Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 26-Apr-2019 | Report No: PIDISDSA26348

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Pakistan	P161386	Higher Education Development Project	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
SOUTH ASIA	25-Mar-2019	30-May-2019	Education
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Islamic Republic of Pakistan	Higher Education Commission	

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

Nurturing academic excellence in strategic sectors
Supporting Decentralized Higher Education Institutes for improved teaching and learning
Equipping Students and Higher Education Institutions with Modern Technology
Higher Education Management Information System and Data Driven Services
Capacity Building, Project Management, Monitoring and Evaluation

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	2,437.60
Total Financing	2,437.60
of which IBRD/IDA	400.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	400.00

IDA Credit	400.00
Non-World Bank Group Financing	
Counterpart Funding	2,037.60
Borrower/Recipient	2,037.60

Environmental Assessment Category

B-Partial Assessment

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

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. Growth is expected to recover as structural reforms take effect and macroeconomic conditions improve. Pakistan will need to protect gains made for the vulnerable during the projected deceleration in growth. Over the near to medium term, with increased and better targeted investment in physical and human capital and improved tax administration and business environment, Pakistan can achieve its poverty reduction and shared prosperity goals.

2. Pakistan is a federation, with responsibilities divided 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's commitments are evenly divided between federal and provincial initiatives. In the near term, the World Bank is supporting Pakistan in raising revenue through tax administration reform, addressing Pakistan's energy needs, updating trade policy, and improving tertiary education.

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. Pakistan has a window of opportunity to reap the "demographic dividends"[1] from its expanding economically active population. However, the youth is faced with problems of unemployment and under-employment due to lack of skills and their

[1] Pakistan Economic Survey 2009-10.

participation in higher education and skills development is low at 9%.[2] This number drops to a dismal low of 1% for the poorest wealth quintile of the country. 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.

Sectoral and Institutional Context

3. The tertiary education sector in Pakistan, that is education beyond 12 years of education, consists of two main subsectors: universities and affiliated colleges (ACs). Each of the subsectors is governed by different regulations and faces different challenges especially around governance and quality assurance. Both subsectors are comprised of public and private institutions. The Higher Education Commission (HEC) is the regulatory body for both public and private universities and degree awarding institutes (DAIs).[3] It is an autonomous institution created by the Higher Education Commission Ordinance of 2002 and is responsible for degree recognition, financing and quality assurance of universities. It has three core functions, regulation, capacity building and funding.

4. ACs are under dual management control. For administrative matters, they are under the control of their respective provincial higher education departments (PHEDs) whereas for academic matters they are under the authority of their affiliating universities (AUs). ACs are funded by the provincial governments, but their tertiary level degrees are awarded by the affiliating universities. In line with the global trends in higher education, the HEC is also adopting a tiered system of higher education where the various Higher Education Institutes (HEIs) are developed as research universities (Tier 1), comprehensive universities, which provide a wide range of skills and higher education to the mass of the population (Tier 2) and the collegiate system, which brings education to the doorsteps of the learners (Tier 3).[4] The support provided to these three tiers is based on their capacity needs and the objectives of these HEIs.

5. 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. This number includes the distance learning students. Table 1 below outlines the number of public and private institutions and their enrollment.

Table 1: Number of Institutions and Students by Subsector 2017-2018[5]

	Public	Private	Total	Students (millions)
Universities (universities/DAIs and distance learning)	116	79	195	1.58
Affiliated Degree Colleges	1,420	1613	3,033	0.96
Total	1,536	1692	3,228	2.54

Source: HEC records

6. ACs provide an accessible lower cost alternative to universities. On average the fees for a public college is less

[2] The World Bank. (2017). Pakistan Development Update: Managing Risks for Sustained Growth. Washington, DC
[3] The DAIs are almost like universities, although they have fewer departments According to 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). For the purpose of this PAD, the word university will be used for both Universities and DAIs.
[4] HEC Vision 2025
[5] 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.

than a quarter that of a university (with significant variations) depending on the type of programs. Therefore, ACs are more likely to cater to students from lower income families because of lower cost burden. In addition, ACs are quite widely distributed across geographical areas with presence in rural areas. This makes them more accessible to women who may not be able to leave their family homes to attend universities.

7. 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 strengthening the system governance. However, certain dire challenges remain to meet the priorities of the government's ambitious Vision 2025 development strategy. Whereas the whole higher education sector suffers from these challenges, they are particularly exacerbated in the vast AC segment.

