehabilitation will be detailed in the ESMFs. Other social issues, including guidelines to ensure that sub-projects promote positive social outcomes will be detailed in the POM.

96. **Gender-based risks associated with the project include public harassment, including verbal insults, sexual harassment and physical abuse of female students.** The project will require supported centers to make public their policy to counter student and staff abuse, including sexual harassment. Targeted support to women under the project may exacerbate these risks as young women acquire skills that give them access to improved livelihoods; become more empowered to progress in traditionally male-dominated fields; and are perceived to take independent decisions including the perception of neglect of their domestic responsibilities.

97. **Recruiting and retaining women in the ACE Impact I academic programs (particularly at the PhD level) is a priority of the project.** For example, for several of the intermediate results indicators (especially those that track numbers of students or faculty), the data will be disaggregated into gender groups in order to help track the project's impact on female representation in participating higher education institutions. Also, in each annual workplan of all participating centers and the CoEngg, they will be required to indicate activities and interventions towards increasing and retaining women in their programs.

(iii) Grievance Redress Mechanisms

98. **Grievance Redress and Feedback Mechanisms and Beneficiary/Citizen Engagement, notably student engagement, are vital to the project's success.** The ACE I project demonstrated the importance of student feedback to promote academic excellence. Under ACE Impact I, student feedback will be received through an online complaint submission system (to be managed by the AAU), regular independent student surveys and during regular supervision meetings with student groups. The latter two mechanisms served as feedback and complaint mechanisms in the ACE I project and provided: (a) information about project implementation; (b) an opportunity for resolving grievances and disputes at the lowest level; (c) fora for resolving disputes relatively quickly before they escalated to an unmanageable level; (d) a platform for facilitating effective communication between the project, centers, and affected persons (most often students); and (e) an opportunity for winning the trust and confidence of project beneficiaries and stakeholders which created productive relationships between the parties. The student survey and on-site regular meetings with students, faculty, and other stakeholders will be further strengthened under the ACE Impact I project. In addition, as part of preparation, a student focus group with participation of students from nine countries was convened. Further, representatives of civil society, including firms and other non-governmental entities, will form part of the sector advisory committees for each center to guide the center's activities and ensure that education and research activities meet development needs.

99. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed



in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

V. KEY RISKS

Overall Risk Rating and Explanation of Key Risks

100. **The overall risk of this project is moderate.** Based on lessons learned through implementation of the ACE I and II projects, the proposed ACE Impact I project faces several challenges, particularly in selecting the centers that will have: the most impact, strong academia-business collaboration, and sustainability; strong government and university leadership and ownership; full buy-in from other university departments other than the primary departments; and the adequate flow of funds to centers and strong utilization rates. Below are details of the important risks identified and mitigation:

- (i) ***Political and governance (Substantial):*** Experience accrued through the ACE I project indicates that strong support from the government and ACE host institution management contribute substantially to the success of the ACE center. However, negative interference from governments and ACE host institution management have been known to hamper the progress of a few ACE centers. Negative interference may take the form of government appointment of leaders within the centers using non-merit-based processes, vice chancellors' decisions to block flow of funds to the centers, or university management using the center's funds for non-ACE purposes. These risks will be mitigated through: the evaluation of government and university leadership during the selection process; early identification of these issues during implementation; sharing with the centers and university management both good and bad examples from the ACE I and II projects; providing funds to ACE host institutions through the DLIs (DLI 7). A second political risk is student and faculty strikes. Strikes would be unrelated to the project but could still affect Center education activities and delay student graduation and implementation. The project reduces the risk through consultations with students and faculty as well as investment to raise quality of education and attention to student progression and welfare.
- (ii) ***Institutional capacity for implementation and sustainability (Substantial):***
 - Implementation was delayed during the ACE I project due to low capacity in a few centers, including the capacity for the operationalization of the RBF approach. With the increase in



number of centers, scaling-up the robust implementation support detailed under Section III. A and in Annex 4 and described for the ACE I project will help mitigate this risk of low implementation capacity. In addition, the implementation monitoring (beyond the World Bank regional task team's role) will be streamlined into each CMU's overall portfolio monitoring arrangements in place for its national projects.

- Some ACE I centers struggle to generate external revenue, with negative implications for sustainability. Targeted training for centers and a stronger focus in supporting centers in establishing industry partnerships early in the preparation of their proposals will help mitigate this risk. Moreover, each center will be required to develop a sustainability plan which will be regularly monitored.
- (iii) **Fiduciary (Substantial):** Due to the inefficient procurement practices in place at some of the universities, procurement can be slow during implementation. Both FM and procurement capacity assessments were carried out during project preparation. During implementation, the team will explore interventions to remove bottlenecks and minimize their effects on the project, based on the findings of the FM and procurement capacity assessments.
- (iv) **Counterpart Funding (Low):** An estimated 45 percent of total funding will be derived from counterpart funding in the form of existing salary payments from governments to the selected universities. This funding is already budgeted, and not additional budget required for the project. Therefore, the risk of delayed counterpart funding is low. There was no problem with delayed faculty salaries in ACE I. Continued delays in salary payments would adversely affect the functioning of the ACEs.



VI. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Africa

First Africa Higher Education Centers of Excellence for Development Impact Project

Project Development Objectives(s)

To improve quality, quantity and development impact of postgraduate education in selected universities through regional specialization and collaboration.

Project Development Objective Indicators

Indicator Name	DLI	Baseline	Intermediate Targets	End Target
			1	
Improve the quality, quantity and development impact of postgraduate education in selected univs.				
Number of students (National and Regional) enrolled in specialized master's, PhD and short-term professional courses/programs in the ACEs (Number)		0.00	4,200.00	10,500.00
Number of PhD students enrolled in specialized programs at ACEs (Number)		0.00	400.00	1,000.00
Number of master's students enrolled in specialized programs at ACEs (Number)		0.00	1,400.00	3,500.00
Number of Regional students enrolled in specialized programs at ACEs (Number)		0.00	1,200.00	3,000.00
Number of female students enrolled in specialized programs at ACEs (Number)		0.00	1,400.00	3,500.00
Number students enrolled in professional short courses at ACEs (Number)		0.00	2,400.00	6,000.00



Indicator Name	DLI	Baseline	Intermediate Targets	End Target
			1	
Number of ACE programs and ACE host institutions that obtain international accreditation (Number)		0.00	13.00	33.00
Number of ACE programs that obtain international accreditation (Number)		0.00	12.00	30.00
Number of ACE host Institutions that obtain international accreditation (Number)		0.00	1.00	3.00
Share of ACE host institutions with a comprehensive strategic plan for regionalization (Percentage)		0.00	30.00	75.00
Number of ACEs that have had substantial development impact (Number)		0.00	4.00	10.00
Number of students and faculty participating in internships in relevant institutions (Number)		0.00	800.00	2,000.00

Intermediate Results Indicators by Components

Indicator Name	DLI	Baseline	Intermediate Targets	End Target
			1	
Establishing New and Scaling up Well-performing Africa Centers of Excellence for Development Impact				
Number of female center directors or deputy directors (Number)		0.00	2.00	3.00
Number of ACE related research publications in internationally recognized peer reviewed journals (Number)		0.00	400.00	1,000.00
Number of new nationally or regionally accredited		0.00	16.00	40.00



Indicator Name	DLI	Baseline	Intermediate Targets	End Target
			1	
programs (master's and PhDs) (Number)				
Amount in externally generated revenue by the ACEs (Amount(USD))		0.00	10,000,000.00	25,000,000.00
Share of master's and PhD graduates employed within 6 months of graduation (Percentage)		0.00	70.00	80.00
Number of host institutions of ACEs participating in the regional benchmarking initiative (Number)		0.00	8.00	10.00
Number of new master's and undergraduate female students enrolled in programs at the emerging centers (Number)		0.00	15.00	40.00
Component 2 - Fostering Regional Partnerships and Scholarships				
Number of new master's and undergraduate students enrolled in programs at the emerging centers (Number)		0.00	80.00	200.00
Number of new nationally or regionally accredited programs (master's and undergraduate) at the emerging centers (Number)		0.00	3.00	8.00
Number of faculty and students participating in academic exchanges within the region from and to the emerging centers (Number)		0.00	28.00	70.00
Share of undergraduate and master's graduates of emerging centers employed within 6 months of graduating (Percentage)		0.00	60.00	70.00
Number of well-functioning regional networks established by the project (Number)		0.00	4.00	6.00
Number of host institutions of emerging centers participating in the regional benchmarking initiative (Number)		0.00	1.00	2.00
Number of newly enrolled RSIF PhD students supported through the ACE Impact governments' contributions (Number)		0.00	25.00	60.00



Indicator Name	DLI	Baseline	Intermediate Targets	End Target
			1	
Number of research papers submitted for publication to international indexed journals by RSIF students supported through funds transferred from the ACE Impact I project to icipe (Number)		0.00	12.00	30.00
Component 3 - Enhancing National and Regional Level Project Facilitation and M&E				
Number of Project Beneficiaries (Number)		0.00	5,000.00	12,000.00
Level of satisfaction of the ACE Impact I students (Citizen Engagement indicator and part of Grievance Redress Mechanism) (Number)		3.60	3.80	4.00
Level of satisfaction of the ACEs and Steering Committee on the support given by the RFU (Citizen Engagement indicator and part of the Grievance Redress Mechanism) (Number)		4.00	4.10	4.20
Level of satisfaction of ACEs with the support from the National Governments (Citizen engagement and part of the Grievance Mechanism) (Number)		3.80	3.90	4.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of students (National and Regional) enrolled in specialized master's, PhD and short-term professional courses/programs in the ACEs	This indicator measures the new number of African students (both national and regional students) and those that are enrolled in (i)	Biannually	ACE enrolment records with information such as	Aggregation of number of students obtained from program/course registrations and submitted to the RFU	ACEs and RFU



	<p>master's programs (ii) PhD programs who have successfully completed at least one semester/term at the ACEs and (iii) professional short courses. The term "Regional students" within this framework refers to students studying at the ACEs from SSA countries outside of their ACE host country. ACEs can only count each student once during their entire enrollment at the center. PhD and master's students cannot be counted as professional short-term students even if they enroll in these courses. Exchange students will count as long as they are enrolled full time for at least a semester. This indicator as shown in subsequent indicators below will also be disaggregated by gender.</p>		<p>names, contact information, program of study, year in program, nationality, etc.</p>	<p>through the ACE Impact I project online data submission portal.</p>	
<p>Number of PhD students enrolled in specialized programs at ACEs</p>	<p>This indicator measures the number of new students who are enrolled in PhD programs and who have</p>	<p>Biannually</p>	<p>ACE enrolment records</p>	<p>Aggregation of number of regional PhD students obtained from program/course</p>	



	successfully completed at least one semester/term at the ACEs (see parent indicator above)			registrations and submitted to the RFU through the ACE Impact I project online data submission portal	
Number of master's students enrolled in specialized programs at ACEs	This indicator measures the number of new students who are enrolled in master's programs and who have successfully completed at least one semester/term at the ACEs (see parent indicator above)	Biannually	ACE enrolment records	Aggregation of number of master's students obtained from program/course registrations and submitted to the RFU through the ACE Impact I project online data submission portal	ACEs and RFU
Number of Regional students enrolled in specialized programs at ACEs	This indicator measures the number of new regional students who are enrolled in the specialized programs and who have successfully completed at least one semester at the ACEs (see parent indicator above).	Biannually	ACE enrolment records.	Aggregation of number of regional students obtained from program registrations and submitted to the RFU through the ACE Impact I project online data submission portal.	ACEs and RFU
Number of female students enrolled in specialized programs at ACEs	This indicator measures the number of new female students who are enrolled in specialized programs and who have successfully completed at least one semester/term at the ACEs	Biannually	ACE enrolment records	Aggregation of number of female PhD students obtained from program/course registrations and submitted to the RFU through the ACE Impact	ACEs and RFU



	(see parent indicator above).			I project online data submission portal.	
Number students enrolled in professional short courses at ACEs	This indicator measures the number of new students who enroll in and complete professional short courses offered at the ACEs.	Biannually	ACE enrolment records	Student course registrations and signatures submitted to the RFU through the ACE Impact I project online data submission portal.	ACEs and RFU
Number of ACE programs and ACE host institutions that obtain international accreditation	This indicator measures the quality of the master's and PhD programs offered by the ACEs as well as the quality of the overall ACE host institution. The data collected under this indicator should indicate the specific program/level of the international accreditation and the accreditation agency used. The accreditation agency selected by the ACEs should be internationally recognized in its capacity and should be an agency satisfactory to the RFU and the World Bank. The accreditation agency will use its own standard	Biannually	ACEs' and their host institutions' records of certificates and reports issued by the accreditation agencies.	ACEs submit certificates and reports to the online data submission portal as part of progress reporting	ACEs and RFU



	methodology for assessing the ACEs and ACE host institutions.				
Number of ACE programs that obtain international accreditation	This indicator measures the quality of the master's and PhD programs accredited internationally by an agency satisfactory to the RFU and the World Bank. (see parent indicator above for more details).	Biannually	ACEs' and their host institutions' records of certificates and reports issued by the accreditation agencies.	ACEs submit certificates and reports to the online data submission portal as part of progress reporting.	ACEs and RFU
Number of ACE host Institutions that obtain international accreditation	This indicator measures the quality of the academic programs through international accreditation by an agency satisfactory to the RFU and the World Bank. (see parent indicator above for more details).	Biannually	ACEs' and their host institutions' records of certificates and reports issued by the accreditation agencies.	ACEs submit certificates and reports to the online data submission portal as part of progress reporting.	ACEs and RFU
Share of ACE host institutions with a comprehensive strategic plan for regionalization	This indicator provides the percentage of ACE host institutions that have put in place new or have revamped their strategic plans for regionalization in an effort to attract more regional students and partners learning from their	Once (for each participating ACE host institution)	Evaluation reports indicating the approval of the regional strategic plan submitted by the individual participating	Aggregation of the number of approved plans submitted in the ACE Impact I online data submission portal	ACEs, ACE host institutions and RFU



	ACE center.		ACE host institutions.		
Number of ACEs that have had substantial development impact	This indicator measures the development impact that the ACEs are having both nationally and regionally in terms of the extent of their contribution to their sector/industries. The indicator assesses the quality of the postgraduate graduates and the applied research of the ACEs. Impact reported will be on a 1-5 scale with evaluation criteria including: number of student internships; number of graduates hired in the sector; number of short courses delivered in response to sectoral stakeholder requests; evaluation of Sectoral Advisory Board annual reports and interviews with sectoral stakeholders	Twice (at year 3 (year 2 for renewals) and year 4)	Evaluation report per ACE, developed from assessing the ACEs progress reports; interviews and surveys of relevant stakeholders	Aggregation of number of ACEs with evaluation scores greater than 3.5 (on the 1-5 scale)	ACEs and RFU
Number of students and faculty participating in internships in relevant institutions	This indicator measures the number of students and faculty participating in internships in relevant institutions. This data will be	Biannually	ACEs progress reports and results of surveys of	Aggregation of numbers (of faculty and students) following consolidation of data from ACEs progress	ACEs and RFU



	disaggregated into: (i) students versus faculty; (ii) gender and (iii) thematic groupings of fields of study/research. Each ACE will establish a tracking mechanism and database to record information on all of its students and faculty that participate in internships.		students and faculty participating in these exchanges	reports and the results of the survey of students and faculty participating in these exchanges	
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Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of female center directors or deputy directors	This measures the number of females leading as director or deputy director an ACE Impact center.	Once (beginning of project)	Profile reports from ACEs highlighting center team composition and submitted to ACE Impact online data portal.	Aggregation of number of centers with female center leaders indicated in the profile reports in the ACE Impact online data portal.	ACEs and RFU
Number of ACE related research publications in internationally recognized peer reviewed journals	This indicator tracks the number of research publications by ACE students and faculty and	Biannually	ACEs' progress reports submitted to	Aggregation of number of qualifying publications from the ACE Impact online data	ACEs and RFU



	<p>also their research collaboration with regional and international partners. As part of the ACE progress reporting, ACEs will submit to the ACE Impact online data portal the list of publications (title of article, name of journal and weblinks to the article). The list from each center will be validated by external experts. Each qualifying publication should have at least an ACE student or staff as a co-author and be related to the area of specialization of the ACE. The World Bank and the RFU will determine a list of journals that are acceptable.</p>		<p>the ACE Impact online data portal</p>	<p>portal</p>	
<p>Number of new nationally or regionally accredited programs (master's and PhDs)</p>	<p>This indicator measures quality of programs by considering the number of ACE programs that have been newly accredited either nationally or regionally. The data collected under this indicator will indicate the specific program/level of the national/regional</p>	<p>Biannually</p>	<p>ACEs' and their host institutions' records of certificates and reports issued by the accreditation agencies</p>	<p>Aggregation of number of approved certificates and reports submitted to the online data submission portal</p>	<p>ACEs and RFU</p>



	accreditation and the accreditation agency used. The accreditation agency selected by the ACEs should be recognized in its capacity and need to be an agency satisfactory to the RFU and the World Bank. The accreditation agency will use its own standard methodology for assessing the ACEs. In the case where no national accreditation agency exists, arrangements can be made for existing agencies in neighboring countries to carry out the accreditation process.				
Amount in externally generated revenue by the ACEs	The amount underpinning this indicator includes externally generated revenue deposited into the ACE's account from tuition fees, other student fees, joint research, research consultancies, fund raising and donations, or other external sources. These funds are for investments and operations of the ACE. It excludes all non-competitive government education and	Biannually	Results of the review of ACEs' Progress Report; email/letter evidence of award; financial statements.	Aggregation of amounts of eligible externally generated revenue based on the results of the review of the data and evidence submitted by the ACEs.	ACEs and RFU



	research subventions, including research grants (sale of consultancy work to the government is accepted as externally generated revenue). Funds from other governments (including donor assistance), other donors and development partners qualify only if the selection processes are competitive.				
Share of master's and PhD graduates employed within 6 months of graduation	This indicator measures the percent of graduates from ACEs master's and PhD programs that are able to find jobs in a related field within six months following their graduation. A graduate tracer study tool will be used to obtain this information and the results entered into the online data portal. This tracer study will be administered by the PASET Benchmarking initiative host institution.	Annually	ACEs' progress reports and graduate tracer study results submitted to the ACE Impact online database portal.	Aggregation of number of graduates per cohort and number of graduates finding jobs in their fields within six months of graduating by consolidating results from the progress reports and the tracer study.	ACEs and RFU
Number of host institutions of ACEs participating in the regional benchmarking initiative	The indicator measures ACE host institutions commitment to investing in data useful for strategic planning and also for	Once every two years	ACEs' progress report and list of qualifying	Aggregation of number of ACE host institutions that meet the criteria set for this indicator based on the progress	ACEs and RFU



	assessing the performance of the university in relation to other similar universities. The regional benchmarking exercise (which is under PASET) will be administered by the regional host institution for the benchmarking initiative.		ACE host institutions submitted by the benchmarking host institution.	reports and list from the regional benchmarking host institution.	
Number of new master's and undergraduate female students enrolled in programs at the emerging centers					
Number of new master's and undergraduate students enrolled in programs at the emerging centers	This indicator measures the number of students who are enrolled in (i) master's and (ii) undergraduate degree programs at the Emerging centers. Emerging centers can only count each student once during their entire enrollment at the center. PhD students are not the critical focus for these Emerging centers as these centers need to build a quality pipeline of students. Exchange students will count as long as they are enrolled full time for at least a semester. This indicator will be disaggregated by gender.	Biannually	Emerging Centers' enrolment records	Aggregation of number of master's and undergraduate students obtained from program/course registrations and submitted to the RFU through the ACE Impact project online data submission portal.	Emerging centers and RFU



