



**H A N I  
QADDUMI  
SCHOLARSHIP  
FOUNDATION**

# **HQFS STUDY ON EMPLOYMENT OPPORTUNITIES AND MARKET ASSESSMENT FOR UNIVERSITY GRADUATES IN PALESTINE: THE RELEVANCE OF HQSF FIELDS OF SUPPORT 2012**

**PRODUCED BY  
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## List of Abbreviations

AUB	American University of Beirut
BCI	Member of the BCI Group, Local Company
FNMD	Facility for New Market Development
GS	Gaza Strip
HQSF	Hani Qaddumi Scholarship Foundation
ICT	Information Communications Technology
IELTS	International English Language Testing System
IT	Information Technology
IUG	Islamic University of Gaza
JD	Jordanian Dinar
LFPR	Labor Force Participation Rate
MAS	Palestine Economic Policy Research Institute
MBA	Master's in Business Administration
NGO	Non-Governmental Organization
NIC	National Insurance Company
oPt	Occupied Palestinian Territory
PA	Palestinian Authority
PCBS	Palestinian Central Bureau of Statistics
PITA	Palestine Information and Communication Technology Association
PMoHE	Palestinian Ministry of Higher Education
PPU	Palestine Polytechnic University
PTUE	Palestine Trade Union of Engineers
UK	United Kingdom
USA	United States of America
USAID	United States Agency for International Development
WB	West Bank

## Executive Summary

Hani Qaddumi Scholarship Foundation (HQSF) is a not-for-profit foundation that believes in the power of education and philanthropy to promote development and societal progress in Palestine. The Foundation provides scholarships and financial aid to talented and gifted young Palestinians to complete their undergraduate and graduate studies in Palestine and abroad.

The Foundation is looking to reexamine its grant mandate and policies to ensure their compliance with the needs of the Palestinian labor market. As it stands, HQSF offers scholarships to Palestinian undergraduate students in the fields of Engineering and Information Technology (IT) exclusively, who are currently attending or planning to attend local universities or the American University of Beirut (AUB). Graduate scholarships are offered to students to allow them to study in a select group of accredited universities, in the United Kingdom, the United States of America, and Canada, in more diverse fields that include Engineering, Computer Sciences and IT, MBA, and Fine Arts.

This study surveyed a pool of Palestinian undergraduate and graduate students that have received support from HQSF, and completed their studies, according to academic concentration and specialization. The study also examined the breakdown of unemployment levels by the field of specialization during the same period. The comparison between the two data sets provided an approximation of the mismatch between supply and demand in the Palestinian labor market. This information was then used to evaluate the current scholarship offerings of HQSF and their alignment with the actual needs of the Palestinian labor market.

The demand-side assessment was complemented with interviews with various employers in the Palestinian market to evaluate their preferences and needs in terms of hires. The interviews shed light on the needs of the Palestinian marketplace along the lines of the sectors associated with the specializations under consideration. Besides the academic qualifications required, the interviews shed light on the types of skill sets needed to

make graduates more employable. Across all sectors, the lack of adequate “soft skills” was highlighted by all interviewees. These skills comprise of communication, presentation, writing, and even language skills, including both Arabic and English. This information greatly assisted in assessing the supply and demand gaps given the current conditions, in addition to the analysis of various sources of secondary data from the past three years.

The HQSF grantees were reached to assess their labor market outcomes through two sets of questionnaires: one set for undergraduate grantees and one set for graduate grantees. The questionnaire focused on three dimensions: job search, salary, and employment sector. The gathered data helped inform the study of the specific academic backgrounds and specializations that gave the scholarship recipients the most competitive advantages in the market.



# 1. INTRODUCTION





“Education is the most powerful weapon which you can use to change the world.”

*Nelson Mandela*

This study’s purpose is to assess the Palestinian labor market and its needs, while providing an in-depth analysis of the HQSF’s program relative to the labor market and its needs. Specifically, the study’s aim is to outline the mismatch between supply and demand in the Palestinian labor market, and explore the key factors that determine the competitiveness of HQSF scholarship recipients in the Palestinian market.

A systematic process of identifying and reviewing relevant documentation from reliable and relevant sources was carried out in order to initiate a proper desk review. The first of these sources were the annual reports provided by the HQSF. The reports and other relevant sources of primary and secondary information outlined the variables to be measured in the labor market assessment. Upon knowing the fields, the number of grantees, and destinations, as well as the criteria and mission of the Foundation, the other sources of data were promptly identified. The labor market studies provided by the PCBS yielded valuable information regarding unemployment and the distribution of unemployment rates for Palestinians in different regions (i.e., the West Bank and the Gaza Strip), according to age group and gender. In addition, the Palestinian Ministry of Higher Education (PMOHE) supplied the aggregated number of graduates from Palestinian universities on both the undergraduate and graduate levels. Other studies regarding the specific areas of specializations were reviewed, such as the MAS Quarterly Economic Monitor for 2012, and a study prepared by the Palestine Information and Communication Association of Companies (PITA) regarding the ICT sector. Additionally, selected information regarding other scholarship programs available to Palestinians with provisions similar to those of the HQSF was used.

