

OVERVIEW OF HIGHER EDUCATION COMMISSION (HEC) SUPPORT FOR ACADEMIA IN PAKISTAN

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ABSTRACT: This paper presents an overview of the activities of Higher Education Commission (HEC) of Pakistan in support of the academic institutions of higher learning.

During the past five years, the higher education has focused on increasing access to higher education, enhancing the quality of education imparted and research conducted in the institutions of higher learning and increasing the relevance of higher education to the socio-economic development needs of Pakistan. This has involved the launch of the massive program for development and uplift of the university sector ever witnessed in the history of Pakistan. Today more than 1500 scholars are enrolled in programs leading to a PhD at top institutions of continental Europe, China, US and other industrialized countries. As a result of enhanced enrollment in postgraduate programs in the country and the continued focus on quality, research output in top quality international journals has tripled from Pakistan and every possible support is provided to those interested in furthering the frontiers of knowledge. The unprecedented investment in physical and technological infrastructure has been accompanied by the tenure track system of appointment with market-based salaries.

It is understood that for Pakistani universities to compete with their counterparts in the developing and developed world it is necessary to focus on the faculty members and students, and provide them the tools and opportunities to excel. Significant progress has been made towards this objective.

1. INTRODUCTION

This past decade has witnessed an enhanced emphasis on higher education in all parts of the developing world. Conventional wisdom stated that developing countries should place emphasis only on primary and school level education that resulted in a decline in funding to higher education during the decades of the 70s, 80s and 90s. Consequently, at the start of the new millennium the total development expenditure on the universities of Pakistan was around Rs. 400 million, the total allocation to higher education was less than 0.2% of GDP and the allocation per student stood under US \$400 per student per year, perhaps the lowest in the world. This situation has dramatically changed now. With a budget allocation of Rs. 18 Billion for development expenditure for the current financial year and a total allocation close to 0.35% of a significantly enhanced GDP, the funding situation has indeed improved with funding per student close to US\$ 2,000 per student per year.

The enhanced funding has allowed the Higher Education Commission (HEC) of Pakistan to implement its ambitious uplift program of enhancing access, improving quality and increased relevance of higher education to the needs and requirement of Pakistan. These changes have been accompanied with an enhanced emphasis on good governance and streamlined policies to support excellence in teaching and research by faculty member with a commensurate enhancement in the salary structure.

Each university and degree awarding institution was encouraged to develop a long-term vision plan and strategy for implementation to ensure that each development project was inline with the overall development vision of the university as well as the country.

By far the largest investment was in faculty development programs to cater to the huge shortage of qualified faculty in existing institutions as well as for the rapid growth in enrollment in these institutions. HEC developed a standardized process of selecting the best scholars in the country. These scholars were awarded foreign scholarships after interviews by teams of foreign experts from the host countries selected by the scholars for their further studies. An indigenous scholarship program was launched to jump start research in the country and provide opportunities to young local faculty to enhance their qualifications.

To address the issue of faculty shortage in the short term a faculty-hiring program was launched to attract expatriate faculty to Pakistan. Along with programs for bring new qualified faculty a program for training local faculty in pedagogical, technological and communication skill was also launched. Using a “train the trainers” model, master trainers were trained at the HEC facility who subsequently conducted the same courses in their respective institutions.

A new regime of quality assurance has been developed that envisions accreditation councils, governed by subject experts and practitioners of the field, overseeing undergraduate education in that field. Wherever accreditation councils already existed, roles and responsibilities of the council, inline with international best practices, were clarified along with a clear and unambiguous interaction mechanism of the Councils with the HEC. The postgraduate programs were evaluated by a national committee of senior vice chancellors who ensured the actual implementation of all HEC quality assurance criteria. Another significant initiative was the introduction of Quality Enhancement Cells that gave the Institutions of higher education ownership of the quality of instruction and research in those institutions. The cells led the process of self-assessment and guided the departments on how to address their shortcomings.

All programs of the higher education have been launched with the objective of bringing a sustainable change in the higher education system. From the introduction of computer networks to the introduction of the Tenure Track system of appointment, the focus has always been to provide an environment conducive to learning and research. Pakistan’s creative youth is its single biggest asset, and the higher education commission has endeavored

to provide every opportunity to them to scale the heights of knowledge so that they take up leadership in today's knowledge driven world.