Number of new nationally or regionally accredited programs (master's and undergraduate) at the emerging centers	<p>This indicator measures the quality of programs by considering the number of emerging center programs that have been newly accredited either nationally or regionally. The data collected under this indicator will indicate the specific program/level of the national/regional accreditation and the accreditation agency used. The accreditation agency selected by the emerging centers should be recognized in its capacity and needs to be an agency satisfactory to the RFU and the World Bank. The accreditation agency will use its own standard methodology for assessing the emerging center. In the case where no national accreditation agency exists, arrangements can be made for existing agencies in neighboring countries to carry out the accreditation process.</p>	Biannually	Emerging centers' records of certificates and reports issued by the accreditation agencies	Aggregation of number of approved certificates and reports submitted to the online data submission portal	Emerging centers and RFU
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Number of faculty and students participating in academic exchanges within the region from and to the emerging centers	This indicator measures number of faculty and students from the emerging centers who are hosted by ACEs or when ACEs send their faculty/students to the emerging centers in the region for a “period” of at least two weeks (for teaching or research collaboration). Emerging centers will submit in the online data portal the name and contact details of faculty and students that participate in these exchanges, period of exchange, country, location and focal points of the exchange in the ACE institutions.	Biannually	Emerging centers’ progress reports and survey results of students and faculty submitted to the ACE Impact online database portal.	Aggregation of numbers (of faculty and students) following consolidation of data from Emerging centers’ progress reports and the results of the survey of students and faculty participating in these exchanges.	Emerging centers and RFU
Share of undergraduate and master’s graduates of emerging centers employed within 6 months of graduating	This indicator measures the share of graduates from emerging centers’ undergraduate and master’s programs that are able to find jobs in a related field within six months after their graduation. A graduate tracer study tool will be used to obtain this information and the results	Annually	Emerging centers’ progress report and graduate tracer study results submitted to the ACE Impact online	Aggregation of number of graduates per cohort and number of graduates finding jobs in their fields within six months of graduating by consolidating results from the progress reports and the tracer study	Emerging centers and RFU



	entered into the online data portal		database portal		
Number of well-functioning regional networks established by the project	This indicator measures the share of ACE networks that are functional. An independent expert committee will evaluate the success of regional activities for which the ACEs are taking the lead, including research collaborations, technical conferences, summer schools, faculty and student exchanges, faculty training, curriculum support development to weaker institutions within the network, influence on relevant regional sectoral institutions, etc.	Twice (at mid-term and beginning of year 5)	Expert evaluation report per network (incorporates progress reports of the centers (ACEs and emerging), surveys and interviews of members (faculty, students, sector members) of the specific ACE networks	Aggregation of well-functioning regional networks based on results in expert evaluation reports	ACEs and RFU
Number of host institutions of emerging centers participating in the regional benchmarking initiative	The indicator measures the emerging centers' host institutions' commitment to investing in data useful for strategic planning and also for assessing the performance of the university in relation to	Once every two years	Emerging centers' progress report and list of qualifying Emerging center host	Aggregation of number of emerging centers' host institutions that meet the criteria set for this indicator and based on the progress reports and list from the regional benchmarking	Emerging centers and RFU



	other similar universities. Universities must submit complete data on at least 85% of the indicators and also submit their intervention plan to improve their performance. The benchmarking initiative (which is under PASET) will be administered by the regional benchmarking host institution.		institutions submitted by the benchmarking host institution.	host institution	
Number of newly enrolled RSIF PhD students supported through the ACE Impact governments' contributions	This indicator measures the number of RSIF students that are being sponsored with a PhD scholarship through the contributions of the ACE Impact governments. This includes only scholarship funds that were transferred through the ACE Impact project	Biannually	RSIF project ISRs and reports from icipe (the RFU for the RSIF project)	Aggregation of number RSIF students that are being sponsored with a PhD scholarship through the contributions of the ACE Impact governments	icipes and RFU
Number of research papers submitted for publication to international indexed journals by RSIF students supported through funds transferred from the ACE Impact I project to icipe	This indicator measures the number of research papers submitted for publication to international indexed journals by RSIF students who are supported by the funding of ACE Impact governments. These should be students who are sponsored with funds	Biannually	RSIF project ISRs and reports from icipe (the RFU for the RSIF project)	Aggregation of number of research papers submitted for publication to international indexed journals by RSIF students supported by the ACE Impact I governments' contribution	icipes and RFU



	transferred to icipe from the ACE Impact I project				
Number of Project Beneficiaries	Sum of number of ACE students, ACE faculty and technical staff, private sector and governmental partners.	Annually	Administratio n data	Reporting from ACEs and governments.	RFU
Level of satisfaction of the ACE Impact I students (Citizen Engagement indicator and part of Grievance Redress Mechanism)	Average satisfaction level of ACE students on a scale from 0 to 5 surveying main aspect of education provision, including teaching quality, facilities, and management of the studies.	Annual	Student survey.	Results of the student element of the ACE Impact stakeholders' satisfaction on-line survey.	RFU
Level of satisfaction of the ACEs and Steering Committee on the support given by the RFU (Citizen Engagement indicator and part of the Grievance Redress Mechanism)	This indicator measures the quality of the services rendered by the RFU.	Annually	Results of ACE Impact stakeholders' satisfaction on-line survey	Obtain performance information of the RFU from the annual ACE Impact stakeholders satisfaction survey.	RFU
Level of satisfaction of ACEs with the support from the National Governments (Citizen engagement and part of the Griveance Mechanism)	The indicator measures the number of ACEs and emerging centers that report on at least 85 percent of the project indicators to the RFU in a timely manner.	Biannually	Results of ACE Impact stakeholders' satisfaction on-line survey.	Obtain performance information of the National Governments from the annual ACE Impact stakeholders satisfaction survey.	RFU



Disbursement Linked Indicators Matrix

DLI 1	Institutional readiness			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	No	Percentage	12,160,000.00	11.00
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
Year 1	100.00		12,160,000.00	See verification protocol table
Year 2	100.00		0.00	
Year 3	100.00		0.00	
Year 4	100.00		0.00	
Year 5	100.00		0.00	
DLI 2	Development Impact of ACE Center			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Outcome	Yes	Percentage	7,300,100.00	4.00
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
Year 1	0.00		0.00	See verification protocol
Year 2	22.50		1,000,000.00	



Year 3	50.00		2,100,000.00	
Year 4	100.00		4,200,000.00	
Year 5	100.00		100.00	
DLI 3	Quantity of students (with focus on gender and regionalization)			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Percentage	19,026,000.00	16.00
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
Year 1	6.00		1,235,000.00	See verification protocol table below
Year 2	24.00		3,519,000.00	
Year 3	47.00		4,451,000.00	
Year 4	73.00		4,906,000.00	
Year 5	100.00		4,915,000.00	
DLI 4	Quality of Education and Research through Regionalization			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Percentage	37,837,000.00	33.00
Period	Value		Allocated Amount (USD)	Formula



Baseline	0.00		
Year 1	3.00	1,426,000.00	
Year 2	20.00	6,406,000.00	
Year 3	49.00	11,315,000.00	
Year 4	77.00	14,585,000.00	
Year 5	100.00	4,105,000.00	
DLI 5	Relevance of Education and Research		
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)
Output	Yes	Percentage	25,432,000.00
Period	Value	Allocated Amount (USD)	As % of Total Financing Amount
Baseline	0.00		
Year 1	11.00	745,000.00	See verification protocol table
Year 2	27.00	4,285,000.00	
Year 3	53.00	7,385,000.00	
Year 4	79.00	7,084,000.00	
Year 5	100.00	5,933,000.00	



DLI 6	Timeliness and Quality of Fiduciary Reporting			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Percentage	7,995,000.00	7.00
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
Year 1	18.00		1,462,000.00	See verification protocol table
Year 2	39.00		1,652,000.00	
Year 3	59.00		1,622,000.00	
Year 4	80.00		1,637,000.00	
Year 5	100.00		1,622,000.00	
DLI 7	Institutional Impact			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Percentage	8,850,000.00	8.00
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
Year 1	0.00		0.00	See verification protocol table
Year 2	28.00		2,500,000.00	
Year 3	42.00		1,200,000.00	



Year 4	60.00	1,550,000.00	
Year 5	100.00	3,600,000.00	

Verification Protocol Table: Disbursement Linked Indicators

DLI 1	Institutional readiness
Description	<ul style="list-style-type: none"> • DLR# 1.1: Basic Readiness: Financing agreement is effective; Approved Implementation Plan and Procurement and Financial Management Manuals. Core center staff designated, including a non-staff student representation • DLR# 1.2: Full Readiness: At least one leading center team member possesses a project management certification; Center's website is functional, with student handbook on website; sectoral advisory board (SAB) constituted and has endorsed the Implementation Plan.
Data source/ Agency	Centers' progress reports and websites (documents including: FM/procurement manuals, student handbooks, Implementation plans)
Verification Entity	RFU
Procedure	<p>Disbursed when center submits evidence of achievement to RFU including:</p> <ol style="list-style-type: none"> 1. For DLR 1.1: Basic readiness: Financing Agreement is effective; The RFU has approved of the center's Implementation Plan and the Procurement and Financial Management Manuals. Official designation of the core team members (Center leader, Deputy Center leader, FM responsible, procurement responsible, M&E responsible and sectoral liaison). Further, the Center has designated a non-staff student representative to the RFU. • For DLR 1.2: Full readiness: Project Management certification for at least one leading team member; Functional center website (a link to the center's website); Student handbook on the website with policies for sexual harassment and scholarships; and Sectoral Advisory Board (SAB) constituted and its endorsement of the Implementation Plan. <p>The value of this DLI varies between countries from US\$300,000 equivalent to US\$450,000 equivalent per milestone. The country specific value is in the Financing Agreement.</p>



DLI 2	Development Impact of ACE Center
Description	<ul style="list-style-type: none"> • DLR#2: Independent, external evaluation of the development impact of the ACE Impact center conducted in Year 3 and beginning of Year 4. (Renewal centers will however have their assessment in Year 2 and Year 4)
Data source/ Agency	Centers' progress reports; SAB reports; and Interviews
Verification Entity	RFU/External Evaluators
Procedure	<p>Independent, external evaluation of the development impact of the ACE center conducted during Year 3 (Year 2 for renewals) and end of Year 4 of project implementation. External evaluators assess and score development impact of the center. In Year 3, score is based upon progress towards development impact. In Year 4, score is based upon development impact. The criteria for evaluation will include: (i) Relevance and impact of graduates on society, including the share of graduates hired in the target sector and feedback from key employers; (ii) relevance and impact of research on society; (iii) progress on DLIs; (iv) SAB annual reports; and (v) interviews with center graduates and sectoral stakeholders. The detailed scoring rubrics will be defined in the Regional Operations Manual.</p> <p>The value of this DLI varies between countries from US\$25,000 equivalent to US\$35,000 equivalent per point in the score (point scale 1 to 5). The country specific value is in the Financing Agreement.</p>
DLI 3	Quantity of students (with focus on gender and regionalization)
Description	<ul style="list-style-type: none"> • DLR#3.1: New eligible PhD students • DLR#3.2: New eligible master's students • DLR#3.3: New eligible professional short-term students • DLR#3.4: New eligible first degree students (for select CoEngg & Emerging centers)
Data source/ Agency	Centers' enrolment reports; progress reports; and student surveys
Verification Entity	External verifier
Procedure	<ul style="list-style-type: none"> • Centers submit report with names and contacts of students to RFU. RFU submits information to external verifier. Verifier contacts students to validate list Center submits enrolment and progress reports with names and contacts of students to RFU. RFU submits information to external verifier. Verifier contacts students to validate list. <ul style="list-style-type: none"> • Number of new eligible doctoral and master's degree students as well as short-term professional students of whom at least 30 percent combined must be regional students. For select institutions receiving support to CoEngg and emerging centers, first degree students are eligible as well. The 30 percent requirement on



	<p>regional students does not apply to emerging centers. The project operations manual and the approved Implementation Plan will define what constitutes an eligible student for each type of center and degree level.</p> <ul style="list-style-type: none"> For PhD students: US\$10,000 per male national student, US\$12,500 per female national student, US\$12,500 per male regional student, and US\$15,600 per female regional student. For Master students: US\$2,000 per national student, US\$2,500 per female student, US\$4,000 per regional student and US\$5,000 per regional female student. For short-course professional students: US\$400 per national male student, US\$500 per female national student, US\$800 per regional male student, and US\$1,000 per female regional student. For first degree (bachelor) students: US\$1,000 per national male student, US\$1,500 per national female student. All US\$ amounts are US\$ equivalent.
DLI 4	Quality of Education and Research through Regionalization
Description	<ul style="list-style-type: none"> DLR#4.1: Towards International accreditation with inputs from center's advisory boards DLR#4.2: ACE Impact related research publications in internationally recognized peer reviewed journals; DLR#4.3: Completion of milestones for improved learning and research infrastructure specified in the approved Implementation Plan of each center.
Data source/ Agency	Centers' progress reports; student survey results; verifiers' reports; accreditation certificates and other assessment reports
Verification Entity	RFU/External Verifier
Procedure	<p>Center submits annual report to RFU and RFU coordinates verification of results.</p> <ul style="list-style-type: none"> DLR 4.1 disbursement occurs if the center shows evidence (copy of certificate, email confirmation) of achievement of a specific accreditation or assessment (international, national, regional, gap assessment, self-evaluation); US\$300,000 per program internationally accredited; US\$100,000 per program nationally/regionally accredited; US\$100,000 per gap-assessment/self-evaluation undertaken; US\$50,000 for new/revamped courses meeting international standards and approved by the SAB. <p>DLR 4.2 is achieved if the article is accepted and published in an internationally recognized peer-reviewed journal acceptable to the World Bank and the RFU and in addition, an independent subject matter expert confirms that an ACE Impact student or staff is a co-author and that the article is in an area related to the specialization of the center. US\$10,000 per article co-authored by ACE Impact student/faculty and national partners; US\$15,000 per article</p>



	<p>co-authored with regional partners.</p> <p>(vii) DLR 4.3 is achieved if external verifiers confirm approved onsite civil works and equipment purchase, installation and usage. Each center will formulate its civil works and large equipment purchase (including installation and usage) milestones which will be reviewed and approved by the World Bank US\$300,000 per milestone</p> <p>All amounts are US\$ equivalent.</p>	
DLI 5	Relevance of Education and Research	
Description	<ul style="list-style-type: none"> • DLR#5.1: Externally generated revenue; • DLR#5.2: Number of students and faculty with at least 1-month period internship in relevant sector institutions; • DLR#5.3: Meeting milestones for developing entrepreneurship, innovation, start-up companies, and commercialization support programs 	
Data source/ Agency	Centers' progress reports; Centers' accounts details and faculty/students survey reports	
Verification Entity	RFU/External Verifier	
Procedure	<p>(v) For DLR 5.1, eligible sources of revenue include tuition fees, other student fees, joint research, research consultancies, fund raising and competitive grants (from governments and development partners) or other external sources. Evidence submitted to the RFU will be in the form of signed/formal funding award letters and verification by financial auditors showing transfer of the funds to the respective center. US\$1 for each US\$1 generated from national, or international non-firm sources; US\$2 for each US\$ 1 generated from regional or from private/ sectoral sources;</p> <p>(iv) DLR 5.2 is achieved if external verifier validates the list of students/faculty that have participated in at least 1-month period internships in relevant industry/ sector-relevant institutions (by country/region). US\$1,000 per period in country and US\$1,500 per period in region;</p> <p>(v) DLR 5.3 is achieved if external verifiers confirm pre-determined and approved milestones have been met. One milestone. US\$100,000 for the milestone.</p> <p>All amounts are US\$ equivalent.</p>	
DLI 6	Timeliness and Quality of Fiduciary Reporting	
Description	<ul style="list-style-type: none"> • DLR#6.1. Timely fiduciary reporting including timely submissions of IFRs and of financial and procurement audit reports 	



	for the period for the center • DLR#6.2. Functional institutional oversight of fiduciary management. That is, functioning internal audit unit and functioning audit committee (under the university's council) that would support the center; • DLR#6.3. Transparency of ACE expenses; • DLR#6.4. Quality of Procurement planning. Share of the originally approved procurement plan that was executed.
Data source/ Agency	Centers' progress reports, websites and time stamp of submission of documents
Verification Entity	RFU
Procedure	<p>DLR 6.1 is achieved if there is a time stamp evidence of timely submission of the IFR, financial and procurement audit reports in the ACE Impact online data portal or copy of email submission to RFU if online portal is offline at time of submission. Timeliness implies respect of the deadlines established in the Financing Agreement. The procurement audit for the financial year is due when the financial audit is due. The value of this DLI varies between countries from US\$15,000 equivalent to US\$ 22,500 equivalent per year. The country specific value is in the Financing Agreement;</p> <p>DLR 6.2 is achieved if the center submits weblink to internal audit report or attachment of report and a weblink to audit committee minutes or attachment of minutes which mention a review of the audit reports as well as a review by the university Board of the ACE hosting. The value of this DLI varies between countries from US\$15,000 equivalent to US\$ 22,500 equivalent per year. The country specific value is in the Financing Agreement;</p> <p>DLR 6.3 is achieved if there is self-confirmation by the center that the approved budget, annual work plan, IFRs, with an annex on detailed expenditures, project financial and procurement audit reports are visibly accessible on the center's websites. The value of this DLI varies between countries from US\$15,000 equivalent to US\$ 22,500 equivalent per year. The country specific value is in the Financing Agreement;</p> <p>DLR 6.4 The share is calculated in terms of value of contracts (not procurement activities). The value of this DLI varies between countries from US\$15,000 equivalent to US\$ 22,500 equivalent per year. The country specific value is in the Financing Agreement;</p>
DLI 7	Institutional Impact
Description	<ul style="list-style-type: none"> • DLR#7.1: ACE Impact host institution develops and endorses a meaningful university- wide regional strategy (including student affairs). • DLR#7.2: ACE Impact host institution undertakes open, merit-based competitive selection of department heads related to the ACEs and university head. • DLR#7.3: ACE Impact host institution undertakes institutional wide international accreditation, gap assessments and self-evaluations following established methodology • DLR#7.4: ACE Impact



	host institution participates in the PASET Regional Benchmarking initiative and submits on the required indicators • DLR#7.5: ACE Impact host institution meets milestones for promoting institutional impact. Each approved Center Implementation Plan contains milestone(s) of results and activities to improve institutional impact
Data source/ Agency	Centers' progress reports; reports from host universities, accreditation certificates and other assessment reports; PASET benchmarking exercise report
Verification Entity	RFU
Procedure	<p>(xiv) DLR 7.1 is achieved if independent experts verify that a new or existing strategic plan for regionalization is in place for the ACE Impact host institution. The strategy will include policies and interventions that would ensure that the institution becomes regionally competitive (if not globally), highlighting, for example, how to attract and retain more regional students and partners (both from industry and academia). US\$100,000 equivalent;</p> <p>(v) DLR 7.2 is achieved if ACE Impact host institution submits evidence that department heads/deans related to the ACEs and university head are recruited through open, merit-based competitive selection. US\$200,000 equivalent for university head recruitment and US\$50,000 equivalent for dean/department heads;</p> <ul style="list-style-type: none"> • DLR 7.3 is achieved if the ACE Impact host institution submits evidence of achievement of a specific accreditation or assessment. The accreditation agency used must be acceptable to the World Bank and the RFU. US\$ 200,000 equivalent for international accreditation; US\$75,000 equivalent each for gap assessment/self-evaluation; • DLR 7.4 is achieved if the PASET Benchmarking host institution confirms the participation of the ACE Impact host institution in the benchmarking exercise and its submission of an acceptable intervention plan. US\$ 50,000 equivalent for each year the university participates (up to 2 years); <p>1. DLR 7.5 is achieved if the ACE host university meets its milestones and those milestones are independently verified as achieved. US\$ 100,000 equivalent per institutional impact milestone</p>

Note: The above DLI matrix presents the planned achievement per year in terms of percentage of the results to be achieve. The below table presents the achievement targets per specific DLI and DLR. This is aggregated across the five participating countries. The achievement targets for each country is available in the Financing Agreement for each country.