8. **Access and Equity**: Access to tertiary education in Pakistan is still the privilege of a few. Tertiary education enrolments have increased during the past decades from less than 2.7 percent of the college-age population in 2002 to 10.1 percent in 2017. This is a direct result of substantial investments made in the higher education sector with the launch of the Medium-Term Development Framework (I). Much of the growth in enrollment has come from distance learning programs and private HEIs. However, enrollments are still very low compared with other countries in the region, for example compared to neighboring India (26.9 percent), Malaysia (41.9 percent), Thailand (49.3 percent), and China (51.0 percent). In fact, Pakistan's figures are closer to Sub-Saharan Africa averages. Additionally, considerable inequities in access to tertiary education exist across income levels and provinces.

9. Overall there isn't a large gender disparity in higher education in Pakistan (53 percent male and 47 percent female). There is a total of 13 women's only higher education institutions in Pakistan, and almost 45 percent of all public ACs are female only colleges. Though the enrollment rates for women are high, there is a clear distinction of higher proportion of women being enrolled in biological sciences and medical fields (60 percent of students being enrolled in medical universities being female) while the proportion of female students in engineering science and technology is low ranging between 10 to 25 percent of the enrollment. In addition, proportion of female students in humanities and the arts is relatively high. While universities have detailed gender policies to increase the number of female students and faculty in STEM fields (for example, keeping quotas, stipends, scholarships, fellowships), more interventions at the secondary/ higher secondary level is required to increase enrollment of female students in STEM subjects at the universities which is likely to take time.

10. **Quality and Relevance of Research**: While enrollments are still low, the reforms and investments have started yielding dividends at the national and international levels. The number of programs and institutions ranked internationally have gone up; the numbers of both HEIs and students have increased substantially, and the research performance of HEIs has grown. In spite of this, progress has been slow; there is no Pakistani HEI in the Academic Ranking of World Universities (ARWU) nor in the Leiden University world rankings, two in the Times Higher Education (THE) ranking, in the 500 – 600 band, and six in the QS World University Ranking (500 – 700 band).

11. HEC has introduced multiple initiatives to facilitate research environment in universities. World Bank has supported the government's research agenda as part of the Tertiary Education Support Project (TESP, 2011-17). Some of the activities under TESP included support to scholarships for faculty PhD degrees, creation of Office of Research and Innovation and Commercialization (ORICs) to liaise with industry and to aid the establishment of technology incubators and development of the Pakistan Education and Research Network (PERN) to connect universities and research

institutes through high speed internet bandwidth.[6] While important steps have been taken to stimulate research culture, much needs to be done to nurture and sustain this momentum and encourage industry and academia to engage in cutting edge research on issues of national priority.

12. Some of the challenges facing the research environment in Pakistan are inadequate and irrelevant research activities with few linkages between universities and industry impacting the commercialization of research. There is misalignment between government's said agenda of promotion of innovation and entrepreneurship and implementation of this agenda. While the government wants to nurture entrepreneurship and social impact, it rewards impact factor journal publication, creating disincentive for faculty to engage with industry. With significant investments having been made for faculty development through overseas and indigenous scholarships and training programs, more effort is required to support these newly trained scholars in application of their knowledge in research and innovation.

13. HEC has supported the establishment of Business Incubation Centers (BIC) in public universities, however, there is a need to strengthen these, so they offer a full suite of support ranging from the access to seed funding to legal and financial advice and guidance.

14. **Quality of teaching:** Improving quality of higher education institutions in Pakistan has been one of the priorities of HEC since its inception. Some of the initiatives to monitor quality include establishment of Quality Enhancement Cells (QEC) at all public universities, setting up National Curriculum Review Committees (NCRCs) to update the curriculum and creation of more accreditation councils. The main goal behind these actions were to replace the 2-year annual system Bachelors' degree programs with 4-year semester-based programs to come up to par with international standards.[7] Even though most universities have converted into the 4-year semester based programs, the faculty and students in tier 2 universities still struggle with the change from annual to semester system teaching and assessment approach.

15. **Weak 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 'ICT Strategy' pioneered by HEC. The activities that HEC has rolled out include bandwidth provision, digital services and procurement of technologies in the classroom. Most notably, the HEC has partnered with telecoms operators to build a digital architecture (PERN I, II & now III) that provides high-speed broadband to 335 higher education institutions. While most universities and sub-campuses have access to PERN, at present only 52 affiliated colleges (out of a total of 3,033 affiliated colleges) 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).

