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IDA/R2019-0146/1

May 13, 2019

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<p><b>Closing Date: Friday, May 31, 2019 at 6:00 p.m.</b></p>
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FROM: Vice President and Corporate Secretary

**Pakistan**

**Higher Education Development in Pakistan Project**

**Project Appraisal Document**

Attached is the Project Appraisal Document regarding a proposed credit to Pakistan for a Higher Education Development in Pakistan Project (IDA/R2019-0146), which is being processed on an absence-of-objection basis.

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Report No: PAD3256

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 288.7 MILLION  
(US\$ 400 MILLION EQUIVALENT)

TO THE

ISLAMIC REPUBLIC OF PAKISTAN

FOR

HIGHER EDUCATION DEVELOPMENT IN PAKISTAN

May 8, 2019

Education Global Practice  
South Asia Region

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## CURRENCY EQUIVALENTS

Exchange Rate Effective April 30, 2019

Currency Unit =	PKR
US\$1 =	141.65 PKR
US\$1 =	SDR 0.72

FISCAL YEAR  
July 1 – June 30

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## ABBREVIATIONS AND ACRONYMS

AC	Affiliated college
AD	Associate degree
AGP	Auditor General of Pakistan
AU	Affiliating University
BIC	Business Incubation Center
DA	Designated Account
DAI	Degree-awarding Institutes
DLI	Disbursement-linked Indicator
EEP	Eligible Expenditure Program
ERP	Enterprise Resource Planning
ESMF	Environment and Social Management Framework
FM	Financial Management
FMS	Financial Management Specialist
FMIS	Financial Management Information System
GCF	Grand Challenge Fund
HEC	Higher Education Commission
HED	Higher Education Department
HEDP	Higher Education Development in Pakistan
HEI	Higher education Institution
HEMIS	Higher education Management Information System
HESP	Higher Education Support Project
IAM	Identity and Access Management
ICT	Information and Communication Technologies
IPF	Investment Project Financing
ISF	Innovator Seed Fund
IPSAS	International Public Sector Accounting Standards
IUFR	Interim Unaudited Financial Report
IVA	Independent Verification Authority
LCF	Local Challenge Fund
M&E	Monitoring and Evaluation
MOF	Ministry of Finance and Planning Commission
NAHE	National Academy of Higher Education
NAM	New Accounting Model
OM	Operational Manual

ORIC	Office of Research, Innovation and Commercialization
PAC	Public Accounts Committee
PAD	Project Appraisal Document
PCU	Project Coordination Unit
PERN	Pakistan Education and Research Network
PDO	Project Development Objective
PhD	Doctor of Philosophy
PIFRA	Project for Improvement of Financing Reporting and Auditing
RDI	Research, Development, and Investment
SC	Steering Committee
SPD	Standard Procurement Document
STEM	Science, Technology, Engineering, and Mathematics
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TEI	Tertiary Education Institution
TESP	Tertiary Education Support Project
ToR	Terms of Reference
TPV	Third-party Verification
TTSF	Technology Transfer Support Fund
VC	Vice-Chancellor
WB	World Bank



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DATASHEET

**BASIC INFORMATION**

Country(ies)	Project Name	
Pakistan	Higher Education Development in Pakistan	
Project ID	Financing Instrument	Environmental Assessment Category
P161386	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 type="checkbox"/> Fragile State(s)
<input checked="" type="checkbox"/> Disbursement-linked Indicators (DLIs)	<input 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
30-May-2019	30-Jun-2024

Bank/IFC Collaboration

No

**Proposed Development Objective(s)**

To support research excellence in strategic sectors of the economy, improve teaching and learning and strengthen governance, in the higher education sector.

**Components**

Component Name	Cost (US\$, millions)
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Nurturing Academic Excellence in Strategic Sectors	126.00
Supporting Decentralized Higher Education Institutes for Improved Teaching and Learning	127.00
Equipping Students and Higher Education Institutions with Modern Technology	27.00
Higher Education Management Information System and Data Driven Services	70.00
Capacity Building through Partnerships, Project Management, Monitoring and Evaluation	50.00

**Organizations**

Borrower: Islamic Republic of Pakistan  
 Implementing Agency: Higher Education Commission

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

**SUMMARY**

<b>Total Project Cost</b>	2,437.6
<b>Total Financing</b>	2,437.6
<b>of which IBRD/IDA</b>	400.00
<b>Financing Gap</b>	0.00

**DETAILS**

**World Bank Group Financing**

International Development Association (IDA)	400.00
IDA Credit	400.00

**Non-World Bank Group Financing**

Counterpart Funding	2,037.6
Borrower/Recipient	2,037.6

**IDA Resources (in US\$, Millions)**

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
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National PBA	400.00	0.00	0.00	400.00
<b>Total</b>	<b>400.00</b>	<b>0.00</b>	<b>0.00</b>	<b>400.00</b>

**Expected Disbursements (in US\$, Millions)**

WB Fiscal Year	2020	2021	2022	2023	2024	2025
Annual	55	82	104	80	72	7
Cumulative	55	137	241	321	393	400.00

**INSTITUTIONAL DATA**

**Practice Area (Lead)**

Education

**Contributing Practice Areas**

**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
b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes

**SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)**

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Moderate



4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Low
8. Stakeholders	● Moderate
9. Other	
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
<p><i>Section I.A.(a) of the Schedule to the Project Agreement</i></p> <p>HEC to establish within 3 months of effectiveness and thereafter maintain throughout the Project implementation, a Steering Committee responsible for policy guidance, interagency coordination and Project oversight.</p>
<p><i>Section I.A.(b) of the Schedule to the Project Agreement</i></p> <p>HEC to establish within 1 month of effectiveness and thereafter maintain throughout the Project implementation, a Project Coordination Unit with staff and resources acceptable to the Association responsible for the overall implementation of day-to-day Project activities, as well as complying with all reporting requirements policy guidance, interagency coordination and Project oversight.</p>
<p><i>Section I.B of the Schedule to the Project Agreement</i></p> <p>HEC to prepare, approve and adopt, within 3 months of effectiveness, an Operations Manual satisfactory to the Association (including criteria and terms of reference for the award of the various grants), and thereafter implement the Project (or cause the grant recipients to implement it) in accordance with such Operations Manual.</p>
<p><i>Section I.C. 1 &amp; 2 of the Schedule to the Project Agreement</i></p> <p>HEC to invite, or cause participating universities to invite, proposals for competitive research grants and ISF Grants as per the Operations Manual and ensure that the grants are made in accordance with the eligibility criteria and procedures set forth in the Operations Manual, including the proposal's consistency with ESMF and sufficient implementation capacity by the grant recipients.</p>
<p><i>Section I.C.3 of the Schedule to the Project Agreement</i></p> <p>HEC to enter, upon selection of a proposal and the award of a grant, into a written agreement with the respective awardees under terms and conditions acceptable to the Association as set forth in the Operations Manual (pursuant to the template agreements to be prescribed in the Operations Manual).</p>
<p><i>Section I.D of the Schedule to the Project Agreement</i></p> <p>HEC to: (i) no later than four (4) months after effectiveness date, engage the services of (an) independent third-party entity/ies with qualification and experience and TORs acceptable to the Association, to undertake the verification process of the DLIs/DLRs; and (ii) provide the corresponding verification report by April 30 of each year (commencing on April 30, 2020).</p>
<p><i>Section I.E.1 of the Schedule to the Project Agreement</i></p> <p>HEC to carry out the Project in accordance with the ESMF the IPPF and the ESMPs and IPP(s) prepared or to be prepared pursuant to the ESMF/IPPF.</p>
<p><i>Section I.E.2 of the Schedule to the Project Agreement</i></p> <p>Prior to commencing any civil works, or entering into any grant agreement with grant recipients, HEC must have: (a) screened the activity/ies (or grants) in accordance with the ESMF and IPPF; (b) prepared the respective ESMP(s)</p>



and/or IPP(s), and (c) have the safeguard documents disclosed, in local language(s) in the respective project sites.

*Section I.E.3 of the Schedule to the Project Agreement*

HEC to ensure that no activity is carried out that might have significant adverse environmental and social impact or give rise to displaced persons.

*Section I.E.4 of the Schedule to the Project Agreement*

HEC to establish as part of the PCU, within three months of the effectiveness, an environmental and social cell, to carry out the environmental and social screening of activities, the preparation of the necessary safeguard documents, and the monitoring and reporting on safeguards compliance.

*Section I.E.5 of the Schedule to the Project Agreement*

HEC to secure (and cause the grant recipient to secure) all necessary governmental permits required prior to commencing any civils works under the Project and ensure (or cause to ensure) compliance with any pre-conditions thereof.

*Section I.E.6 of the Schedule to the Project Agreement*

HEC to ensure, or cause the grant recipients to ensure, that each contract for civil works included the obligation of the relevant contractor to comply with the relevant safeguard documents.

*Section I.E.7 of the Schedule Project Agreement*

HEC to maintain monitoring and evaluation protocols and record keeping procedures adequate to enable the Association to supervise and assess the implementation of/compliance with the safeguard documents.

*Section I.F of the Schedule to the Project Agreement*

HEC to establish within 4 months of effectiveness and thereafter maintain throughout the Project, a grievance redress cell and processing protocols for the handling of any stakeholder complaints arising out of the Project, in a manner satisfactory to the Association.

**Conditions**

**Disbursement**

*Disbursement Condition:* HEC to prepare and adopt the Operations Manual for the Project prior to withdrawing funds from Categories (1) and (2).

## I. STRATEGIC CONTEXT

### A. Country Context

1. **Pakistan, the sixth most populous country in the world, is at a crossroads.** The economy accelerated with GDP growth of 5.8 percent in FY18 but is projected to slow to 3.4 percent in FY19 as fiscal and external imbalances are addressed. Poverty declined from 64.3 percent in 2001 to 24.3 percent in 2015, but inequality persists. The country ranks low on the 2018 Human Capital Index, at 134 out of 157 countries. Gender disparities continue, and female labor force participation was only 20.1 percent in 2018. Natural disasters and unreliable water and power supply constrain progress. After the onset of another boom and bust cycle, a new IMF program is under discussion. Growth is expected to gradually recover as structural reforms take effect and macroeconomic conditions improve. Over the medium to long term, Pakistan needs to invest more and better in human capital, raise more revenue, simplify ease of doing business, expand regional trade and exports, and manage its natural endowments sustainably.

2. **Pakistan is a federation, with responsibilities shared between the federal and four provincial governments.** The 18th amendment to the constitution of Pakistan (2010) expanded powers and devolved delivery of key services to the provinces. The federal government retains core or shared responsibility for functions including tertiary education, tax and trade policy regulation, and transmission and distribution of power. The World Bank works with both federal and provincial governments and their entities.

3. **Pakistan is also prone to natural disasters—drought, floods, and earthquakes.** Climate change has affected the country, causing higher risk of exposure to storms, floods, and droughts. Pakistan is ranked seventh on the Global Climate Risk Index, and extreme weather events are expected to grow in severity, with high human and economic costs. To mitigate this risk, there is a need for building human capital and a knowledge base through research activities and improved teaching and learning at the university level (see Annex 2 for more details).

4. **Over the last 40 years, the country has experienced a major demographic transition, illustrated by high fertility rates from the 1960s to the mid-1980s, and a progressive albeit slow decrease in fertility rates and dependency ratios thereafter.**<sup>1</sup> Pakistan has a window of opportunity to reap the “demographic dividends” from its expanding economically active population. However, the youth is faced with problems of unemployment and underemployment due to lack of skills and their participation in higher education and skills development is low at 10.1 percent. This number drops to a dismal low of 1 percent for the poorest wealth quintile of the country.<sup>2</sup> In order to prepare its youth to take an active part in Pakistan’s development, the country needs a tertiary education system that can produce skilled, innovative and enterprising graduates and generate knowledge from research that is adaptable to development at the local level.

### B. Sectoral and Institutional Context

5. **The tertiary education sector in Pakistan—that is, education beyond 12 years—consists of two main subsectors: universities and affiliated colleges (ACs), both comprising public and private institutions.** Each of the subsectors is governed by different regulations and faces different challenges, especially around governance and quality assurance. As of 2017-2018, there are 116 public and 79 private sector universities across the country with a total enrollment of approximately 2.5 million students, including distance-learning students (see Table 1).

6. **The Higher Education Commission (HEC) is the regulatory body for both public and private universities and degree-awarding institutes (DAIs).**<sup>3</sup> An autonomous institution created by the Higher Education Commission

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<sup>1</sup> The World Bank (2019) Pakistan@100, Human Development Note.

<sup>2</sup> The World Bank. (2017). Pakistan Development Update: Managing Risks for Sustained Growth. Washington, DC

<sup>3</sup> DAI stands for degree-awarding institutes. They are almost like universities, although they have fewer departments. According to

Ordinance of 2002, it is responsible for degree recognition, financing, and quality assurance of universities. It has three core functions: regulation, capacity building, and funding. In line with global trends in higher education, the HEC is adopting a tiered system of higher education under which the various higher education institutions (HEIs) are developed as (i) research universities (Tier 1); (ii) comprehensive universities, which provide a wide range of skills and higher education to the mass of the population (Tier 2); and (iii) the collegiate system, which brings education to the doorsteps of the learners (Tier 3).<sup>4</sup> The support provided to institutions in these three tiers is based on their capacity needs and their objectives.

**Table 1: Number of institutions and students by subsector 2017-2018<sup>5</sup>**

	Public	Private	Total	Students (millions)
Universities (universities/DAIs and distance learning)	116	79	195	1.58
Affiliated Degree Colleges	1420	1613	3,033	0.96
Total	1536	1692	3,228	2.54

Source: HEC records

Note: The data for universities are from 2017/18, but the latest data available for affiliated colleges are from 2016/17.

7. **ACs are under dual management control: for administrative and financial matters, they are under the control of their respective provincial higher education departments (PHEDs), but for academic matters they are under the authority of their affiliating universities (AUs) which award their tertiary-level degrees.** ACs provide an accessible lower-cost alternative to universities. On average the fees for a public college are less than one-quarter those of a university. Because of the lower cost burden, ACs are more likely to attract students from lower-income families. In addition, ACs are quite widely distributed across geographical areas, including rural areas. This makes them more accessible to women, who may not be able to leave their family homes to attend universities.

8. **Over the past decade, Pakistan has made significant gains not only in improving access to tertiary education, but also in enhancing its quality and relevance, and in strengthening the system's governance.** However, challenges remain. Although the whole higher education sector suffers from these challenges, they are particularly serious in the vast AC segment. Below is an assessment of the core characteristics and challenges of the higher education system; some of which will be addressed by the interventions under the Project.

9. **Access and equity. Tertiary education enrollments have increased from less than 2.7 percent of the college-age population in 2002 to 10.1 percent in 2017— a direct result of substantial investments made in the higher education sector.** Much of the growth in enrollment has come from distance learning programs and private HEIs. However, enrollments are still very low compared with those in other countries in the region—for example, India (26.9 percent), Malaysia (41.9 percent), Thailand (49.3 percent), and China (51.0 percent). Additionally, there are considerable inequities in access to tertiary education across income levels and provinces.

10. **Overall although there is not a large gender disparity in higher education in Pakistan (53 percent male and 47 percent female), gender disparity exists in the form of types of programs women enroll in versus men.** A higher proportion of women are enrolled in the biological sciences and medical fields (60 percent female enrollment in medical universities), while the proportion of female students in engineering science and technology is low (10 percent

the Guidelines for Establishment of a New University or an Institution of Higher Education: "Any degree awarding institutions of higher education having four or more departments will be eligible for title of a university. Any institution having less than four departments will be eligible for grant of charter as a degree awarding institute" (HEC n.d.b p.7). This PAD uses *university* to refer to both universities and DAIs.

<sup>4</sup> HEC Vision 2025.

<sup>5</sup> Data presented in this table is from HEC records. While the data for universities number and enrollment is from 2017/18, the latest data available for affiliated colleges is from 2016/17.

to 25 percent of the enrollment). In addition, the proportion of female students in humanities and the arts is relatively high. HEC data shows that the number of male and female faculty members in universities is almost equal: close to 50 percent of faculty in public universities and 45 percent in private universities are female. However, it appears that women's participation in applied research is low: a relatively low proportion of awardees of research funds from HEC are female (almost 16 percent of research grant applicants and recipients were female).

**11. Quality and relevance of research. The research environment in Pakistan is still very much dominated by inadequate and irrelevant research activities with few linkages between universities and industry to encourage the commercialization of research.** While the number of programs and institutions ranked internationally has gone up, the incentives to research and innovation need to continue to be improved. The Government wants to nurture entrepreneurship and social impact, but it rewards impact factor journal publication. Significant investments have been made in faculty development through overseas and indigenous scholarships and training programs; now more effort is required to support these newly trained scholars in applying their knowledge in research and innovation in the country. HEC has supported the establishment of Business Incubation Centers (BICs) in public universities; however, they need to be strengthened so they can offer a full suite of support, ranging from access to seed funding to legal and financial advice and guidance. According to the Global Entrepreneurship Monitor report of 2012, Pakistan has the lowest rate of female entrepreneurship in the world – only 5 percent of entrepreneurs are women.<sup>6</sup> BICs can serve as an excellent space for women entrepreneurs with start-up initiatives.

**12. Quality of teaching. Improving the quality of HEIs in Pakistan has been one of HEC's priorities since its inception.** Some of the initiatives to monitor quality include establishing Quality Enhancement Cells (QECs) at all public universities, setting up National Curriculum Review Committees to update the curriculum, and creating more accreditation councils. The main goal behind these actions was to replace the 2-year annual-system bachelor's degree programs with 4-year semester-based programs to come up to par with international standards.<sup>7</sup> Even though most universities have converted to the 4-year semester-based programs, the faculty and students in Tier 2 universities still struggle with the change from the annual- to the semester-system teaching and assessment approach. Also, the majority of ACs continue to follow the 2-year curriculum. These 2-year bachelor's programs follow outdated curricula that do not provide the types of skills required by a growing and diversifying economy.<sup>8</sup> Currently ACs lack a quality assurance mechanism with checks and balances to ensure implementation of the affiliation mechanism, which prescribes minimum quality standards to be maintained at ACs.

**13. Innovation and technology adoption in research and teaching.** Pakistan's higher education sector has been a leader in adopting new technologies in higher education, following an innovative Information and Communication Technologies (ICT) Strategy pioneered by HEC. Most notably, HEC has partnered with telecom operators to build a digital architecture (PERN<sup>9</sup> I, II, and III) that provides high-speed broadband to 335 HEIs. While most universities and their sub campuses have access to PERN, at present only 52 ACs (out of a total of 3,033) benefit from PERN. Once connected, institutions can use a variety of digital services such as a digital library, eduroam (which includes campus-wide WiFi services), a Safe Campus initiative, a content management system, and a limited suite of software packages (including anti-plagiarism software).

**14. While HEC has led the way with its ICT infrastructure, there are several reasons why universities do not fully utilize the technology that is available to them.** First, HEC still regulates online education as a cheap way to reach the masses, while imposing many regulations that effectively disincentivize regular universities from offering blended learning programs. Second, PERN is understaffed and is governed centrally, so that its technical staff are overburdened

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<sup>6</sup> Global Entrepreneurship Monitor, 2012 available at <https://www.gemconsortium.org/download@file>

<sup>7</sup> HEC. n.d.a. HEC Vision 2025: Seize the Day for a Better Future, p. 39. Islamabad, Pakistan.

<sup>8</sup> World Bank. The Curious Case of Affiliated Colleges in Pakistan. Insights on the Neglected Tier of the Tertiary Education Sector.

<sup>9</sup> PERN stands for Pakistan Education and Research Network.

and have little participation from the universities in either the governance or the administration of their networks. Third, only a few universities (and no colleges) have rolled out a campus network using eduroam, offering free Wi-Fi, there are virtually no cloud services or computing clusters available to do research, and there are no incentives to adopt learning management systems or online courses such as Massive Open Online Courses.

15. **Governance, management and accountability.** The Constitution's 18th Amendment of 2010 recognizes that tertiary education is a shared responsibility between federal and provincial governments. Through HEC, the federal government is responsible for policy directions, standards, quality assurance, financing, and M&E of universities, and provincial governments are responsible for the delivery and financing of higher education in colleges.