Achievement Targets for each Disbursement Linked Indicator and Disbursement Linked Result

	DLI Total Financing (US\$ equivalent)	DLI Baseline	DLRs and Indicative timeline for DLR achievement				
			2019	2020	2021	2022	2023
DLI 1: Institutional readiness results	12 160 000	0	30	0	0	0	0
<i>Allocated amount:</i>	<i>12 160 000</i>		<i>12 160 000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
DLI 2: Development Impact of ACE Center	4 200 000	0	0	36	40	76	0
<i>Allocated amount:</i>	<i>4 200 000</i>		<i>0</i>	<i>1 000 000</i>	<i>1 100 000</i>	<i>2 100 000</i>	<i>0</i>
DLI 3: Quantity of students with focus on gender and regionalization	19 026 000	0	44 PhD students 160 Master students 500 Short course professional students 0 first degree students	154 PhD students 430 Master students 850 Short course professional students 0 first degree students	204 PhD students 520 Master students 995 Short course professional students 0 first degree students	233 PhD students 540 Master students 1110 Short course professional students 0 first degree students	219 PhD students 540 Master students 1190 Short course professional students 0 first degree students
<i>Allocated amount:</i>	<i>19 026 000</i>	<i>0</i>	<i>1 235 000</i>	<i>3 519 000</i>	<i>4 451 000</i>	<i>4 906 000</i>	<i>4 915 000</i>
DLI 4: Quality of Education and research through international accreditation, research publications and improved teaching and research infrastructure	37 837 000	0	2 accreditation steps 111 published research articles 0 milestones for teaching and research infrastructure	39 accreditation steps 181 published research articles 4 milestones for teaching and research infrastructure	17 accreditation steps 228 published research articles 24 milestones for teaching and research infrastructure	16 accreditation steps 263 published research articles 22 milestones for teaching and research infrastructure	0 accreditation steps 219 published research articles 5 milestones for teaching and research infrastructure
	<i>37 837 000</i>		<i>1 426 000</i>	<i>6 406 000</i>	<i>11 315 000</i>	<i>14 585 000</i>	<i>4 105 000</i>
DLI 5: Relevance of Education and Research through externally	25 432 000	0	520 000 in revenue	3 675 000 in revenue	5 375 000 in revenue	6 224 000 in revenue	5 128 000 in revenue



	DLI Total Financing (US\$ equivalent)	DLI Baseline	DLRs and Indicative timeline for DLR achievement				
			2019	2020	2021	2022	2023
generated revenue, internships, and entrepreneurship			225 Internships 0 Entrepreneur milestones	610 Internships 0 Entrepreneur milestones	710 Internships 13 Entrepreneur milestones	860 Internships 0 Entrepreneur milestones	805 internships 0 Entrepreneur milestones
	25 432 000		745 000	4 285 000	7 385 000	7 084 000	5 933 000
DLI 6: Timeliness and quality of fiduciary reporting	7 995 000	0	17 Timely Fiduciary reporting 22 Functional institutional oversight of fiduciary mngt 22 transparency of ACE expenses 17 quality of procurement planning	22 Timely Fiduciary reporting 22 Functional institutional oversight of fiduciary mngt 22 transparency of ACE expenses 22 quality of procurement planning	22 Timely Fiduciary reporting 20 Functional institutional oversight of fiduciary mngt 22 transparency of ACE expenses 22 quality of procurement planning	22 Timely Fiduciary reporting 22 Functional institutional oversight of fiduciary mngt 22 transparency of ACE expenses 21 quality of procurement planning	22 Timely Fiduciary reporting 22 Functional institutional oversight of fiduciary mngt 22 transparency of ACE expenses 20 quality of procurement planning
	7 995 000		1 462 000	1 652 000	1 622 000	1 637 000	1 622 000
DLI 7: Institutional Impact	8 850 000	0	0 University regional strategy 0 Open and competitive selection of the head of university or dean 0 Institutional accreditation steps 0 PASET Benchmarking 0 Milestones on institutional impact	11 University regional strategy 0 Open and competitive selection of the head of university or dean 6 Institutional accreditation steps 12 PASET Benchmarking 0 Milestones on institutional impact	0 University regional strategy 0 Open and competitive selection of the head of university or dean 7 Institutional accreditation steps 0 PASET Benchmarking 4 Milestones on institutional impact	0 University regional strategy 10 Open and competitive selection of the head of university or dean 6 Institutional accreditation steps 12 PASET Benchmarking 7 Milestones on institutional impact	0 University regional strategy 0 Open and competitive selection of the head of university or dean 8 Institutional accreditation steps 0 PASET Benchmarking 6 Milestones on institutional impact
	8 550 000		0	2 500 000	1 200 000	1 550 000	3 600 000
Total IDA Financing for DLIs	115 500 000		17 028 000	19 362 000	27 073 000	31 862 000	20 175 000



ANNEX 1: Project Institutional and Implementation Arrangements

1. The following entities will be directly involved in various aspects of the project, including implementation, steering, facilitation and M&E: the PSC, RFU, NSCs, ACE Impact centers, partner academic and research institutions, industry and other sectoral partners and development partners. The roles and responsibilities for each of these players are described below. Detailed terms of reference (ToRs) will be provided in the POM.

- (a) **ACE Impact Center.** The project activities will principally be implemented by the selected centers with support from their respective host universities. The individual center is responsible for its strategic planning, proposal preparation and implementation, fiduciary activities, M&E, and reporting.
- (b) **Regional Facilitation Unit (RFU).** The RFU hosted within the AAU will coordinate and facilitate regional-level activities and provide capacity building support to the ACE Impact centers.
- (c) **ACE National Steering Committee (NSC) and other government-level arrangements.** Implementation support at the national level will be provided by the NSC. Other government stakeholders will also support the project at the national level as described further below.
- (d) **ACE Project Steering Committee (PSC).** The project will operate under the overall guidance and oversight of the PSC whose main task is to set guidelines for the project and to ensure that the project objectives are achieved

A. ACE Impact Centers

2. Each selected center will be responsible for implementing its own proposal as part of Components 1 and 2. Each center will implement and monitor project activities both at the national and regional levels that fall under its respective responsibilities. Each selected center will ensure that project funds are planned for and invested according to the schedule and within the framework agreed upon in the PFA signed with the government. Table A1.1 below shows all the centers (New ACEs, Renewal ACEs, and Emerging centers) selected to participate in the ACE Impact I project.



Table A1.1. Selected ACE Impact Centers (Renewals, New and Emerging)

Sub-Component 1.1: EXISTING AFRICA CENTERS OF EXCELLENCE THAT HAVE BEEN RENEWED					
(Renewal centers)					
1.	ACE: Training and Research in Water Science and Technology, Energy and the Environment in West and Central Africa (CEA-2iE)	<i>Institut International d'Ingénierie de l'Eau et de l'Environnement (2iE)</i>	Burkina Faso	Water, Energy and Environment	STEM
2.	ACE: Regional Water and Environmental Sanitation Center, Kumasi (RWESCK)	KNUST	Ghana	Water & Environ. Sanitation	STEM
3.	ACE: West African Center for Cell Biology of Infectious Pathogens and Non-Communicable Diseases (WACCBI-NCDS)	UG	Ghana	Cell Biology of Infectious & Non-Communi. Diseases	Health
4.	ACE: West African Center for Crop Improvement (WACCI)	UG	Ghana	Crop Improvement	Agric
5	ACE: MITIC)	UGB	Senegal	Digital Development	STEM
6	ACE: Maternal and Infant Health (SAMEF)	UCAD	Senegal	Maternal & infant health	Health
Sub-Component 1.2: NEW AFRICA CENTERS OF EXCELLENCE (New centers)					
7	ACE: Training, Research and Expertise in Drug Sciences (CFOREM)	Ouaga I	Burkina Faso	Pharmaceutical Science	Health
8	ACE: Bio-technological Innovation for the Elimination of Vector- Borne Diseases (CEA-ITECH-MTV)	UNB	Burkina Faso	Biotech and Vector Transmitted Diseases	Health
9	ACE: Regional Transport Research and Education Center, Kumasi (TRECK)	KNUST	Ghana	Transport	STEM
10	ACE: Regional Center for Energy and Environmental Sustainability (RCEES)	University of Energy and Natural Resources (UENR)	Ghana	Power	STEM
11	ACE: West African Center for Water, Irrigation and Sustainable Agriculture (WACWISA)	University of Development Studies (UDS)	Ghana	Water & Irrigation	STEM
12	ACE: Coastal Resilience (ACECoR)	University of Cape Coast (UCC)	Ghana	Coastal Resilience	STEM
13	ACE: West African Genetic Medicine Centre (WAGMC)	UG	Ghana	Genetic Medicine	Health
14	ACE: Prevention and Control of Communicable Diseases (CEA-PCMT)	Université Gamal Abdel Nasser de Conakry (UGANC)	Guinea	Communicable Diseases	Health
15	ACE: Environment and Health (CEA-AGIR)	UCAD	Senegal	Environment & Health	STEM
16	ACE: Agriculture for Food and Nutrition Security (CEA-AGRISAN)	UCAD	Senegal	Food Security & Nutrition	Agric
Sub-component 2.1: EMERGING CENTERS OF EXCELLENCE (Emerging centers)					
1	Emerging Center: Logistics and Transport (CELT)	<i>Université de Djibouti (UD)</i>	Djibouti	Transport – Logistics/ICT	STEM
2	Emerging Center: Mines and Societies (CEMS)	ISMGB	Guinea	Mining	STEM
Add-on Support to Colleges of Engineering					
1	College of Engineering	KNUST	Ghana		STEM
2	College of Engineering	Université de Djibouti	Djibouti		STEM



3. **Each ACE Impact center will have an implementation team established to implement their own ACE Impact Center sub-project on a day-to-day basis.** Each center will be responsible for its own strategic and implementation plans, fiduciary and M&E activities. The team will be led by the center director, who will be a recognized educator/researcher with expertise in the academic focus area of the center. The center director will be supported by a deputy director and faculty from all departments contributing to the center. Each center team will also consist of key staff members specializing in procurement, FM, M&E, communications and industry engagement who will support the center's day-to-day operations and assist with fiduciary tasks. The host university will provide to the centers administrative support and assistance on the safeguards tools to be developed by the centers. The center team will be advised by an SAB (composed of high-level representatives from the center's industry/sector partners) and an IAAB (comprised of leading academics from around the world). Both the SAB and the IAAB will contribute to the development of the education programs of the center, and will also provide advice, insight and oversight for the applied research program. A student representative (non-staff) will be designated to represent the students of the center and will participate in the center's staff meetings. For an institution with more than one center, a similar structure will apply with an institutional leader assigned to manage all the centers at that institution in addition to the center directors. Each host institution will also provide to their respective centers, administrative support and assistance on the safeguards tools to be developed by the centers.

4. Centers will implement key tasks under their respective sub-components. A summary of these tasks includes the following:

- Prepare and implement an agreed implementation plan that encompasses the vision of the center and aligns with the PDO. The implementation plan will cover activities to strengthen the quality and relevance of the education and applied research programs that are within the focus areas of the center. The implementation plan can be amended during the project life-time provided the ACE center obtains approval from the World Bank.
- Prepare annual work plans based on the approved proposal and implementation plan. The annual work plan will be reviewed on an annual basis by subject-matter experts hired by the RFU. The detailed activities of each center will be provided in the project POM.
- Each center supported under Component 1 will be required to serve as a hub for a network of partner institutions within the sub-region. Partner institutions can be universities, industry, other types of higher education institutions or research institutes and government agencies within the thematic area hosted by the center. A detailed partnership agreement between the center and each partner institution will specify the nature of the partnership between the two institutions. The ACE center and its network of partners will agree to an annual action plan to be implemented by the partners.
- Each center will be responsible for its own fiduciary and safeguards functions including undertaking its own procurement, maintaining proper financial accounts according to project requirements and implementing its M&E plan as well as its approved ESMP.
- Funds for capacity building in partner institutions will be held and managed by the ACE Impact center leading the network. All fiduciary and M&E matters related to the use of these funds will fall under the purview of the ACE Impact centers.



5. **A typical example of ACE implementation arrangements is the arrangements for the Africa Center of Excellence in Oil Fields Chemical Research (CEFOR), University of Port Harcourt in Nigeria (established under ACE I).** The ACE is headed by the center director, who oversees the day-to-day running of the center and is assisted by the deputy center director. The center director is based in the Center's Management Office (CMO), also home to three leaders representing the three research units working on CEFOR and the capacity building unit. The CMO is responsible for the management of the technical, scientific, and reporting aspects of their specific units. The ACE center operates semi-autonomously within the general structure of University of Port Harcourt in terms of day-to-day administration and FM. Several departments and faculty of the university contribute with complementary expertise in petrochemical research within the oil field industry and training programs of the center: oil and gas technology, geosciences, occupational health and safety, gas refining and offshore technology. The research, training and other academic activities of the Center are planned and guided by a committee comprising representatives from industry, key partner institutions and an international scientific advisory board comprised of high-level international experts.

6. **Institutional capacity.** As part of project preparation, assessments of the capacities of the centers were carried out. This entailed fiduciary assessment of each center's financial management capacities, and a selected number of centers assessed on procurement capacity. Based on the outcome of the assessments, capacity-building plans have been developed to ensure the risks are mitigated. Funding from the ACE Impact center will support activities under these capacity-building plans. Further, a regional level capacity-building workshop will be held ahead of the project launch to ensure full awareness of project requirements, and assessment of each center's capacity shortcomings and challenges. Follow-up trainings at the regional level will be organized during implementation.

B. Regional Facilitation Unit (RFU) (hosted within the Association of African Universities - AAU)

7. The RFU will be hosted within the AAU. The AAU will be responsible for implementing most of the Component 3 activities of the project which entail regional facilitation and implementation support to the centers.

8. The AAU has met the required criteria to be selected as the RFU for such a regional higher education project. Of importance to the project is the fact that AAU is currently the RFU for ACE I and so has developed capacity with regard to the ACE model and facilitating project-level M&E and logistic activities. Other criteria that were considered in the selection of the RFU included: (i) proven capacity to handle IDA and other donor funds; (ii) its location in the sub-region and its established and working relationships with higher education institutions; (iii) experience working across sectors; (iv) evidence (based on due diligence assessment) of well-established FM systems; (v) regional coverage across thematic areas; and (vi) bilingual capacity. The PSC agreed to keep AAU as the RFU for the ACE Impact I project while it continues to play the same role for ACE I.

9. The detailed tasks of the RFU will be provided in the draft POM. These are summarized as follows:

- (a) Coordinate and fund the activities of the PSC to fulfill its tasks;
- (b) Facilitate the call for proposals, evaluation and selection of centers/institutions during project preparation;



- (c) Ensure effective and efficient coordination and facilitation of the project activities, including the administrative activities;
- (d) Support the M&E needs of the selected centers as well as aggregated M&E needs of the overall project, benchmarking exercises and graduate tracer studies;
- (e) Communicate on a regular basis with the centers, subject-matter experts, third party verifiers and the project's broader network of partners;
- (f) Coordinate implementation support missions of experts to the centers and verify semi-annual reports on DLR achievements and project implementation results submitted by the centers;
- (g) Develop key documents such as the POM and ToRs for consultants hired to work on project related activities;
- (h) Facilitate capacity building workshops and sharing of experiences across the centers, such as knowledge sharing workshops for the centers and their partner institutions; and
- (i) Promote partnerships among centers and between centers and partners (academic and sectoral) outside of the ACE networks.

10. The Grant Financing Agreement between the World Bank and the RFU defines the terms and conditions for this engagement. Funding for the RFU will be under Component 3. The RFU will have a full-time project coordinator who will have management responsibility for facilitation of the project. The RFU will also have professional staff with finance and accounting, M&E, IT, communications and project management skills requisite for project needs. The RFU will also hire consultants to support regional level coordination of the environmental and social safeguards tools required from the centers.

11. Funds under Component 3 will be disbursed to the RFU against a statement of expenditures (SoE), based on an annual work plan and a procurement plan agreed upon with the PSC and the World Bank. The RFU will report to the PSC and the World Bank through semi-annual meetings.

C. National Steering Committee (NSC)

12. Project implementation support and supervision at the national level will be undertaken by the NSC. The mandate will be to receive and review reports, workplans and budgets funded under Component 1 and Sub-component 2.1 and Sub-component 3.2 in that country. The detailed ToRs will be included in the POM. The specific tasks of the NSC will include the following:

- (a) Undertaking semi-annual performance and progress reviews for the selected centers in the country and national facilitation agency (in the case of Ghana and Burkina Faso), including reviewing of the implementation plans, annual workplans, annual budgets, IFRs, results (achievements of DLRs and fund utilization) and procurement and FM annual audits.
 - Overseeing audits (be informed about the ToR for the annual audit, and oversee follow-up on recommendations in the annual audit report presented by the selected centers in case the individual university audit oversight mechanisms are not adequately functional);
 - Reviewing the adherence to national procurement and FM guidelines for each center(s);



- (b) Discussing at NSC meetings the alignment with national strategies and support the center(s) to foster linkages with relevant governmental bodies and line ministries;
- (c) Recommending changes to center-specific Implementation Plan(s) and decisions to be considered by the PSC; and
- (d) Monitoring of overall progress of the program with a special focus on delays, problems and bottlenecks (approval of progress reports, decisions on follow-up activities presented by the selected centers).

13. **Composition of the NSC** will include representation from the Ministry and/or agency responsible for higher education, which is expected to be the chair and convener, related Ministries of the selected centers, MoF and the selected centers. The NSC will have approximately five to seven members. This committee will meet semi-annually. Composition and ToRs can vary between countries. The model ToRs will be in the POM.

14. To participate in the NSC meetings, center representatives will pay for their own travel expenses through the project while the government representatives will be government financed. Similarly, NCTE and the MESRSI-PIU will pay for their own travel expenses through their own funds under Sub-component 3.2. The RFU, if attending such meetings, will cover its costs out of Sub-component 3.1. Minor logistical and review expenses for the preparation and facilitation of meetings of the NSC will be financed and managed by the centers. Such expenditures will be clearly identified. Capacity-building of NSC members can only be undertaken via the RFU.

D. Project Steering Committee (PSC)

15. The role of the PSC is to oversee and guide the project, ensuring that the PDOs are achieved. The PSC will also be responsible for advocating for regional collaboration in higher education and will act as a liaison between the project and regional leadership as well as with the public at large. The RFU will support the PSC by serving as its secretariat. The PSC will meet in-person once a year at the Ministerial level and twice a year at the representative level. Virtual meetings at the representative level will also be held on an as needed basis. The full ToRs will be provided in the POM.

16. Unless otherwise stated, the key tasks of the PSC listed below will be conducted by the representative level. The key tasks of the PSC are:

- (a) Make strategic decisions to ensure the continued coherence between the program support and sector and regional development priorities (by Ministerial level PSC);
- (b) Sign-off on the call for proposals, process of project evaluation and other aspects of the project design;
- (c) Consider the findings and recommendations of the independent evaluation committee (as facilitated by the RFU) in making the final selection of the ACE centers and validation of the Emerging centers, while ensuring thematic, geographic, linguistic and gender balance (by the Ministerial level PSC);
- (d) Make decisions concerning deviations from the project support documents (including the PAD and POM);



- (e) Review and guide the overall progress of the project including (a) a special focus on the delays, non- performance of centers, and any other problems and bottlenecks that may inhibit the achievement of the ACE Impact objective; and (b) the review of progress and approval of workplan, financial reports and decisions on follow-up activities presented by the RFU;
 - (f) Oversee the implementation of cross-cutting issues as identified in the project documents, e.g. gender and diversity and provide implementation support during visits to the participating institutions on these issues;
 - (g) Facilitate national, regional, and international networking and outreach activities for the project as a whole;
 - (h) Review the extent and performance of ACE Impact partnerships (both academic and sectoral collaborations);
 - (i) Oversee audits of the RFU (approval of the annual audit, overseeing follow-up on recommendations in the annual audit report presented by RFU).
17. Composition of the PSC will be such that it will include representation from each country participating in the project. The PSC was constituted by government and regional stakeholders in consultation with the World Bank as part of project preparation. There will be a two-level PSC: Ministerial and government representative levels. The Ministerial-level PSC will consist of Ministers in charge of higher education and ECOWAS. The Ministry in charge of higher education may assign an ACE Impact focal point who will be a country representative supporting the representative-level PSC member.
18. The representative-level will include the following members:
- (a) Representation of government/Ministry of Higher Education of each participating country (11 representatives)
 - (b) Representation by academic experts of international stature representing the disciplines covered under this program (2 academicians)
 - (c) Representatives from the private sector (1 private sector representative)
 - (d) Representatives of the centers (1 Vice chancellor representing the selected centers)
 - (e) Representative from ECOWAS (1)
 - (f) Representative from UEMOA (1)
19. The procedures of the PSC meetings will be determined by the Committee itself. Similar to the processes utilized by the ACE I project, each meeting will be chaired by a Chairperson who will be either the Minister or the representative (depending on the level of the meeting) on the PSC from the country hosting the meeting. The PSC makes decisions on a majority basis. Decisions of the PSC are subject to the project objective, POM and FAs as agreed between the World Bank, the governments, AAU and ECOWAS. The PSC will be able to co-opt external members for advice as it sees fit.
20. The PSC will have an appropriate budget under Component 3, from the RFU, to perform its functions. Members of the Committee will all have reasonable travel expenditures covered and will receive per diem but will not receive honorariums.