16. **Weak System Governance, Management, and Accountability:** Accountability and the capacity to plan, manage, and monitor performance are weak, both in the system as a whole and in individual institutions. In recent years impressive strides have been made in the university sector toward better sector-wide governance and management, but persistent governance issues remain. HEC does not yet have a functional HEMIS. Similarly, provincial governments lack the capacity to gather and process basic data for ACs. This situation seriously hinders rigorous Monitoring and Evaluation (M&E) and planning for the sector. Despite extensive reforms, due to lack of accurate data, the HEC is finding it difficult to design and conduct more complex reforms that require a high capacity for planning, policy analysis, and

[6] World Bank. 2011. Project Appraisal Document for a Tertiary Education Support Project. Pg. 11 Washington. DC
[7] HEC. n.d.a. HEC Vision 2025: Seize the Day for a Better Future. Pg. 39. Islamabad. Pakistan

M&E.

17. **Institutional governance and management.** Autonomy in various aspects (academic, staffing, governance, financial) is essential for tertiary education institutions to fulfill their missions. Even if universities have substantial autonomy in some important domains, there are several practical limits. Universities do not have complete autonomy to design their curriculum. The curriculum for tertiary level education is designed by the National Curriculum Review Committee (NCRC) of the federal HEC, sometimes with involvement of the accreditation councils. Public universities do enjoy substantial staffing autonomy and have the authority to hire, promote and fire academic staff, although HEC still keeps a representative on the senates of the universities, 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; they are allowed to own and sell land and other assets and deliver contractual services to diversify their income. Universities also have the autonomy to set their tuition fees but the fee cannot increase more than 10% annually. Affiliated colleges do not have autonomy on any domain (whether academic, staffing, governance or financial).

18. **System governance.** The Constitution's 18th Amendment of 2010 devolved the delivery and financing of education to provincial governments. However, it recognizes that tertiary education is a concurrent responsibility between federal and provincial governments. Through the HEC, the federal government is responsible for policy directions, standards, quality assurance, financing and monitoring and evaluation of universities, whereas provincial governments are responsible for the delivery and financing of higher education in colleges. After the amendment, the country witnessed some confusion regarding the responsibilities of the federal and provincial governments and bodies. The Supreme Court upheld the HEC to continue its obligations in accordance with the Higher Education Ordinance (HEO). The Council on Common Interest (CCI) also confirmed the role of the HEC in delivering its responsibilities in accordance with the 2002 Ordinance. Some provincial governments have established provincial HECs. HEC has now started engaging with the provinces in clarifying and defining the roles and responsibilities of HEC and the provincial Higher Education Departments as an integral part of the higher education system in Pakistan. This is a very welcome attempt since it will benefit all HEIs, ACs and their students.

C. Relevance to Higher Level Objectives

19. Pakistan Vision 2025 has set an ambitious target for Pakistan to revive economic growth and become among the world's top 25 economies by year 2025. The seven pillars laid out in the vision to achieve this goal are: people first, inclusive growth, governance, water energy food, private sector, knowledge economy and regional connectivity. This project will directly contribute to addressing the pillars of people first and knowledge economy by addressing these issues through the higher education system in Pakistan. Vision 2025 describes higher education as one of the means to invest in the young people of Pakistan and develop a knowledge economy.[8] Based on Pakistan Vision 2025, HEC has developed its own HEC Vision 2025 for higher education. This project will directly support selected areas of HEC Vision 2025.

20. This project is also consistent with the World Bank's Country Partnership Strategy (CPS 2015-2019) which aims to improve service delivery including education. Outcome 4.3 "increased school enrollment and adoption of education quality assessments" under pillar 4 of service delivery addresses the rationale for World Bank's involvement to

[8] Pakistan Vision 2025. Pg. 34

strengthen quality and relevance of higher education at federal and provincial levels. This project will support interventions aimed at improving quality and relevance of second and third tier higher education institutions and encouraging research and innovation in tier 1 universities in the country.[9]

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

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

Key Results

- 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)

D. Project Description

21. The project has five components. Component 1, 2 and 4 are completely results-based financing and funds will be disbursed against agreed Eligible Expenditure Programs (EEPs) on the achievement of Disbursement Linked Indicators (DLI) targets. Component 3 and 5 are IPF with input-based financing modality on agreed activities.

Component 1: Nurturing academic excellence in strategic sectors (US$126 million)

22. This component will help promote relevant and cutting-edge research in universities in Pakistan with a focus on specific strategic sectors for socio-economic progress of the country. This will be done through providing competitive research, innovation and commercialization grants to researchers and entrepreneurs.

