

**Research in Egyptian Universities:
The role of research in higher education**

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Research in Egyptian Universities: The role of research in higher education

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Abstract

The present paper deals with Higher Education (HE) in Egyptian Universities where together with teaching of students, the research is an essential component in education system.

Until the 1950s, Egyptian Universities were at an international standard in science and research. From the 1960s fundamental changes in the higher education system caused a decline in Egyptian education and research. Among the main reasons are the rise of a large number of new universities; scarce number of qualified staff to teach students especially in remote universities and a decline in qualified teaching staff . The University budget which depends solely on the government is not sufficient to support the vast number of students. An indication of knowledge decline is that not one university in Egypt or in any other Arab country was included in the list of the first 500 worldwide academic universities for the years 2003 to 2005.

- Number of universities in Egypt increased from four state universities in 1950s to 18 government universities at present. Within the universities, in addition to faculties, these are numerous specialised institutions, centres and units which carry out and support research and training. In 1992 a new law on higher education was issued which opened the door to new private universities. At present there are 16 private universities and another two under construction.
- The number of university students in higher education is more than one million that is about one percent of the Egyptian population. The number of undergraduate students increased by 2.6 times during ten years from 1993 to 2003. Egypt spends less money on student education than most Arab countries. The pressure of numbers, and those seeking entry to higher education in particular, was, and continues to be, relentless. The cost of one student in Egypt is \$US 1191, that is one-tenth of that cost in some oil-rich Arab countries.
- For the academic staff and researchers in Egyptian universities, the students to PhD-holding staff ratio considerably increased in 1996 (35:1) compared with 1991, when it was 26:1. There was a sharp rise in the students:staff ratio in ten years from 1993 to 2003 of 20:1 students:staff to 37:1 relatively, as a result of opening new universities and disproportionately increasing the number of students to the rise of teaching staff.
- The research expenditure in Egypt is very low. The Government is the major funding source of research activities in Egypt. The share of the government budget of total R&D funding in 1996 was 86%, foreign support was 10.8% and private only 3.4%. Egyptian researchers are among the worst paid researchers in Arab countries. The research in hard sciences in Egypt suffers from a deficiency in state-of-the-art equipment; this makes advanced technology research difficult to pursue. The university budget allocated to the individual researcher for supporting research reaches the sum of US \$ 50 in good years. With such a small research budget for the universities, not much can be expected regarding the quality of research produced. At the same time the funds allocated to attending the conferences, travel, research equipment, books and scientific

journal are continuously decreasing with the increase in the number of researchers.

- Foreign funding, which is only 10% of the total research expenditure, plays a significant role in supporting the research activity in universities and particularly in the research centres affiliated to the universities.
- A few reasons for the decline in research in Egypt are: the lack of resources along with the abuse of those available, the lack of a motivation for research, the lack of a strategic plan for research and the poor economic condition of university staff.
- One of the most serious higher education problems is the system of promotion, which essentially is based on research and the publication of results in scientific papers. Promotion at all levels is close to automatic. The progression moves from assistant to lecturer, once the PhD is complete. Promotion depends on tailoring research to state-imposed standards rather than increasing knowledge in the field. Once a scientist has become professor, no other academic promotion opportunities exist and there are no mechanisms for monitoring both research and teaching.
- A very sensitive issue which affects the productivity of research is the ethics of research. The lack of procedures for monitoring research leads to plagiarism, which is rampant in Egypt. It is an internationally acknowledged academic problem, the difference being that, when the plagiarism is proved, the perpetrator is penalised in most institutions worldwide but not always it is happen in Egypt. However, the reluctance of some scientists, even the authors of plagiarised work in both developed and developing countries, to verify that they have been plagiarised exacerbates the problem. This devalues scientific research and opens the door to the falsification of results.
- The poor training of the research personnel is one of the key factors – if not the most important one – responsible for the deteriorating research quality in Egypt. This is attributed to Egypt's education system, which is far from satisfactory. Education gaps exist at all under- and post-graduate levels for teaching how to perform research and write results.
- An encouraging trend is that Egyptian higher authorities have recognized the HE problems and made steps forward to improve situation. The new HE legislations should establish the mechanisms and procedures to improve higher education and research and set higher standards for research and development.