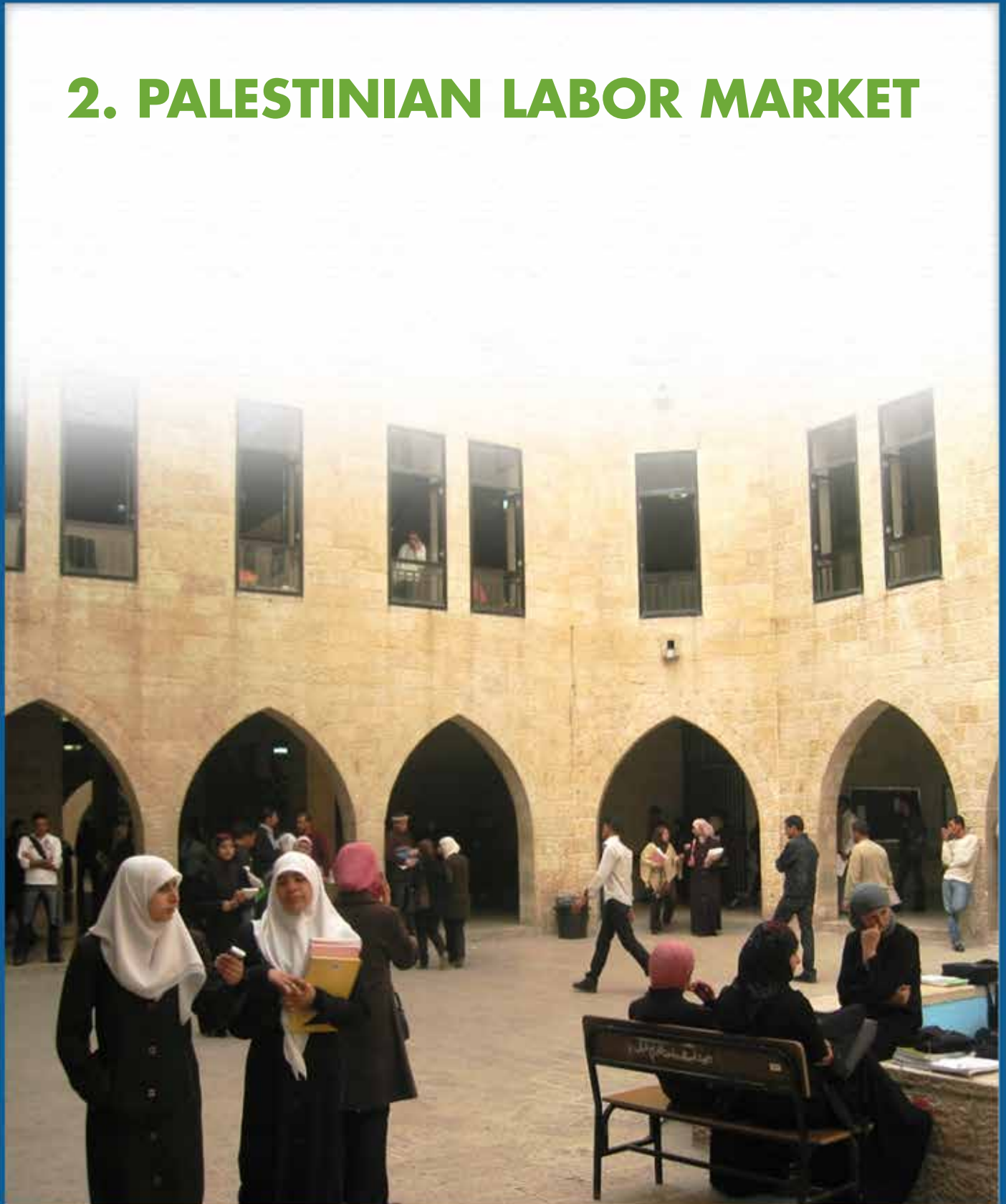
The methodology employed consisted of several activities: first, the research team conducted a desk review which helped to establish a set of measures to determine key variables and their subsequent impact on the Palestinian labor market, aside from identifying sources of data for the study. Also, the desk review provided the supply-side analysis for the labor market, in terms of the annual number of Palestinians obtaining undergraduate and graduate degrees from Palestinian universities, and the fields and areas of specialization for those graduates. Second, the team conducted in-person interviews with various stakeholders with influence or knowledge of the hiring practices in the labor market. The interviews complimented the initial desk review by substantiating data gathered from secondary sources, or in some cases, correcting or updating the data in terms of relevance and validity. The interviews represented the demand-side analysis of the study. To compliment the qualitative data gathered in conjunction with the desk review, quantitative data from the HQSF grantees were collected to draw comparisons with domestic university graduates for the various fields. Subsequent interviews and focus groups for HQSF grantees (with other stakeholders) were held in order to expand upon certain topics. A workshop was conducted to bring together both stakeholders and HQSF grantees. The aim was to find ways to bridge the gaps in terms of needs and skills required for sustainable employment in Palestine. All of the data were then compiled, analyzed, and disseminated according to the objectives of the study to provide an assessment of the impact of HQSF grants on the domestic Palestinian labor market.

The report is broken down into several sections. The first section reviews the Palestinian labor market in terms of supply of and demand for different fields of academic specialization. The second section shares and analyzes the findings of the examination of the HQSF beneficiaries data. The last section consolidates the findings and presents the conclusions and recommendations.



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## 2. PALESTINIAN LABOR MARKET





Duncan and Hoffman (1981) reported on the incidence of over-education, where individuals' work requires less education than what they have acquired. This is especially evident in the case of the Palestinian labor market where the number of university graduates far exceeds the available job opportunities in the market<sup>1</sup>. Another interesting relationship to be studied, given the state of over-education, is that of education and wages. In several studies undertaken in Turkey, professional advancement and income improvement were reported for each additional degree, particularly university degrees (Tunali, 2003; Duygan and Gunar, 2006; Tansel and Bircan, 2010). The phenomenon of Palestinian youth actively pursuing tertiary certificates, such as professional certifications and graduate degrees, locally and abroad, is continuing to compound the mismatch between educational attainment and professional advancement and income improvement. A lack of entry level positions for fresh graduates, generally weak relationships between universities and the private sector, and a donor based economy all contribute to this problem. This corresponds to (Gottschalk and Hansen, 2003) pointing out the variations in production processes across sectors with respect to required skills and heterogeneity in the preferences of workers about jobs. A possible component to bridge this gap, such as private employment agencies, is rare in the oPt and therefore, lends itself to imperfections regarding information about institutions and their needs. This prescribes to Jovanovic (1979) in regards to the costs associated with the job search. According to Filiztekin (2011), occupations have a productivity ceiling and may not utilize all the skills possessed by workers, thus increasing this mismatch.

The analysis section of this report begins with a general overview of the Palestinian labor market in order to identify the existing gap between the supply of workforce with tertiary-degree education and the demand for qualified labor. Quantifying the divergence between the supply and demand side will allow later for the formulation of specific recommendations for the HQSF in terms of how to allocate its scholarships and grants and become more responsive to the needs and requirements of the Palestinian labor market.

## 2.1 Stakeholder Outlook

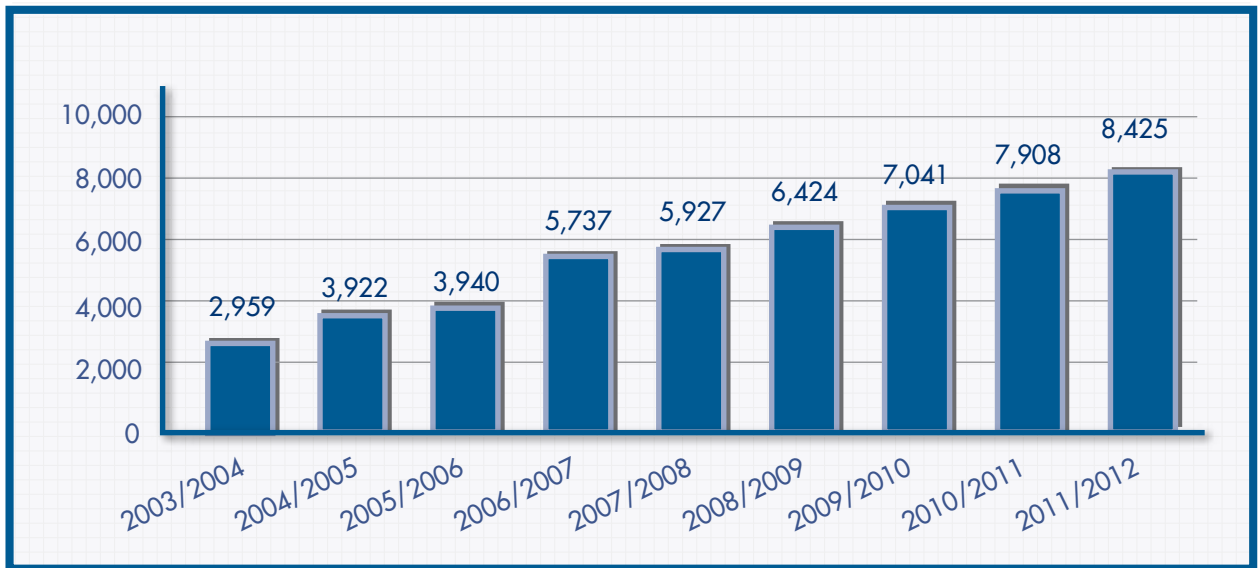
Stakeholder interviews revealed several common key points. For example, many of the firms that provided employment opportunities looked beyond the grades achieved by the job candidates. Rather, it was stated, especially in service related fields such as Wataniya Mobile, BCI, and the National Insurance Company (NIC), that the personality of the candidate was more important, as an employee can be trained and can learn, but the ability to communicate with co-workers and clients was more important. These "soft skills" were severely lacking amongst new job candidates, as employers stated displeasure with the local universities in developing these skills in students. On the other hand, according to an interview with the Palestinian Education for Employment (PEFE), local public and private institutions had no entry-level positions for new candidates to properly apply and develop their skills in presenting, writing, and interpersonal dealings. Therefore, in this case, there was a gap on both ends: from the academic sphere and the professional sphere. A lack of cooperation between both spheres continues to exacerbate this phenomenon (See Annex 2, Table A17).