Sub-component 1.1: Promoting Innovative and Relevant Research

23. 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. The project will do so through the establishment of two competitive funds: (i) mega research grants supporting cutting edge research for solution of specific national challenges which may require multi-disciplinary solutions; and (ii) funds supporting faculty and students with potential industrial prototype solutions and research projects to make them market relevant and industry ready and to support with industry partnerships

24. The Grand Challenge Fund: will support large and multisectoral/ multidimensional research projects focused on specific themes within sectors of national interest. The proposals eligible for funding would be from the following

[9] The World Bank Group. 2014. Country Partnership Strategy for the Islamic Republic of Pakistan for the Period FY 2014 – 2019. Pg. 22. http://documents.worldbank.org/curated/en/886791468083329310/pdf/846450CAS0P146090Box385177B00OUO090.pdf

strategic sectors: (a) Food Security; (b) Water management and sustainability; (c) Sustainable energy; (d) Sociology/philosophy; (e) Development Economics; (f) urban planning; (g) climate change/environment; and (h) IT/telecom (especially, Artificial Intelligence, Cyber Security, Cloud Computing and Big Data); (i) innovative governance and reforms. Within these strategic areas, proposals from consortia of multi-disciplinary researchers/universities can propose research for solutions of a grand challenge.

25. Technology Transfer Support Fund (TTSF): The TTSF will support promising technological research with an existing prototype or advanced model for industrialization/commercialization. The fund will be open to existing students and faculty members of both public and private universities in partnership with local industry. The TTSF will be targeted to specific sectors including telecommunication, information and technology and its application in health, textile, agriculture and agri-business such as dairy; engineering sciences, microelectronics, water, power, energy and fleet management; biotechnology; and material sciences, for example nano-technology. The support package will be executed through the Offices of Research Innovation and Commercialization (ORIC). If the selected researchers are from a university which does not have an ORIC, HEC's selection committee will assign the research team to work with a functional ORIC within geographical proximity of the research team.

Sub-component 1.2: Encouraging Entrepreneurship and Self-employment

26. This sub-component will provide a package of support through a seed fund to university students, recent graduates and faculty from both private and public universities. It will provide financial support for commercialization of a product or service, and/or incubation for a start-up. The package will also include entrepreneurial training, legal training and support, financial education and training among other services. The Innovator Seed Fund (ISF) will be implemented and supported through the Business Incubation Centers (BICs) already established and functional within specific universities in Pakistan.

Sub-component 1.3: Local Challenge Funds

27. This fund will encourage the Tier 2 universities/Higher Education Institutes to establish and strengthen their research capacities by competing for research grants for solutions for pressing socio-economic problems within the district or locality that the university is located in. The grant will be open to research addressing any of the seventeen Sustainable Development Goal targets, with a focus on generating or adapting solution to the local district/division level in Pakistan. The Local Challenge Fund will be setup as a matching grant fund with the province contributing to the research grant. The research grants will be selected on merit taking into account the relevance of the research to the local community, industry and local government.

Component 2: Supporting Decentralized Higher Education Institutes for improved teaching and learning (US$127 million)

28. This component aims to improve the quality of education delivered by the Affiliated Colleges (ACs). The component 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 via change in the types of degree offered; (iii) encourage diversity of students being enrolled and link students and graduates to potential employers within the locality; (iv) improving monitoring and evaluation of the AC system; and (v) connecting ACs to the Pakistan Education Research Network. Six DLIs are associated with this component. They are related to (i) establishment and operation of the QEC-AC unit in AUs; (ii) implementation support to the effective roll out of 4 year bachelor degree

in 32 Tier 2 AUs; (iii) development and implementation of 4 semester/65-68 credit hour AD program in almost 200 colleges; (iv) upgrading of academic staff 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) expansion of PERN in select colleges.

Sub-component 2.1: Strengthening the Affiliation System

29. 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 their ACs more responsive to AUs. Activities include the establishment of units in the Quality Enhancement Cells (QECs) of AUs which are dedicated to ACs and the formation of a "change team" in each AC. The AU units and the AC teams will enter into a memorandum of understanding spelling out their respective responsibilities. The project will support the development of new minimum quality standards for both entities.

Sub-component 2.2: Bringing Education in Affiliated Colleges and Affiliating Universities at par with International Standards

30. The project will support a comprehensive strategy to bring Pakistan's tier 2 universities and ACs at par with international standards. First, it will facilitate the implementation of the HEC's mandate to roll out 4-year Bachelor programs based on a semester/credit structure through a strengthening and revision (as required) of the curricula.

31. The Bachelor Program has already been rolled out in almost 205 ACs, and will be rolled out in an additional 95 colleges during the life of the project. The project will support these colleges to transition and implement the program. The AU's QEC-ACs will be responsible for providing support to these colleges on a regular basis. Detailed ToRs for the QEC-ACs will be developed and include the description of responsibility towards the ACs.