In conclusion, it can be stated that the pressure of student numbers through government policy emphasizing the quantity of students together with the deficiency of highly qualified academic staff are among the main reasons which have led to the qualitative decline education in Egyptian universities. At the same time, the deprived research environment and lack of a strategic plan for research within university causing the deterioration in research calls for urgent actions to improve the quality of Higher Education and research in Egyptian universities. It is not a novel proposition that improving quality involves a financial investment that includes increasing salaries, improving research facilities, and enhancing “teaching and research capacities.”

Introduction

Higher education (HE) in Egypt is largely performed by the public higher education sector, comprised of public universities and very diverse and numerous non-university institutions. The private higher education sector mainly comprises a number of private universities. Research combined with postgraduate studies is implemented at universities while research alone is carried out by Ministerial and Governmental research centres. There are very few private research centres. The present paper deals with HE in Egyptian Universities where, together with teaching of students, research is an essential component of the education system.

Until the 1950s, Egyptian universities were at an international standard in science and research. The Faculty of Science at Cairo University established an observatory in the 1950s with the third largest telescope in the world and also the world's first marine science research station on the Red Sea. Until 1950 Egyptian universities were located in Cairo and Alexandria and served Arab states by providing them with highly qualified scientists who had studied in Egypt. Later universities were established in provincial capitals. From the 1960s fundamental changes in the higher education system caused a decline in the Egyptian research and education system. The main reasons for this are briefly summarised as follows:

- Increased number of universities with escalating numbers of students going to universities.
- Insufficient qualified staff to teach students especially in remote universities.
- In 1954 a large group of leading professors were dismissed from universities for various reasons. The main effects were a decline of quality of teaching staff and the intimidation of university professors, who were prevented from pursuing practices to ensure academic freedom.
- Simultaneously with an increasing number of Egyptian universities, the Arab oil-rich countries opened their universities which depended on Egyptian academic staff attracted by high salaries. Employment in the Arab states was selective, taking the best qualified staff from Egypt.
- When universities expanded in numbers, their administrations encouraged people who were working outside university and had managed to obtain a PhD degree, for example police and army officers, to join university staffs despite their having no previous university experience.
- The university budget which depends solely on the government was not sufficient to support vast number of students; it was hardly enough to maintain the cost of teaching and little money was available to support research in universities. Research in university has become primarily dependent on foreign funding.
- The academic staff is the back-bone of university; if this staff is left without weeding out, the university will decline. However, the university system allows to anyone, once appointed as demonstrator, to continue until becoming a professor without sifting at any stage, contributing to the decline in the quality of university staff. Universities should only employ highly qualified academic staff and any reforms should address the issue of how to improve the level of academic staff in a university.

Listed above are the general ailments but there are some exceptions which represent bright spots in HE. An example is the establishment of Assiut University in Upper Egypt which in spite of having been officially opened, did not begin to operate until a core of well qualified staff was available, most of the staff having obtained their degrees abroad. Another example is the Medical Centre in Mansoura University

which has achieved a level of excellence that is internationally rated. Its budget is maintained by local and international donations.

The situation in Egypt is similar to that of other developing countries. The Declaration on Science and the Use of Scientific Knowledge adapted at the World Conference on Science, held at Budapest 26 June-1 July 1999, stated: "In all countries, and in particular the developing countries, there is a need to strengthen scientific research in higher education, including postgraduate programmes, taken into account national priorities."¹

An indicator of the knowledge decline is that not one Egyptian state university or any other Arab university was included in the list of the first 500 worldwide academic universities for the years 2003-2005, produced by the Institute of Higher Education, Shanghai Jiao Tong University. The esteemed worldwide prizes awarded to individuals are indicators of national human resources. One of the most prestigious is the Nobel Prize, which was awarded for Literature to the eminent late Egyptian writer Naguib Mahfouz but not to scientists in Egypt. In 1999, a Nobel Prize in chemistry was given to Ahmed Zewail, the Egyptian scientist, who, however, made his career in the USA and his prize-winning discovery was carried out in an American university, indicating the individual ability of Egyptian researchers when facilities and support are available.