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1 PCBS: The Palestinian adult literacy rate was reported to be 92.4% in 2011

## 2.2 Supply Side Analysis

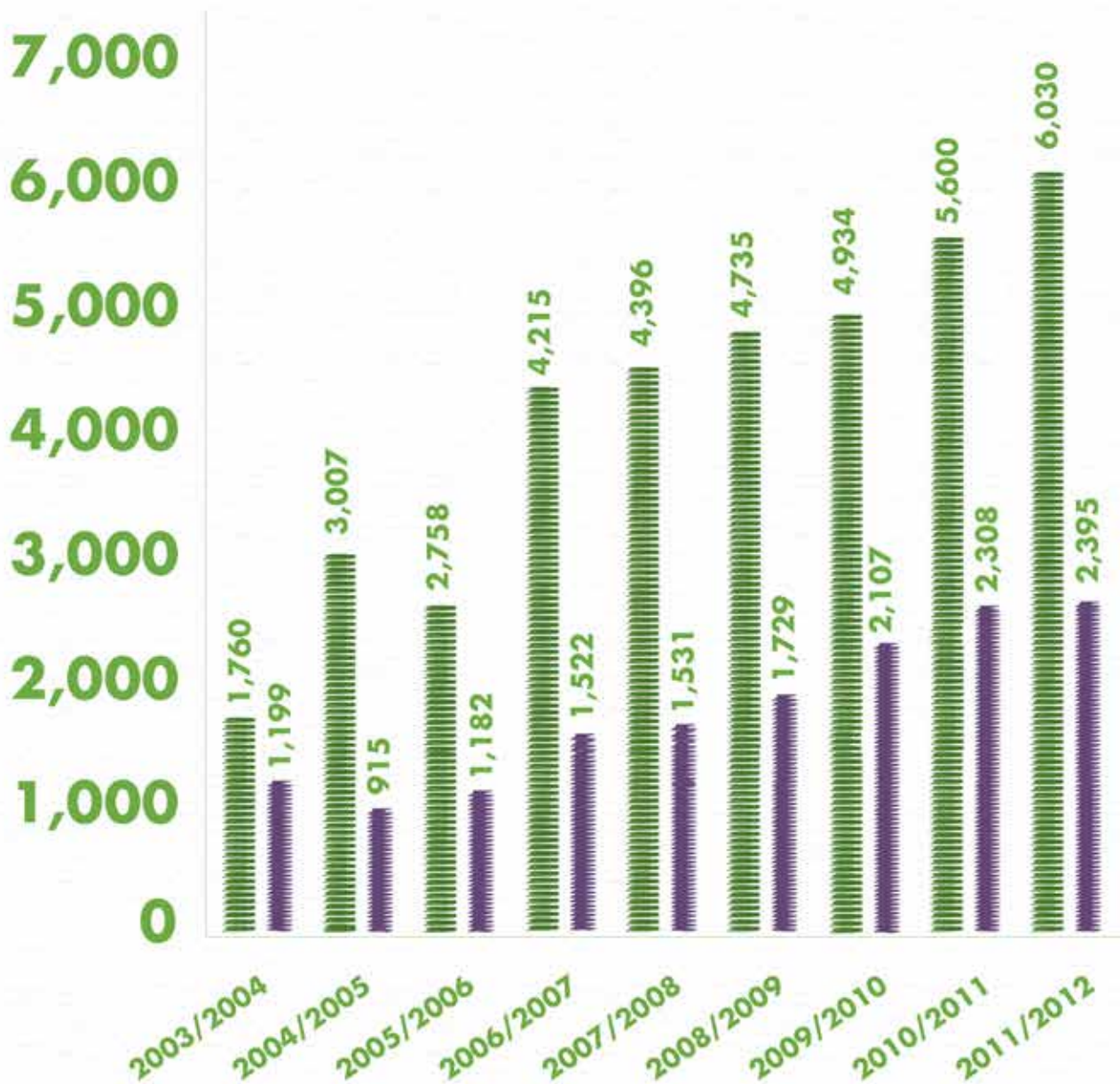
Figure 1: Number of Graduates with Bachelor Degrees from Palestinian Colleges and Universities



Source: PA Ministry of Higher Education

Throughout the studied period, the West Bank has accounted for an average of 71.5% of all Palestinian graduates. All in all, the number of graduates in both the West Bank and Gaza grew over the period. Nonetheless, the number of graduates in the West Bank increased by nearly 243% between 2003/2004 and 2011/2012 for an average annual growth rate of 26.95%, while the number of graduates in Gaza doubled for an average annual growth rate of 11%. Meanwhile, the overall number of Palestinian graduates increased by 185% between the academic years 2003/2004 and 2011/2012.

## FIGURE 2: NUMBER OF GRADUATES WITH BACHELOR DEGREES IN THE WEST BANK AND THE GAZA STRIP



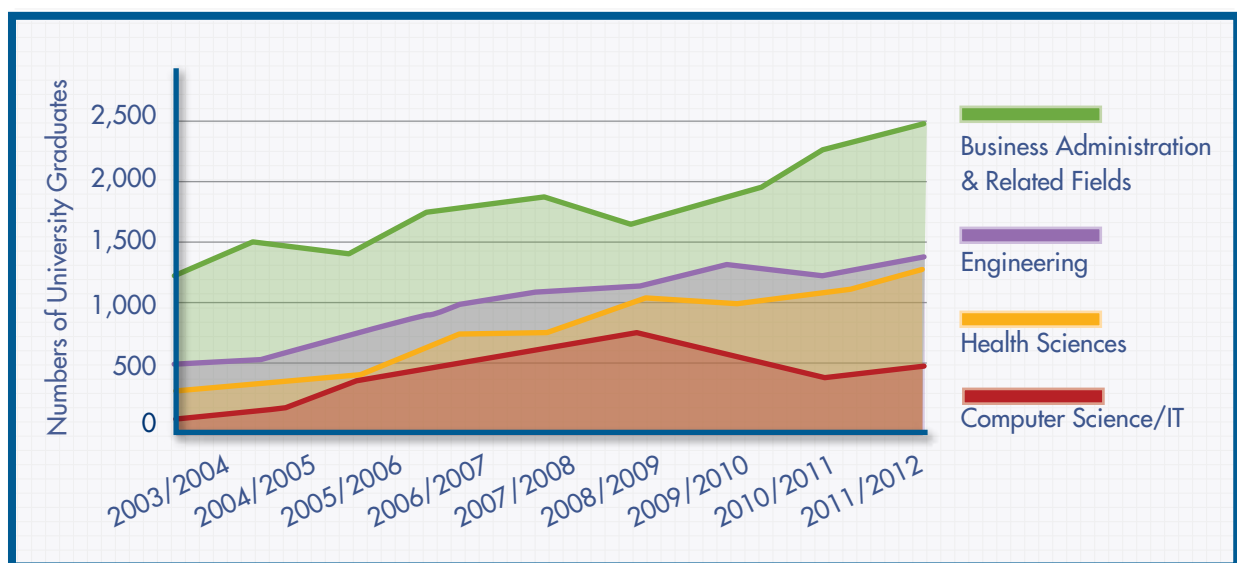
WEST BANK



GAZA STRIP

The total number of college and university graduates does not provide enough information about the supply of qualified labor force in the Palestinian economy. Further breakdown of the number of graduates by university and by specialization is required in order to obtain a clearer picture of the supply side. It does however provide an understanding as to the total number of entrants into the labor force during the given period. Figure 3 below demonstrates that labor supply of skilled workers is improved by more education as labour force participation rate LFPR is highest for the most educated regardless of gender.