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

33. Second, it will help develop the new 65-68 credit hour semester system Associate Degree (AD) program. The project will support the development of the new 2-year 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 selection of these ACs for AD programs will be done by provincial governments, against criteria defined by HEC. Criteria include, inter alia, selection of at least 50 percent all women colleges. About 21 affiliating universities (AUs) will be involved and have been pre-identified.

34. The development of AD curricula will reflect the ACs' mission to equip students with mid-level skills and the need to strengthen STEM disciplines. Development of the curricula will include close consultation and engagement of the selected colleges' locality and local socio-economic needs. A need assessment will precede the implementation of an AD program in a specific AC. 33

35. Finally, it will support capacity development of faculty and management in almost 500 ACs and 32 AUs to implement the Bachelor program 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 program. In-service training will be provided to established faculty staff 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 trained will impart the further training through their Affiliated Universities' staff development centers.

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

36. The first set of interventions under this sub-component will support and encourage students, in particular girls to enroll in and continue their education within the new 4-year bachelor system; and support women to enter and progress in diversified fields of study such as material sciences and mathematics. The project will support female students 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 STEM disciplines where women are underrepresented allowing students to acquire the academic foundations needed for bachelor studies. At least 50% of the colleges that benefit from these bridge programs will be women colleges.

37. Second, the sub-component will support monitoring of the learning outcomes of the newly introduced degrees. AC student learning assessment will be piloted in order to measure progress linked to the project activities. 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.

38. Finally, the sub-component will support transformation of approximately 20 ACs of the selected 200 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. These courses would also enable citizens of all ages to pursue diverse programs in order to develop their creative and problem-solving skills. With the project support, HEC intends to introduce 2 to 3 additional subjects of 3 credit hours each focusing on developing market driven technical skills in affiliated colleges offering Associate Degree programs. These courses will be developed as bridging semester/courses for AD to transition into the 4 year Bachelor Program. To support this transformation, 20 ACs will be selected from already targeted 200 colleges for Associate Degrees and provided the requisite curriculum and staff development from HEC, in collaboration with HEDs to implement these bridging programs.

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

39. As a part of its commitment to strengthen education and research enhancing connectivity for higher education institutes (supported through component 3 below), HEC will support the expansion of PERN to institutions (particularly affiliated colleges) using 'last-mile' connections. A total of 300 colleges will be added to the existing PERN network. As part of the last-mile connections, the colleges will receive a campus network, using eduroam technology that offers free WiFi to all staff and students. These connections will be created using the existing PERN infrastructure, that has already connected several affiliated colleges in a few provinces. Colleges will be selected based on Request for Proposals (RFPs), with proposals being submitted from the provincial authorities, affiliating universities and colleges. Credentials for college staff and students will be managed by either the affiliating universities or PERN centrally, depending on the level of readiness of the IT units in the relevant universities. A cost sharing agreement to ensure maintenance and running

costs for PERN will be worked out between HEC and respective Higher Education Departments (HEDs) to ensure that the services provided under the project are sustained.

Component 3: Equipping Students and Higher Education Institutions with Modern Technology (US$27 m)

Subcomponent 3.1: Improving the policy environment for ICT use

40. This subcomponent will involve the drafting of a new ICT Strategy that sets out the overall vision on the use of technology, while also reviewing quality assurance and accreditation standards and guidelines to facilitate innovation. The new ICT Strategy will also focus on how PERN can be leveraged to develop blended education content, reflecting on the technology needs (Learning Management Systems (LMS), cloud-services, use of international vs. national bandwidth), as well as on the pedagogical and didactical model underlying the blended learning (flipping the classroom, use of learning outcomes, etc.).

Subcomponent 3.2: Enhancing PERN Activities

41. 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 called PERN III that will upgrade the last mile of the major universities to 10Gbps whereas the backbone will be upgraded 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.

42. In line with this upgrade, HEC will develop an improved governance system for PERN. This will include 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 universities 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 (IDP status), and moving its services (digital library, network measurement, ticketing, CRM platforms, etc.) under this new IAM infrastructure. Finally, PERN will expand its training offer to universities by creating a certified pool of master trainers, which can conduct training programs on a variety of topics related to network management and service offering.

Subcomponent 3.3: Expanding PERN vertically

43. This sub-component will support 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 NRENs. 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.). Secondly, PERN will 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 an LMS.