Universities in Egypt

In the first half of the last century, until the revolution in 1952, there were four governmental (public) universities in Egypt located in Cairo and Alexandria, one of which, Al-Azhar was the world's oldest university founded in 917. In addition, there was the private American University in Cairo. In 1957, Assiut University was opened to facilitate access of Upper Egyptians to HE. This university had four branches, widely geographically separated, one north of Assiut in Minya and three to the south in south: in Sohag, Qena and Aswan. In the 1970s, seven new universities were established throughout the country. One of this was the Al-Minya University, the former branch of Assiut University. In 1995, the three remaining branches of Assiut University, namely Sohag, Qena and Aswan were separated from the mother university to form the independent South Valley University. In 2006 there was a further split when Sohag became an autonomous university. The process of university branching is clearly horizontal in direction, making university education accessible to more people in different parts of the country – more in the form of multiplication or duplication than development of patterns of higher education.² In 2005, two branches of Cairo University and a branch of Zagazig University split from the mother universities, to become Al-Fayoum University, Beni Soueif University and Benha University respectively, and in 2006 Kafr al-Sheikh University become independent from Tanta University, thus increasing the number of government universities to 18. Within universities, in addition to the faculties, these are specialised institutions as for example nursing, cancer research, physiotherapy, and liver disease institutes, as well regional and urban planning and environmental studies, and many others. Other than faculties and institutes, Egyptian Universities have 'centres' and 'units' which perform and support research and training.

An account on Egyptian University cannot neglect the private universities, in spite of their not being the main concern of this presentation. In 1992, the new law on

¹ Science for the Twenty-first Century. Declaration on Science and the Use of Scientific Knowledge. Science Agenda-Framework for Action. World Conference on Science (Budapest, Hungary, 26 June-1 July 1999) UNESCO, Paris, 2000.

² Higher Education the Arab States. Munir Bashshur, UNESCO Regional Bureau for Education in the Arab States, Beirut-Lebanon. 2004.

higher education was enacted which opened the door to private universities, in addition to the long-established American University in Cairo. In one year alone - 1996 - four private universities were opened in Egypt. In 2000s many other private universities, including French, German, Canadian, Russian and British, were opened, which were mainly located in satellite towns in the desert around Cairo. At present (2006) there are 16 private universities in total with another two under construction. Private universities in Egypt receive no state funding and are solely dependent on their own resources and support from foundations and societies. Until now, these universities with a small amount of students do not play a significant role in HE and do not contribute to research, other than the American University in Cairo with its old traditions and well-established publishing house, which is the best English language publisher in Egypt.

University Students

With the Egyptian policy of enrolling more students in HE the annual rate of growth of students in the 1991-1996 period was 10%. In his comprehensive report on Higher Education in Egypt, Qasem Subhi (1998) estimated a total of 846,467 Bachelor, 42,465 Master and 17,663 PhD students in Egyptian universities in the academic year 1995-96. The number of undergraduate increased by 2.6 times during the ten years from 1993 (471,358 students) to 2003 (1,239,839 students), the number of Master students increased from 39,105 in 1993 to 63,667 in 2003 and PhD students from 13,354 to 22,248.³ Figures on the number of postgraduate students are notable in comparison with the Arab states, with the number of Master students in Egypt comprising just under half of all Master students enrolled in Arab countries (total 101,007 Master students in Arab countries including Egypt) and more than half of PhD students in all Arab Countries (total 28,117 PhD students). However, Egypt spends on student education less money than most Arab countries. The total cost of one student in Egypt is \$US 1191 that is one-tenth that of the cost in some oil-rich Arab countries, such as Bahrain, Kuwait and Saudi Arabia.⁴