E. Other Government-level arrangements

21. Government ownership is critical to the success of the ACE Impact centers. Active government participation will be needed from preparation through the implementation of the project. Each participating government (represented by the MoF or its equivalent), will sign a FA with IDA. The government will specify the center as the implementing entity and subsequently sign a PFA (subsidiary agreement) with each ACE host university and the center. This PFA will define the responsibilities of the institution, including fiduciary and reporting arrangements as well as the terms and conditions for its operation, including engagement with partner institutions.

22. The MoF will ensure government commitment and ownership of the project as well as make sure the funding channels for the DLIs are set up accordingly. The MoF will also ensure the financial set-up for the DLI approach is adequately functioning with a commitment to open a budget line for the ACE Impact I project up to the amount agreed in the FA and in the PFA. (Details on the disbursement arrangements are provided in the FM section below).

23. The Ministry in charge of higher education in each respective country will see to it that there is strong project ownership, ensure alignment between the project and the national higher education policies, and promote active partnership among the country's higher education institutions and the ACE Impact centers.

24. Other line ministries, such as Ministry of Agriculture, Mining or Health, depending on the focus of the selected ACE in the country will seek to promote sectoral impact of the project, facilitate partnerships, support project activities, and align the ACE Impact I project with national strategy. This will include facilitating linkages and communication regarding the human resource and skills needs of the sector as well as the priorities for applied research.



ANNEX 2: Financial Management, Disbursements and Procurement

A. Financial Management and Disbursements

1. **At the national level, each selected higher education institution will implement its own ACE Impact sub-project.** Each ACE Impact I host institution will house an ACE Impact implementation team that will manage both the technical and the fiduciary aspects of its own sub-project. At the regional level, AAU, in its role as the RFU will receive a grant for the overall project facilitation as indicated under Component 3, supporting the centers under Component 1 and Sub-component 2.1. AAU is the RFU for the ACE I project. AAU will be responsible for all fiduciary aspects associated with the use of the grant it will receive. In addition, under Sub-component 3.2, the NCTE as indicated earlier will also receive funding for national level coordination of the ACE Impact centers in Ghana. The MESRSI-PIU of Burkina Faso currently hosts the PIU of its IDA -Funded national higher education project, the Higher Education Support Project (P164293). This same MESRSI-PIU will play the national facilitator role for the centers in Burkina Faso. Component 2.2 will be implemented by the *icipe* which is a regional coordination unit implementing RSIF.

2. **Assessments of the FM capacity of each of the implementing entities (the ACE Impact centers, AAU, NCTE, and MSRSI) in the participating countries were conducted.** The overall FM risk for the project is rated Substantial. The centers have varying experiences with World Bank FM requirements and the ACE program. As shown in Table A1.1, in Annex 1, the six renewal centers through participating in ACE I have had at least four years of experience whereas the ten new and two Emerging centers have no prior experience. The assessment for MESRSI-PIU was carried out as part of the preparation of the Higher Education Support Project in Burkina Faso (P164293), which is still in its early stages of implementation. The MESRSI is the implementing agency for that project. The objectives of the assessments were to determine the following: (a) whether these entities have adequate FM arrangements in place (planning, budgeting, accounting, internal control, funds flow, financial reporting, and auditing arrangements) to ensure that project funds will be used for purposes they are intended for and in an efficient and economical way; (b) that project financial reports will be prepared in an accurate, reliable and timely manner; and (c) that the project's assets will be safeguarded. The FM assessments were carried out in accordance with the FM Manual for World Bank IPF operations that became effective on March 1, 2010, revised on February 10, 2017.

3. The FM assessment for *icipe* was carried out as part of the preparation of the Africa RSIF for Applied Sciences, Engineering and Technology project (P165581) which is in its first year of implementation.

Planning and Budgeting Arrangements

(i) AAU

4. The budgeting processes for the AAU are documented in the *Accounting Policies and Procedures Manual* (as revised). Per the manual, the budgeting process starts with AAU's Director of Finance (DoF) providing budget guidelines to the various units and departments, which serve as the basis for strategic allocation of resources for the planned year. In line with the processes articulated in the manual, it is expected that the IDA funds will be budgeted as part of the AAU processes. The assessment report on



AAU indicates that budgeting processes are satisfactory and can be relied upon to reflect the various components to be implemented.

(ii) NCTE

5. The NCTE as a government agency follows the budget preparation guidelines as per the Public Financial Management (PFM) Act (921) 2016 and the annual budget guidelines issued by the MoF. For this ACE Impact I project, the budget will be derived from the IDA allocations which will serve as the basis for preparing the initial Annual Work Plan and Procurement Plan.

6. Specifically, the ACE Focal Point at NCTE, in collaboration with the Head of Accounts and working on behalf of the Executive Secretary, shall be responsible for initiating the budgeting process for the project and obtain inputs (activities, schedules, timelines, cost) from the beneficiary departments. Once the budget is completed it will be submitted to the Finance Committee of the 'Council' for final review and approval after which the Executive Secretary shall submit it to the World Bank. The current budgetary control processes used mostly for the government's discretionary budget allow for monitoring commitments and outstanding balances, helping to reduce risk of duplicate payments. The assessment indicates that budgeting processes are satisfactory and can be relied upon to support the planned implementation activities for the NCTE.

(iii) Selected Centers

7. **For all participating centers, the annual budgets and workplans will be prepared by qualified staff in their corresponding finance departments in line with applicable budgeted preparation guidelines in each center's respective FM Manuals and/or relevant government guidelines.** The annual budgets and workplans will be approved by the relevant authority in each host institution (e.g. Budget committee, University Council) no later than November 30 of the preceding year. The cash budget will include the figures for the year and will be analyzed quarterly. The cash budget for each quarter will reflect the detailed specifications for project activities, schedules (including procurement plan), and expenditure on the project activities scheduled respectively for the quarter. All annual cash budgets will be sent to the Task Team Leader at least two months before the beginning of the calendar year. Accounting information systems will be upgraded or acquired to include a budget monitoring module to enable management identification and follow-up as well as action on budget to actual variances which will be reported in the quarterly IFRs.

Accounting Arrangements

(i) AAU

8. Accounting and transactional processing for the project will be handled by the DoF with the support of a team of six staff members with varying accounting qualifications and skill-sets. The accounting function is informed and guided by the *Accounting Policies and Procedures Manual* which has been designed to reflect the financial transactions and procedures (including the levels of approval, chart of accounts etc.) to guide in the accounting and recording of financial transactions.

9. *Staffing:* The unit is headed by a DoF, a qualified chartered accountant with relevant experience. The DoF has the requisite academic and practical experiences that are satisfactory to the World Bank to support the activities under Component 3. The DoF is responsible for managing the various sub-units and



accounts officer and is responsible for ensuring financial reports are prepared on time and in line with acceptable accounting standards. The review of the Finance unit confirmed that the unit is staffed by adequately qualified and technically competent staff. Accounting and financial reporting of the grant will follow the existing AAU accounting policies and rely on the existing systems, including the Chart of Accounts, internal approval processes, payment vouchers, and authorization limits etc., as detailed in the *Manual*.

10. AAU uses a computerized accounting package (*Quick Books Accounting*) and spreadsheets for transaction processing and reporting. This package is an internationally recognized accounting package with adequate controls and audit trails which is satisfactory in using to report on the different sources of funding and other related accounting information. A review of the coding structure/Chart of Accounts, the general ledger and sample reports, indicated that the systems in place are robust and adequate to accurately capture and report on the use of project funds. The assessment of the accounting processes and systems conclude that the accounting arrangements are satisfactory and can be relied upon to support implementation.

(ii) NCTE

11. The NCTE as a government agency follows the budget preparation guidelines as per the PFM Act (921) 2016 and the annual budget guidelines issued by the MoF. For this ACE Impact I project, the budget will be derived from the IDA allocations which will serve as the basis for preparing the initial Annual Work Plan and Procurement Plan. Specifically, the ACE Focal Point at NCTE, in collaboration with the Head of Accounts and working on behalf of the Executive Secretary, shall be responsible for initiating the budgeting process for the project and obtain inputs (activities, schedules, timelines, cost) from the beneficiary departments. Once the budget is completed it will be submitted to the Finance Committee of the 'Council' for final review and approval after which the Executive Secretary shall submit it to the World Bank. The current budgetary control processes used mostly for the government's discretionary budget allow for monitoring commitments and outstanding balances, helping to reduce risk of duplicate payments. The assessment indicates that budgeting processes are satisfactory and can be relied upon to support the planned implementation activities for the NCTE

(iii) Selected Centers

12. **Financial Management Manual:** The FM manual is essential as it documents the accounting and other FM arrangements that will be used for the project. Each center will update its existing FM manual to include the proposed project. In Djibouti and Guinea, the centers will prepare an FM chapter as part of their implementation plan detailing the FM and accounting procedures

13. **Accounting staff:** These are essential as they will prepare accounts for the project. As implementing entities, each center will be required to recruit or assign a qualified and experienced accountant to the project. The following implementing entities will need to recruit or assign accountants with qualifications satisfactory to the World Bank, within three months following effectiveness: all entities in Burkina Faso, ITT in Djibouti, new centers at UCAD in Senegal, and UGANC and ISMGB in Guinea, as further detailed in the FM action plan. The World Bank will also enhance the skills of the existing staff by training them in World Bank FM and Disbursement requirements/procedures.



14. **Accounting Information systems:** Computerized accounting information systems are essential as they ensure efficiency in the preparation of accounts and avoid errors associated with manual systems and will facilitate (i) the budget preparation and monitoring; (ii) the preparation of interim bi-annual financial statements and annual financial statements under a format acceptable to the World Bank.
15. **In Burkina,** 2iE already has an adequate computerized accounting system which will be upgraded within three months after effectiveness, to include the proposed project and a budget monitoring module. UNB and CFOREM will each acquire a computerized accounting information system for the management of the proposed project, within three months after effectiveness. The system will integrate the budgeting, operating and cost accounting functions to facilitate monitoring, evaluation and reporting.
16. **In Djibouti,** the financial service department at the UD utilizes the accounting software Sage to record its revenue and expenditure transactions. Sage does not fulfil the World Bank's requirements in terms of accounting software specifications and will need substantial customization. For the project, ITT will acquire an accounting software which will be used to record daily transactions and produce the IFRs for all categories and components. A special module will be added to track salaries related to the project and generate aggregated reports showing amounts of salaries paid and names of each beneficiary. The center will have overall responsibility to ensure that salaries are paid to their rightful beneficiary and will need to follow up on any inconsistencies and establish appropriate measures when needed. The project Financial Officer will be responsible for preparing the IFRs before their transmission to the Project Coordinator for approval. Periodic reconciliation between accounting statements and the IFRs will also be done by the Financial Officer.
17. **In Guinea,** UGANC and ISMBG will purchase a new accounting software or customize existing systems to meet the budgeting, accounting, reporting and monitoring requirement of the project.
18. **In Ghana,** the UCC currently uses *Topaz Accounting Package* and a combination of spreadsheets for reporting. In terms of accounting systems, the UDS currently has an automated ERP – *Sage 300* for all its business operations and these systems shall be used to account and report on the use of project funds. UENR uses *Ebiz Frame Accounting Software* for initiating, recording and reporting all financial transactions. In terms of systems KNUST uses a bespoke accounting package 'Panacea' which is used by all accounts units within the university for preparing its accounts and financial reporting. The assessment of the accounting function of the Office of Research, Innovation and Development at the UG concludes that it has reliable systems, processes, procedures and staff who can be relied upon to fully support implementation. The Unit uses accounting software – *InfoEd Accounting* to support its functions.
19. **In Senegal,** Renewal ACEs have a mono-project computerized accounting system which is not adequate to consider new ACE activities. An adequate accounting and reporting system acceptable to the World Bank will need to be set up three months after effectiveness as outline in the action plan.
20. **Accounting basis:** The accounting basis for each implementing entity is summarized in the Table A2.2 below.



Internal Control and Internal Unit Arrangements

Internal Control and Audit

(i) AAU

21. Currently, given the size and focus of its operations, AAU does not have an internal audit unit within its organizational structure. The current practice is to outsource the internal audit functions to an independent third-party firm, which periodically undertakes internal audits and risk reviews of the operations of AAU. The FM assessment report of AAU indicates that there are adequate internal control measures as documented in the *Accounting Policies and Procedures Manual* including segregation, documented levels of approval and authorization and oversight of functions which guarantee a reliable control environment. The internal controls including processes for recording and safe guarding of assets are documented in the *Accounting Policies and Procedures Manual* which has been reviewed by the World Bank FMS and considered acceptable.

(ii) NCTE

22. The assessment indicated that the internal audit and control environment is adequate for project implementation. The role of the internal audit will be regularly assessed during supervision missions where their reports and the management's responsiveness to their findings will be reviewed to ensure that the audit workplans use a risk-based approach and adds value to the overall control environment. Consistent with the decision to adopt some aspects of the use of country systems (UCS) for implementation, the project's internal controls at NCTE will rely on the government-established accounting and internal control guidelines as documented in the PFM Act (921) 2016 and informed by the Internal Audit Agency Act (2003). In addition, the expenditure initiation and related controls will follow the authorization and approval processes as pertains within the NCTE and complimented by additional guidelines as per World Bank FM & Disbursement policy. The NCTE has a functioning internal audit unit headed by the Head Internal Auditor who is adequately qualified and experienced to help to ensure a sound control environment is maintained throughout implementation. The operations of the NCTE have been documented in an Accounting Manual which provides guidelines for their FM operations.

(iii) Selected Centers

23. **In Burkina Faso,** The World Bank will encourage the implementing entity to strengthen their internal audit functions. Each implementing entity will adopt an internal audit charter and internal audit manual as well as an institutional risk mapping to facilitate risk-based auditing. For 2iE, the procedures of the audit committee will be revised to ensure the issuance of the audit committee reports at least six (6) months after the end of the fiscal year. UNB and Ouaga I will also recruit within three months after effectiveness, an internal controller, with experience and qualifications acceptable to the World Bank, fully dedicated to the Project internal audit tasks. The national internal control institutions, that is, DCMEF, the General Inspectorate of Finance (IGF) and the ASCE-LC (*Autorité Supérieure de contrôle de l'Etat et de Lutte contre la Corruption*) will continue to provide internal audit oversight over the UNB and Ouaga I, as requested by their legal mandate. During implementation, each implementing entity will be required to prepare and submit internal audit reports on a semi-annual basis no later than 45 days following the end of the semester.



24. **In Djibouti**, UD has an administrative and FM manual describing the roles and responsibilities of the financial department and the expenditure cycle and flow of activities within the various departments. The manual is under revision and an updated revised version will be issued once the status of the university is legally revised. For the project, ITT will prepare an Implementation Plan, which will define the roles, functions and responsibilities for the implementing agency. The Implementation Plan will contain a separate FM chapter detailing the FM and accounting procedures and will also include internal controls procedures. Once finalized, the Implementation Plan will need to be submitted to the World Bank for approval and will be a condition for initial disbursement. An internal audit unit will be established within ITT. The internal audit unit will be responsible for ensuring that efficiency and effectiveness are exercised when implementing the project and will carry out a risk-based approach review of all fiduciary functions. ITT will be responsible for contracting an internal auditor with ToRs acceptable to the World Bank. Internal audit reports will be submitted to the World Bank every semester showing any substantial risk and proposing recommendations to enhance project operational efficiency. The internal auditor will be recruited three months after effectiveness.

25. **In Guinea**, for this project, FM manuals need to be developed for both UGANC and ISMGB as part of the requirement for first disbursement (part of DLR#1). The manual will also include FM procedures for the project. The manuals will document, explain and describe work processes, information flow, authorization and delegation of authority, timing, segregations of duties, auto and sequential controls, compliance with project objectives, micro and macro rules and regulations. Application of the procedures set up in the manual will be mandatory for all staff at all levels. One internal auditor will be recruited and will provide support to both UGANC and ISMGB. The internal auditor will be recruited within three months of effectiveness.

26. **In Ghana**, the new centers hosted at UCC, UDS, UENR, KNUST and UG as well as the renewal centers at KNUST and UG all have functioning and well-staffed Internal Audit Directorate (IAD) headed by a Director of Internal Audit who has oversight function for ensuring that there are adequate internal controls within the University. The project's internal controls will rely on the established accounting and internal control guidelines as documented in their respective manuals as listed below in Table A2.1.

Table A2.1. Ghana ACEs FM Manuals

Entity	Manual	ACT
UCC	Financial and Stores Regulations Manual	
UDS	Finance and Accounting Manual	PFM Act (921)2016
UENR	Accounting Policies and Procedures Manual	
KNUST	Accounting Policies and Procedures Manual	
UG	The UG Financial Regulations and Governance Manual	PFM Act (921)2016 OR UG Act (806) 2010

27. The manuals are considered detailed enough and acceptable to provide a framework for fiduciary oversight. They provide adequate rules and procedures for segregation of duties including different levels of authorization and approvals, transaction processing, recording and reviewing of transaction and payment. Internal controls in government establishments have consistently been adequate in Ghana.



Nonetheless, the internal auditors have traditionally been focusing on pre-audits and compliance rather than on systemic issues. As part of this project, the internal audit function will be strengthened through the FM DLIs.

28. ***In Senegal***, to ensure an adequate internal control environment all participating ACEs will need to update their project manual of financial and administrative procedures that would: (i) include each ACE specificities; (ii) give a clear description of operations documentation; (iii) provide a clear description of the internal control systems that will be used by the project; (iv) maintain an appropriate safeguard of the assets and funds; (v) clarify roles and responsibilities of all stakeholders; and (vi) give clear description of budget monitoring and reporting process. An internal auditor with experience and qualification satisfactory to the World Bank, will be recruited at each ACE to carry out reviews. The capacity of the university's internal auditor will be reassessed during the mid-term review and if satisfactory, the project will rely on the internal audit function of the Ministry.

Audit Committees

29. Audit committees are essential to ensure that audit issues are brought to high level attention and addressed. The committees are made up of non-executive members, including University Council member. Based on the ACE I implementation experience and the results of the FM DLI#3.3 in that project, some implementing entities have yet to have a fully functional audit committee. The existence of Audit Committees, or a formally constituted sub-group of the University Council with Council members to examine audits, is an element of good corporate governance to ensure management addresses audit issues. Therefore, this will be a DLI for the ACEs to encourage them to improve on their governance arrangements. Internal auditors will be expected to report to them functionally and report administratively to the Head of the Institution e.g., Vice Chancellor or the Rector for the ACEs. A summary of the status of audit committees in participating ACES countries is provided below:

30. ***In Burkina Faso***, UNB and Ouaga I will set up a functional audit committee, within three months after effectiveness.

31. ***In Djibouti***, an audit committee will be established at the University to follow on the internal audit recommendations. The internal audit unit will oversee the project funds and its role will be expanded at a further stage to include the University. The internal auditor will report to the audit committee. The internal audit reports will be made public through the website created for the project.

32. ***In Guinea***, UGANC and ISMBG will put in place an audit committee made up with non- executive members. These committee will oversee audit related matters in the centers.

33. ***In Ghana***, the UG has an Audit Committee which regularly meets to review the finding of the IAD. Our assessment concludes that there are adequate internal controls and procedures within the UG for managing risk, including the periodic assessment of the effectiveness of the internal control systems. In addition to the IAD, the University Council has overall responsibility for ensuring that there is a risk management strategy and a common approach to risk management within the University. However, the remaining universities for new centers in Ghana will need to establish functioning audit committees within three months of effectiveness.



34. ***In Senegal*** the two institutions did not have functional audit committees during the review of ACE I and have received guidance on actions needed to install adequate committees.

Governance and Anti-Corruption Arrangements

35. All implementing entities are encouraged to do the following to improve their governance and anti-corruption arrangements:

- Publish budgets, financial reports and audited financial statements related to the project and for the institution on the websites to enhance transparency and accountability. This will be encouraged through an annual disbursement (DLR#6.3) linked to the online publication of these FM reports.
- Put in place an independent complaint handling mechanism that includes a reliable tracking system with the ability to show the related details including the time the complaint was reported and the time the response was made.