16. **Pakistani universities have substantial autonomy in some important domains, however, with several practical limits.** Pakistani universities do not have complete autonomy on curriculum design. Public universities can hire, promote, and fire academic staff, although HEC still keeps a representative on the university senates, as well as on search committees for faculty appointments. Governance autonomy is limited for public universities; the appointment of Vice-Chancellors of public universities is often politicized and has substantial involvement of both provincial and federal politicians. Public universities do have substantial financial autonomy such as own and sell land and other assets and deliver contractual services to diversify their income.

17. **Accountability and the capacity to plan, manage, and monitor performance are also still weak, both in the system as a whole and in individual institutions.** HEC does not yet have a functional higher education management information system (HEMIS). Similarly, provincial governments lack the capacity to gather and process basic data for ACs. This situation seriously hinders rigorous M&E of and planning for the sector.

### C. Relevance to Higher Level Objectives

18. **The Higher Education Development in Pakistan (HEDP) is aligned with the World Bank Group, Pakistan Country Partnership Strategy, 2015-2020** discussed by the World Bank's Executive Directors on May 1, 2014<sup>10</sup> and extended by the Performance and Learning Review distributed to the World Bank's Executive Directors on an absence-of-objection basis with a closing date of June 15, 2017<sup>11</sup>. It supports results area IV by assisting research excellence in strategic sectors of the economy, improve teaching and learning, and strengthen governance in the higher education sector. The project specifically supports CPS outcomes 4.3 "increased school enrollment and adoption of education quality assessments". This project will support interventions aimed at improving quality and relevance of second and third tier HEIs and encouraging research and innovation in Tier 1 universities in the country. The Project is also aligned with HEC's Vision 2025. *Pakistan at 100*, a new flagship study by the World Bank, also highlights the imperative to invest in human capital, particularly higher education and skills.

## II. PROJECT DESCRIPTION

19. **The proposed Higher Education Development Project (HEDP) supports the implementation of a subset of activities from the Higher Education Commission's Vision 2025**, within the broader development framework for Pakistan as envisaged in the Government's Vision 2025. The project will be implemented over a five-year period of 2019/20 – 2023/24.

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<sup>10</sup> World Bank: Report no. 84645-PK

<sup>11</sup> World Bank: Report no. 113574

## A. Project Development Objective

### PDO Statement

To support research excellence in strategic sectors of the economy, improve teaching and learning, and strengthen governance in the higher education sector.

### PDO Level Indicators

- Number of faculty and students benefiting from Competitive Research Grants and Innovator Seed Funds (supporting research excellence)
- Outcomes achieved under the competitive research grants awarded under the project (supporting research excellence)
- Progress in learning achievement of AC students (improved teaching and learning)
- Number of universities that have enhanced autonomy (strengthened governance)

## B. Project Components

20. **The project has five components.** The project combines results-based financing and input-based financing modality on agreed activities. Refer to paragraph 57 for more details on “project costs and lending instrument”.

### Component 1: Nurturing Academic Excellence in Strategic Sectors (IDA US\$ 126 million)

21. This component will help promote relevant and cutting-edge research in universities in Pakistan, with a focus on specific strategic sectors for the country’s socioeconomic progress. It will provide competitive research, innovation, and commercialization grants to researchers and potential entrepreneurs from among faculty members, current students, or fresh graduates of the HEIs.

#### ***Sub-component 1.1: Promoting Innovative and Relevant Research***

22. This sub-component will focus on development and support of relevant and cutting-edge research in universities, both private and public, as well as encouraging commercialization of research and will: (i) support multisectoral/ multidimensional research on specific themes within sectors of national interest through provision of Grand Challenge Fund Grants (“GCF Grants”) to universities; (ii) support technological research in specific sectors undertaken with academia-industry collaboration to develop marketable products and services through provision of Technology Transfer Support Fund Grants (“TTSF Grants”) to universities, and provision of technical assistance to Office of Research Innovation and Commercialization (ORICs) on intellectual property.

23. Each fund will be competitive, and selection will be through a call for proposal and evaluation of the proposals by competent and relevant academics and industry partners against a set of stringent and objective criteria. The HEC will develop the call for proposals and the criteria for evaluation of proposals under the two funds.<sup>12</sup> Brainstorming sessions for researchers to network and identify areas of research will be held. Separate brainstorming events will be offered for female researchers. In addition, HEC will conduct proposal writing workshops, targeted to female faculty members and researchers to encourage the increased participation of women in the application process. ORICs will also undertake a communication campaign to target women students/ faculty members to apply for research grants. A mentoring and coaching program targeted to women researchers and facilitated by successful women principle investigators will be offered during grant implementation. The two funds are briefly described below.

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<sup>12</sup> The Project’s Operational Manual (OM) will contain details of the steps for developing the call for proposals, evaluating the proposals, disbursing the grants against milestones, and verifying each milestone for funding availability for the next tranche. Moreover, the OM will include details on all the various funds and call for proposals considered in this Component.



**The Grand Challenge Fund (GCF).** This fund will support large and multisectoral/multidimensional research projects focused on specific themes in sectors of national interest. The minimum funding request for these funds will be US\$100,000 and the maximum US\$1,500,000.<sup>13</sup> In select strategic areas, consortia of multidisciplinary researchers/universities can propose research for solutions to a grand challenge.

**Technology Transfer Support Fund (TTSF).** This fund will support promising technological research with an existing prototype or advanced model for industrialization/commercialization.<sup>14</sup> The grant will be open to students and faculty members of both public and private universities who have proposals of a well-defined strategy to foster partnerships between academia and industry that facilitates in transferring technology to industry. The minimum value of the grant provided will be US\$ 50,000 and the maximum value US\$ 140,000. The research project proposals will lead to products or services that are marketable and can generate positive cash flows. Each grant will be awarded in the form of a package that will include support for patent filing, producing licensing agreements and legal and financial investment advice. The support package will be executed through ORICs.<sup>15</sup>

### **Sub-component 1.2: Encouraging Entrepreneurship and Self-employment**

24. This sub-component will provide a package of support through a seed fund. It will (i) remodel selected “BICs” for research commercialization ecosystem development based on mapping and needs assessment, and monitor their performance; (ii) support development of start-ups through provision of Innovator Seed Fund Grants (“ISF Grants”) to students, recent graduates and/or faculty from universities. The package will also include entrepreneurial training, legal training and support, financial education and training among other services. The maximum amount of seed funding provided per grantee would be USD35,000.

25. The Innovator Seed Fund (ISF) will be implemented and supported through BICs selected for interventions on the basis of a comprehensive mapping exercise. A thorough needs assessment will be done in the selected BICs to determine their priority needs with respect to developing research commercialization ecosystem. These BICs will undergo remodeling to international standards. The project will continue to monitor the performance of the BICs throughout the life of the project to ensure improvement in their efficiency and effectiveness.

26. Current students, recent graduates and faculty members from public and private universities will be eligible to apply for the ISF. The HEC will constitute a sitting committee of qualified individuals who will evaluate these proposals for their innovative ideas and potential to grow as a start-up. The competitively selected students / faculty with a promising start-up idea will be granted the funds and will be assigned to one of the project BICs. The BICs, through their customized incubation process for start-ups, will offer a comprehensive package to transform the start-ups into successful technology-driven enterprises. The incubation process will include trainings on how to develop business plans, how to successfully market products and services, how to manage an enterprise including financial management, and how to put together proposals that could win funds for enterprise development. Separate training will be offered to females. In addition, BICs will facilitate the mentoring and coaching program for potential female entrepreneurs. BICs will also undertake a communication campaign to target women students/ faculty members to apply for ISF.

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<sup>13</sup> The proposals eligible for funding will be from the following strategic sectors: (i) food security; (ii) water management and sustainability; (iii) sustainable energy; (iv) sociology/philosophy; (v) development economics; (vi) urban planning; (vii) climate change/environment; (viii) IT/telecom (especially artificial intelligence, cybersecurity, cloud computing, and big data); and (ix) innovative governance and reforms.

<sup>14</sup> The TTSF will be targeted to specific sectors: telecommunication, information and technology and its application in health, textile, agriculture and agri-business such as dairy and horticulture; engineering sciences, microelectronics, water, power, energy and fleet management; biotechnology; and material sciences, for example nano-technology.

<sup>15</sup> If the selected researchers are from a university that does not have an ORIC, HEC’s selection committee will assign the research team to a nearby functional ORIC. To support the implementation of the TTSF, the ORICs will be provided TA to develop their roles in terms of filing intellectual property rights, and patenting and licensing for prototypes and products.

**Sub-component 1.3: Local Challenge Funds**

27. This sub-component will support universities to establish and strengthen their research capacities in locally relevant socio-economic issues and/or research addressing any of the Sustainable Development Goals through provision of Local Challenge Fund Grants (“LCF grants”). The LCF will be set up as competitive research grants with call for proposals. The selection criteria will take into account the relevance of the research to the local community, industry and local government. Each grant will be awarded only for research that meets stringent criteria. The grants will be awarded for a maximum of 2 years’ research. The minimum grant amount is US\$ 50,000 and a maximum of US\$ 700,000. Under this grant, as under the two other competitive grants (GCF and TTSF), marketing/brainstorming events focusing particularly on potential women researchers, proposal-writing workshops targeted in particular to female faculty members and researchers, and a mentoring and coaching program targeted to women researchers will be offered.

28. Table 2 presents the DLIs related to this component and the activities needed to achieve the DLI. The expenditures under the component will cover the inputs presented in the table below.

Table 2: Activities needed for achieving DLIs in Component 1

DLI	Activities needed for achieving results	Inputs required
DLI 1: Number of competitive research grants and innovator seed fund grants awarded	<ul style="list-style-type: none"> <li>• Development of comprehensive management guidelines for each of the four grant funds.</li> <li>• Select and engage local and international reviewers on selection and review committees</li> <li>• Conduct marketing events for information sharing</li> <li>• Needs assessment and mapping of BICs</li> <li>• Suite of support to be offered by BICs for ISF</li> <li>• Develop capacity of ORICs to support with licensing, patent filing and marketing</li> <li>• Proposal writing workshops for women researchers</li> <li>• Establish a mentoring and coaching program for women researchers, students and entrepreneurs</li> </ul>	<ul style="list-style-type: none"> <li>• Research grant budget</li> <li>• Staff salaries and allowances HEC</li> <li>• Consultant services for grant funds management guidelines</li> <li>• Fee for peer review process</li> <li>• TA for development of support packages in BICs and ORICs</li> <li>• Basic goods and services for upgrading BICs and ORICs</li> </ul>
DLI 2: Outcomes achieved under the competitive research grants awarded under the Project	<ul style="list-style-type: none"> <li>• Development of comprehensive guidelines for verification of outcome achieved</li> <li>• Competitive selection of grant proposals</li> <li>• Grant funds released to the researchers as per an agreed schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Research grant budget</li> <li>• Staff salaries and allowances HEC</li> <li>• Consultant services for grant funds management guidelines</li> <li>• Fee for peer review process</li> </ul>

**Component 2: Supporting Decentralized Higher Education Institutes for Improved Teaching and Learning (IDA US\$ 127 million)**

29. **This component aims to improve the quality of education delivered by Tier 2 universities and ACs.** It will support almost 500 public ACs and related AUs in improved teaching and learning activities by (i) strengthening the college affiliation system; (ii) improving the curriculum offered in the ACs by changing the types of degrees offered; (iii) encouraging diversity among students being enrolled and linking students and graduates to employers in the area; (iv) improving the M&E of the AC system; and (v) connecting ACs to PERN. Six DLIs are associated with this component. They are related to (i) establishing and operating the Quality Enhancement Cell-Affiliated College unit in AUs; (ii) providing capacity development support to the effective roll out of 4 year bachelor degree in 95 ACs; (iii) developing and implementing of 4 semester/65-68 credit hour Associate Degree (AD) program in almost 200 colleges; (iv) upgrading academic staff’s capacity to teach the semester system AD and 4 year Bachelor programs in ACs and AUs (v) supporting transformation of 20 ACs to community colleges through relevant curriculum development and staff



training; and (vi) expanding PERN in select colleges.

***Sub-component 2.1: Strengthening the Affiliation System***

30. In order to make the affiliation mechanism more efficient, the project will support interventions for making affiliating universities (AUs) more pro-active to support ACs and the ACs more responsive to AUs. The project will (i) revise the universities' affiliation regulations; (ii) establish units within quality enhancement cells of AU (QECACs), as well as change teams in their AC to manage/coordinate the affiliation system and strengthen the affiliation mechanisms between universities and colleges; and (iii) develop minimum quality standards for QECACs and the ACs change teams.

***Sub-component 2.2: Bringing Education in Affiliated Colleges and Affiliating Universities in line with International Best Practices***

31. The project will (i) facilitate the implementation/roll out of 4-year Bachelor Programs based on semester/credit structures through developing/reviewing standards and specifications, monitoring and evaluating faculty and students' performance and providing support/training to faculty in selected ACs for the implementation thereof; (ii) provide selected Affiliating Universities by providing integral teaching learning tools (e.g. libraries and reference books, basic laboratory equipment, etc.) as needed for the proper roll-out of the 4 year Bachelor Programs; (iii) monitoring the implementation of gender policies against sexual harassment in universities; (iv) develop a new Associate Degrees program structured on a 65-68 credit hour semester system and roll-out of said degree programs in selected colleges, including development of curricula and provision of training to faculty and management; and (v) support the development and implementation by the National Academy for Higher Education ("NAHE"), directly or through universities' training centers, of a comprehensive capacity building plan for faculty and administrative staff of Affiliated Colleges and Affiliating Universities on managerial, academic and pedagogical skills required for the roll-out of the revised Associated Degrees and Bachelor Programs.

32. The 4 year bachelor's program has already been rolled out in almost 205 ACs, and will be rolled out in an additional 95 ACs during the life of the project. The project will support these ACs in the transition and in implementing the program. The AUs' QEC-ACs will be responsible for providing regular support to these colleges.<sup>16</sup> Detailed terms of reference (ToR) for the QEC-ACs, including a description of their responsibility toward the ACs, will be developed.

33. HEC's vision is also to focus on the roll-out of the bachelor's program in Tier-2 universities during the life of the project. While the curriculum for a large number of programs has already been revised, its implementation needs continuous effort to put faculty in a position to implement the new program. The project will support this effort in about 32 Tier 2 universities. In these 32 AUs, the project will also support the provision of integral teaching and learning tools such library and reference books, basic laboratory equipment and some minor civil works as needed for effective implementation of a good quality bachelor's program. In addition, the project will support monitoring of the gender policy which includes HEC's policy on sexual harassment in these universities.

34. This sub-component, will help develop the new 65-68 credit hour semester system Associate Degree (AD) program, including curriculum framework and specified number of programs. The project will also support the roll-out of the AD programs in approximately 200 colleges through capacity building of faculty and management. The provincial governments will select these ACs for AD programs using criteria defined by HEC which will include, among other things, selection of at least 50 percent all women colleges. About 21 affiliating universities (AUs) will be involved and have been pre-identified. The development of the curricula will include close consultation and engagement of the

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<sup>16</sup> Which will include (i) identifying and sharing program specifications, that is the standard set of information clarifying what knowledge, understanding, skills and other attributes a student should have developed on successfully completing a specific program, (ii) annual M&E including program monitoring, faculty monitoring, and student's perceptions; (iii) review of quality standards and of the quality of teaching and learning in each subject area; and (iv) on demand support to AC faculty on the effective understanding of the bachelor's semester system and curriculum implementation.

selected colleges' locality and local socio-economic needs. A needs assessment will precede the implementation of an AD program in a specific AC.

35. Finally, the project will support the capacity development of faculty and management in almost 500 ACs and 32 AUs to implement the bachelor's and the AD programs effectively. A comprehensive capacity building plan will be rolled out to facilitate the implementation of the revised curriculum and the semester structure of the AD and bachelor's program. In-service training will be provided to established faculty and administrative staff. The training of master trainers (faculty and management) will be conducted under the umbrella of the National Academy of Higher Education (NAHE). The master trainers will impart the further training through their AUs' staff development centers.

***Sub-component 2.3: Improving the relevance of ACs to support the local socio-economic landscape***

36. This sub-component will (i) support and encourage students, in particular female students and students from disadvantaged backgrounds, to transition from 2-year AD to 4-year bachelor's programs through provision of bridge programs; (ii) pilot assessments of students in ACs to measure their progress linked to Project activities; (iii) carry out tracer studies to assess the longer-term impact of Project activities on the performance of students of ACs in the labor market; (iv) pilot the transformation of selected ACs into community colleges through development of the requisite curriculum and development of staff to increase access to academic, technical and vocational trades learning.

37. The project will support women and students from disadvantaged backgrounds in transitioning from a 2-year AD degree to a 4-year Bachelor program. This will be done through a bridging semester in the AUs offering the 4-year bachelors' degree - with particular emphasis on Science Technology Engineering and Mathematics (STEM) disciplines where women are underrepresented allowing students to acquire the academic foundations needed for bachelor's level studies. At least 50 percent of the colleges that benefit from these bridge programs will be women colleges.

38. The sub-component will support monitoring of the learning outcomes of the newly introduced degrees. AC student learning assessment will be piloted to assess learning gains for students. In parallel, tracer studies will be conducted to assess the longer-term impact of the activities on the performance of AC students in the labor market.

39. Finally, the subcomponent will support transformation of approximately 20 of the selected 200 ACs to community colleges on a pilot basis. HEC vision 2025 aims to introduce 150 Community Colleges in the country to provide more access and opportunities in academic, technical and vocational trades. With the project support, HEC intends to introduce two or three additional subjects of 3 credit hours each focusing on developing market driven technical skills in ACs offering AD programs. These courses will be developed as bridging semester/courses for AD to transition into the 4 year bachelor's program. 20 ACs will be provided the requisite curriculum and staff development from HEC, in collaboration with PHEDs to implement these bridging programs.

***Sub-component 2.4: Connecting Affiliated Colleges to Pakistan Education and Research Network (PERN)***

40. The project will support the expansion of Pakistan Education and Research Network ("PERN") to selected ACs to provide them access to a campus network and/or offers free WiFi to staff and students, and/or smart classroom facilities. A total of 300 colleges selected for 4 year bachelor's program under component 2 will be added to the existing PERN network. Depending on provincial allocations for the recurring costs of these connections, a subset of the colleges will receive a campus network, using eduroam technology that offers free WiFi to all staff and students, and Smart Classroom facilities. These connections will be created using a last mile connection to the existing PERN infrastructure, that has already connected several ACs in Khyber Pakhtunkhwa and Punjab. Subset of colleges will be selected on the basis of terms of reference, with proposals being submitted from the provincial authorities, federal authorities, AUs and ACs for effective use of services and assurance of sustenance. Credentials for college staff and students will be managed by either the AU or PERN centrally, depending on the level of readiness of the IT units in the relevant AUs. A cost sharing agreement to cover maintenance and running costs for PERN will be worked out between HEC and respective PHEDs to ensure that the services provided under the project are sustained.

41. Table 3 presents the DLIs related to component 2 and activities required to achieve the DLIs. The expenditures under the component will cover the inputs presented in the table below.