2. HIGHER EDUCATION IN PAKISTAN

In the modern world, science and technology provides the basis for progress and international competitiveness. It has also been demonstrated to account for the bulk of national growth and the improvement of the quality of life around the world. Modern societies are defined by their ability to nurture, modify, and adapt new technologies. Innovation drives the advanced economies and creativity is prized more than natural resources. In the 21st century natural resource, rich countries generally occupy the bottom of the human development table while countries that jealously guard, nurture and support creativity and innovation occupy the top positions. Universities and Institutions of higher learning thus occupy key positions in developed economies due to their crucial role in driving future progress.

The importance of higher education for developed countries has always been recognized, however it was not until the World Bank Report on higher education in developing countries launched in March 2000 (<http://www.tfhe.net/report/readreport.htm>) that the requirement of higher education in developing countries was recognized properly. The Government of Pakistan, recognizing the importance of the higher education sector towards fuelling economic growth was one of the first countries in the world to implement the recommendations of this report and form a Task Force for Higher Education in 2001. The Higher Education Commission of Pakistan was established in 2002 as a result of the conclusions reached by the Task Force to reform and rejuvenate the higher education sector.

Soon after the formation of the Higher Education Commission, it undertook a comprehensive exercise to develop a detailed implementation strategy for uplifting the higher education sector. The five-year agenda for reform was outlined in the HEC Medium Term Development Framework (MTDF), in which Access, Quality, and Relevance were identified as the key challenges faced by the sector. To address these challenges a comprehensive strategy was defined that identified the core strategic aims for reform as (i) Faculty Development, (ii) Improving Access, (iii) Excellence in Learning and Research, and (iv) Relevance to National Priorities. These strategic aims are supported by well-integrated crosscutting themes for developing Leadership, Governance, and Management, enhancing Quality Assessment and Accreditation and Physical and Technological Infrastructure Development.

2.1 Statistics on Higher Education

During the past five years, the statistical profile of the higher education sector has witnessed dramatic changes (**Figure 2.1**).

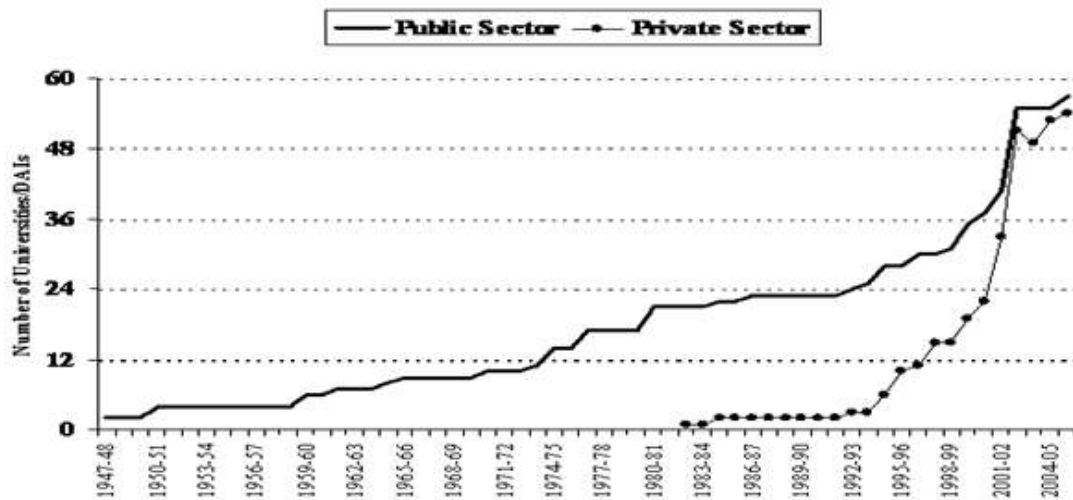


Figure 2.1 Growth of universities/DAIs in public and private sector (1947-48 to 2004-05). *Source, HEC Pakistan*

Enrollment in public sector universities has grown at an annual compounded rate of nearly 15% due to expansion of existing universities as well as establishment of new public and private sector institutions. The enhanced enrollment has been accompanied by a shifting in the gender profile with females now representing close to 45% of the total student body. There are over 110 universities and institutions of higher learning in Pakistan (**Table 1**). Seventy-two of these institutions were established after the year 2000.

Another significant change has been with respect to distance education. Enrollment in Allama Iqbal Open University is approaching half a million students while the new Virtual University has been steadily gaining ground with a current enrollment of more than 15,000 students. The share of students' enrollment in Private sector Institutions has remained steady, which is encouraging since significant investment has poured into public sector institutions resulting in rapid increase in enrollment. As a matter of policy, the government has supported the private sector to expand and initiate new high quality institutions.