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

44. The objective of this component is to improve the collection and usage of data for policy-decisions at national

level, while automating business processes in higher education institutions. This subcomponent 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 Data Repository

45. 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. The data system will hold key variables (updated up to four times a year) on students, enrolments, staff, financials, and facilities of all universities in Pakistan. The data integrated into this solution is already collected as part of HEC's regulatory work (primarily by Statistics and Finance Units) and is currently available in Excel format. Initially, HEC staff will feed the data into the portal from the existing proformas. Once 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 ERP and student lifecycle solutions. The tool will also validate the data in real time so that the integrity and quality of data being uploaded into the portal will be ensured. 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

46. This subcomponent will support an initiative to digitize the administration of universities, which will make university administration more transparent. It will include two sub-activities, (a) to develop a cloud-based enterprise resource planning system (ERP) to manage universities' human resources, finances and procurement tasks and (b) a digital student administration package that manages the student lifecycle process. HEC will identify 10 (ten) 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 RFP documents 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: 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 ten universities per year for the next four years.

Component 5: Capacity Building, Project Management, Monitoring and Evaluation (US$50 m)

47. This component will support HEC in strengthening its core functions of regulation, capacity building and funding of the higher education sector in Pakistan through strategic and targeted technical assistance. In addition, this component will support the technical assistance required for the implementation of various components and subcomponents and for the achievement of results and DLIs. The operational cost of the project management, monitoring and evaluation and the costs of implementing the environment and social safeguard framework will also be covered in this component.

48. **Capacity Building:** HEC is developing National Academy of Higher Education (NAHE) as an apex institution under auspices of HEC. The project will support the reinforcement of the Academy's capacity so that it can respond to the challenging mission of upgrading Tier 2 and 3 academic and administrative staff. Additionally, the university partnership/twinning program will create linkages between selected Pakistani and US/international HEIs for

strengthening of those Pakistani HEIs in building their capacity.

49. **Regulation of Higher Education Sector**: Autonomy in various aspects (academic, staffing, governance, financial) essential for tertiary education institutions to fulfill their missions. Even if universities have substantial autonomy in some important domains, there are several practical limits. HEC envisages to institute an award called 'Responsible University' which will ensure enhanced autonomy to universities demonstrating certain strong governance practices, including inter alia, effective implementation of HEMIS. TA will be utilized to determine the variances within acts and regulations of universities in Pakistan, and those in the developed economies, and world best practices.

50. **Funding:** Public universities have the autonomy to generate their own revenue. However, most Pakistani universities have limited their revenue stream to student fee. HEC will start rigorous work with the universities to initiate and practice all endeavors of alternate funding streams. For this HEC will engage TA to help universities to devise complete marketing, outreach and donor recognition plans; design and execute comprehensive capacity building program for the universities for fundraising and income generation activities; guide universities to develop their 5-10 years strategic plan for fundraising and income generation activities

51. In addition to the above, this component will also enhance the implementation of various components and sub-components through a comprehensive but targeted set of technical assistance (TA) activities such as support to ORICs and BICs, support to HEC's new directorate for ACs, AU's QEC-AC units and AC's change teams.

52. This component will support project operating costs such as cost of consultants hired for the implementation of the project supporting the HEC Project Coordination Division, operational cost such as equipment and supervision cost (transportation and per diems). This will support the monitoring and evaluation of the project and verification of the DLI achievement including the hiring and reimbursement of third party verification agency. 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.

E. Implementation

Institutional and Implementation Arrangements

53. Institutional and implementation arrangements for the Project will maintain and build on the existing institutional set-up of the public tertiary education sector. The Project will be implemented at the federal and institutional levels (through universities). In addition, the provincial governments and affiliated colleges play an important role in the delivery of tertiary education.

54. ***Higher Education Commission.*** At the federal level, HEC will be responsible for the overall implementation (including social and environmental management), coordination, and monitoring of activities under the Project. HEC consists of various departments headed by Members and Advisors who manage major activities of the Commission. The Commission, led by the Chairman who is granted the status of a Federal Minister, is an autonomous federal agency. 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. The Commission will also be assisted by a Steering Committee, which will include additional members from the {MOF, PC, private sector and other relevant agencies} to provide strategic guidance for the overall design and implementation of activities supported under the project. 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 include and environmental and social cell.

55. ***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 Project (as described in a Project Operational Manual and the environmental and social safeguards instruments).

56. ***Provincial Governments.*** At the provincial level, the Department of Education (or Higher Education) of each Provincial Government will be responsible for coordinating and implementing HEDP activities related to affiliated colleges.

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F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The project will be implemented in Pakistan at the federal and provincial levels. The project will involve universities located in the main urban settlements of the country. However, some of the future research activities could be located in rural areas with presence of forests and natural habitats.