Table 3: Activities needed for achieving results in Component 2

<b>DLI</b>	<b>Activities needed for achieving results</b>	<b>Inputs required</b>
<b>DLI 3</b> Number of functional QECAC in AUs	<ul style="list-style-type: none"> <li>Review and revise the AU affiliation mechanism</li> <li>Within AU's QECs establish a specific unit for AC with detailed ToR for the assigned personnel</li> <li>Assign dedicated staff to the QECAC</li> </ul>	<ul style="list-style-type: none"> <li>Cost of workshop for revision of affiliation criteria</li> <li>Staff salary and allowances</li> <li>Cost for regular monitoring visits</li> </ul>
<b>DLI 4</b> Development and implementation of AD programs	<ul style="list-style-type: none"> <li>Local need assessment study for AD courses</li> <li>Development of curriculum framework and course outline</li> <li>Selection criteria and identification of experts for curriculum development workshops</li> <li>Selection criteria and identification of teachers from ACs for curriculum development workshops</li> <li>Selection and engagement of local industry and employers to engage in curriculum development workshops.</li> <li>Execution of curriculum framework workshops</li> <li>Development of AD curriculum</li> </ul>	<ul style="list-style-type: none"> <li>Staff salary and allowances</li> <li>Workshops</li> <li>Operational cost</li> <li>Consulting contract for review Firm for need assessment study</li> <li>Local travel and per diem cost</li> </ul>
<b>DLI 5</b> Implementation of 4-year Bachelor program	<ul style="list-style-type: none"> <li>Identification of master trainers for blended mode of teaching techniques</li> <li>Execution of curriculum framework workshops</li> <li>Selection criteria and identification of administrators and teachers for international trainings</li> <li>Library and reference materials</li> <li>Laboratory equipment</li> <li>Minor civil works</li> </ul>	<ul style="list-style-type: none"> <li>Staff salary and allowances</li> <li>Workshops</li> <li>Operational cost</li> <li>Local travel and per diem cost</li> <li>Teaching and learning material</li> <li>Lab equipment</li> <li>Procurement of minor civil works</li> </ul>
<b>DLI 6</b> Development and Implementation of skills courses for community colleges	<ul style="list-style-type: none"> <li>Needs Assessment</li> <li>Development of Skills courses for AD Program for community colleges in collaboration with local employers and industry</li> <li>Selection criteria and identification of participants for international exposure on community colleges</li> </ul>	<ul style="list-style-type: none"> <li>Staff salary and allowance</li> <li>Local and international travel and per diems</li> <li>Workshops</li> <li>Operational cost</li> </ul>
<b>DLI 7</b> Proportion of faculty and staff trained	<ul style="list-style-type: none"> <li>Development of training material on the Bachelor curriculum programs and AD programs, including content, pedagogical and assessment training for teaching in a semester system.</li> <li>Criteria, selection and training for master trainers</li> <li>Selection criteria for faculty members, including from community colleges</li> <li>Execution of college and university teachers' trainings (national and international) and college and university administration and management training</li> </ul>	<ul style="list-style-type: none"> <li>Staff salary and allowances</li> <li>Local travel and per diems</li> <li>International travel and per diems</li> <li>Training/ Workshops</li> <li>Operational cost</li> </ul>
<b>DLI 8</b> Expansion of PERN	<ul style="list-style-type: none"> <li>Preparation of TORs for expression of interest for smart colleges and smart classrooms.</li> <li>Creation of PoP Sites</li> <li>Last mile connections and installing campus networks</li> <li>Expansion of transmission (DWDM Network)</li> <li>Training of college and university level IT staff</li> </ul>	<ul style="list-style-type: none"> <li>Procurement of goods and services (including leasing charges, maintenance, PoP sites, last mile connections)</li> <li>Staff salary and allowances</li> <li>Training</li> </ul>

**Component 3: Equipping Students and Higher Education Institutions with Modern Technology (IDA US\$27 million)**

42. The objective of this component is to leverage technology to improve the teaching, learning and research environment in Pakistan.

***Subcomponent 3.1: Improving the policy environment for ICT use***

43. This subcomponent will (i) prepare a new ICT strategy for the higher education sector, laying down the overall vision on the use of technology, possible strategies to leverage PERN to develop blended education content, potential technology needs and the pedagogical and didactical model underlying blended learning; (ii) review quality assurance and accreditation standards and guidelines to facilitate innovation in the higher education sector.

***Subcomponent 3.2: Enhancing PERN Activities***

44. This subcomponent will (i) improve the governance system for PERN, including allocating greater human resources to manage PERN and developing a model to further diversify generation of income to manage and sustain PERN; (ii) facilitate greater control of universities over their campus networks; (iii) improve identity and access management by giving universities identity provider status; and (iv) create a certified pool of master trainers to conduct training programs on PERN network management and service offerings in universities.

45. PERN is a leased fiber-optic network that connects all universities in Pakistan, providing both an internet connection and online services to facilitate teaching, learning and research. Recently, PERN has launched its new phase, PERN III which will upgrade the last mile of the major universities to 10Gbps and upgrade the backbone to 40Gbps. Under, PERN-III, the PERN services will also be extended to smaller cities in remote areas to facilitate tertiary education at all levels across the country.

46. In line with this upgrade, HEC will develop an improved governance system for PERN, allocating more human resources to manage the network, to improve security, and to develop a model to further diversify generation of income to manage and sustain the network. PERN will also professionalize its relationship with the universities, by giving them more control over their campus networks (e.g. by facilitating more network monitoring and management and creating a measurement station at each Point of Presence or 'PoP'). Building on the Pakistan identity federation servers and its participation in eduGAIN, PERN will improve identity and access management (IAM), by giving universities Identity Provider Status, and moving its services (digital library, network measurement, ticketing, CRM platforms, etc.) under this new IAM infrastructure. Finally, PERN will expand its training offerings to universities by creating a certified pool of master trainers, who can conduct training programs on a variety of topics related to network management and service offering.

***Subcomponent 3.3: Expanding PERN Vertically***

47. This subcomponent will expand cloud services under PERN, including expansion of data centers to create storage to enable other cloud services that can be offered through PERN, procurement of high-performance computing cluster for research purposes, and development of a platform for blended learning in universities. Specifically, support will be for the expansion of cloud services (X as a Service or XAAS), leveraging the new IAM infrastructure. PERN will use a platform-approach for cloud services, in line with international standards for National Education Research Networks.<sup>17</sup> PERN will also procure a high-performance computing cluster that can be used for research purposes (i.e. big data analytics). A third service is the development of blended learning in universities, through the development of a platform from which universities can establish a learning management system.

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<sup>17</sup> Some of these cloud services will be offered directly by PERN or by universities connected to PERN, while others can be offered by third parties to the members of PERN. One central cloud service is the expansion of data centers to create storage to enable other cloud services that can be offered through PERN (e.g. storing research data, video-data, student data, etc.).

#### Component 4: Higher Education Management Information System and Data Driven Services (IDA US\$ 70m)

48. The objective of this component is to improve the collection and use of data for national level policy-decisions, while automating business processes in higher education institutions. This component consists of two main activities. The first activity is the creation of a national level data repository at HEC, which can be used for planning and strategic purposes. The second activity is to digitize and automate the financial and student administration of the universities.

##### ***Subcomponent 4.1: HEC's Data Repository***

49. The subcomponent will support design and implementation of a web-based data system holding information on key variables on students, enrolments, staff, financials and facilities in universities. To create the data repository, the HEC will design a data system that maps out which kinds of indicators and variables are needed for its planning purposes. These data are already collected as part of HEC's regulatory work (primarily by Statistics and Finance Units) and are currently available in Excel format. Initially, HEC staff will feed the data into the portal from the existing proformas. Once this task is completed, the portal will be populated through a "data-loading" tool that will enable universities to upload information either through excel spreadsheets or through web-services linked to their existing enterprise resource planning (ERP) and student lifecycle solutions. The tool will also validate the data in real time to ensure the integrity and quality of data being uploaded into the portal. Business intelligence tool(s) will be used to slice and dice the data in the portal for purposes of data-driven decision making and predictive analytics.

##### ***Subcomponent 4.2: Digitization of University Administration***

50. This subcomponent will (i) implement a cloud-based enterprise resource planning system to manage universities' human resources, finances and procurement tasks; and (ii) develop and implement a digital student administration package that manages the student lifecycle, including the admissions, registrar function, alumni relations and student scholarship/aid functions. This digitization of the administration of universities will make university administration more transparent. HEC will identify 10 universities – of different types and sizes – to act as pilots for implementation of both the ERP and student lifecycle implementation exercise in the first year. The finance, HR and procurement activities will be automated using the ERP solution; the admissions, registrar function, alumni relations and student scholarship/aid functions will be automated by the student lifecycle solution. The procurement for the solutions will be carried out by preparing request for proposal that will outline the needs of the universities. Once the solutions are procured, they will be rolled out using the relevant enterprise class implementation methodology. The implementation steps will, typically, include the following: Project kick off, determination of functional specifications (analysis phase), solution design (configuration and customization), solution delivery (including user acceptance testing), training and rollout of all modules. Once the pilot is successful, this exercise will be repeated for 10 universities each year for the next four years.

51. Table 4 presents the DLI and activities required to achieve the DLI. The expenditures under the component will cover the inputs presented in the table below.

**Table 4: Activities needed for achieving DLI in Component 4**

<b>DLI</b>	<b>Activities needed for achieving results</b>	<b>Inputs required</b>
<b>DLI 9</b> Universities digitizing their administration	<ul style="list-style-type: none"> <li>• Design HEC data repository, features of ERP system, student lifecycle system and other relevant systems;</li> <li>• Gather input from universities, and identify pilot universities;</li> <li>• Procure the ERP system, the student lifecycle solution and other relevant software</li> <li>• Train university staff, pilot the systems in universities</li> <li>• Report on pilot findings</li> <li>• Create annual report, strategic plan</li> </ul>	<ul style="list-style-type: none"> <li>• Procurement of goods and services (ERP, Student life-cycle, other relevant IT systems)</li> <li>• Staff salary and allowances</li> <li>• Training</li> </ul>



**Component 5: Capacity Building through Partnerships, Project Management, Monitoring and Evaluation (IDA US\$ 50 million)**

52. This component will support HEC in strengthening its core functions of regulation, capacity building, and funding of Pakistan's higher education sector through strategic and targeted TA. In addition, it will support the TA required for the implementation of various components and subcomponents and for the achievement of results and DLIs. The operational cost of the project management and M&E and the costs of implementing the environmental and social safeguards framework will also be covered in this component.

53. **Capacity Building:** TA will (i) develop/establish the National Academy of Higher Education; (ii) develop quality standards for standardization of teaching/learning, institutional effectiveness and good governance in higher education; (iii) establish university partnerships and twinning arrangements with international universities for a sustained transfer of knowledge and expertise, and enhance the capacity of HEI's faculty members and management staff in research and development and entrepreneurship.

54. **Regulation of Higher Education Sector:** TA in the project will develop criteria for the award of autonomy status to qualifying universities, including granting preferential status for accessing HEC's research and support funding, establishing new programs and/or determining own curricula, and independently awarding tenure to faculty. Even if Pakistani universities have substantial autonomy in some important domains, there are several practical limits. HEC envisages instituting an award for 'Responsible University' which will ensure enhanced autonomy to universities demonstrating certain strong governance practices.

55. **Funding:** Public universities have the autonomy to generate their own revenue. However, most Pakistani universities have limited their revenue stream to student fee. TA will also (i) help universities to devise marketing, outreach and donor recognition plans; (ii) design and execute a comprehensive capacity building program for universities to develop and implement fundraising and income generating activities, and (iii) assist the universities in developing medium/long term (5-10 years) strategic plans for fundraising and income generation activities.

56. **Project Management:** TA will Build the institutional capacity of HEC and its Project Coordination Unit (PCU), NAHE, the Affiliating Universities and their QECACs, ORICs, BICs, the Affiliated Colleges and their change teams, and/or any other relevant HEIs responsible for Project implementation, through the provision of technical assistance and equipment.

57. **Monitoring & Evaluation:** This component will also provide support to carry out Project monitoring and evaluation, verification of DLIs/DLRs, including through third party verification agency, and undertaking or commissioning of studies. This component will also allow HEC and provincial governments to undertake or commission studies (including tracer surveys, satisfaction surveys, gender studies) and/or to recruit short term consultants as need unfolds during the project life.

**Project Cost and Lending Instrument**

58. The total project cost is estimated to be US\$2,437.6 million over five years of which IDA will contribute US\$400 million. The project cost by component is presented in table 5. Components 1, 2 and 4 total US\$ 323 million. Of this, up to US\$ 55 million will be available over the life of the project for expenditures on inputs against Eligible Expenditure Programs (EEPs). The remaining amount will be disbursed against the achievement of results as specified in the DLI Matrix (see section VI). These amounts will be disbursed after adjusting for the amount expended for inputs. Components 3 and 5, for a total cost of US\$77 million, will follow the input-based financing IPF modality. IPF with DLIs modality was also used in TESP and helped provide incentives and rewards for good performance. A program-for-results financing was also considered at the project concept stage but it was decided during preparation that an IPF DLI modality together with input-based IPF modality (hybrid) will be a better approach for this project. The reason was

that certain interventions in the current project require more attention to inputs, specifically procurement of IT systems for component 3.

**Table 5. Project cost and financing (US\$ Million)**

Components	Total cost	IDA financing	Counterpart funding
Component 1: Nurturing Academic Excellence in Strategic Sectors	336.7	126	210.7
Component 2: Supporting Decentralized Higher Education Institutes for Improved Teaching and Learning	1,945.5	127	1,818.5
Component 3: Equipping Students and Higher Education Institutions with Modern Technology	27	27	0
Component 4: Higher Education Management Information System and Data Driven Services	78.4	70	8.4
Component 5: Capacity Building through partnerships, Project Management, Monitoring and Evaluation	50	50	0
Total Costs	2,437.6	400	2,037.6

59. **Eligible Expenditure Program:** The EEPs include major inputs and activities necessary to achieve the project objectives. The EEPs selected for HEDP comprise both procurable and non-procurable budget line items and include grants for HEC Secretariat, national research programs expenses, and annual recurring grants to universities / institutes /centers. The following EEPs have been selected: (a) Grant for HEC Secretariat Expenses (ID5850); Inter University Academic Activities (ID5867); Promotion of Research in Universities (ID5914), Pakistan Educational Research Network (ID 5941); Tenure Track System (ID 5940); Digital Library (ID 5942); and Recurring Grant to Universities/Institutes/Centers (various IDs). The EEPs contribute to overall HEC’s Vision 2025 and they are estimated at approximately US\$2.4 billion over the project period (Annex 1 provides the year-by-year budget projection for EEPs).

60. **DLIs.** The nine DLIs are described in detail in section VI. They are a set of intermediate outcome and outcome indicators for the project as a whole, aimed at achieving key results for improving research, and teaching and learning in HEIs in Pakistan. The DLI’s are scalable and the expected project years for each DLI’s achievement is indicated in the DLI matrix and Verification Protocol matrix.

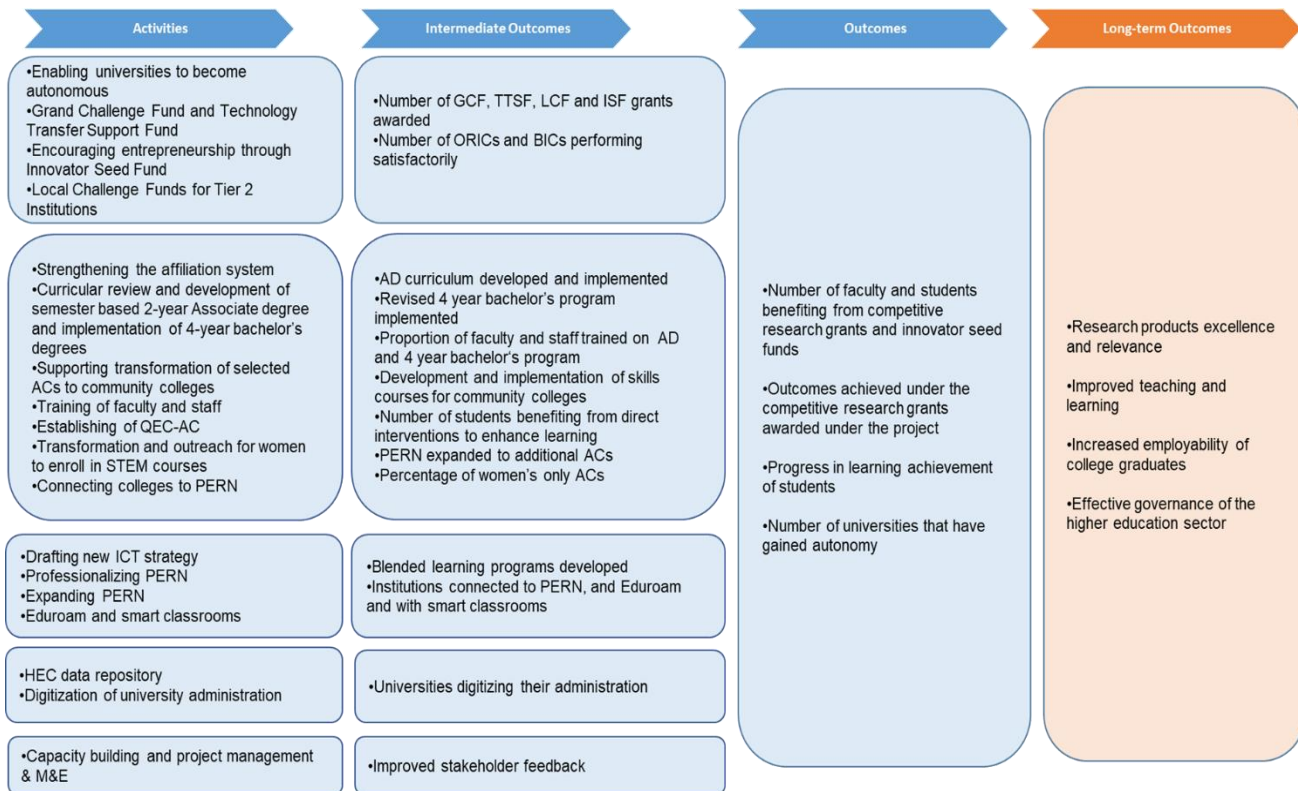
61. **DLI verification.** The achievement of selected DLI targets, will be verified and recommended to the WB by a Third Party Verification agency, with relevant expertise, before the funds can be disbursed. TPV agency will be hired under Component 5. The WB will review the TOR and contract award process of this TPV agency. For DLI targets that do not require verification, HEC will submit to the Bank evidence regarding achievement of target in an agreed format and the results will be verified by the WB.

### C. Project Beneficiaries

62. Direct beneficiaries of the project include all tertiary education students, recent graduates, academic staff, and administrators, in selected AUs and approximately 500 ACs who will benefit from improved conditions of the teaching, learning and research environment and strengthened governance in both public and private institutions across the country. It is expected that approximately 1.2 million students and academic staff in selected AUs and ACs will benefit from interventions under the Project. Indirect beneficiaries include the ACs under all universities that gain

enhanced autonomy and society in general and employers in particular who will benefit from improved teaching and learning and research produced by the HEIs.

#### D. Results Chain



#### E. Rationale for Bank Involvement and Role of Partners

63. **Pakistan needs to invest heavily in improved standards of teaching and learning at all levels of education, in particular at the tertiary level, if it is to leapfrog into the era of the fourth industrial revolution.** Increased enrollments and retention rates in basic education are putting a pressure on the higher education system to expand and absorb more youth. Rapid expansion initially compromised quality. With the establishment of HEC and the quality assurance role it played in the mid-2000s curbed the presence of the poorest quality institutes. However, it remains a known fact that barring a few Tier 1 universities, the standard of education delivered in Tier 2 universities and ACs is well below acceptable international standards and puts the students at a disadvantage in the local and global labor market. The tertiary education system needs to be strengthened in to prepare a globally competitive workforce.

64. **The WB has been supporting the revival of the higher education system in Pakistan since the early 2000s.** The previous two WB funded projects rated Satisfactory in achieving their planned targets. The Bank adds value by bringing systemic changes in the operating system for instance, a different way of supporting the AC sector which falls under the PHEDs but is indirectly linked to HEC through the AUs. Similarly, the Bank is supporting the ecosystem of research by providing ORICs and BICs with the broader tools and capacity to support researcher with a package of initiative that can make a business succeed.

65. **Though Pakistan has a number of partners active in the education sector, their involvement is limited to pre-tertiary level.** A few bi-lateral partners are working in higher education in Pakistan, mostly through bilateral

partnerships with educational institutes. USAID and JICA and some others have supported higher education sector. However, the WB remains the largest partner in higher education sector in Pakistan.

## **F. Lessons Learned and Reflected in the Project Design**

66. **Project design reflects the lessons learned from earlier operations in the higher education sector in Pakistan as well as in other countries in the South Asia Region and other regions.** It also takes into account the recommendations of the recent Independent Evaluation Group (IEG) report 'Higher Education for Development: An Evaluation of the WB Group's Support' as well as the report 'Ready to Learn. Ready to Thrive. Before School, In School, and Beyond School in South Asia'.