Figure 3: Number of Graduates by Specialization in the Palestinian Territory



Source: PA Ministry of Higher Education

As for the supply of workers by field of study, Figure 3 above reveals a few trends: first, business related fields of studies have by far the largest number of graduates. This is explainable by student expectations of wages and employment potential after graduation. Health sciences and engineering follow with computer science lagging as fourth. Second, after 2009, there seems to be a strong growth in business administration and a tapering off in computer science and IT, despite

reports of a booming IT sector in the Palestinian Territory during this period. With respect to those acquiring undergraduate degrees in the fields within the fine arts, their numbers are fewer when compared to other fields, especially business and engineering. One reason is the limited number of universities offering dedicated courses and degree programs to students. Although this field has regained some activity in recent years, the focus has shifted from photography to broadcasting and media.

Moreover, Table 1 below shows that the number of graduates in computer science and IT has decreased in recent years despite the global trends of development in the ICT sector and demand for specialists in

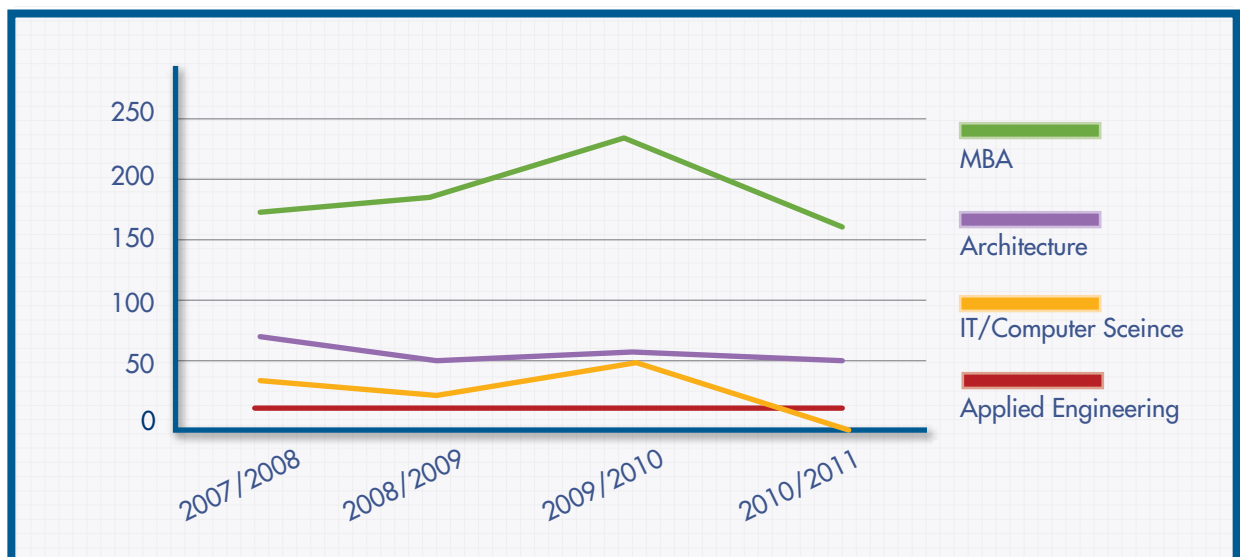
the field. Meanwhile, the increase in the number of engineering graduates has also leveled off in the past few years. This means that traditional specializations such as health sciences and business administration and trade are likely to be the most popular ones in the Palestinian Territory in coming years. These categories are listed by the PMOHE, and were found to be related to the HQSF programs. The field of health sciences was included as it is growing and becoming increasingly important. Since the HQSF does not currently offer any support in this field, the Foundation can consider starting to provide support in this area

Table 1: Number of Graduates by Specialization in the Palestinian Territory

	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Health Sciences	869	1,117	1,099	1,190	1,373
Computer Science/IT	622	682	527	428	503
Business Administration & Related Fields	1,712	1,623	1,823	2,204	2,362
Engineering	1,191	1,231	1,373	1,305	1,442
Fine Arts	132	136	180	179	138

Source: PA Ministry of Higher Education

Figure 4: Master Degrees Awarded by Palestinian Universities



Source: PA Ministry of Higher Education



On the graduate level, the trends show that most graduate-degree seekers in Palestinian universities are obtaining Master's degrees in business administration. Some reasons for this trend include the availability of programs across these universities, in addition to the perceived advantage offered by having such a degree. Also, the degree becomes attractive to undergraduates from a variety of backgrounds, particularly engineering and IT, in addition to the many undergraduates-degree holders in business administration or related fields. Also of note is the fact that no graduate programs are available in fields associated with fine arts amongst Palestinian universities.

Table 2: Masters Degrees Awarded by Palestinian Universities

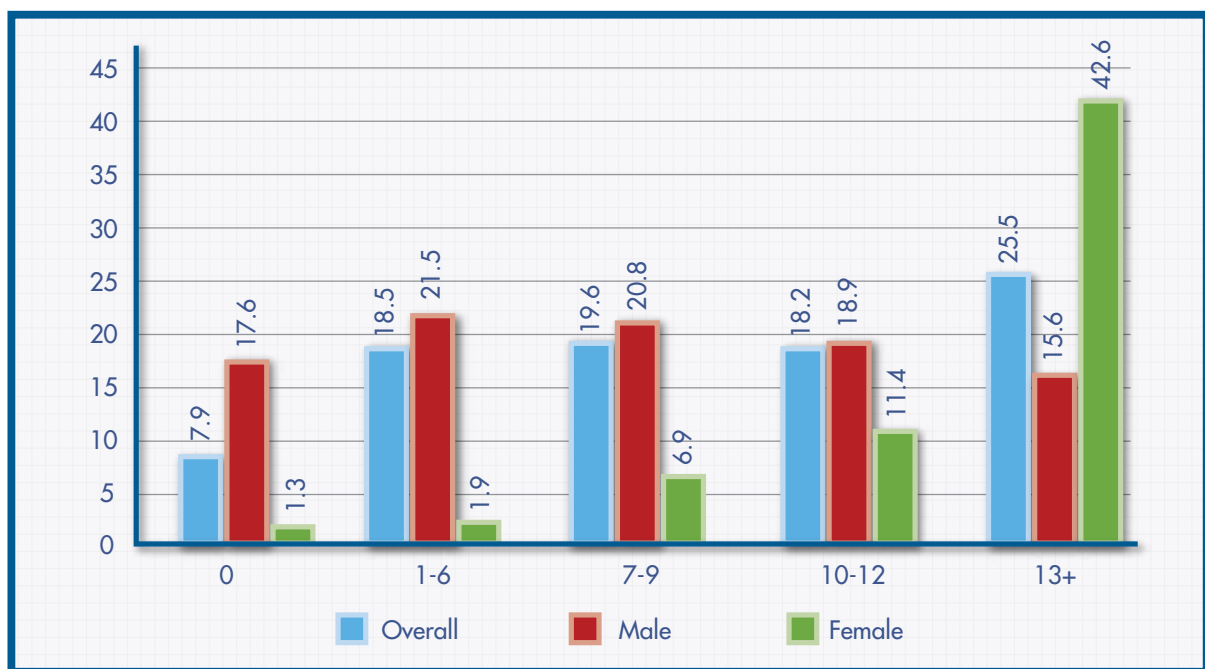
	2007/2008	2008/2009	2009/2010	2010/2011
Applied Engineering	14	16	15	11
Architecture	66	49	54	50
IT/Computer Science	34	22	43	0
MBA	178	182	229	171