Table 1 List of universities and institutions of higher learning in Pakistan

Islamabad	
1.	Air University, Islamabad
2.	Allama Iqbal Open University, Islamabad
3.	Bahria University, Islamabad
4.	COMSATS Institute of Information Technology, Islamabad, Abbottabad, Wah, Lahore and Attock)
5.	Federal Urdu University of Arts, Sciences and Technology, Islamabad
6.	Foundation University, Islamabad
7.	Institute of Space Technology (IST), Islamabad
8.	International Islamic University, Islamabad
9.	National University of Computer and Emerging Sciences, Islamabad
10.	National University of Modern Languages, Islamabad
11.	Pakistan Institute of Engineering Applied Sciences, Islamabad
12.	Pakistan Institute of Development Economics
13.	Quaid-i-Azam University, Islamabad
14.	Riphah International University, Islamabad
Punjab	
15.	Bahauddin Zakariya University, Multan
16.	Beaconhouse National University, Lahore
17.	National College of Business Administration & Economics (NCBA&E) Lahore
18.	Fatima Jinnah Women University, Rawalpindi
19.	Forman Christian College, Lahore
20.	GIFT University, Gujranwala
21.	Government College University, Faisalabad
22.	Government College University, Lahore
23.	Hajvery University, Lahore
24.	Imperial College of Business Studies, Lahore
25.	Institute of Management Sciences, Lahore
26.	Islamia University, Bahawalpur
27.	King Edward Medical University, Lahore
28.	Kinnaird College for Women, Lahore
29.	Lahore College for Women University, Lahore
30.	Lahore School of Economics, Lahore
31.	Lahore University of Management Sciences, Lahore
32.	Minhaj University, Lahore
33.	National College of Arts, Lahore
34.	National Textile University, Faisalabad (Federal Chartered)
35.	National University of Sciences & Technology, Rawalpindi
36.	The Superior College, Lahore
37.	The University of Management & Technology, Lahore
38.	University of Agriculture, Faisalabad

39.	University of Arid Agriculture, Murree Road, Rawalpindi
40.	University of Central Punjab, Lahore
41.	University of Education, Lahore
42.	University of Engineering & Technology, Lahore
43.	University of Engineering & Technology, Taxila
44.	University of Faisalabad, Faisalabad
45.	University of Gujrat , Gujrat
46.	University of Health Sciences, Lahore
47.	University of Lahore, Lahore
48.	University of the Punjab, Lahore
49.	University of Sargodha, Sargodha
50.	University of South Asia, Lahore
51.	University of Veterinary and Animal Sciences, Lahore
52.	Virtual University of Pakistan, Lahore
Sindh	
53.	Agha Khan University, Karachi
54.	Baqai Medical University, Karachi
55.	Dadabhoy Institute of Higher Education, Karachi
56.	DHA Suffa University, Karachi
57.	Dow University of Health Sciences Karachi
58.	Greenwich University, Karachi
59.	Hamdard University, Karachi
60.	Indus Institute of Higher Education, Karachi
61.	Indus Valley School of Art and Architecture, Karachi
62.	Institute of Business & Technology BIZTEK, Karachi
63.	Institute of Business Administration, Karachi
64.	Institute of Business Management, Karachi
65.	Iqra University, Karachi
66.	Isra University, Hyderabad
67.	Jinnah University for Women, Karachi
68.	Karachi Institute of Economics & Technology, Karachi
69.	KASB (Khadim Ali Shah Bukhari) Institute of Technology, Karachi
70.	Liaquat University of Medical and Health Sciences, Jamshoro Sindh
71.	Mehran University of Eng. & Technology, Jamshoro
72.	Mohammad Ali Jinnah University, Karachi
73.	Nazeer Hussain University, Karachi
74.	NED University of Engineering & Technology, Karachi
75.	Newports Institute of Communications and Economics, Karachi
76.	Pakistan Naval Academy, Karachi
77.	Preston Institute of Management Sciences and Technology, Karachi
78.	Preston University, Karachi
79.	Quaid-e-Awam University of Engineering, Science & Technology, Nawabshah