- *Drawing on sectoral knowledge for well targeted interventions.* The concept and design of the Project benefit from the findings of earlier analytical work. (i) a Higher Education Sector Assessment and an Affiliated College Assessment, both completed in 2017; (ii) a System Assessment for Better Education Result report Pakistan, 2017; and (iii) a series of 10 studies on specific issues in higher education, completed between 2015 and 2017 in the context of the TESP TA. The findings of the ICR on the TESP have also been taken into account in the preparation of the HEDP.
- *Acknowledging the complexity and fluidity of the political economy of the sector.* The uncertainty around the leadership of the HEC has been recently cleared, and a strong, dedicated team is now in charge and will remain tasked with the implementation of the project, guaranteeing a seamless transition. The conflictual relationship between federal and provincial higher education authorities has eased and has been replaced by a more cooperative climate. However, it is important to keep the design flexible enough to accommodate new institutional changes.
- *Aligning the DLI targets with the actual capacity of the institutions to achieve them.* Past operations have demonstrated that using too ambitious, unrealistic DLI targets can have perverse effects, with teams focusing almost exclusively on the DLIs at the expense of wider sectoral objectives. Also, it is essential that achieving the DLIs be strictly under the control of the implementing agency, and affected as little as possible by exogenous factors.
- *Integrating the project implementation mechanism in the regular, permanent institutional setup.* Experience has strongly demonstrated that DLI-based projects need to be fully integrated with the existing institutional structure and not seen as a stand-alone operation. This is critical to ensure staff commitment to activities that are clearly part of the institution's mission.
- *Bolstering implementation with sufficient TA.* Implementing the various interventions and achieving the DLIs requires an adequate dose of TA. Lack of such TA puts implementation at risk. As several activities under the HEDP include new features, it is particularly important that specific TA will be available to properly execute them. Equally essential (as was made clear under the TESP) is the opening of a Designated Account to allow timely reimbursement of expenditures under the TA component, which is not governed by the DLIs.
- *Setting up a strong and reliable M&E mechanism.* DLI operations need to be monitored and evaluated regularly to avoid deviations and lapses. This is especially important in the case of HEDP which include a wide spectrum of interventions and a large number of actors from different horizons at the federal, provincial and university level.
- *More than 30 innovation funds are being used in various parts of the world.* International experience suggests that innovation funds are highly effective mechanisms for improving transparency and efficiency of the budget allocation for tertiary education, for boosting educational quality, relevance and innovation within tertiary institutions, and for improving governance in higher education. The experience accumulated in the Bank indicates (i) the value of establishing diversified funding mechanisms for higher education that are demand-driven and have transparent procedures, as opposed to designating resources to narrowly defined purposes and in a top-down fashion; and (ii) the flexibility of competitive funds to respond, with transparent procedures, to specific sector development needs and to reorient resources from investments in teaching facilities to improvement of curricula and the learning process.

### III. IMPLEMENTATION ARRANGEMENTS

#### A. Institutional and Implementation Arrangements

67. **Institutional and implementation arrangements for the project will maintain and build on the existing institutional set-up of the tertiary education sector.** The project will be implemented at the federal and institutional levels through universities. In addition, the provincial governments and ACs play an important role in the delivery of tertiary education.

68. **Higher Education Commission (HEC).** At the federal level, HEC will be responsible for the overall implementation, coordination, and monitoring of activities under the project. Led by the Chairman, who is granted the status of a Federal Minister, HEC is an autonomous federal agency, and it consists of various departments headed by Members and Advisors who manage major activities of the Commission. The Commission provides overall strategic guidance and an enabling environment for the reforms in higher education and is a forum for higher level decision making and interface with the federal political leadership. Member, (Operations and Planning) who heads the Finance, Planning and Development Division, assisted by the HEDP Project Coordination Unit (PCU), will have overall responsibility for the day-to-day oversight, coordination and M&E of project activities. The PCU will be established no later than one month after the effective date.

69. **HEDP Steering Committee (SC).** HEDP SC will be established. The SC will be chaired by the Executive Director, HEC, and will include the Member (Operations and Planning), representatives, not below the rank of Joint Secretary from Ministry of Finance's Finance division, Ministry of Federal Education and Professional Training, Planning Development and Reform, and Economic Affairs Division, secretaries looking after affairs of higher education in the provincial governments, vice chancellors (VC) of public sector universities, one from each province, two VCs of private sector universities and one representative of the private sector.

70. HEC has an impressive track record and has managed to launch and coordinate the implementation of key reforms, including two WB funded projects, the Higher Education Support Project (HESP) and the TESP. The Implementation Completion Report (ICR) of the HESP rated HEC's overall implementation performance highly satisfactory, reflecting its full ownership and implementation of the reforms outlined under the HESP and TESP.

71. **Universities.** Public and private universities will be responsible for the implementation of interventions of which they will be beneficiaries. They will follow the guidelines provided by HEC under the operations manual.

72. **Ministry of Finance (MOF) and Planning Commission.** MOF allocates annual funding to HEC, and the Planning Commission has oversight of the development budget. HEC, in turn, allocates recurrent funds to universities based on a funding formula and implements approved development projects. HEC and the Planning Commission provide oversight during implementation of the development budget.

73. **Provincial governments.** At the provincial level, the HEDs of each Provincial Government will be responsible for coordinating and implementing HEDP activities related to ACs.

74. **Operations Manual (OM).** HEC will prepare an OM, a living document that includes (i) fiduciary and safeguards arrangements and guidelines; (ii) the eligible expenditure program; (iii) criteria and guidelines for selection and implementation of activities under all components; (iv) the implementation plan, with a time sequence of key activities under the components, implementation responsibilities among the various institutions, budgets and expected results; (v) detailed procedures on monitoring, evaluation, reporting and communication, including the results framework; and (vi) ToRs for key positions under the Project Coordination Unit (PCU). The approval of Operations Manual by the

steering committee is a condition for disbursement under Component 1, 2 and 4.

## **B. Results Monitoring and Evaluation Arrangements**

75. **HEC maintains a satisfactory statistical system with sufficient data to monitor most of the project outcomes, but the quality and availability of data, need to be improved.** Under component 4, HEDP will support the creation of a national level data repository at HEC, which can be used for planning and strategic purposes; and digitize and automate the financial and student administration of the universities. Since the roll-out of this system to all HEIs is expected to take time, data for the Results Framework and DLIs will be gathered, analyzed and reported by HEC. Each institution will carry out the main elements of HEDP monitoring and reporting based on the Results Framework.

76. **HEC will commission TPV agencies to verify a number of DLIs to help gauge the successful implementation of various interventions under the project.** Additionally, surveys will be conducted to provide stakeholders and beneficiaries with a deeper understanding of the performance and requirements of the tertiary education system. The planned surveys and studies will include (a) tracer survey conducted by HEC; (b) beneficiary feedback studies of students and faculty to provide continuous feedback to improve implementation performance; and (c) reasons behind systematic gender patterns in higher education, especially focused on female's lower participation.

## **C. Sustainability**

77. **The project is fully aligned with the HEC Vision 2025 both in content and in time-frame, and it will directly contribute to meeting those objectives.** The full integration of the project with the existing administrative structure is a strong predictor of its institutional and financial sustainability. The new HEC leadership is championing the project and is the main driver of changes in the higher education sphere. Beyond HEC, the project approach and its interventions have been discussed with a variety of stakeholders during consultations with academic (ACs and AUs) and business circles as well as with other governmental agencies, at both the federal and provincial levels, ensuring a large and lasting buy-in.

## **IV. PROJECT APPRAISAL SUMMARY**

### **A. Technical, Economic and Financial Analysis**

78. **Technical:** The technical design of the project is aligned to HEC Vision 2025. HEDP builds on the achievements from the Bank's previous engagement in tertiary education along with broadening and deepening Bank's engagement in several dimensions. First, the establishment of the 4-competitive research and innovation funds under Component 1 builds on broadening and deepening the interventions supported under TESP. Second, the support for the development of QECAC, rollout of four-year Bachelor program, including introduction of semester system, expanding and strengthening PERN services and development of HEMIS is informed by international best practice. In addition, the project has carefully analyzed what didn't work well in TESP and if a similar intervention is supported again, how it can be made more implementable within the current context.

79. **Economic and Financial Analysis:** Public financing of the project is justified by resulting public goods and externalities as well as improved equity; the Bank's value added arises from its expertise in higher education including its previous engagement with Pakistan. Component 1 of the project supports research, development and investment (RDI) activities which are expected to lead to new discoveries and innovations either being in themselves public goods or having significant positive externalities. For example, the Grand Challenge Fund supported under this component aims to develop solutions to some of Pakistan's most pressing problems including climate change and water scarcity. Component 2 would support affiliated colleges that promote equity as they serve poorer households and women.



Internal rates of returns to post-secondary education in Pakistan are high at about 14 percent. Estimated mincerian earnings functions using PSLM 2014-15<sup>18</sup> suggest that returns to post-secondary education are higher for females than males. Females who have a completed post-secondary education earning on average 2.2 times more than those who have completed secondary education while the difference for males is 1.8 times. The survey suggests that while, on average, 65.6 percent of graduates are employed, the gender difference is stark. Only 25.8 percent of females with post-secondary education are employed compared to 89.2 percent of males. Thus, provision of employable skills to girls through improved courses and programs will have a broader benefit on equity and gender parity. Finally, Component 3 supports ICT policy and interventions for the sector more broadly which would have large economies to scale; educational inputs are also more generally justified due to credit constraints that prevent individuals from borrowing against their future earnings.

**80. Cost-benefit analyses demonstrate substantial potential for return on investment for the project.** Component 1 supports RDI and innovation activities which are expected to create new discoveries and innovation as well as build Pakistan's scientific knowledge and human capital. While it is difficult to predict the value of new discoveries and innovations, they are potentially significant given the economic costs of the problems they aim to mitigate: for example, climate change was estimated to cost Pakistan US\$ 384 million in 2017 while water scarcity is expected to cost on average 1.44 percent of GDP per year. Component 2 will improve the quality of Affiliated Colleges and subsequently improve human capital of their graduates, among other activities. Even with marginal effects on employment rates and cognitive skills, the benefits would not only outweigh the costs of the activities to improve the quality of the Affiliated Colleges but also the costs of the other activities in the component. In terms of fiscal sustainability, the future recurrent costs implied by the project would represent a small fraction of public education expenditure at the end of the project; however, these costs may grow depending on student enrollment growth and growth in future public education expenditure.

## B. Fiduciary

**81. Financial Management:** HEC which is responsible for the implementation of the project has relevant experience with the implementation and the financial management reporting of the WB funded TESP which closed in 2017. A fresh assessment of the FM arrangements for HEC was carried out to ensure that effective controls exist and that the project funds will be used for the intended purposes to meet project objectives with due regard to economy and efficiency. The FM assessment shows that the overall FM risk is Moderate. The IDA funds for components 1,2 and 4 will be disbursed to the Federal Government's Consolidated Fund Account 1 - Non-Food. The Amount of disbursement for the result-based part of the project will be linked to the HEC meeting the pre-specified DLIs as would have been verified by an TPV. For Components 3 and 5, a Designated Account (DA) will be maintained at the designated branch of National Bank of Pakistan (NBP), which is a commercial bank. Disbursement of funds for the IPF components shall be against six monthly cash forecasts acceptable to the Bank.

**82.** The project will submit Interim Unaudited Financial Reports (IUFs) to the Bank in the format stated in the Disbursement and Financial Information Letter (DFIL), within 45 days after the close of each semester. On the basis of the IUFs, the Bank will document expenditures against EEPs and advances disbursed in the DA. The project annual financial statements will be audited by the office of the Auditor General of Pakistan (AGP) under Terms of Reference (TORs) acceptable to the Bank. The audit reports will be submitted to the Bank within 9 months after the closure of the financial year (June 30).

**83. Procurement:** Procurement will be carried out in accordance with the Bank's Procurement Regulations for Borrowers for Goods, Works, Non-Consulting and Consulting Services and applicable to Investment Project Financing (IPF) hereinafter referred to as "Regulations" dated July 1, 2016 Revised November 2017 and August 2018. The project

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<sup>18</sup> Pakistan Social and Living Standards Measurement survey conducted by the Bureau of Statistics Pakistan

will be subject to the Bank's Anticorruption Guidelines, dated October 15, 2006. The World Bank's Standard Procurement Documents (SPD) shall be used for Open International Competition. Goods, works, and non-consultancy services following Open National Competition shall be initially procured using Bank's relevant standard procurement documents. Upon finalization of the customized suite of standard procurement documents; aligned with Bank's Procurement Regulations, by Public Procurement Regulatory Authority (PPRA) these SPDs shall be employed. Procurements will follow a fit-for purpose approach to deliver Value for Money. There will be a possibility of outsourcing financial intermediation functions and use blockchain capability for better traceability of outflows. HEC's capacity to deliver HEDP will be strengthened through the establishment of Project Coordination Unit (PCU), including financial management and procurement specialists located within relevant HEC divisions under the leadership of Member (Operations and Planning). His role will be instrumental in facilitating PCU to achieve results through channeling necessary support from HEC relevant divisions and streamlining mechanisms for accountability.

84. **Procurement risks:** HEC has prior experience in implementing Bank financed projects. The fiduciary assessment carried out for HEC indicates "substantial" risk in procurement operations and contract management. The main drivers to the risks are associated with limited capacity in performing procurement and contract management activities, delay in procurement processing, and inadequate record management. Several measures to mitigate the risks would be put in place as described in the Annex.

### C. Safeguards

- (i) **Environmental Safeguards:** The following safeguard polices triggered Environmental Assessment (OP/BP 4.01), Forests (OP/BP 4.36), Natural Habitats (OP/BP 4.04), and Pest Management (OP/BP 4.09). The project will also use the WB Group Environmental, Health, and Safety Guidelines for labor health and safety management particularly related to activities in laboratories and small works. The project has been classified as Category B as no significant and/or irreversible adverse environmental impacts are anticipated from the investments (including some IT equipment replacements) and technical activities to be financed, which will be mostly delivered as small works to improve existing education and scientific facilities and research grants. Even though the project research activities (to be financed through the Grand Challenge Fund, the Technology Transfer Support Fund, the Innovator Seed Fund and Local Challenge Funds) would be related to sectors involving such environmental issues as pollution and use of natural resources, etc. (food security; water management and sustainability; sustainable energy; sociology/philosophy; development economics; urban planning; climate change/environment; and IT/telecom) the overall impact of the project is positive. The provision of access to modern technology could lead to a limited potential of e-waste management and recycling.

Since the precise details and exact locations of the investments (small works to be identified and grant systems to be launched during project implementation) are not known and defined, an Environmental and Social Management Framework (ESMF) has been prepared. The PCU will include an environmental specialist as a core team member (part of the Environmental and Social Cell) who will be supported, as required, by consultants. This cell will involve enough staff to ensure proper site-based monitoring of project interventions, facilitating screening, and reviewing the implementation of mitigation measures. Safeguards training needs have been identified as part of the ESMF at both the PCU and affiliated project partners for strengthening the preparation and implementation of management plans for the different types of activities supported by the project. The draft ESMF with the executive summary was disclosed in-country on HEC's website on March 27, 2019 for consultations, and on the World Bank InfoShop on April 24, 2019. Consultations with the stakeholders took place in Islamabad on April 10 and 11, 2019.

- (ii) **Social Safeguards:** Social risks associated with the project are rated Low to Moderate. As per approved ToRs for preparing an ESMF for the project, works involving land acquisition, resettlement, physical or

economic displacement, forced evictions or involuntary movements, will not be financed. Hence, World Bank OP 4.12 on *Involuntary Resettlement* is not triggered.

The Local Challenge Fund under Component 1 will provide grants for research to tackle pressing socioeconomic challenges in any district or locality where the university is located in. Research under the grant may address any of the 17 Sustainable Development Goal targets, with a focus on adapting solution to the local district/division level in Pakistan. Since the fund is competitive and open to all universities (including the University of Chitral), there is a possibility that grant applications may be received for research focusing on Kailash people, valleys or land. WB OP 4.10 has been triggered as a precautionary measure and an Indigenous People Planning Framework has been prepared.

The PCU will include a social specialist as a core team member (as part of the Environmental and Social Cell) who will be supported, as required, by consultants.

85. **Citizens Engagement.** Citizen engagement will be an integral part of the project during implementation. An intermediate outcome indicator has been included for seeking feedback from faculty and students through satisfaction surveys during the life of the project. As appropriate, on the basis of feedback course corrections will be made in the project interventions during the implementation of the project.

86. **Gender:** Gender related interventions are mainstreamed in the project design. Project design and analysis are described under the sector context and activities proposed to address gender gaps are described in components 1 and 2. The results framework presents gender disaggregated data to monitor interventions relating to research grants, innovator seed funds, and support to ACs.

87. **Climate Co-benefits:** The operation will contribute to climate co-benefits through both mitigation and adaptation efforts (Details in Annex 2).

(iii) **Grievance Redress Mechanisms**

88. HEC shall establish a Grievance Redress Mechanism (GRM) to facilitate the filing and resolution of project complaints and grievances. Under this mechanism, a Grievance Redress Cell (GRC) shall be established in the PCU. This GRC shall be directly accessible to the community, project(s) and subproject(s) for the registration of complaints and their resolution. The established GRM and contacts for GRC shall be communicated to the public and particularly the affected community through print and electronic media and during public consultations and community engagement events. This cell shall maintain a Complaints Management Database, linked to all project sites, with a focal person dedicated for logging complaints and grievances at each premises. PCU will ensure that the GRM system (and the Database) is implemented across all the associated universities. All written and oral grievances will be recorded in this Database. Android based GRM Application (GRM App) shall also be established and launched to make GRM effective, easy and accessible to everybody for lodging complaints. Reports on functionality of the Mechanism, types of complaints/grievances filed, resolution time etc., will be submitted to the Bank. The PCU shall establish the Mechanism within the first six months of Project operations, with technical support from the WB, if required.

89. Communities and individuals who believe that they are adversely affected by a 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 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 WB's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the WB'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 WB Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org)

## V. KEY RISKS

90. ***The overall risk rating is Moderate.*** Political and governance risks are rated as Moderate. The uncertainty caused by the devolution of education to the provinces in the 18<sup>th</sup> amendment and how this change applies to higher education has been resolved in the Council of Common Interest and the federal and provincial levels have started working collaboratively to carve out the role for each of them. Macroeconomic risks are Substantial because the country's vulnerability to shocks as the current account deficit is high and forex reserves have declined. To mitigate this risk, the project will be implemented gradually over a five-year period to allow for resolution of any macroeconomic shocks. The technical risk for the project is also Substantial. Based on HEC's experience with Bank projects and rules, the institutional capacity risk is rated as Substantial based on the experience from the previous project. Fiduciary risks are rated Substantial based on the FM and procurement capacity in HEC and the experience of the implementing agency. Although the project has a number of components and activities, it builds on previous project experiences and has provides for technical assistance to strengthen fiduciary capacity and capacity for implementation.



VI. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Pakistan

Higher Education Development in Pakistan

Project Development Objectives(s)

To support research excellence in strategic sectors of the economy, improve teaching and learning and strengthen governance, in the higher education sector.