Source: PA Ministry of Higher Education

## 2.3 Demand Side Analysis

The demand side by field of specialization is more difficult to estimate. PCBS labor force surveys report on occupations and years of schooling. It is prudent to investigate a data set which has information on unemployment by field of specialization<sup>2</sup>. Although not all unemployment is voluntary, unemployment gives an indicator of the gap between supply and demand. The distribution of unemployment across educational groups is shown in Figure 5 on next page.

Figure 5: Unemployment Rate in the oPt by Years of Schooling and Gender, Q2 2012 (%)



Source: PCBS

Figure 5 represents the unemployment rate according to years of schooling and disaggregated by gender. This chart is important as it highlights that females with higher levels of education (represented by 13+) had the highest rates of unemployment. As such, it indicates that more educated women have more participating rate, and education encourages them to stay part of the active labour force. Therefore, offering more grants to female candidates is more advantageous as it increases female participation in the labor force.

**TABLE 3: UNEMPLOYMENT RATE FOR GRADUATES WITH AN ASSOCIATE DIPLOMA AND ABOVE IN THE OPT BY SPECIALIZATION AND REGION, APRIL-JUNE 2012 (%)**

Field of Specialization	Unemployment (%)			Labor Force Participation Rate (%)		
	GS	WB	OPT	GS	WB	OPT
<b>Educational Sciences and Teacher Rehabilitation</b>	53.2	32.5	<b>39.3</b>	80.6	76.0	77.4
<b>Humanities</b>	38.8	20.0	<b>29.5</b>	76.2	71.8	73.9
<b>Social and Behavioral Sciences</b>	30.9	27.7	<b>29.2</b>	83.0	81.1	<b>82.4</b>
<b>Mass Media and Information</b>	41.1		<b>41.2</b>	88.4		<b>90.2</b>
<b>Business and Administration</b>	37.4	20.3	25.9	79.0	78.1	<b>78.4</b>
<b>Law</b>			22.9			66.9
<b>Natural Sciences</b>	19.1	16.7	17.5	81.5	76.5	<b>78.1</b>
<b>Mathematics and Statistics</b>	32.8	19.1	25.5	76.1	77.9	77.0
<b>Computer Sciences</b>	45.8	17.6	<b>29.0</b>	84.0	77.9	<b>80.3</b>
<b>Engineering</b>	35.6	18.4	23.3	84.4	86.3	<b>85.7</b>
<b>Architecture and Construction</b>	20.0	6.9	11.9	71.2	77.3	74.9
<b>Health</b>	32.8	9.6	19.7	83.4	77.3	<b>79.9</b>
<b>Personal Services<sup>3</sup></b>			17.3			72.5
<b>Other</b>	34.0	14.1	24.9	70.9	80.1	74.8
<b>Total</b>	<b>36.4</b>	<b>20.4</b>	<b>27.2</b>	<b>79.7</b>	<b>76.8</b>	<b>78.0</b>

Source: PCBS, Press Report on Labor Force Survey Results, 15/8/2012

<sup>3</sup> Personal Services Include: Animal Trainers, Caretakers, Ushers, Attendants, Undertakers, Barbers, Cosmetologists, Tour Guides, Concierges, Childcare, Trainers, Instructors, etc..

As indicated earlier, LFPR is used to represent labor supply by field. Unemployment, on the other hand, represents the excess of supply over demand as a fraction of the labor force. The data in Table 3 shows that unemployment is the highest among educational sciences and teacher education despite the fact that their participation is roughly equal to the overall average. That means the demand for graduates in this field is low and the market is unable to absorb those graduates. On the other hand, architecture and construction has the lowest

unemployment rate with below average supply. Other sources from the conducted research also confirm the need for more graduates in these fields. By comparing the cells in the unemployment rate with those for the labor force participation rate, one can identify where the mismatch is: those are the fields in which labor supply is high (above average) and demand is low (unemployment above average). Based on that, the following conclusion can be inferred:

- Health, engineering, natural sciences, and business are fields in which unemployment is below average despite the fact that LFPR is above average. This implies strong demand for those fields;
- Personal services, architecture and construction, mathematics and statistics, and law have below average unemployment, but LFPR is also below average;
- The mismatch (LFPR is above average and unemployment rate above average also) is most obvious in the following: social and behavioral sciences, mass media and information, and computer sciences.

Table 4 below shows the labor force participation, employment, and unemployment for individuals with associate diploma certificates and above for the specializations which the HQSF currently supports. Individuals with MBA diplomas are excluded as the PCBS does not have data for them.

Among engineering, IT, and arts, individuals working in the engineering field participate in the labor force most actively and secure employment most successfully. The overall employment rate for them (fully employed and underemployed) in Q2 2012 was 78.3%, compared to 74.7% in arts and 69.7% in IT. In addition, the average daily net wage for engineers (126.6 NIS = \$33.8) significantly exceeds the average for an IT specialist (94.5 NIS = \$25) (data not available for arts). This means that engineers are doing well, on average, in the Palestinian labor market as there is a high demand for them.

Table 4: Employment Status in the oPt for Engineering, IT, and Arts, Q2 2012

	Engineering	IT	Arts
<b>Labor Force</b>			
Number	20,700	15,400	3,900
Rate	84.6%	81.6%	71.9%
<b>Full Employment</b>			
Number	14,700	9,000	2,900
Rate	71.0%	58.5%	74.7%
<b>Underemployment</b>			
Number	1,600	1,700	-
Rate	7.7%	11.2%	-
<b>Unemployment</b>			
Number	4,400	4,674	1,000
Rate	21.3%	30.3%	25.3%

Source: PCBS

Another important indicator highlighting the demand-side of the Palestinian labor market is the number of job vacancies advertised in the local newspapers and online which are the main sources for such advertisements. In the first three quarters of 2012 (the most recent available data), a total of 2,925 jobs were advertized<sup>4</sup>. Among these, the most highly sought specializations were administrative and economic sciences (1,059 positions): 962 in the West Bank and only 97 in the Gaza Strip. In addition, the public sector required only about a tenth of these professionals (111 positions), and the remaining were equally distributed between the private sector (461) and the NGOs sector (487).

The second group of professions for which Palestinian employers looked was humanities and social sciences – a total of 670 positions: 588 in the West Bank and 82 in Gaza. The majority of these jobs vacancies were in the NGOs sector (442), followed by the private sector (151) and the public sector (77).

Next, employers sought a total of 545 professionals from applied sciences: 491 in the West Bank and 54 in Gaza. For these jobs, the private sector was the most significant provider (243 positions), followed by the NGOs sector (187) and the public sector (115).

Also 252 vacancies were advertized within medical sciences, nearly all of which (241) were in the West Bank (only 11 in the Gaza Strip). Most of these were in the NGOs sector (123), followed by the private sector (96) and the public sector (43).