As emphasised in 2004 by Munir Bashshur, in Egypt as in most Arab countries, "The pressure of numbers, and those seeking entry to higher education in particular, was and continues to be relentless".⁵ However, the Egyptian government has continued to provide unlimited access to the universities, despite the fact that the emphasis on quantity of students has led to a decline in quality of education.⁶

The postgraduate students mainly obtained their Master and PhD degrees in Egyptian universities while a small proportion of students travelled overseas for post-graduate studies. For the 1994-1995 academic year there were 5792 Master graduates inside Egypt and 192 outside, making a total of 5984 Master students. In the same year there were 3421 PhD graduates, of these 2932 were inside the country and 489 outside.⁷ Students study abroad for various reasons, but mainly to seek admission in fields which are either not available in Egypt or in which admission to them is streamlined by the authorities. One such example is to obtain a degree in molecular biology and genetic engineering, both of which are in the list of priorities for overseas scholarships. In the

³ Development of Education in Arab Republic of Egypt, 2000-2004, prepared by a team of researchers National Center of Educational Research and Development. Team leader Professor May Shehab. National Center of Educational Research and Development, Cairo. 2004

⁴ Higher Education system in the Arab States: Development of Science and Technology Indicators. Qasem Subhi , UNESCO Cairo Office. 1998.

⁵ Higher Education the Arab States. Munir Bashshur, UNESCO Regional Bureau for Education in the Arab States, Bairut-Lebanon. 2004.

⁶ Human Rights Watch June 2005 Vol. 17, No. 6 (E)

⁷ Higher Education system in the Arab States: Development of Science and Technology Indicators. (appendix table 4-5, page145) Qasem Subhi . UNESCO Cairo Office 1998.

Department of Botany in Aswan, South Valley University, which is a small department with a total 15 PhD staff, three members have PhDs in field molecular biology, which were recently obtained overseas, and another two PhD students in the same field are still studying abroad. On returning to the department, the highly qualified specialists could not continue work in the same field because they had no laboratory space, requisite equipment and materials. They were confined to conducting simple research and looking for opportunities in their field abroad.

The academic staff and researchers in Egyptian universities

For the teaching staff in all Egyptian state universities Qasem Subhi (1998) gave the following figures for the year 1995/96: Master staff 9004, PhD staff 25,593 and 8384 Professors. The PhD holders represented 74% of the total academic staff in 1996, although they are fewer than in 1991 when PhD staff totalled 77%. It should be noted that the ratio of students to PhD-holding staff considerable increased in 1996 (35:1) compared with 1991 (26:1).⁸ Figures given by May Shehab (2004) indicated the sharp rise of staff/student ratio in the ten years from 1993 to 2003, from 1:20 to 1:37 respectively, as a result of opening new universities and increasing the number of students, that is inconsistent with the rise of teaching staff. Hence the teaching load of PhD staff becomes heavier.

The numbers of academic staff vary considerably comparing particular universities and the discipline being taught. The average PhD staff to student ratio in all fields in Egypt is estimated at around 1:36, which is similar to large universities such as Ain Shams in Cairo(1:36 for 2005)⁹ but it is 1:68 for South Valley University in Upper Egypt in the same year.¹⁰ For all universities the teaching staff/student ratio in the science and technology field was 1:10, and in humanities and social sciences fields it was 1:97 (Qasem Subhi (1998). An example is given for Ain Shams University where the ratio in 1995/96 was 366:1 students/faculty member in commerce, 234:1 in law, and 104:1 in arts. It remained relatively low in medicine and engineering at 15:1 and 30:1 respectively.¹¹

Regarding the qualifications of the staff, there is a notable difference between new and old universities. When universities started expanding in numbers, the administration of the new universities encouraged people who were working outside university and who had managed to obtain PhD degree (police and army officers for example), to join university staff despite those people having had no previous university experience. Simultaneously many of the highly experienced staff from old universities were either recruited (or fled) to oil-rich countries in search of high salaries or emigrated to Western Europe or North America to find decent jobs to be able to pursue research. All these contributed to the decline in the quality of university staff.