Project Development Objective Indicators

Indicator Name	DLI	Baseline	Intermediate Targets				
			1	2	3	4	5
<b>Support research excellence in strategic sectors of the economy</b>							
Number of faculty and students benefiting from competitive research grants and innovator seed funds (of which females) (Cumulative)		0.00	000	All: 100 Females: 25	All: 250.00 Females: 67	All: 350.00 Females: 105	All: 350.00 Females: 105
Outcomes achieved under the competitive research grants awarded under the project	DLI 2	NA	--		30 competitive research grants awarded in Year 2 have achieved 30 percent of their outcome targets	(i) 40 competitive research grants awarded in Year 2 have achieved 60 percent of their outcome targets (ii) 30 competitive research grants awarded in Year 3 have achieved 30 percent of their outcome targets	(i) 60 competitive research grants awarded in Year 2 have achieved 80 percent of their outcome targets (ii) 40 competitive research grants awarded in Year 3 have achieved 60 percent of their outcome targets



Indicator Name	DLI	Baseline	Intermediate Targets				5
			1	2	3	4	
<b>Improve teaching and learning</b>							
Progress in learning achievement of AC students	--	--		Test designed and piloted	Test administered for the first time and baseline established	--	Test administered for the second time and 5 percent increase over baseline
<b>Strengthen governance</b>							
Number of universities that have enhanced autonomy (cumulative)	--		HEC has developed and adopted criteria for granting of enhanced autonomy	--	3	6	10

PDO Table SPACE

**Intermediate Results Indicators by Components**

Indicator Name	DLI	Baseline	Intermediate Targets				5
			1	2	3	4	
<b>Nurturing academic excellence in strategic sectors</b>							
Number of Competitive Research Grants and Innovator Seed Fund grants awarded	DLI 1	--	HEC has developed and adopted an Operations Manual for the Project which includes the grant funding mechanism for the Competitive Research Grants and ISF Grants.	(i) HEC has awarded a total of 75 Competitive Research Grants (25 GCF Grants, 35 TTSTF Grants and 15 LCF Grants) (ii) HEC has awarded 15 ISF Grants .	(i) HEC has awarded additional 75 Competitive Research Grants, over and above those awarded in Year 2 (25 GCF Grants, 35 TTSTF Grants and 15 LCF Grants) (ii) HEC has awarded additional 15 ISF Grants,	HEC has awarded additional 15 ISF Grants, over and above those awarded in Years 2 and 3	



					over and above those awarded in Year 2.		
Number of Competitive Research Grants and Innovator Seed Fund grants awarded to proposals with female principle investigators/ led by female recipients				(i) At least 15 CRGs have female principle investigators (ii) At least 5 ISF grants are led by female recipients	(i) At least 15 CRGs have female principle investigators over and above the target for year 2. (ii) At least 5 additional ISF grants over and above those awarded in year 2 are led by female recipients	At least 5 additional ISF, over and above year 2 and 3 are led by female recipients	
Number of ORICs and BiCs performing satisfactorily (cumulative)		N/A	Revised scorecard developed for measuring performance of ORICs and BiCs	ORICs: 20 BiCs: 3	ORICs: 30 BiCs: 5	ORICs: 40 BiCs: 8	ORICs: 50 BiCs: 10
<b>Support to decentralized higher education institutions for improved teaching and learning</b>							
Number of functional QECAC in AUs	DLI 3	N/A	3 AU's have functional QECAC	An additional 3 AU's over and above Year 1 have functional QECAC	An additional 4 AU's over and above Year 1 and 2 have functional QECAC	An additional 5 AU's over and above Year 1, 2 and 3 have functional QECAC	An additional 5 AU's over and above Year 1, 2, 3 and 4 have functional QECAC
Development and implementation of AD programs	DLI 4		Need Assessment study for developing AD programs completed	5 AD programs have been developed by HEC in accordance with international best practice.	(i) 60 ACs have enrolled the first cohort in at least one of the AD programs developed in Year 2 (ii) Additional 5 AD programs over and above Year 2, have been developed by HEC in accordance with international best practice. developed	(i) Additional 70 ACs over and above year 3 have enrolled the first cohort in at least one of the AD programs developed in Year 2 and 3 (ii) Additional 5 AD programs over and above Year 2 and 3, have been developed by HEC in accordance with international best	(i) Additional 70 ACs over and above year 3 and 4 have enrolled the first cohort in at least one of the AD programs developed in Year 2, 3 and 4 (ii) Additional 5 AD programs over and above Year 2, 3 and 4, have been developed by HEC in accordance with international best



						practice.	practice.
Implementation of 4 year Bachelor program	DLI 5	N/A	19 Affiliated Colleges have enrolled the first cohort of students in a 4-year Bachelor Program.	Additional 19 Affiliated Colleges, over and above those considered for Year 1 target, have enrolled the first cohort of students in a 4-year Bachelor Program.	Additional 19 Affiliated Colleges, over and above those considered for Years 1 and 2 targets, have enrolled the first cohort of students in a 4-year Bachelor Program.	Additional 19 Affiliated Colleges, over and above those considered for Years 1, 2 and 3 targets, have enrolled the first cohort of students in a 4-year Bachelor Program.	Additional 19 Affiliated Colleges, over and above those considered for Years 1, 2, 3 and 4 targets, have enrolled the first cohort of students in a 4-year Bachelor Program.
Development and Implementation of Skills Courses for CCs	DLI 6	N/A	HEC has carried out a needs assessment study for the development of skills courses	5 skills courses have been developed	(i) 6 CCs have implemented at least one of the courses developed in Year 2  (ii) Additional 5 courses over and above those accounted for Year 2 target, have been developed	(i) Additional 7 CCs over and above those considered for Year 3 target, have implemented at least one of the courses developed in Year 2 and 3  (ii) Additional 5 courses over and above those accounted for Year 2 and 3, have been developed.	(i) Additional 7 CCs over and above those considered for Year 3 and 4 target, have implemented at least one of the courses developed in Year 2, 3 and 4.  (ii) Additional 5 courses over and above those accounted for Year 2,3 and 4, have been developed.
Proportion of faculty and staff trained	DLI 7	0.00	10% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and 4-year	An additional 20% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and 4-year	An additional 20% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and 4-year	An additional 20% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associated Degrees and 4-year Bachelor	An additional 10% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and 4-year Bachelor Programs, over



			Bachelor Programs have been trained	Bachelor Programs, over and above the 10% required under Year 1 target, have been trained .	Bachelor Programs, over and above the cumulative 30% required under Years 1 and 2 targets have been trained.	Programs, over and above the cumulative 50% required under Years 1, 2 and 3 targets have been trained	and above the cumulative 70% required under Years 1, 2, 3 and 4 targets, have been trained
Students benefiting from direct interventions to enhance learning (CRI, Number) (Cumulative)		750,000.00	825,000	907,500.00	998,250	1,098,075	1,207,883
Students benefiting from direct interventions to enhance learning - Female (CRI, Number)		300,000.00	338,250	381,150	429,248	483,153	531,468
Expansion of PERN	DLI 8	PERN is available to 278 institutions, of which 38 offering eduroam	(i) 75 additional higher education institutions (HEI), over and above those considered as baseline, have been connected to PERN  (ii) 15 additional HEIs, over and above those considered as baseline, offer campus-wide Eduroam; and  (iii) 21 HEIs have established smart classrooms.	(i) 90 additional HEIs, over and above those considered as baseline plus those required in Year 1, have been connected to PERN;  (ii) 15 additional HEIs, over and above those considered as baseline plus those required in Year 1, offer campus-wide Eduroam; and  (iii) 26 additional HEIs, over and above those required in Year 1, have established smart classrooms	(i) 75 additional HEIs, over and above those considered as baseline plus those required in Years 1 and 2, have been connected to PERN;  (ii) 20 additional HEIs, over and above those considered as baseline plus those required in Years 1 and 2, offer campus-wide Eduroam; and  (iii) 23 additional HEIs, over and above those required in Years 1 and 2, have established smart classrooms.	60 additional HEIs, over and above those considered as baseline plus those required in Years 1, 2 and 3, have been connected to PERN.	
Proportion of women's only affiliated colleges benefiting from project interventions		Twenty-six percent of all affiliated colleges in Pakistan are "women's only"		50	50	50	50



Equipping Students and Higher Education Institutions with Modern Technology							
Blended learning programs (cumulative)		--	-	--	200 new programs offered using blended learning	400 new programs offered using blended learning	800 new programs offered using blended learning
Higher Education Management Information System and Data Driven Services							
Universities digitizing their administration	DLI 9	0.00	(i) HEC has established a central Data Repository (ii) 10 universities have piloted a digitized administration.	(i) Universities have directly fed data into HEC's Data Repository using a web-based reporting system (ii) Additional 10 universities, over and above those counted in Year 1, have piloted the digitized administration.	(i) HEC has produced and published an annual report using the information derived from its Data Repository (ii) Additional 10 universities, over and above those counted in Years 1 and 2, have migrated their administration to a digitized system.	(i) HEC has published a second annual report and a strategic plan, leveraging data from the its Data Repository (ii) Additional 10 universities, over and above those counted in Years 1, 2 and 3, have migrated their administration to a digitized system.	(i) HEC has published a third an annual report using information derived from its Data Repository (ii) Additional 10 universities, over and above those counted in years 1, 2, 3 and 4, have migrated their administration to a digitized system.
Capacity Building through partnerships, Project Management, Monitoring and Evaluation							
Citizen Engagement: Stakeholder feedback survey conducted		N/A	First survey designed and administered. Baseline satisfaction levels established		Second survey administered and satisfaction level of stakeholders increased by 5 percent		Third survey administered and satisfaction level of stakeholders increased by 10 percent

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**Monitoring & Evaluation Plan: PDO Indicators**

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of faculty and students benefiting from competitive research grants and	Team members (faculty and students) of the competitive research grants (including Grand Challenge Fund, Technology Transfer Support Fund, Local	Annual	HEC MIS	HEC MIS	HEC



Innovator Seed Funds (of which females)	Challenge Funds) and Innovator Seed Fund. Targets are cumulative.				
Outcomes achieved under the competitive research grants awarded under the project	Competitive research grants include the the Grand Challenge Fund, Technology Transfer Support Fund and Local Challenge Funds. The indicator supports the implementation and results of competitive research grants awarded. Outcome target need to be achieved for each grant. Outcomes will include, scientific communications, presentations at conferences, working papers, journal articles, reports, monographs, patents, copyrights and/or related rights, trademarks, prototypes and other research product assessed by independent reviewers. Achievement will be measured against the progress made on outcome targets as per the Grant agreement signed between HEC and the awardee.	Annual	HEC MIS	HEC MIS	HEC
Progress in learning achievement of students	A low stakes test to measure skills that matter for employability (including content knowledge, critical thinking and soft skills) will be designed and implemented in selected public ACs under the project on a pilot basis. The test will be administered on a random sample of students at the end of first academic year and at the end of final academic year for AD and Bachelor degree program.	Annual	HEC MIS	HEC MIS	HEC
Number of universities that have enhanced autonomy	HEC will develop the criteria for awarding enhanced autonomy to “responsible universities”. For example, preferred access to research funding, right to institute new programs, right to frame own curricula, award of tenure without endorsement by the HEC. The criteria will be approved by the steering committee to be adopted under the project. “Responsible universities” will submit proposal and evidence to meeting the required criteria for enhanced autonomy. HEC will review and award enhanced autonomy to “responsible universities”.	Annual	HEC MIS	HEC MIS	HEC

ME PDO Table SPACE

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of Competitive Research Grants and Innovator Seed Fund grants awarded (of which with female principle investigators/ led by female recipients)	HEC will develop the operations manual for the project which includes the implementation mechanism for all the components including the grant funding mechanism for competitive research grants and Innovator seed fund grants, acceptable to the Bank. The operations manual will be approved by the steering committee to be adopted under the project. Number of grants under the Grand Challenge Fund, Technology Transfer Support Fund, Innovative Seed Fund and Local Challenge Funds will be awarded in line with the grant funding mechanism, including share of	Annual	HEC MIS	HEC MIS	HEC



	grants that have female principle investigators and share of ISF that are led by female recipients as included in the grant funding mechanism.				
Number of ORICs and BiCs performing satisfactorily	Performance of ORICs and BiCs will be measured against an established scorecard. Targets are cumulative.	Annual	HEC MIS	HEC MIS	HEC
Number of functional QECAC in AUs	The project will support creation of a unit within the QEC unit in each AU. The units will be fully integrated in the structure of the QECs. "Functionality" is defined as (i) staffed by a team of 2 or 3 regular administrative staff; (ii) the involvement of the units in the activities aimed at supporting public ACs as per the specified ToRs approved by the AU Vice Chancellor, including regular monitoring of colleges as per the quality assurance criteria defined by HEC.	Annual	HEC, HED and AUs	HEC, HED and AUs	HEC, HED and AUs
Development and implementation of AD programs	Curricula for Associate Degree programs will be developed in accordance with international best practices. International best practice includes close consultation with experts drawn from the industry and community in the curricula development. The AD programs will follow a semester/ credit system and will be implemented in selected ACs. In the first year, a needs assessment study for identification and development of programs will be completed. The needs assessment study will look at the needs of the population and global trends to identify the subject areas. In the following years, the AD programs will be developed and implemented in selected public ACs. Implementation means that the first cohort is enrolled in at least one program developed in the previous years during the project life.	Annual	HEC MIS	HEC MIS	HEC
Implementation of 4 year Bachelor program	HEC periodically revises the curriculum in line with HEC's standard operating procedures for curriculum revision. The indicator will support the roll-out and implementation of the 4-year Bachelor program, of which some will be revised curriculum and some will be newly developed, in selected ACs. Implementation means that the first cohort is enrolled in at least one of the 4-year Bachelor program.	Annual	HEC MIS	HEC MIS	HEC
Development and Implementation of Skills Courses for CCs	Bridge/ semester courses focusing on market driven technical skills will be developed and implemented in selected community colleges. The needs assessment study will look at the needs of the population to identify the courses with a specific focus on technical/ vocational courses. The needs assessment study will look at the needs of the population and global trends to identify the subject areas. Implementation of courses means that at least one course developed in the previous years during the project life will be offered to students enrolled in the final year in the CCs	Annual	HEC MIS	HEC MIS	HEC
Proportion of faculty and staff trained	Training in management, teaching and learning assessments for AD and 4-year Bachelor program will be provided for faculty and staff in selected public AUs and public ACs offering AD and 4 year Bachelor programs. In the	Annual	HEC MIS	HEC MIS	HEC



	first year training will be provided by AUs. In the later years when NAHE is functional, training will be provided to master trainers by NAHE. The master trainers will impart training to other faculty through their AUs’.				
Students benefiting from direct interventions to enhance learning		Annual	HEC MIS	HEC MIS	HEC
Students benefiting from direct interventions to enhance learning – Female		Annual	HEC	HEC	HEC
Expansion of PERN	Measures the number of public institutions that are connected to PERN, number of institutions that have a campus-wide network offering free WiFi to all students as well as institutions with smart classrooms. Smart classrooms includes eclassrooms and elearning through which students can study virtually with access to all learning materials	Annual	PERN network usage statistics	HEC MIS	HEC
Percentage of women’s only public ACs benefiting from project interventions	Percentage of “women’s only” public ACs benefiting from project interventions under component 2	Annual	HEC	HEC	HEC
Blended learning programs	Measures the number of programs (Bachelors or Masters) that are offering blended learning opportunities. ‘Blended’ means that at least part of the program is offered online (i.e. web-based content and instruction, within the environment of a learning management system or an virtual learning environment), with some element of student control over time, place, and pace. The definition of the blended learning program will be provided in the operations manual. Annual targets are cumulative.	Annual	HEC MIS	HEC MIS	HEC
Universities digitizing their administration	HEC data repository means a portal that acquires data from universities and uses the same for data-driven decision making and predictive analysis. Established means that the data repository is collecting and storing data. Web-based reporting means that universities can access a web-portal to directly input the data, that this data will be automatically validated and fed into the HEC Portal. ‘Digitized university administration’ means that universities have an ERP with minimal functions (HR, accounting, budgeting and procurement) as well as a student lifecycle solution to manage student administration (enrolment, course participation, grades and transcripts, completion). Piloted means that universities have received the system, have used it for administrative purposes, have shared feedback on bugs, or features to be deleted or added. Migrated means that the core functions of the administration fully use the digital system, without needing paper for these functions to be executed. Strategic plan means a document that sets out strategic directions for the university sector in Pakistan, based on evidence and input from key stakeholders (universities, employers, faculty and students). Evidence Pilot reports that summarizes the experience of the universities,	Annual	HEC	HEC MIS	HEC



	with bugs found, and features to be added or removed. Third party validation of pilot report to document lessons learned for the sector as a whole in third year. Third party validation of web-based reporting system and HEC data repository in third year. Database content of HEC data repository will be detailed in the operations manual and in agreed format. Annual report with key data on higher education in Pakistan, published on the website of HEC. Strategic plan that uses data from the system to set out HEC strategic direction for the five years beyond the project, published on HEC website.				
Citizen Engagement: Stakeholder feedback survey conducted	Stakeholder feedback survey which will include feedback from faculty and students will be designed and administered in universities and colleges participating in the project	Annual	HEC	HEC	HEC

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**Disbursement Linked Indicators Matrix<sup>19</sup>**

Disbursement Linked Indicators Matrix <sup>19</sup>				
DLI 1	Number of Competitive Research Grants and Innovator Seed Fund grants awarded			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Outcome	Yes	Text	68,000,000.00	
Period	Value	Allocated Amount (USD)		Formula
Baseline	N/A			
June 2020	HEC has developed and adopted an Operations Manual for the project which includes the grant funding mechanism for competitive research grants and Innovator seed fund grants	1,000,000.00		N/A
June 2021	(i) HEC has awarded atleast 75 competitive research grants (25 GCF grants, 35 TTSF and 15 LCF grants); (ii) HEC has awarded 15 number of ISF grants	32,500,000.00		a. US\$21.5 million for GCF grants of which US\$8.6 million upon the first 10 GCF grants awarded and thereafter US\$860,000 for each additional GCF grant awarded

<sup>19</sup> The DLRs for Year 1 pertaining to DLI 1, 4 and 6 need to be achieved in the year that these are specified. DLRs pertaining to DLI 7 can be rolled over for period of 24 months up and until the Closing Date. All other DLRs can be rolled over for a period of 12 months up and until the Closing Date.



			<p>b. US\$5 million for TTSF grants of which US\$2.1435 million for the first 15 TTSF grants awarded and thereafter US\$142,825 for each additional TTSF grant awarded</p> <p>c. US\$4 million of which US\$2.18 million for the first 8 LCF grants awarded and thereafter US\$260,000 for each additional LCF grant awarded.</p> <p>d. US\$2 million of which US\$1.09 million for the first 8 ISF grants awarded and thereafter US\$130,000 for each additional ISF grant awarded</p>
June 2022	(i) HEC has awarded a total of 75 competitive research grants (25 GCF grants, 35 TTSF grants and 15 LCF grants), over and above those awarded in Year 2; (ii) HEC has awarded 15 number of ISF grants, over and above those awarded in Year 2.	32,500,000.00	<p>a. US\$21.5 million for GCF grants of which US\$8.6 million upon the first 10 GCF grants awarded and thereafter US\$860,000 for each additional grant awarded</p> <p>b. US\$5 million for TTSF grants of which US\$2.1435 million for the first 15 TTSF grants awarded and thereafter US\$142,825 for each additional TTSF grant awarded</p> <p>c. US\$4 million of which US\$2.18 million for the first 8 LCF grants awarded and thereafter US\$260,000 for each additional LCF grant awarded.</p> <p>d. US\$2 million of which US\$1.09 million for the first 8 ISF awarded and thereafter US\$130,000 for each additional ISF grant awarded</p>
June 2023	HEC has an additional 15 number of ISF grants over and above those awarded in year 2 and 3	2,000,000.00	US\$2 million of which US\$1.09 million for the first 8 ISF awarded and thereafter US\$130,000 for each additional grant awarded
June 2024			

**DLI 2 Outcomes achieved under the competitive research grants awarded under the project**

Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Intermediate Outcome	Yes	Text	58,000,000.00	
Period	Value		Allocated Amount (USD)	Formula
Baseline	N/A			
June 2020				
June 2021				
June 2022	30 competitive research grants awarded in Year 2 have achieved 30 percent of their outcome targets		7,250,000.00	US\$7.25 million of which US\$4.8 million upon achievement of outcome targets for at least 20 Year 2- Competitive Research Grants; and thereafter US\$245,000 for each additional Competitive Research Grant reaching the outcome targets.
June 2023	(i) 40 competitive research grants awarded in Year 2 have achieved 60 percent of their outcome targets (ii) 30 competitive research grants awarded in Year 3 have achieved 30 percent of their outcome targets		18,750,000.00	(a) US\$11.5 million of which US\$8.625 million upon achievement of outcome targets for at least 30 Year 2- Compleitive Research Grants; and thereafter US\$287,500 for each additional Year 2 -Competitive Research Grant reaching the outcome target;  (b) US\$7.25 million of which US\$4.8 million upon achievement of outcome targets for at least 20 Year 3- Research Competitive Grants; and thereafter US\$245,000 for each additional Year 3 Competitive Research Grant reaching the outcome targets.
June 2024	(i) 60 competitive research grants awarded in Year 2 have achieved 80 percent of their outcome targets		32,000,000.00	(a) US\$ 20.5 million of which US\$13.66 million upon achievement of outcome targets for at least 40 Year 2 - Competitive