Table 5: Number of Advertised Vacancies in the oPt by Field of Specialization, January-September 2012

Field of Specialization	Q1/2012	Q2/2012	Q3/2012	Total
Medical Sciences	69	100	93	252
Humanities and Social Sciences	231	218	221	670
Applied Sciences	156	22	196	545
Administrative and Economic Sciences	368	29	314	1,059
Other (Craftsmen, Maintenance, Secretarial Work, etc.)	66	9	128	389

Source: MAS Economic and Social Monitor 29, 30, and 31

In terms of level of degree, out of the 2,925 vacancies advertised in Q1-Q3 2012, more than half of the positions required a Bachelor's degree (1,982). A Master's or higher degree was needed only by 231 new jobs, while 269 asked for an intermediate diploma and 443 for a degree lower than diploma.

Table 6: Number of Advertised Vacancies in the oPt by Level of Degree, January-September 2012

Level of Degree	Q1/2012	Q2/2012	Q3/2012	Total
MA and Above	61	107	63	231
BA	632	698	652	1,982
Intermediate Diploma	71	88	110	269
Below Diploma	126	190	127	443

Source: MAS Economic and Social Monitor 29, 30, and 31

Based on this data on advertised vacancies in the West Bank, demand for medical sciences, administrative and economic sciences and humanities and social sciences indicates higher demand than other fields. The situation in the Gaza Strip is very different as the public and private sector there did not advertise almost any vacancies, while the vacancies in the NGOs sector were very limited.

It is worth noting that among the primary reasons for a lack of information or clarity regarding the career paths for various specialties. For example, one of the conclusions from the stakeholder analysis was that with no clear direction from the universities or private sector, students begin to specialize in different fields

based on a lack of understanding and hearsay, as opposed to labor market need. For example, without this clear career path, many students wind up majoring in fields such as accounting because they have more concrete expectations. However, in fields such as marketing, there is a popular misconception that these graduates will only work in sales related jobs. With business administration, the specialization is quite general and encompasses a variety of jobs such as human

resource management, operations, and so on. However, these graduates only know of what opportunities await them, if any, after graduation, and not before they select a track. This lack of career guidance contributes to unemployment and underemployment, and is not restricted to business related fields, as will be seen in the section on healthcare related to subspecialties.

Table 7: Number of Undergraduate Degrees in Business Related Fields

	2009/2010	2010/2011	2011/2012
Business Administration/Management	623	709	788
Accounting	611	630	803
Finance	288	477	362
Marketing	104	149	175
Subtotal Social sciences, business <sup>5</sup>	1,823	2,204	2,362
Total Social sciences, business <sup>6</sup>	2,986	3,658	3,744

Source: Palestinian Ministry of Higher Education<sup>7</sup>

It is worth noting that the highest number of graduates in these fields come from the Al Quds Open University, comprising of nearly one third of the total over the three year period. Also of note, approximately half of the graduates are business or management degree holders, thus creating a situation where roughly 37% of the degree holders are from one type of background which may add to the difficulty in finding employment for this group of fresh graduates. The numbers alone don't cause this, but rather the perceived flexible nature of the degree itself, as it is seen often as too general and many firms aren't aware of how to utilize these resources as opposed to the more specified or defined nature of holders of accounting, finance, or even marketing degree holders.

## 2.2.3 Analysis of Engineering

In reference to the HQSF's significant support for engineering majors (over 95% for undergraduates and over 69% for graduates), the report offers an example of the process undergone by engineering students in terms of entering the university through graduation and the subsequent job search. When addressing the employment situation of engineering graduates in the Palestinian labor market in overall terms as well as in terms of HQSF grantees, the following sources of data have been taken into account:

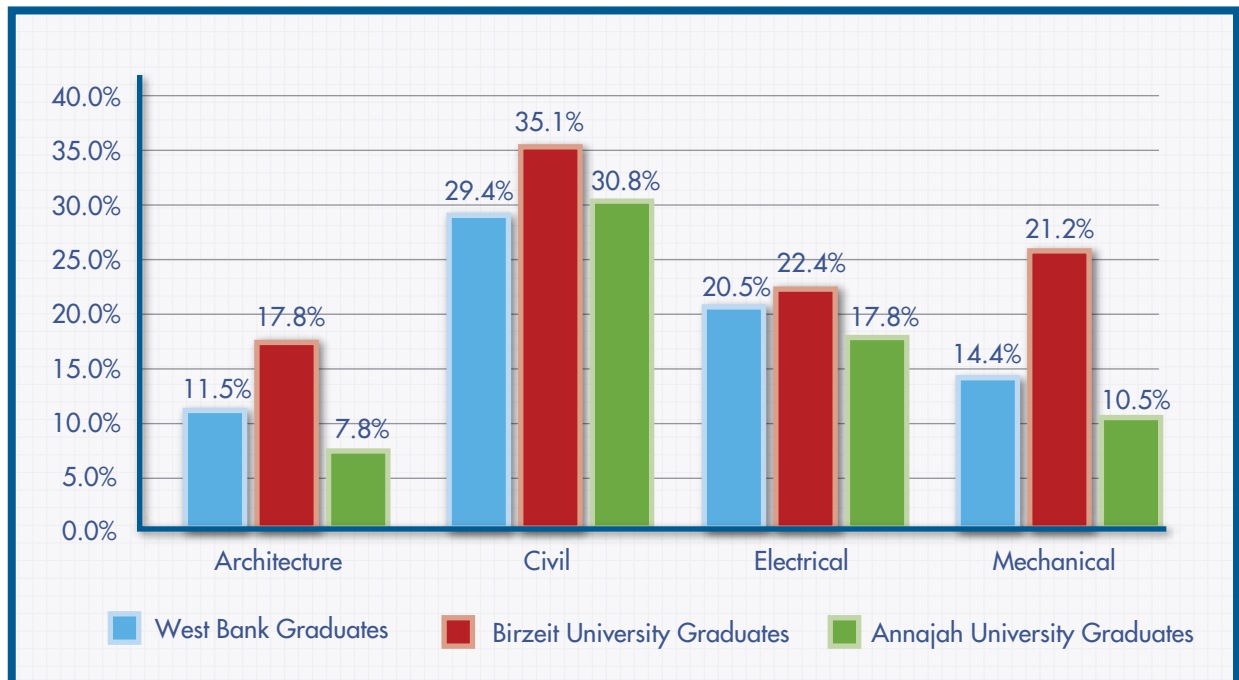
<sup>5</sup> Not including the following universities or colleges: Al Aqsa, Hebron, Al Quds Open, Palestine, Palestine College

<sup>6</sup> Aggregate includes all the universities and colleges not included in the first figure

<sup>7</sup> All figures are attached in the report's annex in details per university and per specialization

- PCBS Labor Force Survey 2nd Quarter 2012;
- MAS Social and Economic Monitor 1st Quarter 2012:
  - 20% unemployment rate for engineering graduates;
  - 20% unemployment rate for architecture graduates;
- Dean of the Faculty of Engineering-Select West Bank University:
  - 88% employment rate for university graduates;
  - Average 6-12 months in job search;
  - 15-20% of civil engineering and architecture graduates employed by local engineering firms right away;
  - Electrical engineers encounter the most difficulties in finding employment after graduation;
  - Sufficient knowledge of English is a crucially important factor for engineers in the labor market;
- These candidates are engaged in training programs with employers prior to graduation;
- Consolidated Contractors Company (CCC) and Petrofac-Kingdom of Saudi Arabia employ an estimated 20-30% of engineering graduates;
- The remaining 50-60% require 6-12 months to find employment with other local contractors, engineering firms, and the public sector;
- On average, architecture graduates are employed immediately after graduation, while civil engineering graduates need to wait for 18 months and the rest of engineering graduates (mechanical, electrical, chemical, petroleum, electronic, computer, telecommunication, and electromechanical) wait at least three years before they can obtain appropriate employment;
- According to the International Relief and Development (IRD), the engineering sub-specialties which are most needed in the Palestinian market are: electromechanical, water/water resources, civil, infrastructure management, and architecture;
- According to IConnect, currently the labor market for engineers mostly needs graduates of computers, software, software development, and software quality assurance;
- The average starting monthly salary for all engineering graduates is around 420 JD.