Funds flow arrangement

Flow of Funds

36. **World Bank Accounts.** The following bank accounts will be opened for selected implementing entities:

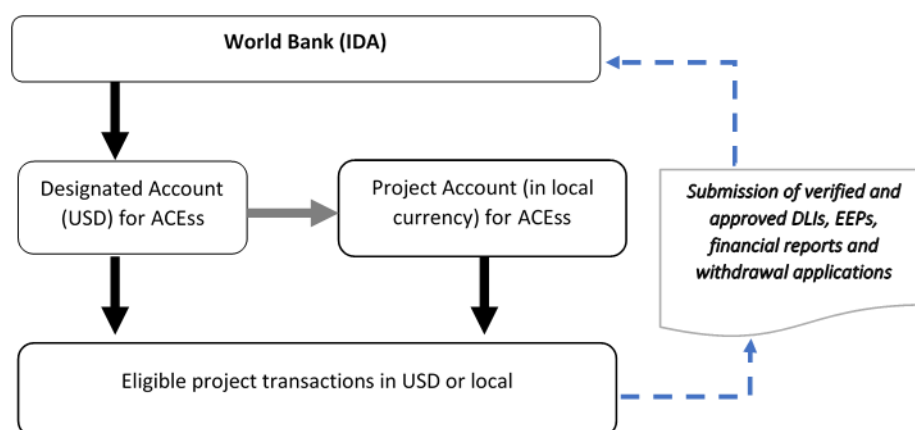
- (a) **Designated Accounts (DAs):** the regional and national implementing entities - AAU, NCTE and MESRSI-PIU - will open DA in US\$ or local currency in a financial institution (central or commercial bank) acceptable to IDA.
- (b) **MoF Single Treasury Accounts held in central banks:** as applicable, will be opened to receive funds allocated to DLIs for immediate onward transfer to the ACE project accounts.
- (c) **Project accounts:** each center under Component 1 and Sub-component 2.1 will open a project **account** into which proceeds of the financing allocated to DLIs will be disbursed upon achievement and verification of results. [Advances will not be made to these accounts].



37. **Funds flow diagram**

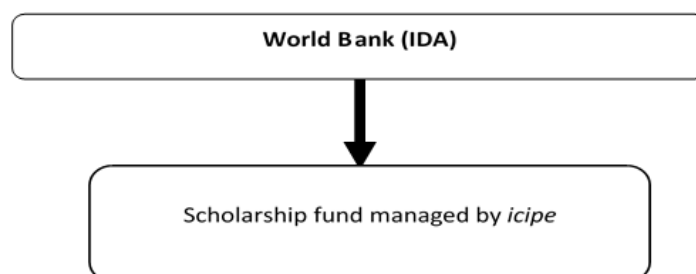
- (a) **Under Component 1 and Sub-component 2.1**, funds will flow from IDA directly to the project account of the center upon its achievement of the DLIs verified in a manner satisfactory to IDA. (Advances up to 15 percent could be provided to each center as needed).

Figure A2.1. Funds flow diagram for Component 1 and Sub-component 2.1



- (b) **Under Sub-component 2.2**, funds allocated by participating countries to the RSIF will flow directly to the RSIF Fund established and managed under the World Bank-financed RSIF project through the implementing entity of the RSIF (*icipe*). Governments will have the choice of allocating their funds to either the General or Permanent Fund (pending full establishment of the Permanent Fund). The funds will be disbursed to *icipe* and *icipe* will put in place FM arrangements that will ensure government restrictions of their funding (that is, funds will be earmarked for scholarships only) will be adhered to.

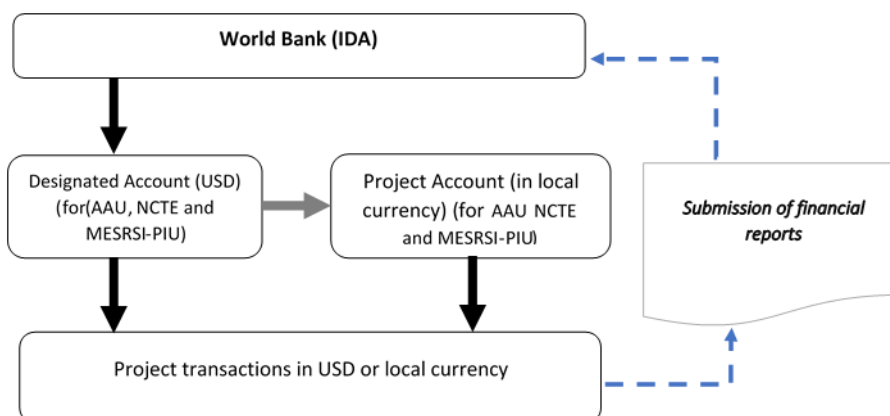
Figure A2.2. Funds flow diagram for Sub-component 2.2





- (c) **Under Component 3**, the regional and national implementing agencies (AAU, NCTE, MESRSI-PIU) will each have a DA in US\$ to receive advances and, as applicable, each entity will open a local currency sub-account.

Figure A2.3. Funds flow diagram for Component 3



Disbursement Arrangements

38. Under Component 1 and Sub-component 2.1, which are subject to result-based financing, disbursements to the centers will be made against EEPs and the achievement and verification of DLIs. Each withdrawal application will be accompanied with an IFR which includes an EEP Statement and a confirmation of results achieved and verified in line with the verification protocols agreed to with IDA.

39. Under sub-component 2.2, funds will be disbursed against the submission of reports and confirmation by the implementing entity of the scholarship fund (General or Permanent Fund) that all conditions precedent to the disbursement of the funds have been met pursuant to agreements signed between the participating countries and the implementing entity of the Funds, *Icipe*, will ensure funds are allocated to the scholarship window.

40. Under Component 3, the traditional IPF disbursement mechanism will be followed in line with the Disbursement Guidelines (dated February 2017). Upon project effectiveness, initial advances will be made to the implementing entities' respective DAs, up to the ceiling amount specified in the Disbursement and Financial Information Letter (DFIL). Subsequent advances will be made upon submission of supporting documentation (SoEs or IFRs), evidencing the use of the advances for eligible project expenditures. Other disbursement methods (reimbursement, direct payment and special commitment) will be available to the project. The minimum value of applications for these methods is 20 percent of the DA ceiling.

41. The authorized signatories of each participating country will sign and submit withdrawal applications electronically through the World Bank's Client Connection website.



Financial Reporting Arrangements

42. **Interim financial reporting (IFR).** For the regional (AAU) and national (NCTE and MESRSI-PIU) implementation entities, quarterly unaudited IFRs will be submitted no later than 45 days after the end of the quarter. The IFRs will be designed to provide relevant and timely information to the project's management on all ACE Impact I project related activities implemented by these entities. The formats and contents of the IFR were agreed on between the World Bank and the regional and national implementing entities during negotiations. These reports should show clearly and at a minimum include:

- (a) A statement of sources and uses of funds, showing the use of funds by components and sub-components as per the PAD (useful in monitoring implementation of the components)
- (b) A statement of sources and uses of funds showing the expenditure by category as per the FA (for allocating expenditure)
- (c) A budget variance report comparing the utilization of approved budget against the expenditure
- (d) A DA reconciliation statement including a cash forecast (for AAU, NCTE, MESRSI-PIU)

43. All ACE Impact I centers (new, renewal and Emerging) will be required to prepare and submit semiannual unaudited IFRs to report on activities funded under the project, that are acceptable to the World Bank, no later than 45 days after the end of semester. The EEPs, will be reported semi-annually for each center, using a revised and improved IFR template (building on the ACE I project IFR template). Further, the EEPs will be audited annually through the external financial audits. The revised IFR template for the centers will include an EEP Statement verified by each center's Internal Audit unit, reflecting a standardized reporting of the EEPs in addition to building on the ACE I project experience.

44. All implementing entities will prepare annual financial statements within three months following the end of the financial year in accordance with consistently applied accounting standards acceptable to IDA. Thereafter, all the implementing entities will be responsible for ensuring their reports are audited and submitted to IDA within six months after the end of the financial year.

External Audit Arrangements

45. **All audits will be carried out in accordance with International Standards on Auditing issued by International Federation of Accountants or International Standards for Supreme Audit Institutions issued by the International Organization for Supreme Audit Institutions.** The ToRs for the external audit of each implementing entity will be agreed with the World Bank. The audit ToRs will ensure all EEPs (and ACE investments) and contributions to the scholarship fund (RSIF) are audited. External auditors will be appointed within six months after project effectiveness. Audit reports together with management letters will be submitted to the World Bank within six months after the end of the respective government's fiscal year. In accordance with World Bank Policy on Access to Information, the Borrower is required to make its audited financial statements publicly available in a manner acceptable to IDA. Following the World Bank's formal receipt of these statements from the borrower, the World Bank also makes them available to the public.



Table A2.2. Summary of Accounting, Banking and External Audit Arrangements

University/National Coordination Unit	ACE	Accounting Standard	Accounting Basis	Auditor	Audit Standard	Banking Arrangements	DA Currency
Burkina Faso							
2iE	ACE: Training and Research in Water Science and Technology, Energy and the Environment in West and Central Africa (CEA-2iE)	OHADA	Accrual	Private	ISA	Commercial	F CFA
Université de Ouaga I	ACE: Training, Research and Expertise in Drug Sciences (CFOREM)	Public accounting standards	Cash	Private	ISA	Commercial	F CFA
UNB	ACE: Bio-technological Innovation for the Elimination of Vector- Borne Diseases (CEA-ITECH-MTV)	Public accounting standards	Cash	Private	ISA	Commercial	F CFA
Djibouti							
UD	Emerging Center: Logistics and Transport (CELT)	IPSAS	Cash	SAI	ISA	Commercial	US\$
Guinea							
Institut des Mines et Géologie de Boké	Emerging Center: Mines and Societies (CEMS)	SYSOCHADA	Accrual	Private	ISA	Central Bank and project account at Commercial Bank	US\$
Université Gamal Abdel Nasser de Conakry	ACE: Prevention and Control of Communicable Diseases (CEA-PCMT)	SYSOCHADA	Accrual	Private	ISA	Central Bank and project account at Commercial Bank	US\$
Ghana							
AAU (Regional)	Association of African Universities	IFRS	Accrual	Private	ISA	Commercial Bank	US\$
NCTE (Regional)	National Council for Tertiary Education	IPSAS	Accrual	SAI	ISA	Bank of Ghana	US\$
KNUST	ACE: Regional Water and Environmental Sanitation (RWESCK)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association (IDA).	US\$
KNUST	ACE: Regional Transport Research Center (TReCK)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$
UG	ACE: Cell Biology of Infectious and Non-Communicable Diseases (WACCBIP-NCDS)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$



University/National Coordination Unit	ACE	Accounting Standard	Accounting Basis	Auditor	Audit Standard	Banking Arrangements	DA Currency
UG	ACE: Crop Improvement (WACCI)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$
University of Energy and Natural Resources	ACE: Energy and Environmental Sustainability (RCEES)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$
University of Development Studies	ACE: Water, Irrigation and Sustainable Agriculture (WACWISA)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$
University of Cape Coast	ACE: Coastal Resilience (ACECoR)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$
UG	ACE: Genetic Medicine (WAGMC)	IPSAS	Accrual	SAI	ISA	US dollar designated account at a bank acceptable to the Association.	US\$
Senegal							
UCAD	ACE: Maternal and Infant Health (SAMEF)	SYSCOHADA	Accrual	Private	ISA	Commercial	F CFA
UGB	ACE: MITIC	SYSCOHADA	Accrual	Private	ISA	Commercial	F CFA
UCAD	ACE: Environment and Health (CEA-AGIR)	SYSCOHADA	Accrual	Private	ISA	Commercial	F CFA
UCAD	ACE: Agriculture for Food and Nutrition Security (CEA-AGRISAN)	SYSCOHADA	Accrual	Private	ISA	Commercial	F CFA

Note: IFRS - International Financial Reporting Standards; IPSAS: International Public Sector Accounting Standards; ISA: International Standards of Auditing



Financial Management Action Plan

46. The FM risk mitigation measures will be developed upon completion of the FM assessments of the centers. Based on the ACE I project experience, the FM-related DLIs (timely reporting, a functioning internal audit unit and audit committee, and publication of budgets, IFRs and audit reports) were effective in building FM capacity and addressing the FM risks and weaknesses identified at new ACE I centers. This operation will incorporate the same capacity-enhancing measures and put in place a robust implementation support to mitigate any potential FM weaknesses that may be identified for new centers. Furthermore, the selection criteria for the ACE Impact centers will include the World Bank's minimum FM requirements such as, having a qualified accountant, an FM manual and systems that can account for and report on project funds; internal controls that will ensure funds are used for the purposes of the project and safeguard project assets; and arrangements are in place to ensure that project funds will be audited.

Table A2.3. Financial Management Action Plan

	Action	Due by	Responsible
Burkina Faso			
1	Prepare or update the FM Manual.	Requirement for first disbursement (part of DLR#1)	UNB, Ouaga I, and 2iE
2	Initiate the opening of DAs and provide bank and signatory details to the World Bank		
3	Recruit an accountant with qualifications and experience satisfactory to the World Bank	Within three (3) months after effectiveness	UNB, Ouaga I, and 2iE
4	Recruit an internal controller, adopt an internal audit charter and internal audit manual as well as an institutional risk mapping to facilitate risk-based auditing.	Within six (6) months following effectiveness	UNB, Ouaga I, and 2iE
5	Put in place a functional audit committee that will follow-up on audit recommendations to ensure they are addressed appropriately by management.	Within three (3) months following effectiveness	UNB, Ouaga I, and 2iE
6	Acquire a computerized accounting information system for the management of the proposed project, with specifications acceptable to the World Bank.	Within three (3) months following effectiveness	UNB, Ouaga I, and 2iE
7	Recruit an external auditor with qualifications and experience satisfactory to the World Bank	Within six (6) months following effectiveness	UNB, Ouaga I, and 2iE
8	Submit the audit report conducted for fiscal year 2018 for each participating Higher Education Institution	Dated covenant: Within six (6) months following effectiveness	UNB, Ouaga I, and 2iE
9	Submit annual financial audit report based upon ToRs with prior no objection from the World Bank	Annually (standard covenant)	UNB, Ouaga I, and 2iE
Djibouti			
1	Prepare or update the FM Manual (detailing the FM and accounting procedures)	Requirement for first disbursement (part of DLR#1)	ITT
2	Initiate the opening of DAs and provide bank and signatory details to the World Bank		
3	Recruit a Project Financial Officer as part of the PIU housed at ITT, satisfactory to the World Bank	Requirement for first disbursement (part of DLR#1)	ITT
4	Establish an internal audit unit and audit committee	Within three (3) months following effectiveness	ITT
5	Acquire a computerized accounting information system for the management of the proposed project,	Within three (3) months following effectiveness	ITT
6	Submit the audit report for fiscal year 2017 for higher education institution	Dated covenant: Within six (6) months following effectiveness	ITT
7	Recruit an external auditor with ToRs acceptable to the World Bank	Within six (6) months following effectiveness	ITT



	Action	Due by	Responsible
Ghana			
1	Initiate the opening of DAs and provide bank and signatory details to the World Bank	Requirement for first disbursement (part of DLR#1)	NCTE, MoF & centers
2	Submit the last audit report conducted for the University	Dated covenant: Within three (3) months following effectiveness	NCTE
Guinea			
1	Elaborate a project implementation plan including FM procedures	Requirement for first disbursement (part of DLR#1)	UGANC and ISMBG
2	Recruit a FMS with qualifications and experience satisfactory to the World Bank		UGANC
3	Recruit an accountant with qualifications and experience satisfactory to the World Bank	Within three (3) months following effectiveness	UGANC
4	Recruit a senior accountant with qualifications and experience satisfactory to the World Bank	Before effectiveness	ISMBG
5	Acquire a computerized accounting information system for the management of the proposed project, with specifications acceptable to the World Bank. Or customize current accounting software accordingly	Within three (3) months following effectiveness	UGANC and ISMBG
6	Recruit an internal auditor with qualifications and experience satisfactory to the World Bank		
7	Recruit an external auditor with ToRs acceptable to the World Bank	Within six (6) months following effectiveness	
Senegal			
1	Update financial and administrative manual for all ACE including the renewed ones.	Requirement for first disbursement (part of DLR#1)	UCAD
2	Recruit a qualified financial and administrative officer with qualification satisfactory to the World Bank;		
3	Develop an implementation plan		UCAD and UGB
4	Prepare and agree with the World Bank on the format of the IFRs.	Within three (3) months following effectiveness	
5	Recruit dedicated accountants for new centers with qualifications and experience satisfactory to the World Bank		
6	Set up an adequate accounting and reporting system		
7	Recruit an internal auditor with qualifications and experience satisfactory to the World Bank		
8	Recruit an external auditor with ToRs acceptable to the World Bank	Within six (6) months following effectiveness	

Financial Management DLIs

47. The DLRs below relate to Component 1 and Sub-component 2.1 and are incentives to strengthen FM. The DLRs are further elaborated in Section VI. They are:

- **DLR#6.1** Timely fiduciary reporting including timely submissions of IFRs and of financial and procurement audit reports for the period for the center;
- **DLR#6.2.** Functioning internal audit unit and functioning audit committee (under the university's council) that would support the center;
- **DLR#6.3** Transparency of ACE expenses



- **DLR#6.4.** Quality of Procurement planning. Share of the originally approved procurement plan that was executed.

Financial Covenants

48. **For all participating countries and entities, financial covenants related to standard FM requirements are covered under Section 5.09 of the IDA General Conditions and specific FM aspects are included in the DFIL.** Further, additional covenants have been added to the FAs to reflect actions outlined in the FM action plan.

Eligible Expenditure Program

49. **The EEPs will consist of salaries, scholarships and operating costs of each university hosting center.** The World Bank Guidance Notes on IPFs with DLIs dated April 2018, World Bank policy and procedures for IPFs, including procurement, FM, safeguards policies and anti-corruption guidelines apply to this project. Consistent with IPF Policy, the World Bank ensures the efficiency of any expenditures it finances. In the case of salaries, the World Bank will ensure by effectiveness that adequate accounting systems and controls are in place for personnel management. For centers in Ghana, payroll management in those entities use computerized systems. Adequate accounting systems and controls are in place and will be further strengthened as part of the project, if needed following the first-year audit. All other centers (except for those in Ghana) will need to provide documentation of controls over personnel management to the World Bank by effectiveness. In addition, all centers, except for those in Burkina Faso, have to provide their budget execution reports, which will include budget lines and EEP amounts.

50. **The allocated amounts for the DLIs will vary from center to center but in all cases will be less than the amount of the EEPs, overall.** The World Bank project team will ensure that the eligible expenditure amount, as ascertained in the EEP Statement that will form part of the IFR submitted for disbursement, exceeds the DLR allocated amount. EEPs will be audited as part of each ACE Impact center's annual financial statement audit.

51. **As part of its reporting, each university will prepare semi-annual Budget Execution Reports and make them available to their respective ACE Impact center fiduciary staff for preparation of the EEP Statement which will be incorporated into the IFRs and used to monitor implementation progress of the EEPs.** The EEP Statements will be audited annually by the external audit firm as part of the Project Financial Statement Audit to confirm that EEPs were incurred under the agreed budget lines and are eligible for World Bank financing. The audited EEPs will be submitted to the World Bank.

FM Implementation Support Plan

52. **For all participating countries and entities, FM implementation support will be provided over the project's lifetime.** The project will be supervised on a risk-based approach. Based on the outcome of the FM risk assessment, the following implementation support plan is proposed. The objective of the implementation support plan is to ensure the project maintains a satisfactory FM performance throughout its life.



Table A2.4. FM implementation support plan

FM Activity	Frequency
Desk reviews	
IFRS' review	Quarterly for AAU, MESRSI-PIU and NCTE Semiannually for all centers
Audit report review of the program	Annually
Review of other relevant information such as interim internal control systems reports	Continuous, as they become available
On-site visits	
Review of overall operation of the FM system (Implementation Support Mission)	Every six months for substantial risk Annually for moderate/low risk
Monitoring of actions taken on issues highlighted in audit reports, auditors' Management Letters, internal audits, and other reports	As needed
Transaction reviews	As needed
Capacity-building support	
FM training sessions	Before project effectiveness and during implementation as needed

B. Procurement

53. **Procurement Assessments Summary: Overall, the procurement risk rating for the project is High.** At the regional level, AAU, in its role as the RFU will be responsible for procurement activities under Sub-component 3.1. NCTE (Ghana) and MESRSI-PIU (Burkina Faso) will be responsible for the procurement activities under Sub-component 3.2. All procurement activities under these two sub-components will follow World Bank procurement guidelines or/and regulation requiring that the procurement plans for such procurement activities be prepared, reviewed and cleared in STEP, as well as any prior review procurement. The ACE Impact I centers will be responsible for the procurement activities under Component 1 and Sub-component 2.1. Under these sub-components, the World Bank funds will be disbursed against a set of DLIs to finance the non-procurable expenditures as defined under the EEPs. The non-EEPs, including procurement of goods and civil works under the project will be procured together with the institutions' other operating requirements and needs, following the institutions' own procurement procedures. These non-EEPs will be financed by the institutions'/governments' own funds- and therefore, the procurement plans for those activities are not prepared in STEP and are not reviewed and cleared by the World Bank.