	(ii) 40 competitive research grants awarded in Year 3 have achieved 60 percent of their outcome targets		Research Grants; and thereafter US\$342,000 for each additional Year 2 Competitive Research Grant reaching the outcome targets;  (b) US\$11.5 million of which US\$8.625 million upon achievement of outcome targets for at least 30 Year 3- Competitive Research Grants; and thereafter US\$270,000 for each additional Year 3 -Competitive Research Grant reaching the outcome target
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DLI 3				
Number of functional QECAC in AUs				
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Intermediate Outcome	Yes	Text	20,000,000.00	
Period	Value		Allocated Amount (USD)	Formula
Baseline	N/A			
June 2020	3 AU's have functional QECAC		3,000,000.00	US\$3 million of which US\$1 million for each functional QECAC
June 2021	An additional 3 AU's over and above those counted for Year 1 have functional QECAC		3,000,000.00	US\$3 million of which US\$1 million for each functional QECAC
June 2022	An additional 4 AU's over and above those counted for Year 1 and 2 have functional QECAC		4,000,000.00	US\$4 million of which US\$1 million of each functional QECAC
June 2023	An additional 5 AU's over and above those counted for Year 1, 2 and 3 have functional QECAC		5,000,000.00	US\$5 million of which US\$1 million of each functional QECAC
June 2024	An additional 5 AU's over and above those counted for Year 1,2, 3 and 4 have functional QECAC		5,000,000.00	US\$5 million of which US\$1 million of each functional QECAC



DLI 4				
Development and implementation of AD programs				
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Intermediate Outcome	Yes	Text	16,500,000	
Period	Value		Allocated Amount (USD)	Formula
Baseline	N/A			
June 2020	HEC has carried out a needs assessment study for developing AD programs		500,000	N/A
June 2021	5 Associate Degree programs have been developed by HEC in accordance with international best practices		2,500,000.00	US\$2.5 million of which US\$0.5 million for each Associate Degree program developed.
June 2022	(i) 60 Affiliated Colleges have enrolled the first cohort of students in at least one of the Associate Degree programs developed in Year 2;  (ii) Additional 5 Associate Degree programs, over and above those accounted for Year 2 target, have been developed by HEC in accordance with international best practices		4,300,000.00	US\$4.3 million of which: (a) US\$30,000 for each Associated College upon achievement of at least 50% of the target (i); and (b) US\$0.5 million for each Associate Degree program developed for target (ii).
June 2023	(i) Additional 70 Affiliated Colleges, over and above those considered for Year 3 target, have enrolled the first cohort of students in at least one of the Associate Degree programs developed in Years 2 and 3;  (ii) Additional 5 Associate Degree programs, over and above those accounted for Years 2 and 3 targets, have been developed by HEC in accordance with international best practices		4,600,000.00	US\$4.6 million of which: (a) US\$30,000 for each Associated College upon achievement of at least 50% of the target (i); and (b) US\$0.5 million for each Associate Degree program developed for target (ii).
June 2024	(i) Additional 70 Affiliated Colleges, over and above those considered for Year 3 and 4 targets, have enrolled the first cohort of students in at least one of the Associate Degree programs developed in Years 2, 3 and 4;		4,600,000.00	US\$4.6 million of which: (a) US\$30,000 for each Associated College upon achievement of at least 50% of the target (i); and (b) US\$0.5 million for each Associate Degree program



	(ii) Additional 5 Associate Degree programs, over and above those accounted for Years 2, 3 and 4 targets, have been developed by HEC in accordance with international best practices		developed for target (ii).
<b>DLI 5</b>	Implementation of 4 year Bachelor programs		
<b>Type of DLI</b>	<b>Scalability</b>	<b>Unit of Measure</b>	<b>Total Allocated Amount (USD)</b>
Intermediate Outcome	Yes	Text	10,000,000.00
<b>Period</b>	<b>Value</b>	<b>Allocated Amount (USD)</b>	<b>Formula</b>
Baseline	N/A		
June 2020	19 Affiliated Colleges have enroled the first cohort of students in a 4-year Bachelor Program.	1,875,000	N/A
June 2021	Additional 19 Affiliated Colleges, over and above those considered for Year 1 target, have enroled the first cohort of students in a 4-year Bachelor Program	1,875,000	N/A
June 2022	Additional 19 Affiliated Colleges, over and above those considered for Years 1 and 2 targets, have enroled the first cohort of students in a 4-year Bachelor Program.	1,875,000	N/A
June 2023	Additional 19 Affiliated Colleges, over and above those considered for Years 1, 2 and 3 targets, have enroled the first cohort of students in a 4-year Bachelor Program.	2,187,500	N/A
June 2024	Additional 19 Affiliated Colleges, over and above those considered for Years 1, 2, 3 and 4 targets, have enroled the first cohort of students in a 4-year Bachelor Program.	2,187,500	N/A



DLI 6				
Development and Implementation of Skills Courses for CCs				
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Intermediate Outcome	Yes	Text	16,500,000	
Period	Value		Allocated Amount (USD)	Formula
Baseline	N/A			
June 2020	HEC has carried out a needs assessment study for the development of Skills Courses.		500,000.00	N/A
June 2021	HEC has developed 5 Skills Courses		2,500,000.00	US\$2.5 million of which US\$0.5 million for each Skills Course developed.
June 2022	(i) 6 Community Colleges have implemented at least one of the Skills Courses developed in Year 2; (ii) HEC has developed additional 5 Skills Courses, over and above those accounted for Year 2 target		4,300,000.00	US\$4.3 million of which: (a) US\$0.3 million for each Community College for target (i); and (b) US\$0.5 million for each Skill Course developed for target (ii).
June 2023	(i) Additional 7 Community Colleges, over and above those considered for Year 3 target, have implemented at least one of the Skills Courses developed in Years 2 and 3; (ii) HEC has developed additional 5 Skills Courses, over and above those accounted for Year 2 target.		4,600,000.00	US\$4.6 million of which: (a) US\$0.3 million for each Community College for target (i); and (b) US\$0.5 million for each Skill Course developed for target (ii).
June 2024	(i) Additional 7 Community Colleges, over and above those considered for Year 3 and 4 targets, have [implemented] at least one of the Skills Courses developed in Years 2, 3 and 4; (ii) HEC has developed additional 5 Skills Courses, over and above those accounted for Years 2, 3 and 4 targets.		4,600,000.00	US\$4.6 million of which: (a) US\$0.3 million for each Community College for target (i); and (b) US\$0.5 million for each Skill Course developed for target (ii).



DLI 7				
Proportion of faculty and staff trained				
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Intermediate Outcome	Yes	Text	14,000,000	
Period	Value		Allocated Amount (USD)	Formula
Baseline	N/A			
June 2020	10% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and Revised (4-year) Bachelor Programs have been trained		1,750,000	Upon achievement of at least 50% of the target, US\$175,000 for each percentage point of staff and faculty trained, up to US\$1.75 million.
June 2021	An additional 20% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and Revised (4-year) Bachelor Programs, over and above the 10% required under Year 1 target, have been trained.		3,500,000	Upon achievement of at least 50% of the target, US\$175,000 for each percentage point of staff and faculty trained, up to US\$3.5 million.
June 2022	An additional 20% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and Revised (4-year) Bachelor Programs, over and above the cumulative 30% required under Years 1 and 2 targets have been trained.		3,500,000	Upon achievement of at least 50% of the target, US\$175,000 for each percentage point of staff and faculty trained, up to US\$3.5 million.
June 2023	An additional 20% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associated Degrees and Revised (4-year) Bachelor Programs, over and above the cumulative 50% required under Years 1, 2 and 3 targets have been trained		3,500,000	Upon achievement of at least 50% of the target, US\$175,000 for each percentage point of staff and faculty trained, up to US\$3.5 million.
June 2024	An additional 10% of faculty and staff of public Affiliating Universities and public Affiliated Colleges implementing New Associate Degree Programs and Revised (4-year) Bachelor Programs, over and above the cumulative 70% required under Years 1, 2, 3 and 4 targets, have been trained		1,750,000	Upon achievement of at least 50% of the target, US\$175,000 for each percentage point of staff and faculty trained, up to US\$1.75 million.



DLI 8				
Expansion of PERN				
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Intermediate Outcome	Yes	Text	50,000,000.00	
Period	Value		Allocated Amount (USD)	Formula
Baseline	PERN is available to 278 institutions, of which 38 offering eduroam			
June 2020	(i) 75 additional HEIs, over and above those considered as baseline, have been connected to PERN; (ii) 15 additional HEIs, over and above those considered as baseline, offer campus-wide Eduroam; and (iii) 21 HEIs have established smart classrooms		12,900,000	US\$12.9 million of which: (a) US\$140,000 for each additional HEI connected to PERN; (b) US\$90,000 for each additional HEI offering campus-wide Eduroam; and (c) US\$50,000 for each HEI with established smart classroom(s).
June 2021	(i) 90 additional HEIs, over and above those considered as baseline plus those required in Year 1, have been connected to PERN; (ii) 15 additional HEIs, over and above those considered as baseline plus those required in Year 1, offer campus-wide Eduroam; and (iii) 26 additional HEIs, over and above those required in Year 1, have established smart classrooms		15,250,000	US\$15.25 million of which: (a) US\$140,000 for each additional HEI connected to PERN; (b) US\$90,000 for each additional HEI offering campus-wide Eduroam; and (c) US\$50,000 for each HEI with established smart classroom(s).
June 2022	(i) 75 additional HEIs, over and above those considered as baseline plus those required in Years 1 and 2, have been connected to PERN; (ii) 20 additional HEIs, over and above those considered as baseline plus those required in Years 1 and 2, offer campus-wide Eduroam; and (iii) 23 additional HEIs, over and above those required in Years 1 and 2, have established smart classrooms.		13,450,000	US\$13.45 million of which: (a) US\$140,000 for each additional HEI connected to PERN; (b) US\$90,000 for each additional HEI offering campus-wide Eduroam; and (c) US\$50,000 for each HEI with established smart classroom(s).



June 2023	60 additional HEIs, over and above those considered as baseline plus those required in Years 1, 2 and 3, have been connected to PERN.		8,400,000	US\$140,000 per additional HEI connected to PERN up to US\$ 8.4 million.
June 2024				
<b>DLI 9</b>	Universities digitizing their administration			
<b>Type of DLI</b>	<b>Scalability</b>	<b>Unit of Measure</b>	<b>Total Allocated Amount (USD)</b>	<b>As % of Total Financing Amount</b>
Intermediate Outcome	Yes	Text	70,000,000.00	
<b>Period</b>	<b>Value</b>		<b>Allocated Amount (USD)</b>	<b>Formula</b>
Baseline	HEC has designed the data repository. HEC has identified the universities that will digitize their administration and mapped the functions that will be digitized.			
June 2020	(i) HEC has established a central data repository; and (ii) 10 universities have piloted a digitized administration.		14,000,000.00	(a) US\$ 7 million upon the establishment of HEC's central data system; and (b) US\$7 million upon achievement of target.
June 2021	(i) Universities have directly fed data into HEC's Data Repository using a web-based reporting system (ii) Additional 10 universities, over and above those counted in Year 1, have piloted the digitized administration		14,000,000.00	(a) US\$ 7 million upon the verification of data being fed directly into HEC Data Repository; and (b) US\$7 million upon achievement of target
June 2022	(i) HEC has produced and published an annual report using the information derived from its Data Repository (ii) Additional 10 universities, over and above those counted in Years 1 and 2, have migrated their administration to a digitized system.		14,000,000.00	(a) US\$ 7 million upon publication of HEC's annual report; and (b) US\$7 million upon achievement of target
June 2023	(i) HEC has published a second annual report and a strategic plan, leveraging data from the its Data Repository (ii) Additional 10 universities, over and above those counted in Years 1, 2 and 3, have migrated their administration to a digitized system.		14,000,000.00	(a) US\$ 7 million upon publication of HEC's second annual report and the strategic plan; and (b) US\$7 million upon achievement of target



June 2024	(i) HEC has published a third an annual report using information derived from its Data Repository  (ii) Additional 10 universities, over and above those counted in years 1, 2, 3 and 4, have migrated their administration to a digitized system	14,000,000.00	(a) US\$ 7 million upon publication of HEC’s third annual report; and  (b) US\$7 million upon achievement of target
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**Verification Protocol Table: Disbursement Linked Indicators**

<b>DLI 1</b>	Number of Competitive Research Grants and Innovator Seed Fund grants awarded
<b>Description</b>	HEC will develop the operations manual for the project which includes the implementation mechanism for all the components including the grant funding mechanism for competitive research grants and Innovator seed fund grants, acceptable to the Bank. The operations manual will be approved by the steering committee to be adopted under the project. Number of grants under the Grand Challenge Fund, Technology Transfer Support Fund, Innovative Seed Fund and Local Challenge Funds will be awarded in line with the grant funding mechanism, including share of competitive research grants awarded to female principle investigators and share of ISF awarded to female recipients as defined in the grant funding mechanism.
<b>Data source/ Agency</b>	HEC
<b>Verification Entity</b>	Third party verification (TPV) agency in Year 2-4, year 1 DLR verified by WB
<b>Procedure</b>	HEC will provide Bank (i) approved operations manual; (ii) the list of grants awarded, including information on number on female principle investigator/ recipients; (ii) Grant Agreements signed under the Grand Challenge Fund, Technology Transfer Support Fund, Innovative Seed Fund and Local Challenge Funds. (iii) TPV agency will verify the information provided by HEC by radomnly selecting 25% of the grants in Years 2-4; (iii) HEC will submit to the Bank evidence regarding achievement of the target (along with the verification of results from Years 2-4
<b>DLI 2</b>	Outcomes achieved under the competitive research grants awarded under the project
<b>Description</b>	Competitive research grants include the Grand Challenge Fund, Technology Transfer Support Fund and Local Challenge Funds. The DLI supports the implementation of competitive research grants. Outcomes will include, scientific communications, presentations at conferences, working papers, journal articles, reports, monographs, patents, copyrights and/or related rights, trademarks, prototypes and other research product assessed by independent reviewers. Achievement will be measured against the progress made on outcome targets as per the letter of agreement signed between HEC and the awardee. Outcome target % needs to be achieved for each grant.
<b>Data source/ Agency</b>	HEC



<b>Verification Entity</b>	Third party verification
<b>Procedure</b>	(i) Evidence regarding achievement of outcome targets for all grants will be collected and reported by HEC; (ii) TPV agency will verify the information provided by HEC by randomly selecting 50% of the grants in Years 3, 4 and 5; (iii) HEC will submit to the Bank evidence regarding achievement of the target (along with the verification of results from Years 3, 4 and 5)
<b>DLI 3</b>	Number of functional QECAC in AUs
<b>Description</b>	The project will support creation of a unit within the QEC unit in each AU. The units will be fully integrated in the structure of the QECs. "Functionality" is defined as (i) staffed by a team of 2 or 3 administrative staff; (ii) the involvement of the units in the activities aimed at supporting public ACs as per the specified ToRs approved by the AU Vice Chancellor, including regular monitoring of colleges as per the quality assurance criteria defined by HEC.
<b>Data source/ Agency</b>	HEC, HED and AUs
<b>Verification Entity</b>	Third party verification in all years
<b>Procedure</b>	TPV agency will verify (i) the existence of QECAC with dedicated staff; (ii) functionality
<b>DLI 4</b>	Development and implementation of AD programs
<b>Description</b>	Curricula for Associate Degree programs will be developed in accordance with international best practices. International best practice includes close consultation with experts drawn from the industry and community in the curricula development. The AD programs will follow a semester/ credit system and will be implemented in selected ACs. In the first year, a needs assessment study for identification and development of programs will be completed. The needs assessment study will look at the needs of the population, demand in the labor market, and global trends to identify the subject areas. In the following years, the AD programs will be developed and implemented in selected public ACs. Implementation means that the first cohort is enrolled in at least one program developed in the previous years during the project life.
<b>Data source/ Agency</b>	HEC
<b>Verification Entity</b>	WB for Year 1 and 2 and TPV agency for Year 3, 4 and 5
<b>Procedure</b>	In year 1, HEC will share the need assessment report with the Bank. In Year 2, 3, 4 and 5, HEC will provide Bank evidence on the list and details of programs developed. In Year 3,4 and 5, TPV agency will randomly select 20% of ACs to verify implementation of the revised curricula of the AD program.
<b>DLI 5</b>	Implementation of 4 year Bachelor program
<b>Description</b>	HEC periodically revises the curriculum in line with HEC's standard operating procedures for curriculum revision. The indicator will support the roll-out and implementation of the 4-year Bachelor program, of which some will be revised curriculum and some will be newly developed, in selected ACs. Implementation means that the first cohort is enrolled in at least one of the 4-year Bachelor program.



<b>Data source/ Agency</b>	HEC
<b>Verification Entity</b>	TPV agency for Year 1-5
<b>Procedure</b>	In Year 1-5, TPV agency will randomly select 25% of ACs to verify implementation of the 4-year Bachelor curricula for the respective programs.
<b>DLI 6</b>	Development and Implementation of Skills Courses for CCs
<b>Description</b>	Bridge/ semester courses focusing on market driven technical skills will be developed and implemented in selected community colleges. The needs assessment study will look at the needs of the population to identify the courses with a specific focus on technical/ vocational courses. The needs assessment study will look at the needs of the population, demand in the labor market, and global trends to identify the subject areas. Implementation of courses means that at least one course developed in the previous years during the project life will be offered to students enrolled in the final year in the CCs.
<b>Data source/ Agency</b>	HEC
<b>Verification Entity</b>	WB for Year 1 and 2 and TPV agency for Year 3, 4 and 5
<b>Procedure</b>	In year 1, HEC will share the need assessment report with the Bank. In Year 2, 3, 4 and 5, HEC will provide Bank evidence on the list and details of courses developed. In Year 3,4 and 5, TPV agency will randomly select 20% of CCs to verify implementation of the courses
<b>DLI 7</b>	Proportion of faculty and staff trained
<b>Description</b>	Training in management, teaching and assessments for AD and 4-year Bachelor program will be provided for faculty in selected public AUs and public ACs offering AD and 4 year Bachelor programs. In the first year training will be provided by AUs. In the later years when NAHE is functional, training will be provided to master trainers by NAHE. The master trainers will impart training to other faculty through their AUs’.
<b>Data source/ Agency</b>	HEC, HED, NAHE and AUs
<b>Verification Entity</b>	TPV in all years
<b>Procedure</b>	(a) On an annual basis, HEC will collect information and report to the Bank (i) from AUs and HED, the number of faculty in colleges and proportion trained, and (ii) from the AUs or NAHE, the list of trainings and number and name of faculty trained. (b) TPV will verify the training and the number of faculty trained from a random sample of 5% in each year.
<b>DLI 8</b>	Expansion of PERN
<b>Description</b>	Measures the number of public institutions that are connected to PERN, number of institutions that have a campus-wide network offering free WiFi to all students as well as institutions with smart classrooms. Smart classrooms includes eclassrooms and elearning through which students can study virtually with access to all learning materials



<b>Data source/ Agency</b>	PERN network usage statistics
<b>Verification Entity</b>	TPV in Years 1-4
<b>Procedure</b>	Annual reports from HEC on PERN connectivity, eduroam and smart classrooms. TPV in all years will randomly select 20% of institutions to verify PERN connectivity, eduroam and smart classrooms, respectively. In addition, in the years 3 and 5, TPV will conduct user satisfaction about PERN and campus network.
<b>DLI 9</b>	Universities digitizing their administration
<b>Description</b>	<p>Description: • HEC data repository means a portal that acquires data from universities and uses the same for data-driven decision making and predictive analysis. Established means that the data repository is collecting and storing data. Web-based reporting means that universities can access a web-portal to directly input the data, that this data will be automatically validated and fed into the HEC Portal. ‘Digitized university administration’ means that universities have an ERP with minimal functions (HR, accounting, budgeting and procurement) as well as a student lifecycle solution to manage student administration (enrolment, course participation, grades and transcripts, completion). Piloted means that universities have received the system, have used it for administrative purposes, have shared feedback on bugs, or features to be deleted or added. Migrated means that the core functions of the administration fully use the digital system, without needing paper for these functions to be executed. Strategic plan means a document that sets out strategic directions for the university sector in Pakistan, based on evidence and input from key stakeholders (universities, employers, faculty and students).</p> <p>Evidence: Pilot reports that summarizes the experience of the universities, with bugs found, and features to be added or removed. Third party validation of pilot report to document lessons learned for the sector as a whole in third year. Third party validation of web-based reporting system and HEC data repository in third year. Database content of HEC data repository will be detailed in the operations manual and in agreed format. Annual report with key data on higher education in Pakistan, published on the website of HEC. Strategic plan that uses data from the system to set out HEC strategic direction for the five years beyond the project, published on HEC website.</p>
<b>Data source/ Agency</b>	HEC
<b>Verification Entity</b>	TPV in all years.
<b>Procedure</b>	TPV will (i) verify the establishment of data repository; (ii) report on piloting in Year 1 and 2 will be done by a consultant or consultancy firm with expertise in digital administration and will include surveying institutions, HEC project staff, and experts. (iii) TPV in Year 2 of web-based reporting system will verify that it functions, and survey the users of the portal; (iv) TPV in Year 3,4 and 5 will verify the migration to digitized systems; (v) HEC will provide evidence in regard to publication of annual reports in years 3, 4 and 5.