G. Environmental and Social Safeguards Specialists on the Team

Marcelo Hector Acerbi, Environmental Specialist
Babar Naseem Khan, Social Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	Explanation (Optional) 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 environmental issues as pollution, 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 Management Framework (ESMF) has been prepared. The PCU will include an environmental specialist as a core team member (as 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 project will also use the World Bank Group Environmental, Health, and Safety Guidelines for labor health and safety management particularly related to activities in laboratories and small works.
Performance Standards for Private Sector Activities OP/BP 4.03	No	This policy is not triggered as this is not a for private sector led economic development project.
Natural Habitats OP/BP 4.04	Yes	This policy is triggered with a precautionary approach. By appraisal it is not clear if the project will support research activities involving natural habitats. As the funds supported by the project will target the environment sector, the ESMF includes a screening protocol to identify this potential scenario during the submission and evaluation of research grants and to advise project proponents with specific management measures, if necessary. In particular, this policy is also triggered because some research activities could involve forest areas and may be located near or inside the protected

		forest, which are also considered as natural habitats as per the this policy.
Forests OP/BP 4.36	Yes	Some research activities related to the climate change/environment sectors could involve forest areas and may be located near or inside the protected forest. The ESMF includes the specific screening mechanism to identify this scenario, and to request to the research project proponents the incorporation of sustainability and protection measures in line with the forest safeguards policy.
Pest Management OP 4.09	Yes	Some research activities could be related to priorities in the agriculture sector. These researches and interventions might induce to the use of pesticides or might require pest management. The ESMF includes a screening protocol to identify this situation as well as the specific requirements to promote integrated pest management and the use of pesticides according to the Bank policy.
Physical Cultural Resources OP/BP 4.11	No	This policy is not triggered given that the proposed activities are to be carried out without affecting physical cultural or archaeological resources.
Indigenous Peoples OP/BP 4.10	Yes	The Policy is triggered as a precaution.and an Indigenous Peoples Planning Framework (IPPF) has been prepared as part of ESMF The project does not specifically have research targets for the IP in Pakistan, but there can be a research idea focusing on them. However, the Project will not finance any physical intervention on IP in any IP areas.
Involuntary Resettlement OP/BP 4.12	No	This policy is not triggered as no land acquisition, resettlement, physical or economic displacement is planned as part of the Project activities.
Safety of Dams OP/BP 4.37	No	This policy is not triggered given that the project will not support the construction or rehabilitation of dams nor will support other investments which rely on the services of existing dams. The project will not finance research related to dams development.
Projects on International Waterways OP/BP 7.50	No	This policy is not triggered because the project will not affect international waterways as defined under the policy.
Projects in Disputed Areas OP/BP 7.60	No	This policy is not triggered because the proposed project will not affect disputed areas as defined under the policy.

KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The project includes two main types of interventions that result environmental and social impacts, these are; the research projects, and small construction activities (none of these construction activities will happen in the Kalash Valley, home to indigenous people in Pakistan). The project will support the innovative strategic research through competitive financing under (i) Grand Challenge Fund, (ii) Innovator Seed Fund; (iii) Technology Development Fund and Local Challenge Fund. Some of the categories of research areas may have some small and restricted negative environmental and social impacts. The research activities may involve laboratory or field-based research work. At this stage the type, extent and exact locations of the proposed project(s) and subproject(s) are not known and may not be known at the appraisal stage and the requirement to carry out a detailed environmental and social analysis as part of the project implementation phase can not be fulfilled. However, to identify potential environmental and social impacts at proposal screening stage for any project(s) or subproject(s), an environmental and social analysis/screening will be a requirement to get the project approval for funding by proponents.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

No potential negative indirect and/or long term impacts are expected.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Some research activities could involve field activities. Owing to this factor, alternative research sites will be considered when the research project location is sensitive to environmental and/or social impacts associated either to the nature of the research, involved small physical works, and due to the operations of the research project sites. At present, the type and nature of research projects is not known. An analysis of alternative locations for research projects locations will be provided in the ESMPs prepared for each specific research project. In order to mitigate and avoid adverse environmental impacts, no project site shall be selected and funded under the program that is likely to:

- Generate irreversible environmental impacts on affected parties and third parties;
- Significant Impact on the natural habitat;
- Impact on physical and cultural resources; or
- Cause serious occupational or health risks.

- This notwithstanding, it is explicitly stated that no project site will selected and research will be financed by the program that could be anticipated to lead to or aggravate social conflict between or within communities. To further mitigate and avoid adverse social impacts, no investment shall be funded under the program that involve land acquisition, resettlement, physical or economic displacement, forced evictions or involuntary movements of any community, and/or physical investment focusing on indigenous people of Kalash.
- Is likely to create or exacerbate conflict within communities;
- Have significant impacts on vulnerable and/or marginalized/indigenous groups.