The small proportion of Bachelor students graduating with the highest grades are employed by a university and become demonstrators or technical staff helping in practical classes for undergraduate students and assisting the university researchers. Very few graduates find positions as researchers in the government research centres and institutions. The majority of university graduates remain unemployed or find jobs

⁸ Higher Education system in the Arab States: Development of Science and Technology Indicators. Qasem Subhi , UNESCO Cairo Office. 1998.

⁹ **Ain Shams University profile on internet**

¹⁰ Strategic Plan for Quality Assurance at South Valley University, Qena, 2005.

¹¹ Higher Education the Arab States. Munir Bashshur, UNESCO Regional Bureau for Education in the Arab States, Bairut-Lebanon. 2004.

unrelated to their studies. This 'educated unemployment' is the result of a mismatch between university output and labour market requirements.

For every one million inhabitants in Egypt there are 1128 researchers, scientists and engineers, compared to an average of 2714 in France and Germany, 3723 in Sweden and the USA, and 6309 in Japan.¹² However, Egypt remains the highest in the Arab States with 2.15 research and Development (R&D) personnel per 1000 of the labour force in 1996 and an average annual growth of 4.75% in the period from 1992 to 1996.¹³

Financial resources

Searching the different Egyptian sources of statistical data reveals various figures for expenditure on research and development. For example, the Human Development Report (2005) gives the R&D expenditure in Egypt as 0.2% of the GDP, while the International Development Research Centre (IDRC) report (Korayem, 2004) gave a figure 0.6% GDP in 1996. However, all the available information indicates that research expenditure in Egypt is very low.

The government is the major funding source of research activities in Egypt. The share of the Egyptian government budget of the total R&D funding in 1996 was 86%, while foreign support was 10.8% and private Egyptian only 3.4%. Most research activities carried out by universities come from university budgets that are also dominated by public funding sources. In 1996, universities received only 23.6% of the total R&D expenditure. Egyptian researchers are among the worst paid researchers in Arab countries. Research expenditure (RE) comprises the sum of the salary of one researcher + the salary of one support staff + R&D operational funds. The RE per researcher in Egypt in 1996 was 21,200 US\$, that is one-tenth that of Saudi Arabia.¹⁴

According to a recent publication by Human Rights Watch these low salaries affect the quality of teaching and research in Egypt. Many professors increase their earnings by selling books or photocopies, such as of lectures or notes, to students. The professors prefer large classes because they can make more money and in the process increase the student/staff ratio. The salary problem has affected scholarship because many professors no longer prioritise research. They use their free time to teach at private universities or to take high-paying consultancies and therefore have no or minimal time in which to do academic research.¹⁵

The research in hard sciences in Egypt suffers from a deficiency in state-of-the-art equipment, making advanced technology research difficult to pursue. Advanced research in hard sciences is extremely expensive. It demands sophisticated technical equipment, the cost of which is far beyond the financial resources allocated to research in Egypt. However, even when the resources are not scarce, universities are still unable to adequately equip and maintain their research facilities because they could not afford the maintenance of equipment, and have no technical staff or spare

¹² Chapter 4. The Research Environment in Egypt, Karima Korayem in Research and Development in the Middle East and North Africa. Eds: E.Rached and D. Craissati. IDRC 2000 (http://www.idrc.ca/en/ev-41626-201-1-DO_TOPIC.html)

¹³ Research and Development systems in the Arab states: Development of Science and Technology Indicators Subhi Qasem UNESCO publication. 1998.

¹⁴ Research and Development systems in the Arab states: Development of Science and Technology Indicators. Subhi Qasem UNESCO publication 1998; Chapter 4. The Research Environment in Egypt, Karima Korayem in Research and Development in the Middle East and North Africa. Eds: E.Rached and D. Craissati. IDRC 2000 (http://www.idrc.ca/en/ev-41626-201-1-DO_TOPIC.html)

¹⁵ Human Rights Watch, Vol. 17, No. 6(E)

parts etc. The outcome is that the Egyptian scientists are left behind with respect to their scientific training and capabilities, no matter what their potential is.¹⁶

The university budget allocated for supporting research reaches the sum of US \$50 for an individual researcher in good years, the sum usually being less. With such a small research budget for the universities, not much can be expected regarding the quality of research produced. At the same time the funds allocated to attending conferences, travel, research equipment, books and scientific journal are decreasing continuously with the increase in the number of researchers.