**ANNEX 1: Implementation Arrangements and Support Plan**

**COUNTRY: Pakistan**  
**Higher Education Development in Pakistan**

**A. Project Implementation and Institutional Arrangements**

1. The proposed HEDP supports the implementation of a subset of the HEC’s Vision 2025. The project will be implemented over the five-year period 2019/20 – 2023/24. The roles and responsibilities of national and provincial governments and HEI in the implementation and coordination of the Project are summarized in Table 1.1 below and are described in detail in the project OM.

**Table 1.1. Key Roles and Responsibilities by Implementation Unit**

<b>Unit</b>	<b>Key roles and responsibilities</b>
<b>Federal Government</b>	
Ministry of Finance	<ul style="list-style-type: none"> <li>• Release recurring and development grants to HEC</li> </ul>
Planning Commission	<ul style="list-style-type: none"> <li>• Allocate development funds to HEC</li> <li>• Approve and revise development projects</li> </ul>
<b>Higher Education Commission</b>	
HEC	<ul style="list-style-type: none"> <li>• Guide HEC PCU for implementation of HEC mandate under HEDP</li> <li>• Provide advice and overall guidance for implementation of project activities</li> <li>• Provides grants (innovation and commercialization) to HEIs</li> <li>• Advises and guides public and private HEIs for quality and governance functions in the implementation of project activities.</li> </ul>
Chairman HEC	<ul style="list-style-type: none"> <li>• Lead HEC activities under the project</li> <li>• Liaise with top decision-making levels of Federal Government</li> <li>• Represent HEC in major public forums and the media</li> <li>• Chair meetings of the Vice-Chancellors Committee</li> </ul>
Executive Director HEC	<ul style="list-style-type: none"> <li>• Coordinate all HEC reform activities as the CEO of the organization</li> <li>• Lead HEDP Implementation</li> <li>• Lead HEDP Steering Committee</li> </ul>
Member (Operations and Planning)	<ul style="list-style-type: none"> <li>• Ensure proper management and monitoring, utilization of funds, and physical progress of the programs of HEC with respect to HEDP.</li> <li>• Manage the day-to-day operations and finances of the HEC PCU</li> <li>• Liaise with the WB for day-to-day HEDP coordination</li> </ul>
Member (Human Resource Development)	<ul style="list-style-type: none"> <li>• Ensure relevant staffing of HEC for the implementation of HEDP</li> <li>• Coordinate relevant trainings for staff involved in HEDP including procurement and FM.</li> </ul>
Member (Academics)	<ul style="list-style-type: none"> <li>• Coordinate revision of curriculum</li> <li>• Coordinate affairs related to Committee on Development of Social Sciences and Humanities in Pakistan, HEC approved supervisors, and HEC recognized journals</li> </ul>



Adviser (Quality Assurance and Learning Innovation)	<ul style="list-style-type: none"> <li>• Develop and implement quality enhancement, assurance and accreditation mechanisms at universities across the country under the HEDP</li> <li>• Improve the quality of teaching at universities with capacity development of higher education faculty members and staff</li> </ul>
Adviser (Finance)	<ul style="list-style-type: none"> <li>• Release of funds to public sector institutions out of allocated funds under HEDP to carry out programs</li> <li>• Disburse funds to public sector institutions on the basis of development projects and research based-specific proposals with respect to HEDP</li> <li>• Track recurring grant to universities and expenditures, therefrom.</li> <li>• Monitor federal funding and examines and track university expenditures with respect to HEDP</li> <li>• Prepare and manage HEC budget and incurs expenditure with respect to activities under HEDP</li> <li>• Provide counseling, guidance and co-ordination with universities for budget preparation and on financial matters with respect to the implementation of relevant activities under HEDP</li> </ul>
Advisor (M&E)	<ul style="list-style-type: none"> <li>• Monitor utilization of development grants and track expenditures with respect to HEDP</li> </ul>
<b>Universities</b>	
Universities	<ul style="list-style-type: none"> <li>• Implement HEDP activities at the field level</li> <li>• Execute HEI-led development projects with respect to HEDP</li> <li>• Liaise with HEC Monitoring and Evaluation Unit, through HEDP focal person, for monitoring and evaluation of HEDP</li> </ul>
<b>Provincial Government</b>	
Affiliated colleges	<ul style="list-style-type: none"> <li>• Implement HEDP activities at the field level</li> </ul>

2. HEC will be responsible for overall HEDP coordination and management and will provide technical support to the Steering Committee. HEC will liaise with the MOF, the MoPD&R and the agencies responsible for HEDP sub-components to ensure efficient planning and implementation. HEC will also provide technical support to planning, budgeting and procurement. Member (Operations & Planning), who heads the Finance, Planning and Development Division, will be responsible for liaison with the Bank. HEC will have, among others, the responsibilities to coordinate and oversee the implementation of the program to ensure that it meets its objectives; approve set of development activities under Component 5 and coordinate their implementation for the provision of required TA and capacity development activities under the project; facilitate information exchange and document experiences and lessons learned across provinces and institutions; monitor and evaluate effectiveness of project activities through the existing M&E Division of HEC; have overall responsibility for HEDP FM aspects, including preparation of consolidated Interim Financial reports (IFRs); consolidate HEDP progress reports; and liaise with the WB.

3. **HEDP Steering Committee (SC).** HEDP SC will be established. The Committee will be chaired by the Executive Director, HEC, and will include the Member (Operations and Planning), representatives, not below the rank of Joint Secretary, MOF’s finance division, Ministry of Federal Education and Professional Training, Planning Development and Reform and Economic Affairs Division, secretaries looking after affairs of higher education in the provincial governments, VCs of public sector universities, one from each province, two VCs of private sector



universities and one representative of the private sector. The SC may also co-opt any other member. It will meet at least twice a year. The member (Operations & Planning) will serve as the secretary of the Steering Committee. The roles and responsibilities of the HEDP SC will include the following:

- Ensure that agreed performance targets, including DLIs, and timelines for activities under the different components are met and advise on remedial actions in case the targets are not met or are unlikely to be met;
- Provide overall strategic guidance for HEDP planning and implementation;
- Provide oversight of FM, including reviewing progress reports, internal and external audit and third party reports, and management responses and actions taken on these reports;
- Communicate HEDP programs and needs to various stakeholders;
- Recommend improved implementation and coordination strategies to HEC; and
- Any other matter that HEC may want to bring before the SC.

4. **HEDP Project Coordination Unit (PCU).** HEC will establish an PCU that will be responsible for operational support, coordination and reporting of the program. The PCU will consist of: (a) HEDP coordinator; (b) four program officers; (c) financial management specialist; and (d) procurement specialist and (e) environment and social safeguard specialist. In addition, HEC may recruit specialists, including M&E and communication specialists to be located in the relevant divisions to provide technical support for project implementation. The PCU will report directly to the Member (Operations and Planning), and coordinate the implementation of the Project, working closely with each implementing unit, and will prepare the required documents for the Bank or government agencies related to project implementation.

5. The general responsibilities of the component and subcomponent coordinators are as follows:

- Advise HEC Executive Director and Member (Operations and Planning) on planning, implementation, monitoring and reporting processes;
- Manage communication and information, including stakeholder consultations;
- Provide guidance and technical support to implementing institutions and provincial governments, including through field visits;
- Manage assigned TA support and other contracted activities; and
- Any other HEDP related activities so assigned by the Executive Director HEC.

6. HEC will prepare an OM for the project. The OM will be a living document, which will include detailed procedures for (i) fiduciary and safeguards arrangements and guidelines; (ii) the eligible expenditure program; (iii) criteria and guidelines for selection and implementation of activities under Component 1; (iv) the implementation plan, with a time sequence of key activities under all the components, implementation responsibilities among the various institutions, budgets and expected results; monitoring, evaluation, reporting and communication, including the results framework; and ToRs for key positions under the PCU. The approval of Operations Manual by the steering committee is a condition for disbursement under Component 1, 2 and 4.

## **B. Financial Management**

7. HEC is responsible for the implementation of the project. It has relevant experience of implementing and FM reporting of WB funded TESP which ended in 2017. A fresh assessment of the FM arrangements in place was carried out for HEC to ensure that effective controls exist and that the project funds will be utilized for intended



purposes to meet project objectives with due regard to economy and efficiency. The FM assessment rates the overall FM risk as Moderate.

8. The Project will prepare annual financial statements in accordance with cash basis International Public Sector Accounting Standard which will be audited by the Auditor General of Pakistan and submitted to the Bank within 9 months of the year-end.

### **Staffing**

9. The Finance Division, HEC is responsible for the FM and reporting. The Division is headed by an Advisor Finance. There are three segregated units, Finance Operations, Finance Planning, and SAP Competence Centre with well-defined job responsibilities. These units are headed by the Director General (DG) Finance who reports to Financial Advisor. Key positions are occupied by experienced individuals. The rest of the staff have appropriate professional qualifications and experience to manage the finance, budgeting and SAP based accounting and reporting functions. On the basis of annual performance evaluations, training plans are prepared to address any capacity shortfalls. All staff are hired competitively and none are on deputation from the Office of Auditor General of Pakistan. Finance units are present at the Regional offices as well. They report to the Regional Directors. The staffing is carried out by the Head Office. It is agreed that one Financial Management Specialist (FMS) with relevant experience and qualifications will be appointed for the project financial management.

### **Planning and Budgeting**

10. The Budget Section of the Finance Planning Unit of HEC's Finance Division, is responsible for annual budget preparation for HEC PCU and various programs (recurring and development grants). A comprehensive exercise is undertaken for the preparation of budget - schedule and budget forms are circulated during the year to all departments including HEC Regional Offices with deadlines to comply with. Based on the inputs and discussions with departments a final budget comprising of recurrent and development grants with detailed notes is reviewed and examined by the Finance Planning Committee having representation of the Ministry of Finance and the Ministry of Education, GoP. On the recommendations of the Finance and Planning Committee, the annual budget is presented to the Commission, HEC's governing body by the end of third quarter. HEC final budget is submitted to the Ministry of Finance (MoF) which incorporates it in the national budget allocating annual recurrent and development funding to HEC. HEC, in turn, allocates recurrent grants among universities based on a formula funding<sup>20</sup>. The Planning Commission is responsible for authorizing quarterly releases of allocated development grants, and approval and revision in the ongoing development projects. The Planning Commission also oversees development budget and approves new schemes which are beyond the approving ceiling of HEC. HEC is responsible for the implementation of the development budget. The MoF releases funds to HEC related to recurring grants on monthly basis in assignment account whereas; development grants are released on quarterly basis in the development grants assignment account. HEC issues cheques to the respective universities/institutions against their budgetary allocations for recurring and development grants for the respective assignment accounts. Policies are in place regarding approvals required for departures from budgeted activities and costs. The Finance Division generates a budget versus actual comparison statement at the end of each quarter. This is submitted for analysis and necessary action to the Executive Director. Adequate budgetary provisions will be made for expenditures forecasted under HEDP for procurement related expenditures under Component 1, 2 and 4.

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<sup>20</sup> HEC allocate recurrent resources to universities in a transparent manner on the basis of funding formula. It is based on three parameters: (i) student numbers weighted for area of study, (ii) grading and performance – as measured by the number of PhD students and the number of faculty with PhDs, and (iii) a compensation factor to counterbalance previous resource allocation inequalities among universities.



### **Timely Release of Funds**

11. In addition to the agreed budgetary allocations for the next three years, timely release of funds by MoF is a critical factor for the effective implementation of reform activities under the project. The MoF timely releases on monthly basis recurring grants for the payment of salaries and other operational expenditures while development grants for payment of scholarships and contractors are released on quarterly basis. Timely release of funds by the MoF is a critical factor for the effective implementation of activities under the Project. HEC is also committed to release allocated funds to institutions according to an agreed implementation schedule.

### **Accounting**

12. HEC uses modified cash basis of accounting in accordance with IPSAS using Chart of Accounts for classifying accounting transactions and reporting in compliance with New Accounting Model (NAM) developed under Project for Improvement of Financial Reporting and Auditing. A web-based Finance Management Information System using SAP has been implemented having functional Modules related to: (i) Financial Accounting; (ii) Project Systems; (iii) Human Resource; and (iv) Material Management and Procurement. The parameters and functionalities are the same as those in the national Financial Accounting and Budgeting System. Sufficient data are captured to enable all external and internal reporting requirements to be met in a timely fashion. Effective July 2010, all the Regional offices have been provided access to this system and transactions are recorded real-time. Necessary arrangements will be made such as opening a separate fund center to capture expenditures related to HEDP. Expenditures for EEPs relating to recurrent expenditures are already captured in detail in the books of account and reporting parameters will be established by installing SAP terminal under PIFRA, to enable the Bank's reporting requirements to be met satisfactorily. The project will maintain appropriate accounting records using HEC financial management information system (FMIS) under SAP and in accordance with the approved accounting procedures for HEC.

### **Internal Auditing**

13. There is no internal audit function in place. However, an extensive Audit Division is in place and reports to the Executive Director of HEC. Its capacity and functions were reviewed. Primarily, Audit Division is only carrying out pre-audit and vetting of all types of expenditures to ensure, compliance with applicable government rules/regulations and code formalities. The Audit Division scope work requires to be revisited and as a good corporate practice, internal audit function is to carry-out post audit of transactions to ensure that approved internal controls policies both administrative and accounting are being followed by the concerned officials. The audit personnel require training and guidance in adopting modern internal audit techniques such as Risk-Audit Based Approach which can function as an effective internal control tool.

### **Funds Flow and Disbursement Arrangements**

14. The IDA funds for the component 1,2 and 4 will be disbursed to the Federal Government's Consolidated Fund Account 1 - Non-Food. The disbursement for the result based part of the project will be linked to the HEC meeting the pre-specified DLIs as would have been verified by a TPV. Up to US\$ 55 million will be available over the life of the project for expenditures on inputs against EEPs. The remaining amount will be disbursed after adjusting for the amount expended for inputs.

15. For traditional IPF components (Component 3 and 5), a Designated Account (DA) shall be maintained at the designated branch of National Bank of Pakistan. Disbursement of funds for the IPF components shall be against six monthly cash forecasts provided in interim un-audited financial reports (IUFRs) to be submitted within 45 days



of the end of semester ending March 31 and September 30. The project will submit IUFRRs to the Bank as per agreed format within 45 days of the close of each semester. On the basis of IUFRRs, the Bank will document expenditures against advances disbursed in the DA. The withdrawal applications (WA) will be supported with IUFRRs and Budget Execution Reports (BERs) that will provide the details of expenditures in each of the agreed EEPs under Component 1,2 and 4, and the heads for Component 3 and 5.

16. HEC, on behalf of the Government, shall prepare and submit Interim Unaudited financial reports (IUFRRs) within 45 days of the end of semesters. Disbursement from the Credit proceeds, in US Dollars, will be translated to Pak Rupees by the State Bank of Pakistan, and the local currency shall form the transaction basis for the operation's accounting and reporting.

17. **Eligible Expenditure Programs (EEP):** HEC overall budget comprise of annual recurring grants and development grants. The recurring grant has further two components viz. (i) Grants for HEC Secretariat, National Research Programs expenses, and (ii) annual recurring grants to universities / institutes /centers. For component 3 and 5 activities identified in HEDP project a separate development project (PC-I) will be approved by the government in line with approved policy. The EEPs would essentially comprise the recurrent grant line items, as mentioned below. Under Component 1, 2 and 4, the Bank will finance, up to a capped amount, subject to any deductions equivalent to the price of unmet DLIs, and will be tracked to identifiable expenditures of HEC's recurring budget. These expenditures are clearly identifiable in the FMIS and are referred to as EEPs. A brief description of EEPs under the Project is provided below:



**Recurrent Grants:**

Functional Classification	Object Classification	DLI	Fund Centre Description	PROJECTED ALLOCATION [US\$MILLIONS]					Total
				2019-20 Y <sub>1</sub>	2020-21 Y <sub>2</sub>	2021-22 Y <sub>3</sub>	2022-23 Y <sub>4</sub>	2023-24 Y <sub>5</sub>	
93101	A05270 - Grants Domestic – Others	DLI 1,2,3,4,5,6,7,8,9	Higher Education Commission	4.5	4.7	5.0	5.3	5.7	25.2
93101	A05270 - Grants Domestic - Others	DLI 3,4,5,6,7	Inter University Academic Activities	5.0	5.3	5.6	6.0	6.3	28.3
93120	A03970 - Operating Expenses - Others	DLI 1,2	Promotion of Research in Universities	23.3	24.7	26.1	27.7	29.4	131.1
93120	A03970 – Operating Expenses – Others	DLI 8	Pakistan Educational Research Network	3.8	4.0	4.2	4.5	4.7	21.2
93120	A03970 – Operating Expenses – Others	DLI 1, 2	Tenure Track System	27.2	28.8	30.6	32.4	34.3	153.3
93120	A03970 – Operating Expenses – Others	DLI 1, 2	Digital Library	7.8	8.2	8.7	9.2	9.8	43.8
93101	A05270 – Grants Domestic – Others	DLI 3,4,5,6,7,9	Recurring Grants to Universities / Institutes / Centers	347.3	368.1	390.2	413.6	438.4	1,957.7
93102	A03970 – Operating Expenses – Others								
93120									
<b>TOTAL [USD Millions]</b>				<b>418.8</b>	<b>443.9</b>	<b>470.5</b>	<b>498.7</b>	<b>528.7</b>	<b>2,360.6</b>

(i) Grant for HEC Secretariat Expenses (**ID5850**): Federal Government is providing budgetary support to HEC for incurring its overall recurring expenditures. This line item is clearly defined and track able in government’s budget under relevant function and object classification as per NAM. The grant mainly supports employees’ salaries of HEC and some operational expenses of HEC Secretariat and constitute nearly 50% of total expenditure



of HEC. Rest of expenditures are met from self-generated income.

(ii) **Inter University Academic Activities (ID5867):** HEC has set up this separate fund center to promote different cross sector activities such as trainings and skills development of university faculty, programs like Seminars & Conferences, Travel Grants, institutional performance evaluations, accreditation of academic programs, curriculum revision, etc. This fund center includes 36 such programs defined in HEC SAP system under sub-codes IU003 to IU0073. GL codes ranging from Z0211209 to Z0211273 have been assigned (as per HEC Chart of accounts) to record expenditures in relevant heads.

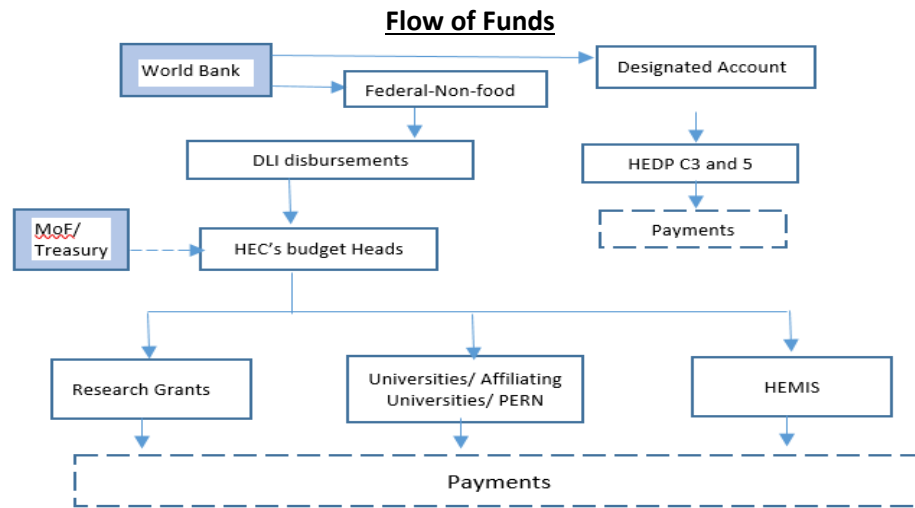
(iii) **Promotion of Research in Universities (ID5914):** This fund center includes 33 research and research support programs for the whole higher education sector. Programs include 'National Research Program for Universities', thematic research grant program, support to various journal, International Research Support Initiative Program (IRSIP), etc. Under this main fund center sub-programs have been clearly defined in HEC SAP system PR0001 to PR0052 with specific GL codes ranging from Z0211303 to Z0211345 to record expenditures in relevant heads against approved budget.