80.	Shah Abdul Latif University, Khairpur
81.	Shaheed Zulfikar Ali Bhutto Institute of Science & Technology (SZABIST), Karachi
82.	Sindh Agriculture University, Tandojam
83.	Sir Syed University of Engineering & Technology, Karachi
84.	Sukkur Institute of Business Administration, Sukkur
85.	Textile Institute of Pakistan, Karachi
86.	University of East, Hyderabad
87.	University of Karachi, Karachi
88.	University of Sindh, Jamshoro
89.	Ziauddin Medical University, Karachi
Balochistan	
90.	Balochistan University of Engineering and Technology, Khuzdar
91.	Balochistan University of Inf. Technology and Management Sciences, Quetta
92.	Iqra University, Quetta
93.	Lasbelaa University of Agriculture, Water & Marine Science, Othal
94.	Sardar Bahadur Khan Women University, Quetta
95.	University of Balochistan, Quetta
NWFP	
96.	Frontier Women University, Peshawar
97.	CECOS University of Information Technology and Emerging Sciences, Peshawar
98.	City University of Science & Information Technology, Peshawar
99.	Gandhara University, Peshawar
100.	Ghulam Ishaq Khan Institute of Engineering Sciences & Technology, Swabi
101.	Gomal University, D.I. Khan
102.	Hazara University, Dodhial, Mansehra
103.	Institute of Management Sciences (IMSciences), Peshawar
104.	Karakoram International University, Gilgit
105.	Kohat University of Science & Technology, Kohat
106.	Northern University, Nowshera Cantonment
107.	NWFP Agriculture University, Peshawar
108.	NWFP University of Engineering & Technology, Peshawar
109.	Pakistan Military Academy, Abbottabad
110.	Preston University, Kohat
111.	Qurtaba University of Science & Information Technology, D. I. Khan
112.	Sarhad University of Science & Information Technology, Peshawar
113.	University of Malakand, Chakdara, Dir. Malakand
114.	University of Peshawar, Peshawar
115.	University of Science & Technology, Bannu
Azad Jammu & Kashmir	
116.	Al-Khair University, AJK
117.	Mohi-ud-Din Islamic University, AJK
118.	University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir

3. FACULTY DEVELOPMENT

Human Resource Development within the higher education sector lies at the heart of the HEC's reform process, and an area in which vital and significant progress has been made. With a dual objective of increasing institutional capacity and enhancing local research activities, the major thrust of programs in this area have been primarily aimed at improving the academic qualifications of university faculty. To facilitate this process, a transparent system for the award of indigenous and foreign PhD scholarships has been established and is being vigorously implemented.

Over 2000 scholarships have been awarded under the indigenous PhD program, undertaking measures at each step of the process to ensure that international standards of quality are not compromised. Supervisors guiding the PhD scholars in the pursuit of research excellence are carefully screened to ensure they possess an adequate teaching and research record.

Following negotiations between the HEC with government and university representatives from advanced industrialized countries, a large-scale foreign PhD scholarship program has been initiated and implemented. The foreign scholarship programs have been geared towards improving the research base in areas of key national relevance where the requisite facilities are not available within Pakistan, particularly in areas relating to engineering, applied and pure sciences. Selected via an independent and rigorous screening process, PhD scholars have proceeded to Germany, France, Austria, Netherlands, Korea, and China. In addition, scholars have also been sent to premier research institutions in the US, UK, Australia and New Zealand.

After years of sending scholars abroad, Pakistan is finally begun to see the return of scholars back to the country. During 2007 already, more than 40 scholars have returned to take up positions in academia and research. This trickle is expected to expand in the coming year that is when the real impact of the HEC programs will be felt.

4. RESEARCH AND DEVELOPMENT

The creation of new knowledge is what distinguishes institutions of higher learning from all other institutions. Research is not a luxury to be conducted only by institutions of the developed world. The environment, requirements, and needs of each region are unique and unless the universities play their due role the potential of the regions remains unreached while its problems remain unsolved. It is for this reason that the HEC launched a comprehensive program to provide opportunities to students and researchers in institutions of higher learning to obtain funding to test their ideas, equipment, and libraries to assist them in this task and funding for conferences and meetings.

4.1 Research Grants

The research grant program of the HEC provides financial support for research in all disciplines of basic and applied sciences, engineering and technology, social sciences and humanities. Generally, the duration of a research grant is two to three years. The program receives grant applications throughout the year. All proposals are peer reviewed and following acceptance by the reviewers, they are funded. The amount of research funding is expected to increase and new initiatives like industry partnerships are being explored.

The past years have witnessed an exponential growth in research grant applications and awards. The budget allocated to this activity has grown to over Rs. 300 million per year and the demand increases on a monthly basis.

4.2 Scientific Equipment & Library Grants

HEC initiated a unique program of sharing the scientific instrumentation facilities which would on the one hand provides access of scientific community to sophisticated equipment and on the other hand provides a source of funding to those institutions which make their instruments available. HEC also launched a program to provide funds for purchase of spare parts, repair, and maintenance of expensive scientific laboratory equipment lying non-operational for want of repair or spare parts to public sector universities / degree awarding institutions.