Foreign funding which is only 10% of the total research expenditure plays a significant role in supporting the research activity carried out in the research centres affiliated to the universities. Korayem (2004) highlights the role of foreign finance in research expenditure in human and social science. For example, in the Centre for Political Research, affiliated to the Faculty of Economics and Political Science at Cairo University, foreign finance covers 40% to 100% of the total research cost, while foreign funding amounts to 100% of the research activity of the Centre of Developing Countries affiliated to the same faculty. Foreign finance is essential in the centres conducting agricultural, medicinal and hard science research where advanced equipment and qualified technicians are required.

Another example is the Unit of Environmental Studies and Development at Aswan, which belong to South Valley University. This unit has the status of a UNESCO Ecotechnie Cousteau Chair and all research activities are executed by projects with foreign funding. The Chair is strengthening the research capacity in the university, which benefits, in particular, postgraduate studies, by promoting interdisciplinary education and applied research. Highly motivated university researchers and postgraduate students from different departments are working voluntarily for the unit and, in return, the Chair provides facilities for research, training and communications. In addition, the Chair provides small grants from research projects funding for newly graduated BSc students enabling them to work on subjects related to the Ecotechnie concept for their MSc and PhD degrees, supervised by senior staff of the UESD team. More than 20 MSc students and 10 PhD students have benefited from research facilities provided by UESD. The Chair provides training for junior staff in conducting research, writing project proposals and scientific publications.

Research Environment

However the research decline in Egypt is not just in terms of the pressure of student numbers and lack of funds. The quality of research is a function of both the scientific knowledge and the research environment.¹⁷ Mohamed Aboulghar, Professor in the Faculty of Medicine, Cairo University has characterised the research in Egyptian university and pointed out a few reasons for the decline in research, among which are: the lack of resources along with the abuse of those available, the lack of a motivation for research, the lack of a strategic plan for research and the poor economic condition of university staff who are compelled to look for other sources of income to make a

¹⁶ Chapter 4. The Research Environment in Egypt, Karima Korayem in Research and Development in the Middle East and North Africa. Eds: E.Rached and D. Craissati. IDRC 2000 (http://www.idrc.ca/en/ev-41626-201-1-DO_TOPIC.html)

¹⁷ Chapter 4. The Research Environment in Egypt. Karima Korayem in Research and Development in the Middle East and North Africa. Eds: E.Rached and D. Craissati. IDRC 2000 (http://www.idrc.ca/en/ev-41626-201-1-DO_TOPIC.html)

decent living at the expense of their main duties as researchers and educators.¹⁸ It could be added that the university system allows any member of staff, once appointed as demonstrator to continue until professor without being sifted at any level contributing to the decline in the quality of academic staff (Kassas, personal com. 2006). There are no synergies among research domains within and across universities. Just one example: referring to Kassas (personal com., 2006), he examined in one year three theses from different Egyptian universities working independently on the same areas of northern lakes in Egypt and found that the studies repeated one another.

Motivation for research

Except for a few still enthusiastic researchers there is little interest in science and conducting research for improving knowledge. Research activities are directed to producing theses for post-graduates in order to obtain degrees and for promotion. One of the most serious higher education problems is the system of promotion, which is essentially based on research and the publication of results in scientific papers. These papers do not necessarily have to meet strict criteria, such as being published in reputable scientific journals, being original or related to the country's development needs. To reach the highest academic position in Egypt, namely professor, a scientist needs to publish some 15 to 20 papers in a minimum of 10 years, some staff taking more than 20 years.

Human Rights Watch in its Report published in June 2005, referring to Egyptian academicians, stated that promotion at all levels is close to automatic provided one does not stray too far into red line areas. The progression moves from assistant to lecturer, once the PhD is complete. Usually lecturers become assistant professors after five years, and full professors after ten years. Promotion depends on tailoring research to state-imposed standards rather than increasing knowledge in the field.¹⁹ Once a scientist has become professor no other academic promotion opportunities exist and there are no mechanisms for monitoring both research and teaching.