Figure 6: Distribution of Graduation Rates and Relative Engineering Specialization Rates



Source: Palestinian Ministry of Higher Education

Figure 6 shows the graduation rates of selected engineering specializations and compares Al-Najah National University and Birzeit University's engineering graduation rates to other West Bank universities. It should be noted that in Figure 6, West Bank graduates are comprised of all universities in the West Bank with engineering students, including Birzeit University and Al-Najah National University.

For example, 17.8% of students obtaining undergraduate degrees in an engineering field were majoring in architecture from Birzeit University, whereas other universities in the West Bank realized only an 11.5% rate. Interestingly enough, in Al-Najah National University that figure was lower at 7.8%. One reason for this is that Birzeit University has more concentrated specializations as opposed to a myriad of majors available in other universities such as Al-Najah National University or the Palestinian Polytechnic University in Hebron. Those schools tend to also offer more applied engineering majors than Birzeit. In particular, 13.4% of undergraduate engineering degrees awarded by Al-Najah National University were in industrial engineering, in addition to 12.4% in construction engineering and 7.3% in chemical engineering.

Table 7: Registered Engineers According to Specialization

Engineering Specialization	2010	2011	To Date as of June 2012
Civil	326	427	5,384
Architecture	142	109	2,077
Mechanical	233	199	2,343
Electrical	448	319	4,962

**Source: Palestinian Trade Union of Engineers**

Amongst the Palestinian universities offering engineering degree programs, there can be up to 12 specializations. One of the factors that can affect employability, as noticed throughout the study, is that focusing on core specialties can often lead to increased employability for a university's graduates.

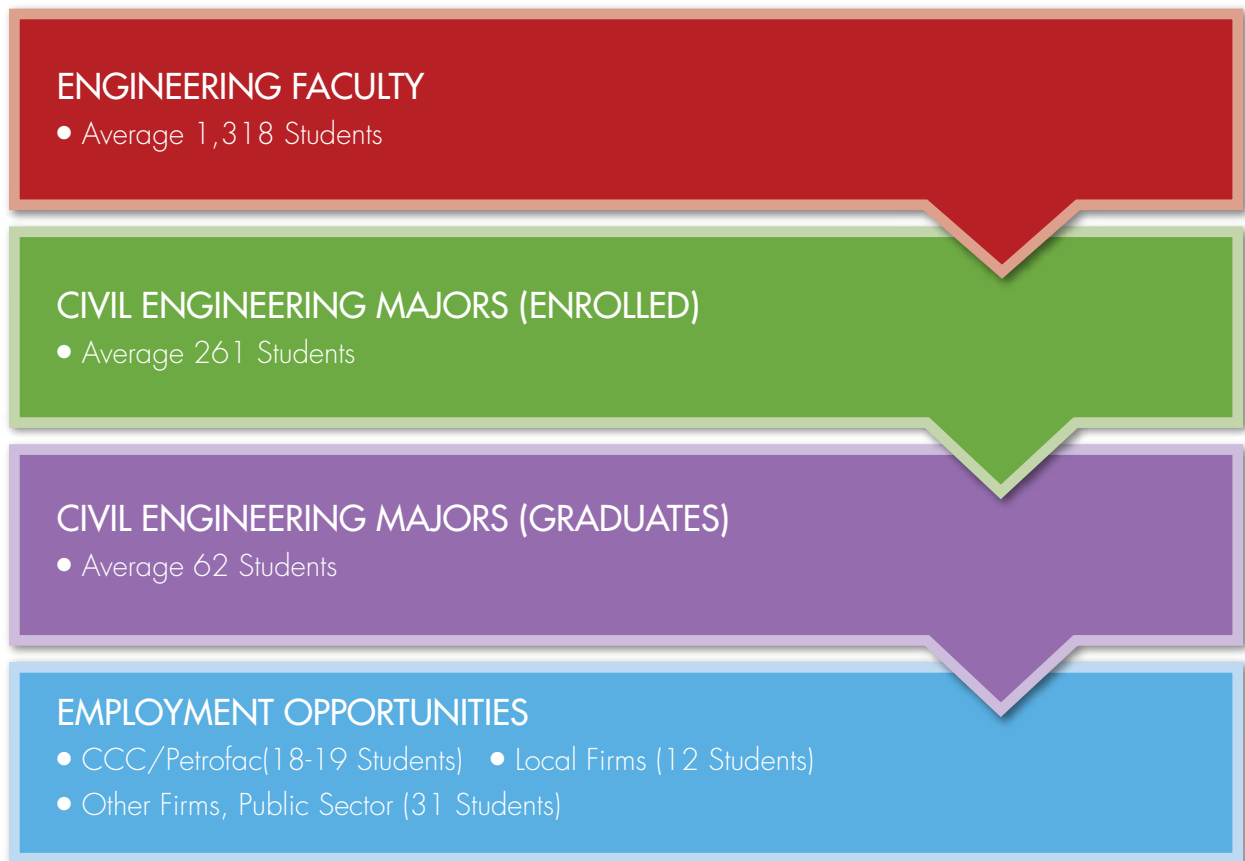
Between 2009 and 2011, engineering enrollment in a selected university averaged 1,318 students annually. As civil engineers comprised 19.8% of the students within this faculty, an average of 261 students were specializing in this field. Also, civil engineering majors represented 35.1% of the faculty's annual graduates, which equates to an annual average over the three year period of 62 students. It is assumed, based on interviews, that 12 of the top students would have already been hired by the firms in which they received training prior to graduation. Also, between 18 and 19 students would have been hired by CCC and Petrofac<sup>8</sup> upon graduation, thus making approximately half of the civil engineering graduates employment opportunities almost immediately after graduation. The remaining half of graduates would require between six months and one year searching for relatively gainful employment in the other engineering or contracting firms and the public sector. Interestingly enough, according to the Palestinian Trade Union of Engineers (PTUE), approximately 15.7% of civil engineers are employed in the public sector, and by this estimate, of the 62 new graduates, 9 are employed in the public sector, thus meaning that 35.4% seek employment in other local firms and NGOs<sup>9</sup>.

<sup>8</sup> It should be noted that these firms also select top students in these fields from other local universities in the West Bank and Gaza Strip, but for the purposes of this example, the number of estimated students is only from the selected West Bank University

<sup>9</sup> The information again, was meant to be an isolated example of the process that is taken, and in respect to the higher than average employment rate of the sample university's Engineering students relative to the labor force, so therefore, it is only an example, and suffice to say, the most complete example that was able to be obtained.