(iv) **Pakistan Educational Research Network (ID 5941):** This line item support operation and maintenance cost of exclusive IP based research network providing high speed audio/video/data communication between the institutions (intranet) and to the work (internal) having 10 GB backbone. Expenditures include general administrative & operation cost, bandwidth, fiber connectivity with information security & services cost, etc. Sub-fund centers have been clearly defined in HEC SAP system (PERN01 to PERN10) having separate GLs (Z0211712 to Z0211737).

(v) **Tenure Track System (ID 5940):** A separate funding stream is kept to provide additional funds to universities for financial impact of faculty appointed under TTS. Faculty on the tenure track system are appointed by universities on the basis of criteria/qualifications prescribed in the Tenure Track Statutes, which have already been adopted by universities through their governing bodies. In this program, the fresh returning PhD graduates (indigenous and overseas) are placed in universities for one year and their salary amount equivalent to the salary of Assistant Professor under TTS are provided to universities with specific GL codes Z0211501 to Z0211503

(i) **Digital Library (ID 5942):** This budget line item provides researchers in universities and R&D organizations, across the Pakistan, the access to international scholarly literature-higher quality peer-reviewed journals, databases, articles and e-Books and other digital resources from world renowned publishers. Subscription fee and other mandatory charges are paid from this budget head to publishers such as Elsevier, Science Direct, JSTOR, Blackwell, Springer Link, etc., as well as e-databases from IEEE, Royal Society of Chemistry, American Institute of Physics, Association of Computing Machinery, American Society of Mechanical Engineers, etc. HEC National Digital Library Program is significantly impacting the research output originating from Pakistani institutions in impact factor journals. For budgeting, incurring expenditure, and reporting, sub-fund codes ranges from DL 0001 to DL 0024 with specific GL codes Z0211750 to Z0211760.

(ii) **Recurring Grant to Universities/Institutes/Centers (various IDs):** HEC is providing annual recurring grants (Grant-in-Aid) to 99 public sector Universities (99), 12 Centers of Excellences, 12 Area Study/Pakistan Study Centers, and 26 other institutes of higher education in Pakistan. These grants provides budgetary support to such institutions and mainly support salaries' component and other operational expenditures. Federal Government's budget book reflects institution-wise separate annual allocation under specific institution code (fund centers). These grants are disbursed on monthly basis to all institutions and expenditure is recorded on disbursement and reconciled on monthly basis with AGPR.



### Financial Reporting

18. The FM systems are set up to handle extensive reporting requirements in a flexible manner. The Operating Manual lists internal and external reports prepared by the Finance Division. Quarterly management reports include both financial and non-financial information and an analysis of actual to budget variances.

19. Reports will be designed in the FMIS to provide detailed information (object head-wise) of budgeted and actual expenditures for the EEPs under Comp 1, 2 and 4 and IPF components 3 and 5. These will form the basis of documentation of expenditures against disbursements for EEPs as reported in the FMIS. Annual financial statements will be prepared for the Project in accordance with the Cash Basis International Public Sector Accounting Standard which will provide details of expenditures against EEPs under Comp 1, 2 and 4 and IPF components 3 and 5 for the project and sources of funding for the same (Government, IDA and any other).

### Auditing

20. External audit of HEC annual accounts are conducted by the auditors from the Department of Auditor General of Pakistan, who have completed the audit for FY 2017/2018 (year ended June 30, 2018) in accordance with the Financial Audit Manual issued by the Auditor General of Pakistan. Further, Department Audit Committee (DAC) has discussed audit paras up to FY 2016/2017 and Public Accounts Committee (PAC) of the Parliament has taken up for discussions advanced audit paras up to FY 2015/2016.

21. Project financial statements with a comprehensive disclosure of the operations, resources and expenditures for the Project will be prepared, audited and submitted along with auditor's management letter to the Bank within 6 months of the close of each financial year. The Auditor General of Pakistan will conduct an audit of the project financial statements. The audit report for project financial statements for the financial year ended June 30 each year is due December 31 each year. HEC is not currently implementing any Bank-financed operation and as such there are no unsettled ineligible expenditures or overdue audit reports.

### C. Procurement

22. Procurement will be carried out in accordance with the Bank's Procurement Regulations for Borrowers for Goods, Works, Non-Consulting and Consulting Services and applicable to Investment Project Financing (IPF) hereinafter referred to as "Regulations" dated July 1, 2016 Revised November 2017 and August 2018. The project will be subject to the Bank's Anticorruption Guidelines, dated October 15, 2006. The World Bank's Standard



Procurement Documents (SPD) shall be used for Open International Competition. Goods, works, and non-consultancy services following Open National Competition shall be initially procured using Bank's relevant standard procurement documents. Upon finalization of the customized suite of standard procurement documents; aligned with Bank's Procurement Regulations, by Public Procurement Regulatory Authority (PPRA) these SPDs shall be employed.

24. **Procurement** shall be aligned with principles of procurement stated in Procurement Regulations and shall follow a fit-for purpose approach to deliver VfM. There will be a possibility of outsourcing financial intermediation functions and use blockchain capability for better traceability of outflows. Project Procurement Strategy for Development (PPSD) and Procurement Plan: A PPSD (this document) has been developed by HEC in agreement with the Bank, considering the volume of items to be procured, prevailing market conditions, activity level risks etc. The PPSD spells out the appropriate procurement strategy for the respective component of the project. PPSD is a live document and it is to be updated at least annually. As an output of the PPSD exercise, initial Procurement Plan for HEC has been prepared. For each contract to be financed under the project, the different selection methods for procurement, market approach, the need for prequalification, contracting arrangement, estimated costs, prior review requirements and time frame were also agreed between HEC and the Bank in the Procurement Plan.

25. **Systematic Tracking of Exchanges in Procurement (STEP)** and procurement planning. The project will implement STEP, a World Bank planning and tracking system, which would provide data on procurement activities, and establish benchmarks. Procurement Plan will be prepared in STEP and the same will be updated in agreement with the project team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

26. **Procurement Responsibility:** 4. HEC's capacity to deliver HEDP will be strengthened through the establishment of Project Coordination Unit (PCU), including financial management and procurement specialists located within relevant HEC divisions under the leadership of Member (Operations and Planning) who heads Finance, Planning and Development Division. His role will be instrumental in facilitating PCU to achieve results through channeling necessary support from HEC relevant divisions and streamlining mechanisms for accountability.

27. **Procurement risks:** HEC has prior experience in implementing Bank financed projects. The fiduciary assessment carried out for HEC indicates "substantial" risk in procurement operations and contract management. The main drivers to the risks are associated with limited capacity in performing procurement and contract management activities, delay in procurement processing, and inadequate record management. Several measures to mitigate the risks would be put in place as described as follows.

28. **Managing Procurement Risks:** To minimize the procurement associated risks, the following measures have been agreed upon with the implementing agencies.

- *Procurement Committee:* HEC shall ensure that the bid / proposal evaluation committees are formed in a manner acceptable to the Bank, and Bank's no objection shall be required on the formation, as well as alteration in the composition or membership, of the bid / proposal evaluation committees. Procurement consultants project will be mandatory members of the bid / proposal evaluation committee of HEC.
- *Due-diligence Measures:* The following measures will be adopted as part of procurement and implementation arrangements: (a) all bid evaluation reports will include verification of recommended bidders' post-qualification information, (b) make bidders generally aware about fraud and corruption issues, (c) preserve records and all documents regarding procurement (including correspondences with the potential bidders as well as complaints / clarification requests etc.) in accordance with the Bank's *procurement regulations* and the national procurement laws to facilitate smooth procurement audit or post-review, and (e) publish contract award information on HEC respective HEI website within two weeks



of contract award (and in UNDB online for international contracts).

- Special Measures for Internationally Advertised Contracts  
*Service of international technical and procurement experts:* HEC will recruit one procurement expert and one contract management specialist to act as members of its Bid Evaluation Committee for internationally advertised IT systems and consulting services contracts for firms.
- *Bid / Proposal Evaluation Committee (BEC/PEC):* HEC will form a Bid / Proposal Evaluation Committee for internationally advertised contracts for IT System, and consulting services for firms. The committee will consist of five members including international procurement expert, international technical expert, local procurement consultant and two other members of the agency. Formation of such BEC / PEC shall be subject to Bank's acceptance.
- *Extra due diligence for the local agents and sub-contractors:* HEC will undertake extra due diligence on the local agents and major sub-contractors.

**29. Selection Methods for Procurement of Goods, Works and Non-Consultancy Services:**

Except as otherwise agreed in the Procurement Plan, goods and non-consulting services may be procured based on Request for Bids (Open-International) procurement method as allowed under the Bank's *procurement regulations*. Other selection methods, market approach, and contract arrangements may be used on a case to case basis and as agreed in the Procurement Plan.

**30. Selection Methods of Procurement of Consultant Services:** The Procurement Plan will specify the selection method, market approach (International / National, Open / Limited / Direct) and contract modality for each of the selection of consultants following the Bank's *procurement regulations*.

**31. Project Implementation staff/individuals:** Under each Project Component, financial resources allocated for Project Implementation Staff/Individuals costs shall be identified with details of proposed positions and number, required minimum qualifications, time scale and salaries. As per the Procurement Framework 2016, Procurement Regulations for IPF Borrowers July 2016, such project Implementation Staff/Individuals contracted by Borrower are not treated as Individual Consultants for the project. These project Implementation Staff/Individuals may be selected according to the hiring procedures agreed between the Bank and HEC for such activities. HEC will submit the TOR and selection details including proposed candidates to the Bank for review and clearance. It is noted that 'Individual Consultants' required for delivering a specific assignment under the project are different from Project Implementation Staff/Individuals. Individual consultants are hired when a team of experts is not required; no additional home-office professional support is required; and the experience and qualifications of the individual are of paramount requirement for delivering the assignment. All Individual Consultants will be included in the Procurement Plan and their selection will be subject to provisions in the Procurement Regulations.

**32. Use of Standard Procurement Documents:** For all procurements under the project, the Bank's standard procurement documents shall be used.

**33. National Procurement Arrangements:** In accordance with paragraph 5.3 of the Procurement Regulations, when approaching the national market (as specified in the Procurement Plan tables in STEP), the country's own procurement procedures may be used.

When the Borrower uses its own national open competitive procurement arrangements as set forth in Public Procurement Rules 2004, such arrangements shall be subject to paragraph 5.4 of the Procurement Regulations and the following conditions:

- a) The eligibility of bidders shall be as defined under Section III of the Procurement Regulations. Accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the Bank for reasons other than those provided in Section III of the Procurement Regulations.
- b) For national open competitive procurement, only the model procurement documents acceptable to the



World Bank, shall be used.

- c) The request for bids/request for proposals document shall require that Bidders/Proposers submitting Bids/Proposals present a signed acceptance (in the form attached) at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the Bank's Anti-Corruption Guidelines, including without limitation the Bank's right to sanction and the Bank's inspection and audit rights.
- d) Procurement Documents include provisions, as agreed with the Bank, intended to adequately mitigate against environmental, social (including sexual exploitation and abuse and gender-based violence), health and safety ("ESHS") risks and impacts
- e) Access to procurement opportunities shall not be restricted to firms that have pre-registered and/or paid a registration fee.
- f) No preference of any kind shall be given to national bidders in the bidding process.

34. When other national procurement arrangements (other than national open competitive procurement) are applied by the Borrower, such arrangements shall be subject to paragraph 5.5 of the Procurement Regulations.

35. **Frequency of Procurement Supervision by the World Bank:** In addition to the prior review, supervision will be carried out by the Bank team. There will be two Implementation Support Missions (ISMs) per year and the Islamabad based staff will provide ongoing implementation support in between these missions.

36. **Procurement audit and review.** In addition to prior review, WB staff or WB-appointed Consultants will carry out post procurement review once per year and the AGP will do the procurement audit.

37. **Governance and Anticorruption.** All the contract opportunities and contract awards will be widely published on the HEC website, and when required in United Nations Development Business (UNDB). Other actions are (a) alerting implementing agencies' officials/staff about any fraud and corruption issues; (b) alerting bidders against adopting fraud and corruption practices; (c) awarding contracts within the initial bid validity period, and closely monitoring the timing; (d) informing the Bank's Integrity Unit (INT); (e) preserving records and all documents regarding public procurement; (f) publishing contract award information in UNDB online, HEC website, within two weeks of contract award; (g) ensuring timely payments to the suppliers/contractors/consultants and imposing liquidated damages for delayed completion; and (h) enforcing a procurement filing system.



## Annex 2: Climate Co-benefits Assessment

1. The mean annual temperature over the country rose by 0.57°C through the 20th century, with a faster increase in the beginning of the 21st century. The cryosphere in the mountainous areas is retreating, increasing the risk of landslide and flooding in these regions; and sea level is rising, accelerating coastal erosion, increasing the frequency and severity of storm surge and flooding, and causing salination of surface and groundwater. Extreme weather events have also grown in severity, with high human and economic costs. Climate change will intensify, with the mean annual temperature rising by 1–3°C around 2050 and 3–6°C around 2100, depending on global efforts to curb GHG emissions, and the sea level rising by a further 60 cm at the end of the century. Water availability is also expected to become more variable, given enhanced glacier melt, more erratic precipitation patterns, and more prevalent weather extremes, while demand for water is expected to grow, given the higher evaporation rates and demographic and economic growth. Moreover, droughts, floods, and heatwaves are anticipated to gain in severity. Climate change impacts will be felt across all sectors and regions, and will slow down economic growth. Even low levels of climate change could cost the economy up to 1 percent of GDP annually by mid-century. Climate change will also have profound implications on living standards, with Sindh and Punjab at the forefront (Mani et al., 2018), and make it harder to eradicate poverty, potentially pushing up to 21.4 million additional people into poverty by 2050.<sup>21</sup>

2. Agriculture in Pakistan is exposed to climate-related risks. Increased variability in climate leads to increased variability in crop production. The agriculture sector contributes 21 percent of GDP and relies hugely on irrigation which accounts for majority of total national water use. The agricultural development continues to drive the food security (and employment security, nearly over half of the jobs are in this sector). Thus, the agriculture sector and food security are critical to the livelihoods of the rural poor. Increasing demands from other sectors mean that water scarcity issues are becoming more and more challenging for Pakistan. The major water dependent sectors – agriculture, water supply, energy, fleet management, environment –need to emphasize on research and knowledge development to inform consistent policies for water sharing and water management.<sup>22</sup>

3. Urban air pollution due to fine particulates is a serious problem in Pakistan, as both stationary and mobile sources (many of which are part of the industrial supply chain) contribute to emissions of fine particulate matter (PM). PM 10 refers to particles with a diameter between 2.5 and 10 micrometers, and fine particles, or PM 2.5, have a diameter of 2.5 micrometers or less. Managing air pollution also contributes significantly to climate change mitigation<sup>23</sup>. Both air pollution and greenhouse gases (GHGs) are driven by the road transportation sector, and thus managing air quality also contributes significantly to climate change.<sup>24</sup> In addition, fostering more energy efficiency will be important in Pakistan’s efforts to reduce greenhouse gases.

4. The Government of Pakistan is committed to addressing climate change and the project supports several solutions for building knowledge base through research, industrialization/ commercialization of research and building human capital to enhance the resilience of the sector to adverse weather and climate change impact.

<sup>21</sup> PK@100 Environmental Sustainability Policy Note

<sup>22</sup> South Asia Climate Change Risks in Water Management

<sup>23</sup> There is another important dimension in addition to the reduction of emissions contributing to climate change. Climate change also creates conditions, including heat and stagnant air, which increase the risk of not healthy ozone levels. Ground-level ozone (smog), forms in the atmosphere when gases emitted from smokestacks and tailpipes mix in the air. Hotter weather and stagnant air create conditions that make ozone more likely to form. This has clear health implications.

<sup>24</sup> PK@100 Environmental Sustainability Policy Note



5. **Climate Co-benefits.** Under the project, the following DLIs support climate mitigation and adaptation co-benefits activities.

DLI	Sub-component	Climate Actions Incorporated
<p>DLI 1 Number of Competitive Research Grants and Innovator Seed Fund grants awarded (US\$68m)</p> <p>and</p> <p>DLI 2 Outcomes achieved under the competitive research grants awarded under the project (US\$58 m)</p>	<p>1.2, 1.3, 1.4</p>	<p><b>Mitigation:</b> GCF Research Grants in the following sectors will possibly include (i) water management research relating to treatment of wastewater that reduces methane emissions; (ii) urban planning research to inform transit-oriented urban development which will lead to reduction in the use of passenger cars; (iii) sustainable energy including renewable energy or energy efficiency technologies, or low-carbon technologies; (iv) climate change research on solutions for reducing GHG emissions, low-carbon vehicles, sustainable afforestation; (v) environmental research for reducing GHG emissions, low-carbon vehicles, sustainable afforestation.</p> <p>TTSF Grants in the following sectors will promote commercialization of research: (i) engineering sciences/ climate engineering to reduce GHG emissions, (ii) agriculture and agri-business in reduction of energy use and GHG in agricultural processes; (iii) power including wind, thermopower, solar, thermal plant to reduce GHG; (iv) energy, including renewable energy to reduce GHG; (v) fleet management including transport and travel demand management dedicated to reducing pollutant emissions; (vi) biotechnology including production of biofuels to reduce GHG emissions; (vii) nanotechnology including for maximizing clean energy production to reduce GHG emission; (viii) water management relating to treatment of wastewater that reduces methane emissions.</p> <p>LCF Grants include sectors clean water and sanitation, affordable and clean energy, industry, innovation and infrastructure, sustainable cities and communities, sustainable consumption and production patterns, climate action, life on land and life under water. Similar to GCF and TTSF Grants, research under these sectors will directly inform climate mitigation, including reduction in GHG emission.</p> <p><b>Adaptation</b> to address vulnerabilities due to increased risk from flooding, droughts and climate variability include:</p> <ol style="list-style-type: none"> <li>1. GCF Research Grants on (i) water; (ii) food security; (iii) agriculture; (iv) climate change; (v) environment; (vi) urban planning, (vii) sustainable including renewable energy, energy transmission and distribution;</li> <li>2. TTSF Grants on agriculture and agri-business, water, fleet management, water, thermal power, energy generation, transmission and distribution</li> <li>3. LCF Grants include sectors clean water and sanitation, affordable and clean energy, industry, innovation and infrastructure, sustainable cities and communities, sustainable consumption and production patterns, climate action, life on land and life under water.</li> </ol>
<p>DLI 4 Development and</p>	<p>2.2 and 2.3</p>	<p>The curricula revision will strengthen the Science Technology Engineering and Math programs as well as arts and humanities programs and skills courses by</p>



DLI	Sub-component	Climate Actions Incorporated
<p>implementation of AD programs (US\$ 16.5 million)</p> <p>DLI 5 Implementation of 4 year Bachelor program (US\$10 million)</p> <p>DLI 6 Development and Implementation of Skills Courses for CCs (US\$16.5 million)</p> <p>DLI 7 Proportion of faculty and staff trained (US\$14 million)</p>		<p>including content on GHG emissions to help young generation foster actions and/or technology to mitigate the risks. Training will be provided to the faculty on the revised curricula.</p> <p><b>Mitigation:</b> Include content on climate change mitigation (greenhouse gas) in the revised curricula.</p> <p><b>Adaptation:</b> Integrate content on climate change adaptation in teacher training materials.</p>
<p>DLI 9: Universities digitizing their administration (US\$70 million)</p>	<p>4.1 and 4.2</p>	<p>Adaptation: HEC will use cloud services to store university data in order to minimize the risk of loss of data in the event of natural disasters or extreme weather events.</p>