Despite the deterioration in the research environment in Egypt, there are still good researchers who are well-trained scientifically, and who can produce quality research if they are given the right opportunity. They must be supported by being allowed access to data, up-to-date bibliographic material, sophisticated equipment (for the hard sciences), good remuneration, and professional acknowledgment.²⁰

The ethics of research.

A very sensitive issue which affects the productivity of research is the ethics of research. The lack of procedures for monitoring research leads to plagiarism, which is rampant in Egypt. It is an internationally acknowledged academic problem, the difference being that, when the plagiarism is proved, the perpetrator is penalised in most institutions worldwide but not always in Egypt. There are people who have plagiarised scientific works by publishing papers in Egyptian journals almost identical to the articles published in international magazines. Despite this fact being well known to officials in a certain case, the person concerned was promoted and obtained a high academic position in the relevant university. With a change of university administration this case is currently being investigated together with many others and

¹⁸ Egyptian educational decline: is there a way out? Published in Cairo by AL-AHRAM, 2 - 8 February 2006, Issue No. 780, Mohamed Aboulghar, Professor in the Faculty of Medicine, Cairo University

¹⁹ Human Rights Watch Vol. 17, No. 6(E)

²⁰ Chapter 4. The Research Environment in Egypt, Karima Korayem in Research and Development in the Middle East and North Africa. Eds: E.Rached and D. Craissati. IDRC 2000 (http://www.idrc.ca/en/ev-41626-201-1-DO_TOPIC).

hopefully the appropriate actions will be taken. Particularly in July 2006, the Supreme Council of Universities elaborated the issue of scientific research ethics in the universities. They decided that the violation of ethics will be firmly confronted and inhibitive proceedings will be taken against any violation of scientific loyalty. That there is still the reluctance of scientists, even the authors of plagiarised work in both developed and developing countries, to verify that they have been plagiarised exacerbates the problem. In many cases, some authors simply did not reply to requests to confirm that they had been plagiarised. However, some others of those that responded admitted that their own language and expression has been used, but that when the figures published are different this could not necessarily be regarded as plagiarism. These attitudes devalue scientific research and open the door to the falsification of results.

We agree with Awatef Abdel-Rahman, who wrote in the Egyptian language newspaper *Al-Ahram Weekly* that “A code of conduct should be elaborated that sets down penalties for professors found guilty of abusing their power, plagiarizing (then publishing and selling) research, or commercializing their profession for personal gain (by leaking exam questions, for instance), thus disgracing themselves and their institution. University laws must be enforced rigorously”.²¹

Training and Education

The poor training of the research personnel is one of the key factors – if not the most important one – responsible for the deteriorating research quality in Egypt. This is attributed to Egypt’s educational system, which is far from satisfactory.²²

Gaps in education exist at all under- and post-graduates levels for teaching how to perform research and to write up results. Students are not trained to do research, nor taught how to write scientific papers. This essential part of education is completely neglected in both under- and even post-graduate studies. With very few exceptions, the research topics for post-graduate students are proposed by supervisors who have instructed the students and do not encourage the personal student’s thinking. They use student as the tool for doing the practical or field work but not for research. “Egyptian university graduates are capable only of waiting for orders and executing them. No thinking, no arguing, no questioning; no objecting and not even dialoguing: a personality that does not (and cannot) create or think. This graduate is usually stuck with this type of passive personality for the rest of his or her life.”²³

In this context we should mention the student’s exchange programme that has been supported by the British Council in Egypt and conducted by South Valley, Suez Canal and Al-Minya Universities from Egyptian side and from the British side by Glasgow, Nottingham and Manchester Universities respectively. In this programme Egyptian bachelor students were jointly trained with UK students by Egyptian and UK staff to conduct small research projects. It was a very beneficial programme, encouraging the students’ personal thinking and providing training in writing essay.