Establishment of central research laboratories has been one of the earliest programs of the HEC, which has resulted in the availability of sophisticated multi-disciplinary research instrumentation such as scanning electron microscopes, NMR, spectrometers, X-ray diffraction etc. being available in universities nationwide. As opposed to previous practices of departmental ownership of such facilities, these instruments were placed in a central shared facility encouraging multi-disciplinary and inter-disciplinary work.

4.3 Conferences and Meetings

Under this program assistance is provide both to host conferences in Pakistan, as well as to travel to attend international conferences world wide. The travel grants are provided to faculty as well as PhD students to allow them to present their work in prestigious peer reviewed conferences. As a result of this program more than a hundred conferences have been hosted during the past year while the number of Pakistan scholars traveling abroad to present their work exceed all expectations.

4.4 Industrial Liaison

The Higher Education Commission (HEC) has set up an industrial liaison secretariat to develop an effective cooperation between academia and industry to capitalize on the ever-increasing international demand for products and processes. The secretariat serves as a catalyst for university-industry partnership to outline new technical challenges, find their solution, and assist in the launch of new programs in the academic institutions.

The secretariat has undertaken various programs to support the discovery of new knowledge and enhancement of a skilled workforce. Private sector industries are being involved to identify their needs as in light of the changes taking place so that intellectual capital and emerging technologies are brought together in way that promotes economic growth and an improves the quality of life.

A novel program of the HEC has been the provision of advanced design software to the engineering universities in Pakistan. The software packages are selected by a joint team of academics and practioners that lists the software that would enhance the learning experience of engineers and provide them the tools necessary to tackle real world problems. To date, mechanical and civil engineering design software packages have been selected, purchase and installed at the various universities. An extensive training program has subsequently been conducted to get optimal usage from these packages. In the next phase of the program, electronic design software is being targeted.

In order to facilitate Pakistani industrial enterprises to work with academia a 20-80 industry-university program has been launched under which HEC matches 4:1 funding provided by industry to work on a problem of interest to the industrial enterprise. More than 10 projects are currently underway under this initiative with some such as indigenous CNG kits are getting close to commercialization.

4.5 Patent filing

HEC has developed a program through which inventions (with appropriate supporting material) may be submitted for evaluation and potential awarding of a patent. HEC certifies that submission will remain completely confidential and no step will be taken without the consent of the inventors. In case an invention is determined to be patentable, the inventor will be encouraged to file for an international patent. Should it be decided that a patent would be filed, patent attorneys, supported by HEC will assist in completing the process.

4.6 Research Output

Figure 4.1 succinctly demonstrates the impact of the HEC on quality research publications originating from Pakistan. Admittedly, not much progress was seen for the first 8 years; however, the trend is clear since 2002 on the research publications originating from Pakistan. Thus, there is significant impact on the state of research in Pakistan.



Figure 4.1 Impact of the HEC on quality research publications originating from Pakistan.

5. INFORMATION TECHNOLOGY INFRASTRUCTURE

One of the first programs launched at the HEC was that of computerization of the universities and the linkages of the universities to form the Pakistan Education and Research Network (PERN). Each institution was provided computers, servers, and means to establish a campus wide intranet with a fiber optic backbone and 100 MBit Ethernet connectivity between the computers. Initially only 16 universities were provided fiber access while the remaining were connected via either copper or wireless. Two remote institutions were connected via VSAT. This initial network known as PERN 1 provided the platform on which it was possible to launch a number of initiatives such as the digital library program under which access was provided to more than 20,000 full text journals to every university of Pakistan.

With the rapid enhancement of computer users in the higher education institutions as well as the advent of applications such as video conferencing it became increasingly clear that, a significantly more enhanced IT platform is required to cater to future demands. This led to the design of the PERN 2 network featuring a 10 GBit backbone and 1 GBit Ethernet connectivity to each university and campus. The IP network provides the flexibility to run voice, video and data on the same network while catering to the exponentially increasing demands for additional bandwidth of the universities.

6. SUMMARY AND CLOSING REMARKS

As a result of a focused attention to higher education along with consistent policies and financial support of the Government of Pakistan, the higher education sector in Pakistan has a new lease on life. Enrollment along with research output is growing rapidly and institutions of higher learning in Pakistan are once again becoming repositories of knowledge focused on the dissemination of knowledge and creation of new knowledge.