When undertaking the appraisal of potential research projects, these aspects of environmental and social impacts shall be considered explicitly and, if recommended for implementation, it shall be stated that none of the above prohibiting factors applies.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

In compliance with Environment Assessment OP4.01 and because of the nature of the project HEC has prepared an Environmental and Social Management Framework (ESMF) to ensure compliance of environmental and social safeguard requirements of the national laws and World Bank's safeguard policies for those project activities that are not defined and/or whose locations are unknown at the time the Bank appraises the project (research projects and small works to be selected also during the loan implementation).This framework will be followed once specific projects activities are identified and their details are available. This framework also discusses the stakeholder engagement and involvement throughout the project life cycle and mechanism to disclose project information to them and redress the grievances of the affected community. In case of any research focusing on indigenous people of Kalash, an Indigenous People Planning Framework (IPPF) has been prepared as part of ESMF and includes guidelines based on provisions of OP 4.10. 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. Keeping that in mind, OP 4.10 is triggered as a precaution.

HEC will set up a Project Coordination Unit (PCU) for taking care of the day-to-day operations, while the thematic and other operational matters of the project/subprojects such as planning, procurements, finances, training and capacity-building, ICT, monitoring, reporting, etc. will be dealt by the respective Section/Division/Cell of HEC such as LI, Academics, QAA, R&D, M&E, etc.. For this purpose the concerned staff members will be well oriented and trained in their respective fields related to the project/subproject's activities.

The objectives for environmental and social management under PCU are:

1. Analyze the potential environmental and social impacts in research and small work projects to be financed.
2. Consider the potential environmental and social impacts in research and small work projects during the evaluation stage.
3. Include specific measures to avoid environmental and social impacts of selected research and small work projects
4. Ensure adequate supervision and monitoring during the implementation of the research and small work projects, including OSH aspect.

An Environmental and Social Cell (ESC) shall operate under PCU which shall take care of the environmental and social safeguard requirements of the project components. The ESC shall be comprised of environmental and social specialists. The ESC shall have the liberty to outsource environmental and social compliance requirements to different consultants and specialists. The consultants shall facilitate ESC in preparing environmental and social assessment, monitoring and compliance documents. The ESC have to ensure the compliance of ESMF including:

- The review of environmental and social assessments or documents that analyze the environmental and social impacts of the grants.
- Field supervision of social and environmental aspects of the proposals.
- Ensure compliance of mitigation measure and request the suspension of disbursements to beneficiaries until the necessary remedial action are implemented.
- When necessary, consult with other national and provincial entities with competencies in environmental and social management.
- Preparation of internal reports.

- Maintain the Grievance Redress Mechanism.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The primary stakeholders with this project include the Universities, Accreditation Councils, Affiliated Degree Colleges, Teacher Academies in KPK and Baluchistan and teacher training institutes in other Provinces; Examination Boards, Textbook Boards; students and teachers of the concerned institutions. Consultation have been planned to take place with the stakeholders regarding the potential environmental and social risks and impacts of the proposed project/subprojects as part of the ESMF document before appraisal. By appraisal, the detail about the activities/subprojects and their exact locations are not known, therefore, it was not possible to engage community/stakeholders and carry out the consultation for those projects which are unknown. Specific consultations will be conducted as part of the preparation of research proposals (as part of the project implementation phase) following the criteria included in the ESMF.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
08-Mar-2019	23-Apr-2019	

"In country" Disclosure

Pakistan

27-Mar-2019

Comments

HEC Website

Indigenous Peoples Development Plan/Framework

Date of receipt by the Bank	Date of submission for disclosure
08-Mar-2019	24-Apr-2019

"In country" Disclosure

Pakistan

26-Apr-2019

Comments

HEC Website

Pest Management Plan

Was the document disclosed prior to appraisal?	Date of receipt by the Bank	Date of submission for disclosure
NA		

"In country" Disclosure

If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:

N/A.

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?
Yes
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?
Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?
Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?
No
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?
NA

OP 4.09 - Pest Management

Does the EA adequately address the pest management issues?
Yes
Is a separate PMP required?
NA
If yes, has the PMP been reviewed and approved by a safeguards specialist or PM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist?
NA

OP/BP 4.10 - Indigenous Peoples

Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?
Yes
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?
Yes
If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?
No

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?
NA
Does the project design include satisfactory measures to overcome these constraints?
NA
Does the project finance commercial harvesting, and if so, does it include provisions for certification system?
NA

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?
Yes
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?
Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes

Have costs related to safeguard policy measures been included in the project cost?
Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

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