Steps forward for improving situation

In spite of the state of deprivation of research and development, Egyptian universities continue to head universities in the Arab states particularly in the number

²¹ Awatef Abdel-Rahman Cleaning up on campus *Al-Ahram Weekly*, 28 Oct. - 3 Nov. 1999 Issue No. 453.

²² Chapter 4. The Research Environment in Egypt. Karima Korayem in *Research and Development in the Middle East and North Africa*. Eds: E.Rached and D. Craissati. IDRC 2000

(http://www.idrc.ca/en/ev-41626-201-1-DO_TOPIC.html)

²³ Mohamed Aboulghar, *Al-Ahram weekly online*: <http://weekly.ahram.org.eg/2006/780/sc7.htm>

of publications produced as well as in the highest number of patent applications which were made.²⁴ Egyptian Universities produce a large number of researchers compared with those in the Arab universities.

An encouraging trend is that Egyptian higher authorities have recognised the HE problems and made steps forward to improve situation. In the interview to the *Al-Ahram* newspaper on 25th September 2006, the Minister of Higher Education discussed the new HE legislations which were sent to universities and affiliated institutions for discussions before they will be discussed and finally approved in the Egyptian Parliament. The resultant legislation should establish the mechanisms and procedures to improve higher education and research and set higher standards for research and development.

Earlier, in 2000, the Ministry of Higher Education presented a twenty-five step strategic plan to improve Egyptian universities. The proposed reforms are designed in part to improve the quality of higher education to balance quality and quantity and to improve facilities for scientist particularly to improve the libraries. It also called for new sources of financing for the national universities.

At the present time (2006), the Ministry of Higher Education is conducting a Quality Assurance and Accreditation Project. As a result, a Quality Assurance and Accreditation Centre (QAAC) is being established in many Egyptian universities. It is too early to expect effective results of this project on the HE, but the existence of these centres is a good indicator that some actions have begun in order to improve the present situation in Egyptian universities.

High technology, especially in communication, is one of the priorities in Egypt. In particular, students and staff have easy access to the Internet. The Egyptian Universities Network (EUN) was established in 1987. Operated by 13 of Egypt's leading public universities, EUN delivers a wide area network that link the local area networks on each campus to each other and to the main facility in Cairo. Relying on EUN's services, the universities offer their learners networked communications between the universities and affiliated institutions, access to the Internet, and the latest academic resources and research tools. The easier access to scientific journals through the Internet to some extent compensates for the poor library facilities in many universities and is the principal way for remotely located universities to access contemporary scientific information.

Conclusion and recommendations

We can conclude that the pressure of numbers through government policy emphasising the quantity of students with a deficiency of highly qualified academic staff are among the main reasons that have led to the qualitative decline in education in Egyptian universities. At the same time the deprived research environment and lack of a strategic plan for research within university causing the deterioration in research, calls for urgent actions to improve the quality of HE and R&D in Egyptian universities. It is not a novel proposition that improving quality involves a financial investment that includes increasing salaries, improving research facilities, and enhancing “teaching and research capacities.”

It is difficult to be innovative in recommendations for improving HE and research in Egypt. This issue had been frequently discussed in numerous local and international reports. The two main topics often addressed are increasing the budget for HE and

²⁴ Science and Technology Development Indicators in the Arab Region: A comparative Study on Gulf and Mediterranean Arab countries. Samia Satti O.M. Nour, 2005 UNU-UNTECH discussion paper series

R&D as well as improving the professional quality of both the teaching and research staff in the university. Universities can attain a high level only with highly qualified academic staff, which should be addressed by a reform in the education system. One of the surest ways to improve universities and their teaching of science is through a system of accreditation that monitors and ensures quality. Egypt is adopting a privatisation programme of industries that were traditionally owned by the state. In this respect an increase in the private sector's demand for research and development is expected. Research in universities should be directed toward the country needs for growth and development to involve the private sector in financing the research. The standards and mechanisms for monitoring the ethics of research should be established, particularly plagiarism, which already crosses country borders and has become not a local but worldwide problem which should be dealt accordingly the international rules and regulations.

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