54. **AAU: The procurement assessment indicates a risk rating of High.** The procurement risk is rated high mainly because, during the assessment of AAU, the following risks were observed: (i) no focal person of adequate experience and knowledge in procurement and World Bank procurement guidelines or/and regulation; (ii) a lack of standard document and procedures for procurement activities; (iii) a lack of clear separation of procurement responsibilities; and (iv) delays in procurement planning and execution. In



order to meet requirements for procurement capacity, immediate mitigation measures to be undertaken by AAU will include: (a) externally recruiting a procurement consultant/staff who is proficient and has much experience in World Bank procurement rules and procedures; (b) using World Bank standard procurement documents for all procurements subject to modifications, if any, approved by the World Bank; (c) preparing a simple Procurement Manual in line with the World Bank's Procurement Regulation to guide procurement implementation; and (d) ensuring that the newly hired procurement specialist attends the World Bank procurement clinics.

55. **NCTE (Ghana): The procurement assessment indicates a risk rating of Substantial.** The NCTE is an organization set up under the laws of Ghana (an Act of Parliament). NCTE undertakes procurement in accordance with the Ghana Public Procurement Act, 2003 (Act 663), as amended by the Public Procurement (Amendment) Act, 2016 (Act 914). As a result, it has the stipulated procurement structures and uses the public procurement standard documents under the law. The entity has implemented IDA-funded projects in the past, including the Teaching and Learning Innovation Fund. Recently, NCTE has been coordinating the Ghana centers in the ACE I project thus, providing it with some knowledge in World Bank-funded projects. The Procurement Unit is headed by a Procurement Officer who holds a Master of Science degree in Supply Chain Management from KNUST (2014); and has been the head of the unit from 2011 to date. He has a brief experience in World Bank procurement as he inherited an almost closed TALIF project. The main identifiable risk is that the head of procurement does not have adequate hands-on experience in World Bank procurement procedures and no experience in applying the World Bank Procurement Regulation (PR), although he has recently been trained in STEP by the World Bank and has used it to prepare and submit the NCTE procurement plan. To mitigate this risk, the World Bank will: (i) offer training in PR for the procurement team after project effectiveness and provide hands-on support throughout the lifetime of the project; and (ii) recommend to the head of procurement periodic World Bank procurement training provided in World Bank procurement training institutions in the sub-region.

56. **MESRSI-PIU (Burkina Faso): The procurement assessment indicates a risk rating of High.** The MESRSI has limited experience implementing World Bank-funded projects. It is currently implementing its first World Bank-funded project, the Higher Education Support Project (P164293), that was approved by the World Bank Board of Directors in July 2018. To mitigate this risk: (i) the AAU Procurement Consultant is required to offer hands-on support to the MESRSI-PIU throughout the lifetime of the project, and (ii) the World Bank will recommend periodic World Bank procurement training to MESRSI procurement staff in World Bank procurement training institutions in the sub-region.

57. **Ghana New ACE Impact I Centers: The procurement assessment indicates a risk rating of Substantial.** The selected centers in Ghana reside in public universities in Ghana. Public universities (and not the centers) have been declared Procurement Entities under Act 663, as amended by Act 914, with its Manuals and Regulations. Therefore, each university has a Procurement Department, headed by a competent and experienced procurement professional proficient mainly in Ghana public procurement rules; executing procurement in accordance with the Ghana procurement law, Act 663, as amended by Act 914. The procurement departments have supporting staff of varying professional backgrounds, but mostly procurement. The Estates Departments of the universities handle the infrastructure procurement and contract management, with the support of the Procurement Department. Each has a Tender committee (category C in the law), and each entity prepares and submits to its Tender Committee, no later than one month to the end of the financial year, the procurement plan for the following year for



approval. The centers will then have to implement all their procurements through their respective university's Procurement Department/Unit.

58. The main risks identified for the above centers in Ghana are: (i) lack of experience in World Bank procurement and no experience in applying World Bank Procurement Regulation (PR), and STEP, should the center want to execute World Bank-Funded Procurement; and (ii) lack of staff that are solely dedicated to the center's project procurement activities; To mitigate the risk: (i) the universities must delegate a dedicated procurement staff from the Department or hire one to handle procurement activities for the centers; (ii) the World Bank will offer training for all procurement offices at the universities, including the head of Procurement, on PR and STEP after project effectiveness, where needed; (iii) the AAU Procurement Consultant is required to offer hands-on support to the centers throughout the lifetime of the project, and recommend to the head of procurement periodic World Bank procurement training in World Bank procurement training institutions in the sub-region; and (iv) the universities must allow the Centers to operate a procurement workflow that facilitates direct deliveries by international vendors solely for imported perishable reagents. Such additional guidelines must be consistent with the general principles of procurement and should be approved by the World Bank procurement specialist in the country. To ensure compliance by the centers and to monitor their procurement activities, the National Steering Committee will review the procurement audits of the centers within their respective countries at least once a year.

59. **Burkina Faso New ACE Impact I Centers - The procurement assessment indicates a risk rating of Substantial.** All the selected centers reside in government universities. These universities, therefore, abide by the procurement laws of Burkina Faso and as such have the various statutory procurement structures with the requisite personnel for matters such as procurement execution, management, and approvals review. However, each university should delegate a procurement personnel to support the centers in their procurement activities. The centers, their respective host universities and officers of the Procurement Units do not have experience and adequate knowledge of World Bank PR. The risk mitigating measures, are similar to those stated above for the Ghana centers.

60. Overall procurement risk rating for the Implementing Agencies in the various countries is High. The applicable thresholds are shown below in Tables A2.5a and A2.5b.

Table A2.5a. Applicable procurement thresholds for Ghana

RISK RATING	Prior Review Threshold in (US\$ '000)					Procurement Methods Thresholds (in US\$'000)							
			Consultants		Single Source & Direct Contract	Works			Goods, IT and non-consulting services			Shortlist of National Consultants	
	Works	Goods, IT Systems+ Non Con. Serv	Firms	Individuals		Open International or ICB	Open National or NCB	Request for Quotation/ National Shopping	Open International or ICB	Open National or NCB	Request for Quotation/ National Shopping	Consulting services	Engineering & construction supervision
HIGH	≥\$5,000	≥\$1,500	≥\$500	≥\$200	≥\$50	≥15000	<15000	≤200	≥3000	<3000	≤100	<300	≤500



Table A2.5b. Applicable procurement thresholds for Burkina Faso

Prior Review Threshold in (US\$ '000)					Procurement Methods Thresholds (in US\$'000)							
		Consultants		Single Source & Direct Contract	Works			Goods, IT and non-consulting services			Shortlist of National Consultants	
Works	Goods, IT Systems+ Non Con. Serv	Firms	Individuals		Open International or ICB	Open National or NCB	Request for Quotation/ National Shopping	Open International or ICB	Open National or NCB	Request for Quotation/ National Shopping	Consulting services	Engineering & construction supervision
≥\$5,000	≥\$1,500	≥\$500	≥\$200	≥\$50	≥5000	<5000	≤200	≥1000	<1000	≤100	<200	≤400

61. **Frequency of Procurement Supervision:** In addition to the prior review supervision which will be carried out by the World Bank per each country's World Bank Procurement Specialist, semi-annual supervision missions are recommended. Annual World Bank Procurement Post Review will be conducted in the respective countries by the World Banks' Procurement Specialists. The sample size will be based on the procurement risk rating for the Implementing agencies in each country. The prior review procurements will be reviewed and cleared in STEP by the respective World Banks' Procurement Specialists for the Implementing Agencies residing in the respect countries. The AAU Procurement Consultant will support, advise and supervise the ACE Centers.

62. **Summary of the regional Project Procurement Strategy for Development (PPSD) was developed to cover the activities under Component 3 of the project.** The countries' context in terms of bureaucracy, economic condition, currency stability, financial constraints, technology, and inadequate national market for high value and complex procurements, identified minor safeguards issues, coupled with the countries' economic, procurement, and safeguards policies will impact the approach and response to the market and the execution of contracts. The capacities of the AAU, NCTE and MESRSI and identified procurement risks will impact the procurement implementation. Thus, timely and adequate execution of the mitigations will help improve procurement implementation under the project. The studies and analysis show that there are opportunities for both national and international firms under the project in each of the countries.

63. **Procurement will be carried out in accordance with: (i) the World Bank PR for IPF Borrowers Procurement dated July 2016, revised in November 2017 and August 2018; (ii) the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, revised in January 2011 and July 2016; and (iii) the provisions stipulated in the FA.** Any Works bidding documents will be based on the Standard Procurement Document, recently enhanced to reflect positions on the Environment, Social Health and Safety. The STEP will be the platform for preparing, submitting, reviewing and clearing procurement plans and prior review procurement activities. The POM will elaborate on the procurement procedures, Standard Procurement Documents (SPDs) and model contracts associated with the market approaches and selection methods, for various procurement categories. The summary of procurement activities under Component 3 are as shown below in Table A2.6. The details of the procurement plans are in STEP.



Table A2.6. Summary of Procurement Activities under Component 3

Contract Title, Description and Category	Estimated amount (US\$) & Risk rating	World Bank oversight	Procurement Approach / Competition	Selection	Evaluation
DLI verification consultancy	600,000	Prior Review	Open International	QCBS- RFP	MAP – rated criteria
Policy studies and other specialized consultancies, including evaluations and audits	2,500,000	Prior Review	Open International	QCBS - RFP	MAP – rated criteria
Individual long-term consultants/staff for fiduciary and safeguard oversight and support	2,000,000	Prior & Post Review	Open - National	ICS	MAP
Goods – mostly office equipment	300,000	Post	National	RFQ	MAB
Individual consultants (experts for academic supervision)	4,000,000	Prior & Post Review	Open - international	ICS	MAP

Note: QCBS-RFP: Quality Cost Based Selection with Request for Proposals; ICS: Individual Consultants Selection; RFQ: Request for Quotation ; MAB: Most Advantageous Bid; MAP: Most Advantageous Proposal



ANNEX 3: Disbursement-Linked Indicators

A. Matrix Comparing DLIs for ACE I, ACE II and ACE Impact

DLIs	ACE I	ACE II	ACE Impact
1. Institutional readiness results	<ul style="list-style-type: none"> Completion of effectiveness condition in each legal agreement PSC members endorse resolution for regional specialization 	<ul style="list-style-type: none"> Completion of effectiveness condition in each legal agreement Development of implementation plan 	<p>Basic readiness:</p> <ul style="list-style-type: none"> The FA is effective; The RFU has approved of the ACE Impact Center's Project Implementation Plan and the Procurement and Financial Management Manuals. Official designation of the core team members (ACE Impact Center leader, Deputy ACE Impact Center leader, FM responsible, procurement responsible, M&E responsible and sectoral liaison). The ACE Impact Center has designated a non-staff student representative to the RFU, <p>Full readiness:</p> <ul style="list-style-type: none"> Project Management certification for at least one leading team member; Functional center website; Student handbook on the website with policies for sexual harassment and scholarships; and Sectoral Advisory Board constituted and its endorsement of the Project Implementation Plan;
2. Development Impact of ACE Center	NA	NA	<ul style="list-style-type: none"> Independent, external evaluation of the development impact of the ACE Impact Center.
3. Quantity of students with focus on gender and regionalization	<ul style="list-style-type: none"> Number of PhD, master's and short-term students enrolled 	<ul style="list-style-type: none"> Number of PhD, master's and short-term students enrolled 	<ul style="list-style-type: none"> Number of new PhD, master's and short-term students enrolled Number of new undergraduate students enrolled (particularly for the Emerging centers and colleges of engineering)



4. Quality of Education and research through international accreditation, research publications and improved teaching and research infrastructure	<ul style="list-style-type: none"> • Accreditation (international, regional, national) of education programs; gap assessment, self-evaluation • ACE related research publications in internationally recognized peer reviewed journals • Meeting milestones for civil works and major equipment purchase 	<ul style="list-style-type: none"> • Accreditation (international, regional, national) of education programs; self-evaluation • ACE related research publications in internationally recognized peer reviewed journals 	<ul style="list-style-type: none"> • Accreditation (international, regional, national) of education programs; gap assessment, self-evaluation • ACE relevant research publications in internationally recognized peer reviewed journals • Completion of milestones for improved learning and research infrastructure specified in the approved Project Implementation Plan of each ACE Impact Center
5. Relevance of Education and Research through externally generated revenue, internships, and entrepreneurship	<ul style="list-style-type: none"> • Externally generated revenue • Number of outreach periods, at least 1-month (internships) for faculty, master's and PhD students 	<ul style="list-style-type: none"> • Externally generated revenue • Number of faculty and PhD exchanges for at least 2 weeks to other institutions or host faculty and PhD students from other institutions • Number of partnerships for collaboration in applied research and training 	<ul style="list-style-type: none"> • Externally generated revenue • Number of students and faculty with at least 1-month period internships in relevant industry/ institutions • Meeting the milestone for developing entrepreneurship, innovation, start-up companies, and commercialization support programs
6. Timeliness and quality of fiduciary enhancement	<ul style="list-style-type: none"> • Timely withdrawal application for the period • Functioning audit committee • Functioning internal audit unit • Web Transparency on FM 	<ul style="list-style-type: none"> • Timely withdrawal application for the period • Functioning audit committee • Functioning internal audit unit • Web Transparency on FM • Timely procurement audit • Timely and satisfactory procurement progress 	<ul style="list-style-type: none"> • Timely fiduciary reporting • Functional institutional oversight of fiduciary management. Functioning internal audit unit and functioning audit committee (under the university's council); • Transparency of ACE expenses, notably the approved budget, annual work plan, IFRs with an annex on detailed expenditures, project financial and procurement audit reports are visibly accessible on the ACE Impact Center's



	<ul style="list-style-type: none">• Timely procurement audit• Timely and satisfactory procurement progress		<ul style="list-style-type: none">• websites.• Quality of Procurement planning. Share of the originally approved procurement plan that was executed.
7. Institutional Impact (to be accomplished by ACE host institution)	NA	<ul style="list-style-type: none">• Benchmarking initiative participation	<ul style="list-style-type: none">• University- wide regional strategy• Open, merit-based competitive selection of the head of the university and/or the department heads related to the ACE• Institution wide international accreditation, gap assessments and self-evaluations• PASET Regional Benchmarking participation• Meeting milestones for promoting institutional impact



ANNEX 4: Strategy and Approach for Implementation Support

A. Implementation Support Plan

1. **The strategy for implementation support has been developed based on the nature of the project and its risk profile.** The strategy aims to make implementation support to the client flexible and efficient. It focuses mainly on implementation of the risk mitigation measures. The World Bank's approach to implementation support strongly emphasizes open and regular communication with all actors directly involved in the project (such as the selected centers, the NSC, the PSC, RFU and co-funders), constant information exchange, and adequate flexibility to accommodate the specificities of each of the participating countries. During project preparation, the team aimed to develop communication channels, informal links, and to build trust with all stakeholders.

2. The strategy is based on several mechanisms that will enable enhanced implementation support to the governments and timely and effective monitoring. Implementation support will comprise: joint review missions; regular technical meetings and field visits by the World Bank between the formal joint review missions; and internal audit and FM reporting.

- (a) **Weekly collaboration with the AAU team** to strengthen common project implementation support and supervision tools, notably support and generic templates that the universities can use for implementation, monitoring and oversight. This should always be undertaken in collaboration with the ACEs and PSC involvement in important matters. This should in particular support development of ToRs, template/methods for implementation support, include ToRs and coordination with partners for capacity building, and supervision tools, including third-party monitoring for the verification of DLIs, institutional audit committee, procurement reports, etc.
- (b) **Joint Review Missions** where all main stakeholders, including the all ACE Impact I centers and PSC members meet to review and discuss progress, based on M&E reports, AAU aggregated reports, and other supervision material. This is a key opportunity for peer learning and comparison of progress and identification of common challenges. This is expected to take place twice a year. These missions will include visit to selected ACEs.
- (c) **AAU reporting and capacity building.** Reporting on the centers based on the performance agreements; and internal audit and FM reports.
- (d) **Use of external academic and business advisors and evaluators.** To the extent possible and funds permitting, the AAU and the World Bank will seek to work with international partners as has been the case in ACE I.
- (e) **Country and ACE specific interventions by the team, most often by the country-office based World Bank staff.** This will be necessary when requests from the RFU are not met, procedures in the project-level operational are not followed, or to facilitate important coordination between partners. This could be the case for addressing fiduciary issues, for example. Such country interventions will be coordinated with the governmental agency responsible for the project or with the NSC.



- (f) **A MTR for the proposed project is scheduled for June 2021.** The objective of the MTR will be to review the progress of the project implementation and results. The MTR will also undertake a comprehensive review of the DLI framework for all the ACEs and adjust if needed the DLIs and implementation arrangements for the project.

B. Detailed lessons from ACE I on Implementation Support

3. **The ACE I project is the first results-based regional project and the first World Bank-funded project utilizing RBF for universities.** Despite the steep learning curve, ACE I is currently the top disbursing project within the regional integration portfolio, with a 74 percent disbursement rate (as of February 2019) and in four years has delivered key results (see Box 1-in main text- on ACE I project achievements). A key factor of this success has been the effective technical and operational implementation support provided by the governments, regional facilitation unit (AAU) and the well-structured World Bank regional and country teams. The current ACE I project implementation arrangements can be scaled- up to continue the effective implementation support and supervision currently in-place for the ACE I centers.

4. **Key elements of the ACE I project implementation working arrangements includes the following:**

- (a) **Once selected, each ACE I center was responsible for implementation of its own proposal.** The regional competitive approach allowed for committed and dynamic teams to be selected which generated interest on the part of universities to successfully deliver their proposals. Project implementation has shown that in instances where implementation challenges were encountered, the common denominators across the centers were weak governance and project management arrangements. Thus, a key part of good implementation is ensuring the right team are selected and supported.
- (b) **The AAU through an RFU grant has provided extensive technical and implementation support.** This support has led to problem solving for the centers. The AAU has established a technical implementation support and supervision structure that paired each center with at least two academic and technical leaders in their field of specialization. These academic and scientific supervisors provide:
- in-depth technical review on overall center management to ensure the centers are moving in the right direction;
 - guidance and linkages to relevant industry and sector partners;
 - guidance on international accreditation agencies and possible fund-raising opportunities; and
 - up-front identification of project management and governance challenges at the centers.
- (c) **Peer-learning and regional implementation support.** Since 2014, the ACE I project has convened two large regional peer-learning and implementation support workshops in which all the 22 ACE I center teams, including the center leader, deputy center leader as well as FM, procurement and M&E officers participate. These regional workshops fulfill two main functions:
- *Project operations learning by the ACE I centers.* The regional workshops provide an important and much-needed platform for operational clarifications and improvements to



project operations. This includes the DLI verification, fiduciary, safeguards compliance and disbursement processes, where the ACEs are provided guidance and an opportunity to provide feedback. Obtaining feedback from the centers on verified results prior to disbursement has been important in building trust in and the strengthening the verification process.

- *Peer-learning for the ACE I centers.* The regional workshops have also provided opportunities to share best practices on key objectives of the project, including: attracting regional students, meeting international accreditation standards, generating external revenue, sustainability, and university-industry partnerships. In 2017 a joint regional meeting between ACE I and ACE II centers was held in Ghana.
- (d) **Strong national implementation support leads to accelerated implementation by the ACE centers.** The role of the national steering committee has been fundamental in addressing governance and project management challenges at the ACE centers. In situations where governments have been responsive, for instance in Nigeria, there has been a positive turnaround in performance on the part of some centers and the proactive reallocation of funds towards ensuring the achievement of project objectives.
- (e) **Good implementation of the RBF model.** Despite initial delays, the AAU through dedicated support from the World Bank team has been effective in delivering timely verification of ACE I project DLIs. In particular, the timely sharing of results and consistent calibration and improvements to DLI definitions has been a key factor in the successful implementation of the RBF model.
- (f) **Regular surveys of the performance of ACE I project stakeholders, including, the governments, the centers, AAU and the World Bank.** Two annual performance surveys are administered by the AAU to obtain feedback on implementation support provided to the project to inform further improvements. A student survey is also administered annually to ACE I students to obtain feedback on each ACE I center's performance in relation to its student body.



ANNEX 5: Implementation Support Plan and Resource Requirements

A. Technical Inputs

1. The World Bank will provide strong implementation support to the centers, the RFU and to the relevant national agencies (NCTE and the MESRSI-PIU) regarding technical, fiduciary, social, environmental and safeguards issues. Formal implementation support and field visits will be carried out as required

2. **Fiduciary requirements and inputs.** The World Bank's FM and procurement specialists will provide training before project effectiveness, and during project implementation. The training will allow teams from the ACE centers and the RFU to build capacity in matters of FM and procurement, particularly as it relates to World Bank procedures. As part of the project implementation support plan, supervision of FM arrangements will be carried out, and support provided on a timely basis as per project needs. Procurement implementation support will be provided on a timely basis as required by the participating institutions and entities.

3. **Safeguards.** The World Bank's social safeguards specialist will ensure that training is provided to relevant counterpart staff and undertake field visits as required. On the environmental side, support will focus on ensuring the project's compliance with the ESIA or ESMPs developed as applicable to the ACE centers, with respect to activities to be executed under Component 1 and Sub-component 2.1, ensuring that they comply with the World Bank's safeguards policy on Environmental Assessment (OP/BP 4.01).

4. **Country Relations.** The Task Team Leaders (TTLs) will coordinate with the Country Co-TTLs, GP focal points, the World Bank fiduciary and safeguards team at large and the RFU to ensure project implementation is carried out in accordance with the World Bank's requirements as specified in the legal agreements. Moreover, the TTLs and the Country Co-TTLs will meet with the governments, the NSC and senior staff of selected ACE centers on a regular basis to keep them informed of the project's progress and issues that require resolution at their level. Constant channels for information exchange will be maintained with all major actors, taking advantage of the trust and communication capacity built during the project preparation phase.

B. Monitoring and Evaluation

5. Systematic, continuous tracking of performance by collecting and analyzing data on agreed measures and indicators will be supported in order to: (i) measure progress towards the achievement of the PDO; and (ii) ensure project activities are implemented as planned and using the appropriate procedures. Importantly, disbursement to the centers will be linked to the achievement of DLRs. The RFU will oversee the overall M&E of the project, as well as ensure that a robust M&E database system is institutionalized, and that all data are publicly available online. M&E will be carried out at both the center and regional levels of the project implementation. Each center will undertake M&E functions through its own existing administrative arrangements. The ACE Impact I project will support strengthening of M&E capacity at both the center and RFU levels through TA.



6. The M&E framework will be continuously strengthened through the integration of timely performance data, allowing for the identification of strengths and weaknesses useful for decision-making. Implementation of the ACE I and II projects demonstrate that the RBF model and its related verification processes are often difficult for centers to understand leading to poor data quality and delays in implementation. ACE Impact centers will, therefore, be incentivized through the first DLI to hire an M&E officer ahead of the start of project implementation to enable full participation in the capacity-building workshops that will be organized immediately following project approval. The verification process utilizes multiple verification agencies and experts and requires a constant feedback loop from the centers. The capacity of the administrative staff and the M&E officers at the RFU will be further enhanced for efficient management of multiple contracts and processes and timely responses to M&E related requests from the centers.

7. The project will build capacity in the RFU to: (i) prioritize the importance of the quality of data submitted by the centers as it is integral to the verification; (ii) regularly communicate with the centers the process for verification early on in the implementation process, with clear expectations for each DLR's timeline; (iii) undertake regular communication and coordination with verifiers with regard to the student verification process; and (iv) communicate early the processes for, and enhance the implementation support for the verification of civil works and large equipment purchases.

8. The main focus of implementation support is summarized below.

Table A5.1. Focus of Implementation Support

Time	Focus	Resource Estimate (Staff Weeks- SWs)		Partner Role
First twelve months	Technical Review/Support	TTLs	12 SWs	NA
		Country Co-TTLs:	5 SWs	
		M&E Specialist	2 SWs	
	FM training and supervision	FM specialist	8 SWs	
	Environment and Social monitoring & Reporting	Environment Specialist	2 SWs	
		Social Development Specialist	2 SWs	
	Higher Education Topics and Gender	Higher Education/Gender Specialist 2 SWs		
	Institutional arrangement and project supervision coordination and Team Leadership	TTLs	15 SWs	
12-48 months	Technical Review/Support	TTLs	4 SWs	
		Country Co-TTLs	3 SWs	
		M&E Specialist	3 SWs	
	Environment and Social monitoring & Reporting	Environment Specialist	1 SWs	
		Social Development Specialist	1 SWs	
	FM disbursement and reporting	FM Specialist	4 SWs	
	Procurement management	Procurement Specialist	2 SWs	
	Institutional arrangement and project supervision coordination and Team Leadership	TTLs	12 SWs	

**Table A5.2: *The annual staff skill mix required***

Skills Needed	Number of Staff Weeks (SWs)	Number of Trips	Comments
Operations	8 SWs annually	Fields trips as required.	Headquarters and Country office based
Higher Education	8 SWs annually	Two	Externally based
M&E	4 SW annually	Fields trips as required.	Country office based
Procurement	3 SWs annually	Fields trips as required.	Country office based
Social Safeguards	1 SWs annually	Fields trips as required.	Country office based
Environment	1 SW annually	Fields trips as required.	Country office based
Infrastructure	2 SW annually	Field trips as required	Headquarters/Regionally based
FM	6 SWs annually	Fields trips as required.	Country office based
Task Team Leaders	15 SWs first year, then 12 SWs annually in the following years	Field trips as required	Headquarters Based



ANNEX 6: Thematic Areas Selected for ACE Impact I & II

Project	STEM	Agriculture	Health	Environment (part of STEM)	Applied Social Sciences/Education
ACE Impact I and ACE Impact II (under prepara- tion)]	ACE: Mathematical Sciences, Computer Science and Applications	ACE: Climate Change, Biodiversity and Sustainable Agriculture	ACE: Cell Biology of Infectious and Non-Communicable Diseases	ACE: Regional Water and Environmental Sanitation	ACE: Statistics and Quantitative Economics
	ACE: Mines and Mining Environment	ACE: Dryland Agriculture	ACE: Genomics of Infectious Diseases	ACE: Innovation and Transformations in STEM Education	ACE: Innovation and Transformations in STEM Education
	ACE: ICT-Driven Knowledge Park	ACE: Food Technology and Research	ACE: Neglected Tropical Diseases and Forensic Biotechnology	ACE: Training and Research in Water Science and Technology, Energy and the Environment in West and Central Africa	ACE: Sustainable Cities in Africa
	ACE: Oilfield Chemicals Research	ACE: Poultry Sciences	ACE: Reproductive Health Innovation		Emerging Center: Innovative Teaching/Learning of Mathematics and the Sciences for SSA
	ACE: Mathematics, Computer Science and ICT	ACE: Pastoral Productions: Meat, Milk, Leather and Skins	ACE: Maternal and Infant Health	ACE: Water and Sanitation	
	ACE: Regional Transport Research	ACE: Agriculture for Food and Nutrition Security	ACE: Training, Research and Expertise in Drug Sciences		
	ACE: Water, Irrigation and Sustainable Agriculture	ACE: Crop Improvement	ACE: Bio-technological Innovation for the Elimination of Vector- Borne Diseases	ACE: Valorization of Waste Products with High Value Added	
	ACE: Technology Enhanced Learning		ACE: Postgraduate Medical Education		
	ACE: Applied Informatics and Communication		ACE: Genetic Medicine	ACE: Energy and Environmental Sustainability	
	ACE: New Pedagogy in Engineering Education		ACE: Prevention and Control of Communicable Diseases		
	ACE: Sustainable Power and Energy Development		ACE: Public Health and Toxicological Research	ACE: Coastal Resilience	
	ACE: Future Energies and Electrochemical Systems		ACE: Population Health and Policy		
	ACE: Control of Electricity		ACE: Mycotoxin and Food Safety	ACE : Environment and Health	



Project	STEM	Agriculture	Health	Environment (part of STEM)	Applied Social Sciences/Education
ACE Impact (I and II) [pending World Bank approval]	Emerging Center: Logistics and Transport		ACE: Drug Research, Herbal Medicine Development and Regulatory Science		
	Emerging Center: Mines and Societies				
	Emerging Center: Mining Environment				
	Emerging Center: Science, Technology and Engineering for Entrepreneurship				
ACE I	CEA-SMA: Center d'Excellence Africain en Sciences Mathématiques et Applications	WACCI-ACE: African Center of Excellence for Training Plant Breeders, Seed Scientists and Technologists	WACCBIP: West African Center for Cell Biology of Infectious Pathogens	CEA-2iE: Center d'Excellence pour la formation et la recherche en Sciences et Technologies de l'Eau, l'Energie et l'Environnement	
	CETIC: Center d'Excellence Africain en Technologies de l'Information et de la Communication	CEADESE: Center of Excellence in Agricultural Development and Sustainable Environment	ACEGID: African Center of Excellence for Genomics of Infectious Diseases	(CEA-CCBAD): Center d'Excellence Africain sur le Changement Climatique, la Biodiversité et l'Agriculture Durable	
	CEA MEM: Center d'Excellence Africain Mines et Environnement Minier	CDA: Center for Dryland Agriculture	ACEPRD: African Center of Excellence in Phytomedicine R&D	RWESCK: Regional Water and Environmental Sanitation Center Kumasi	
	ENSEA: Ecole Nationale Supérieure De Statistique Et D'économie Appliquée	CEFTER: Center for Food Technology and Research	CERHI: Center of Excellence in Reproductive Health Innovation		
	CEFOR: Center of Excellence in Oil Fields Chemical Research	CERSA: Center d'Excellence Régional sur les Sciences Aviaires	ACENTDFB: African Center of Excellence for Neglected Tropical Diseases and Forensic Biotechnology		



Project	STEM	Agriculture	Health	Environment (part of STEM)	Applied Social Sciences/Education
ACE I	OAK-Park: OAU ICT –Driven Knowledge Park		CEA-SAMEF: Center d'Excellence Africain pour la Santé de la Mère et de l'Enfant		
	PAMI: Pan African Materials Institute				
	MITIC:				
ACE II	ACEIOT: African Center of Excellence in Internet of Things	ACALISE: African Center of Excellence in Agroecology and Livelihood Systems	ACEEZD: African Center of Excellence for Emerging and Zoonotic Diseases	ACE-ESD: Africa Center of Excellence in Energy for Sustainable Development	
	The Copperbelt Africa Center of Excellence in Sustainable Mining	CLIMATE SABC: Africa Center of Excellence for Climate Smart Agriculture and Biodiversity Conservation	ACEPHM: Africa Center of Excellence in Public Health and Herbal Medicine	WISE-FUTURES: Water Infrastructure and Sustainable Energy Futures	
	MAPRONANO: Africa Center of Excellence in Materials Product Development and Nanotechnology	INSEFOODS: The Africa Center of Excellence in Sustainable Use of Insects as Food and Feeds	CDT-Africa: Center for Innovative Drug Development and Therapeutic Trials for Africa	ACEWM: African Center of Excellence for Water Management	
	PTRE: Africa Center of Excellence in Phytochemicals, Textile and Renewable Energy	RAT-TECH: Africa Center of Excellence for Innovative Rodent Pest Management and Biosensor Technology Development	SACIDS: Southern African Center for Infectious Disease Surveillance		
	ACEITLMS: African Center of Excellence for Innovative Teaching and Learning Mathematics and Science	MARCCI: Makerere University Regional Center for Crop Improvement	PHARMBIOTRAC: Africa Center of Excellence for Pharm-Biotechnology and Traditional Medicine Center		
	ACE-DS: African Center of Excellence in Data Science	AquaFish: Africa Center of Excellence in Aquaculture and Fisheries Science			



Project	STEM	Agriculture	Health	Environment (part of STEM)	Applied Social Sciences/Education
	ARERI: African Railway Education and Research Institute	CREATES: Africa Center of Excellence for Research, Evidence Agricultural Advancement, Teaching Excellence and Sustainability			
	CS-OGET: Center for Studies in Oil and Gas Engineering and Technology	CESAAM: Africa Center of Excellence in Sustainable and Agribusiness Management			



ANNEX 7: Economic and Financial Analysis

1. **The economic and financial analysis provides the rationale for investing in higher education in SSA countries and estimates the economic IRRs for education.** This section includes the following segments: (i) an analysis of the education sector and key issues in the higher education sector, and the identification of linkages between educational outcomes and the labor market; (ii) an overview of the project development impact in terms of expected benefits and costs; and (iii) a cost-benefit analysis of the proposed project, including a financial and fiscal sustainability analysis.

Return to Education in Sub-Saharan Africa

2. **Higher education yields significant benefits for African youth and society as a whole, including: better employment opportunities and job prospects, improved quality of life, and greater economic growth.** The contribution of higher education to economic growth is reported to occur via interacting functions including: (i) knowledge production; (ii) knowledge diffusion; and (iii) knowledge transmission. These different functions have a number of goals, to: (i) promote income growth; (ii) promote the creation of new technologies; (iii) to inform leaders; (iv) expand the range of choices; and (v) provide increasingly relevant skills. Studies show that:¹⁶

- A one percent increase in the stock of higher education (the number of people having completed higher education) leads to a 0.35 percent increase in industrial production, and that a one percent increase in the number of engineering or natural sciences graduates leads to a 0.15 percent increase in agricultural production.
- A one-year increase in average higher education levels would raise annual GDP growth in Africa by 0.39 percentage points, and eventually yield up to a 12 percent increase in GDP.

Table A7.1. Enrollment rates in higher education across the world regions (2006, 2016)

Region	2006	2016
Europe and North America	69.4	75.4
Central and Eastern Europe	61.1	77.7
Latin America and the Caribbean	33.1	48.4
Western Asia and Northern Africa	25.9	42.6
East Asia and the Pacific	23.9	43.9
Arab States	22.7	32.0
South and West Asia	11.1	25.0
Sub-Saharan Africa	6.0	8.5

Source: UNESCO UIS, <http://stats.uis.unesco.org> retrieved on March 4, 2018.

3. **At 8.5 percent in 2016, enrollment rates in higher education in Africa are the lowest across the world's regions (see Table A7.1).** While African countries have been successful in increasing access and

¹⁶ D. Bloom, D. Canning, and K. Chan (2006): "Higher Education and Economic Development in Africa" Internet: <http://ent.arp.harvard.edu/AfricaHigherEducation/Reports/BloomAndCanning.pdf> (Last accessed: March 9, 2018).

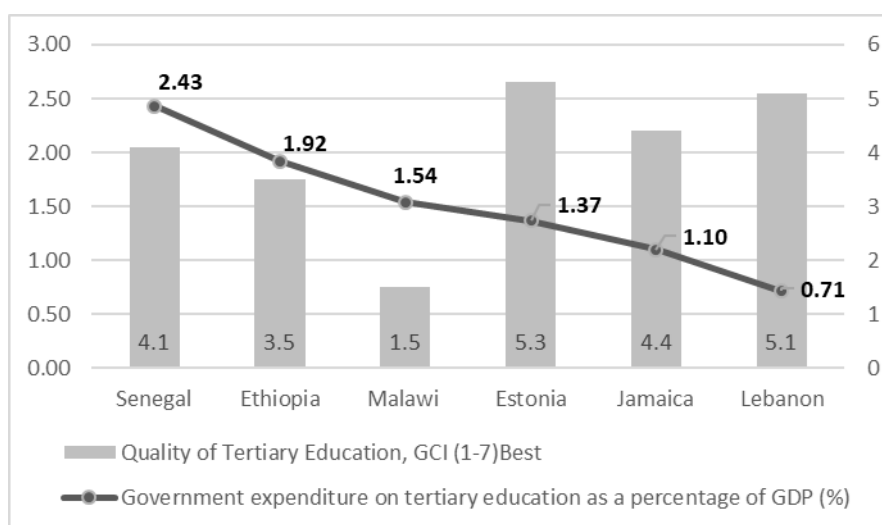


enrollment to primary education in recent years, much more is needed to improve enrollment rates at higher levels of education. Despite all of the efforts to increase access to higher education, enrollment rates in SSA countries did not experience significant growth within the last decade. Enrollment rates in higher education in the region increased by 2.5 percent between 2006 to 2016, while enrollment rates in other regions such as South and West Asia more than doubled (from 11 percent in 2006 to 25 percent in 2016).

4. SSA countries are investing in higher education, but without achieving sufficient returns.

Despite significant investments in higher education, the quality of the education delivered in SSA countries tends to be lower than countries in other regions. Figure A7.1, for instance, shows that countries such as Ethiopia, Malawi and Senegal where government expenditure on tertiary education as a percentage of GDP ranges between 1.5 to 2.4 percent, have scores between 1.5 and 4 for the aspect “quality of tertiary education” of the Global Competitiveness Index¹⁷; while other countries like Jamaica, Lebanon and Estonia have scores higher than 4.4 with lower investment ranging between 0.7 to 1.4 percent. All the countries in SSA face resource constraints making it difficult to afford the interventions needed to develop a strong higher education system to compete internationally. Consequently, regional specialization within higher education with a focus on specific regional skills shortages will support growth and competitiveness in SSA. Coordinated regional investments, with country specific specialization, allow the region to develop a broad-based S&T ecosystem covering critical areas where S&T capacity is needed, even in a context of limited faculty and resources. A well-networked and integrated S&T ecosystem can develop advantages associated with economies of scale, with declining unit costs for graduates and knowledge creation. In turn, the improved supply of trained workers in these areas would reduce dependence on expensive expatriate workers and strengthen the continent's development.

Figure A7.1. Government expenditure on Tertiary Education vs. Quality of Tertiary Education



Source: UNESCO UIS, <http://stats.uis.unesco.org> retrieved on March 13, 2018, WEFORUM GCI, <http://reports.weforum.org/global-competitiveness-index-2017-2018> retrieved on March 13, 2018

¹⁷ The 5th pillar of the Global Competitiveness Index from WE FORUM (2017) assess the quality of higher education of 137 countries. Scores range from 1 to 7 which is the highest.



5. **By promoting and incentivizing access to higher levels of education for women, the proposed project will help break a vicious cycle of poverty.** Returns to higher education across the region are, on average, higher for women than for men. The rate of return for an additional year of schooling in higher education is 15.2 percent for men and 16.8 percent for women. Strategies focusing on improving access to high level education for girls are likely to have more impact on growth and human development. Studies show that the level of education of a mother has a strong positive impact on her child's performance. Moreover, the SSA region has low numbers of female students enrolled in higher education programs. The enrollment of female students in priority sectors relevant for addressing development challenges of the region is even lower. The latest available data for Mali (Table A7.2), for example, show that of female students enrolled in higher education only 16 percent majored in ICT, 9 percent in Engineering, 14 percent in Agriculture and 38 percent in Health. Cote d'Ivoire has higher numbers than Mali in all four fields. Benin and Ghana have higher numbers in Engineering, Agriculture and Health but similar numbers for ICT. Other emerging economies such as Malaysia have demonstrated much higher female enrollment in all four fields, as has Brazil in ICT and Agriculture.

Table A7.2. Percentage of Female student enrollment in higher education by field of study (%), 2015

Field of Study	Mali	Benin	Côte d'Ivoire	Ghana	Brazil	Malaysia
Education	38	26	41	45	20	72
Arts and Humanities	22	25	35	42	76	58
Social Science	26	26	34	38	92	59
Business, Administration and Law	35	40	53	42	9	63
Natural Science & Mathematics	15	17	18	27	37	53
Information Communication Technologies	16	16	24	14	63	45
Engineering, Manufacturing and Construction	9	14	19	13	12	35
Agriculture	14	23	25	23	88	46
Health and Welfare	38	42	43	58	31	70
Services	11	25	44	88	26	52
Unspecified fields	29	32	40	55	99	44
Total Female Enrolled in TE (number)	24 246	37,215	75,933	167,141	4,727,593	718,227

Source: UNESCO UIS, <http://stats.uis.unesco.org> retrieved on March 7, 2018.

Proposed ACE Impact I Project

6. **The empirical results on the returns to higher education from the ACE I project indicate that obtaining a higher education degree is associated with higher earnings¹⁸ (returns are 2.4 percent for**

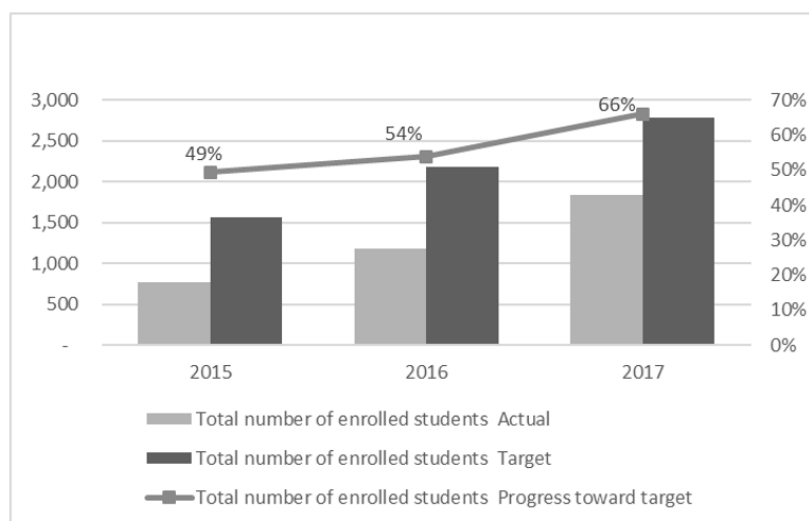
¹⁸ World Bank - Africa Higher Education Centers of Excellence (2014): "Project Appraisal Document", Internet: <https://hubs.worldbank.org/docs/ImageBank/Pages/DocProfile.aspx?nodeid=19316701>, p.97



Burkina Faso, 30 percent for Cameroon, 30 percent for Ghana, and 15 percent for Nigeria). The cost-benefit analysis of the main project component- Component 1 is associated with an IRR of 3 percent in Burkina-Faso, 30 percent in Cameroon, 28 percent in Ghana, and 15 percent in Nigeria. Globally, private returns to higher education (14.6 percent) are higher than the returns to primary education (11.5 percent). The average private return on higher education in SSA is 21 percent, which is the highest compared to other regions, due in large part to the much lower percentage of higher education graduates in SSA. Returns to higher education are on average 21.8 percent in Senegal (2011), and 28.7 percent in Ghana (2012).

7. **Regional mobility of students, peer-to-peer learning, and faculty exchanges can alleviate the lack of adequate educational opportunities in the region and minimize brain-drain.** Leading drivers of student mobility include access to education, the quality of education, employment prospects, and the desire for qualifications with worldwide recognition. A lack of adequate educational opportunities in the home country and the appeal of better opportunities abroad are some of the factors that influence cross-border mobility. The ACE I project demonstrates strong progress and results toward achievement of project targets in terms of regional mobility of students (see Figure A7.2). These results show that more than 4,000 regional students have been enrolled across the region in ACEs outside their home countries since the project started in 2014.

Figure A7.2. Total number of regional students enrolled in ACEs



Source: World Bank calculations using data on ACE I results from The World Bank ACE Team, 2017.

8. **The project is expected to increase productivity in priority economic sectors.** In most SSA countries, upgrading faculty qualifications is a cost-effective way to improve the quality and relevance of higher education. The project will support a range of faculty improvement activities, including faculty training (innovative pedagogy), faculty exchange/outreach programs and benchmarking. A supply of well-qualified faculty is critical for improving the quality of programs offered, and ultimately the quality of graduates produced and research output. The ACE I project demonstrates significant progress in the improvement of the quality of programs with 139 education programs accredited through the project, compared to only one program accredited at the beginning in 2014.



Table A7.3. Number of regional and national faculty trained in the ACE I project

	2014	2015	2016	2017
Regional	16	77	67	222
National	105	437	534	1,239
Female	31	116	172	342
Male	90	398	429	1,119
TOTAL	121	514	601	1,461

Source: World Bank calculations using data on ACE I project results from The World Bank ACE Team, 2017.

9. **The project will assist ACE Impact centers in improving the current university financing schemes which have been a challenge for most SSA countries.** Higher education, particularly postgraduate education, is expensive and requires continuous investments. By supporting the centers in learning how to generate external revenue, the project will, in the long term, impact the sustainability of the centers and their host universities. This will complement government efforts and help to sustain the transformational change that ACE engenders. To date, over US\$24 million in revenue has been generated through the implementation of the ACE I project. The pace of revenue generation grew from US\$0.9 million in 2015 to US\$24.7 million in 2017 – three years into project implementation. If this trend continues, revenue generated by ACEs will assist institutions hosting ACEs to achieve a guaranteed return on investment.

10. **The research activities undertaken by ACE centers are essential to addressing the development challenges facing Africa.** While an increase in the quality and quantity of graduates is important, well-defined research programs contribute to the academic mission of the university and to the success of the ACE center. As a regionally owned project focused on development impact, ACE Impact will train and support African researchers to undertake Africa-centered research. ACE Impact centers will design – with the input of regional and sectoral stakeholders - integrated research programs with specific milestones and deliverables. In addition to publications and reports, master’s and PhD graduates are expected to transfer knowledge to the public and private sectors in thematic areas of critical need. The centers are also designed to serve as regional hubs, with the equipment and expertise necessary to conduct applied research for industry to solve timely problems.

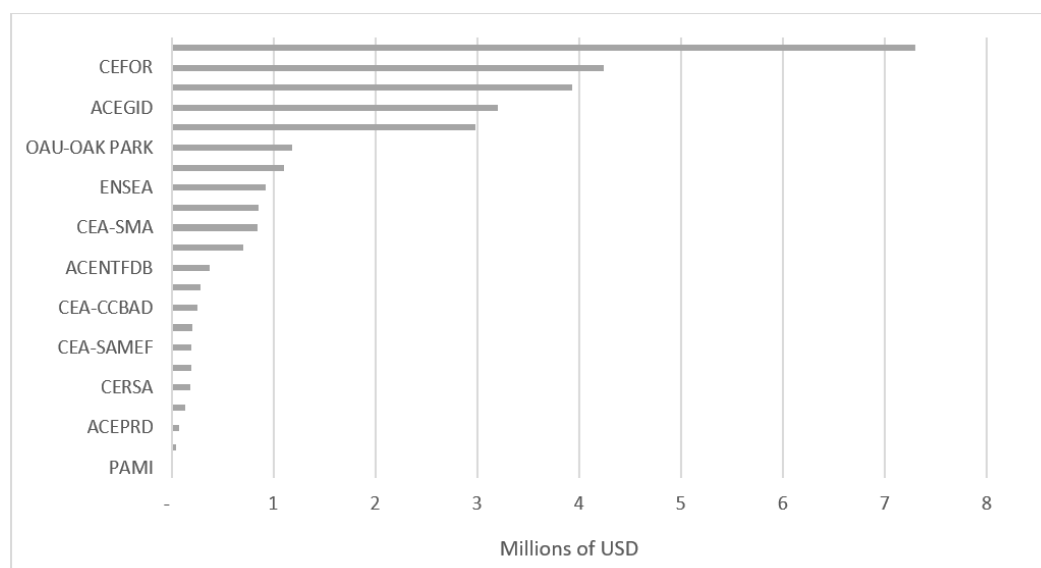
11. **The ACE Impact I project builds Africa-focused regional research capacity in West and Central Africa and Djibouti.** By almost any measure, SSA suffers from a lack of resources and productivity in research (UNESCO Science Report: Towards 2030; 2015). With 15 percent of the world’s population, SSA accounts for just 1.3 percent of global R&D spending. Compared to Western Europe and North America (2.4 percent), or East Asia and Pacific (2.1 percent), the percentage of GDP devoted to R&D is just 0.4 percent. This anemic spending – in both the public and private sphere – limits innovation and economic growth, and in particular limits African-generated solutions to African challenges. Scientific publications show similar trends: Africa produces approximately 1 percent of global research publications, and only one-third of those are in the critical STEM fields. While international collaboration on publications is high (approximately 70 percent), this may also be a reflection of donor priorities for research activities and partnerships. Through regional engagement and national government ownership, ACE Impact centers will aim to contribute to research capacity and knowledge in thematic areas that are priorities for Africa.

12. **The ACE I project has enjoyed some success in producing internationally recognized research outcomes.** CEFOR at the University of Port Harcourt (Nigeria) has built strong partnerships with both



indigenous and multinational industry that has resulted in over US\$7 million in external revenues. The Center of Excellence in Water, Energy and Environment at 2iE (Burkina Faso) has published over 100 publications in peer reviewed journals since its launch in 2014.

Figure A7.3. External revenue generated by ACEs



Source: World Bank calculations using data from ACE I project results from The World Bank ACE Team, 2017.

13. **The ability of the labor market to absorb a growing labor force with higher education depends not only on economic and job growth but also, critically, on the type of skills that are available to underpin growth.** The implementation of the ACE I project to date provides strong justification for public sector investment in higher education. The ACE I project has triggered interest from many countries for support from the WBG, to: (1) develop and sustain their higher education systems, and (2) benefit from ongoing regional specialization initiatives. The ACE Impact I project will support recipient countries to invest in regional specialization among participating universities in areas that address selected regional challenges (energy, extractives, agriculture, health, education, housing/urban planning, quantitative economics, transport and ICT) and strengthen their capacity to deliver quality training and produce applied research.

14. **The economic analysis of the proposed project consists of two parts: a cost-benefit analysis, and a financing sustainability analysis.** First, a cost-benefit methodology will be employed to estimate NPV of the proposed project as well as the IRR. It will calculate the net benefits generated by each project component on an incremental basis. These net benefits are equal to the difference between the incremental benefits and the project costs (both direct and indirect). The incremental benefits are defined as the positive effects induced by the project, notably: (i) increased earnings and improved employment prospects of project beneficiaries; (ii) estimates of the value of improved student learning and the higher quality of education; (iii) estimates of the economic value of reduced skills mismatch; and (iv) cost-savings accruing to regional specialization in higher education. Second, the sustainability analysis will examine the financing of funded university centers to examine the sources of financing for sustainability, including potential fiscal costs, student funding, industry and/or research funding. This analysis will be useful in the



World Bank's advice to the centers and governments to inform policy options for sustainable financing to support quality postgraduate education and research.

Cost-Benefit Analysis (CBA)

15. **This section presents an economic analysis of Components 1 and 2 of the project using the cost-benefit methodology: *Establishing new and scaling up well-performing existing Africa Centers of Excellence for Development Impact and Fostering Regional Partnerships and Scholarships*.** Components 1 and 2 account for the largest quantifiable portion (93 percent) of the project's total investment with the purpose of improving the labor market outcomes for students in target universities. Component 3 – Enhancing national and regional project facilitation and M&E is non-quantifiable. The main objective of the non-quantifiable portion is to facilitate the effectiveness of the quantifiable portions and, hence, the benefits of the non-quantifiable portion are embodied in the benefits of the quantifiable portions. The economic feasibility of the study is examined through the calculation of an IRR and the NPV. Calculations used aggregated data for SSA countries.

Project benefits

16. **This analysis takes into account beneficiaries represented by regional and national students enrolled in programs to be offered at the ACE Impact centers.** External revenues generated by the centers are also considered in the estimation of project benefits. Component 1 principally targets both regional and national students while Component II emphasizes the promotion of regional students. The total number of students benefitting from the project was estimated using the non-cumulative target values determined under ACE I, since ACE I and ACE Impact projects have similar scope (22 centers in ACE I and 35-45 expected centers for the two phases of the ACE Impact project).

17. **A challenge in calculating both private and social returns to education is the difficulty in objectively measuring the benefits of higher education.** In this analysis, benefits are measured by earnings, a proxy for productivity, but it does not quantify in monetary terms the improvements in the quality of life of the graduates, mobility, and ability of individuals to re-skilled themselves later in life. In calculating social returns to education, it is difficult to capture longer-terms benefits associated with an improved supply of graduates with higher education such as improved economic growth linked to investing in human capital, a workforce better able to adapt technologies that help countries catch-up faster, and investments made possible from higher savings. Consequently, the benefits calculated in this cost-benefit analysis are restricted to salaries only, and disregard a number of externalities such as the impact of graduates on co-workers, productivity improvements, innovation, etc.

Assumptions

18. **Several assumptions were considered in the sensitivity analysis. The base-case analysis assumes that the project will achieve 100 percent of the estimated students target value.** For these individuals, the private rates of return are calculated using the assumptions listed below. The benefits are then multiplied by the number of graduates that are expected to enroll in ACE Impact centers' graduate programs to calculate the cost-benefit analysis estimation. Below is the summary of assumptions adopted for the base scenario:



- **Opportunity cost**—the loss of productive capacity measured as the loss of earnings for individuals that enroll for graduate studies in the Centers of Excellence. The calculation of opportunity costs assumes that students would not be idle or unemployed if they were not enrolled in education.
- **Discount rate**— assumed discount rate of 12 percent based on literature on discount rates that suggest a range of 8 to 12 percent for developing countries.
- **Inflation rate**— inflation is assumed to be zero, so that the wage-experience profiles estimated at one point can be used to calculate life-time wage experience profiles for graduates.
- **Graduates salaries**—it is assumed that the salary of the graduate does not vary from year to year. Annual earnings are calculated by multiplying weekly earnings by 52, monthly earning by 12, etc.
- **Benefits**—benefits are calculated using the differences in the life-stream of both the treatment and control groups attributable to higher education.
- **Retirement age**—it is assumed that individuals work until they are 60 years-old.
- **Regularity of lectures and courses** – it is assumed that all lectures and courses are delivered on a regular basis (without any interruption such as faculty strike) and that there are no delays in the academic calendar.

19. **Table A7.4 presents the estimated NPV and IRR for the project.** Table A7.4 presents the CBA for the base scenario. Calculations of the IRRs and NPVs for combined estimates of the quantifiable components for the project demonstrate that the project is economically viable. The present discounted value of benefits for the overall project is estimated to be US\$229.7 million. The corresponding NPV of program benefits is US\$35.88 million. The IRR associated with this NPV is 24.7 percent. Overall, the cost-benefit ratio estimated that for every US\$1 invested there is a return of US\$1.19. Consequently, while data to measure all benefits are not available, and given the high opportunity costs for project participants, the NPV derived from quantifiable benefits is greater than the NPV of costs, and the results support investment in the proposed project.



Table A7.4. Net present value (NPV) and IRR for Component 1 and 2

Year	Cost (US\$)	Benefits (US\$)	Benefits - Costs
2019	5,422,667	30,376,787	24,954,121
2020	24,850,000	28,233,294	3,383,294
2021	37,611,607	36,221,119	-1,390,488
2022	45,539,700	31,927,423	-13,612,277
2023	42,493,281	33,090,936	-9,402,345
2024	28,783,673	34,299,143	5,515,470
2025	9,116,658	35,553,864	26,437,206
Totals (and NPV)	193,817,586	229,702,565	35,884,979
IRR			24.70%

Source: World Bank calculations using data from The World Bank Development Research Group Poverty and Inequality Team, 2013.

Sensitivity Analysis

20. **The sensitivity analysis relaxes the base-case assumptions to explore IRR under different scenarios.** The sensitivity analysis can be done in different ways, in this case, a lower and upper scenario were conducted assuming lower and higher enrollment rates for beneficiary students.

21. **Lower-bound scenario (assuming 85 percent of the student target value):** Table A7.5 presents projected outcomes if the project achieves 85 percent of its student beneficiary target. While the returns to the project under the lower-case scenario assumptions are lower at 14.5 percent, they remain above the discount rate of 12 percent. Under these assumptions, the cost-benefit analysis demonstrates that the project will still generate positive returns, and for each dollar invested in the project, US\$1.14 will be generated in benefits.

Table A7.5: Lower-bound scenario: Net Present Value (NPV) and Internal Rate of Return (IRR)

Year	Cost (US\$)	Benefits (US\$)	Benefits - Costs
2019	5,422,667	29,427,133	24,004,466
2020	24,850,000	27,132,842	2,282,842
2021	37,611,607	35,043,854	-2,567,753
2022	45,539,700	30,835,495	-14,704,205
2023	42,493,281	31,942,190	-10,551,091
2024	28,783,673	33,090,621	4,306,948
2025	9,116,658	34,282,458	25,165,799
Totals (and NPV)	193,817,586	221,754,593	27,937,007
IRR			14.54%

Source: World Bank calculations using data from The World Bank Development Research Group Poverty and Inequality Team, 2013.



22. **Upper-bound scenario:** Under the assumptions adopted in the higher case scenario, as presented in Table A7.6 below, the project yields an IRR of 32.7 percent, higher than the IRR from the base scenario of 24.7 percent. This increase is mostly due to the changes in the number of students enrolled, an assumed over-achievement of the enrolled student target value, as experienced in ACE I where 111 percent of the target value was achieved in 2016.

Table A7.6: Upper-bound scenario: Net Present Value (NPV) and Internal Rate of Return (IRR)

Year	Cost	Benefits	Benefits - Costs
2019	5,422,667	31,009,890	25,587,224
2020	24,850,000	28,966,928	4,116,928
2021	37,611,607	37,005,962	(605,645)
2022	45,539,700	32,655,375	(12,884,326)
2023	42,493,281	33,856,767	(8,636,514)
2024	28,783,673	35,104,823	6,321,151
2025	9,116,658	36,401,469	27,284,811
Totals (and NPV)	193,817,586	235,001,214	41,183,628
IRR			32.74%

Source: World Bank calculations using data from The World Bank Development Research Group Poverty and Inequality Team, 2013.

Fiscal sustainability analysis

23. **The ACE Impact I project has developed well-defined mechanisms to ensure sustainable financing for the future of ACE Impact centers.** These mechanisms ensure that the centers are sustainable beyond World Bank funding. Revenue generation – derived from student fees, institutional (and governmental) support, research grants, consulting fees, short courses, corporate partnerships and other sources – is a critical measure ensuring the sustainability of centers. Results from the ACE I project demonstrate that US\$29,376,708 (see Table A7.7) worth of revenue has been generated since the project started in 2014, which is higher than the total funds of US\$26,420,377 used by the centers as of 2017. On average, every ACE I center generates US\$1,398,891, and for every US\$1.00 spent by an ACE I center, US\$1.20 is generated.



Table A7.7. Distribution of Funds utilized and Revenue generated across Countries Participating in the ACE I Project

ACE Country	Total IDA Funds as of 2017 US\$	Revenue Generated (US\$)
Nigeria	4,994,069.52	10,603,323.29
Ghana	3,278,605.61	10,969,015.87
Senegal	1,177,581.32	331,492.46
Benin	686,876.55	845,437.32
Burkina Faso	1,402,157.86	4,123,232.29
Cameroon	689,217.02	1,100,000.00
Togo	687,856.01	178,516.00
Cote d'Ivoire`	13,504,012.75	1,225,691.05
TOTAL	26,420,376.64	29,376,708.27
AVERAGE	1,258,113.17	1,398,890.87
RETURN on \$ 1	1.2	1.2

24. **The cost of an ACE Impact center represents a small portion of government expenditure on higher education.** The ACE Impact project will be implemented over a period of four years. Each ACE Impact center will be awarded US\$4 to US\$6 million at a maximum. If one assumes that in each year center will receive US\$4 million, this means that each center is equivalent to between 4.6 and 6.8 percent of the Government of Benin's annual expenditure on higher education, 1.1 to 1.6 percent of public spending on higher education in Cote d'Ivoire, 4.4 to 6.6 percent in Cameroon, and 0.7 to 1.1 percent in Ghana (see Table A7.8).

Table A7.8: Key financial indicators for higher education

Indicator (2013)	Benin	Burkina Faso	Cameroon	Côte d'Ivoire	Ghana
Government expenditure on education as a percentage of GDP (%)	4.55	4.59	2.77	4.73	6.10
Government expenditure on tertiary education as a percentage of GDP (%)	0.96	1.00	0.28	1.18	1.18
Expenditure on tertiary as a percentage of total government expenditure (%)	4.70	3.51	1.41	5.37	4.12
Expenditure on tertiary as a percentage of government expenditure on education (%)	21.04	21.72	10.21	24.90	19.42
GDP (current US\$ '000)	9,156,748	11,947,176	32,348,150	31,273,049	47,805,069
Total expenditure on tertiary education (current US\$ '000)	87,596	119,198	91,396,463	368,199	566,136
Percentage of ACE Impact center's cost (US\$4 million) as share of public expenditure on higher education	4.6	3.4	4.4	1.1	0.7
Percentage of ACE Impact center's cost (US\$6 million) as share of public expenditure on higher education	6.8	5.0	6.6	1.6	1.1

Source: UNESCO UIS, <http://stats.uis.unesco.org> retrieved on March 8, 2018.