Figure 7: Flow of Undergraduate Civil Engineering Students



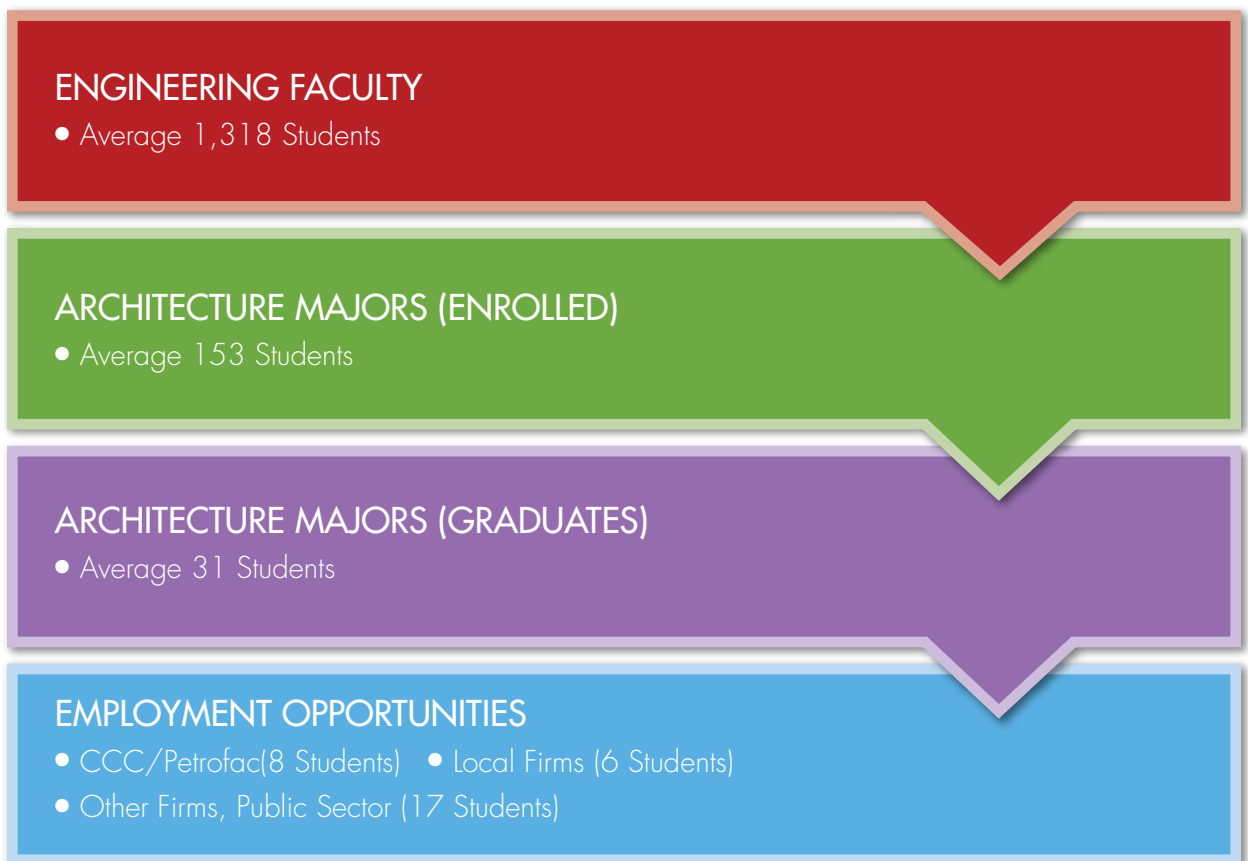
Source: MAS Research Team Analysis of Field Interviews

Therefore, even if the university represents an above average rate of graduates specializing in civil engineering in the West Bank, there seems to be a viable mechanism that affords these students opportunities to be employed at a relatively higher rate than suggested by the recent MAS study reporting a 20% rate of unemployment for new graduates in the engineering field. In other words, rather than twelve new graduates not being able to find employment, this model states that only six are unable to find employment.

Regarding architecture students, an average of 153 students annually are enrolled in the architecture program, representing 11.6% of the faculty's student body. Annually, graduates of the program represent 17.8% to total faculty graduates, or approximately 31 students. In this case, assuming that the 20% estimation of the Dean holds true, six students would have secured employment with the firm or organization with which they would be training. Eight new graduates would be employed by CCC or Petrofac, representing 25%, as civil engineers would be in greater demand for these firms than architects. The remaining 55% would again require another six to twelve months to find employment and at times

up to 18 months, with other engineering firms, contractors, and the public sector. Once again, the study undertaken by MAS stated a 20% unemployment rate for architects, meaning that of the 31 students graduating on average every year, six would be unemployed. Therefore, in this scenario, only three would be unemployed.

Figure 8: Flow of Undergraduate Architecture Students



Source: MAS Research Team Analysis of Field Interviews

These estimates confirm the information gathered from interviews with the PTUE. The highest number of registered engineers according to specialty is in electrical engineering, followed by civil engineering and mechanical engineering. Starting monthly salaries for all new engineering graduates begin at JD 420 = \$590. The overwhelming majority of engineers are graduates of local Palestinian universities (90%), followed by graduates of other Arab universities (7%) and the remainder receiving degrees from European and North American universities. Also, electrical and mechanical engineers are most likely to suffer in terms of job search, according to the PTUE, in many cases, waiting up to three years for employment in their field. In an attempt to offset this trend, the PTUE has a training program that covers half of the salary

with local firms in the public and private sector. The program's duration is capped at three years for these candidates, with 90% of them being hired by the organization in which they undertake this training.

When asked about which specializations should receive priority funding, the PTUE ranked civil engineering and electromechanical engineering the highest. Due to development and infrastructure projects, these two specializations would afford graduates the greatest chances of gainful employment opportunities. Specializations that the PTUE would advise against making significant or substantial allocations to include chemical engineering, petroleum engineering and telecommunications engineering. These are the most difficult in terms of employment opportunities and often contribute to underemployment among engineering graduates. The PalTel Group, the largest telecommunications company in Palestine, has not made any substantial hiring for telecommunications engineering graduates, while other companies such as Wataniya Mobile-Palestine, a member of the Q-Tel Group, often relies on its network of specialists available in nearly 20 countries for engineering support.



## 3. HQSF PROGRAMS ASSESSMENT



## 3.1 Focus Groups

A focus group was held in order to expand upon the experience of HQSF grantees and allow for stakeholders to discuss further their needs of graduates in terms of skill set, academic achievement, and areas of expertise. The focus groups received feedback from two distinct groups:

- HQSF undergraduate grantees;
- Stakeholders.

### 3.1.1 HQSF Focus Group

The five participants in the focus group were recipients of HQSF undergraduate scholarships with 50% tuition coverage for multiple years and one year full scholarship. One of the positive aspects of the scholarship was in regards to registering at the beginning of every semester. Due to the fact that HQSF provided the assistance to the university directly, they did not have to wait for this as other students were expected to, even at a partial level. This was a key point for some of the participants as financial resources were allocated based on their financial needs. The scholarship is also performance based, and therefore grantees were obligated to maintain at least an 80% average thus improving their chances of obtaining training or employment. Also, being selected for a scholarship was considered an achievement by some of the participants, as this was mentioned in the curriculum vitae when searching for employment. Many of the participants were able to obtain employment prior to graduation, especially the ones who participated in internship programs.

Among the issues that caused the most contention among the participants was the grant application process. The participants stated there were no active community for the grantees, and often did not know their fellow grantees. They mentioned that the scholarship was not very significant in developing their broader skill set, as technical skills were the main concern. Also, the university or faculty was a key factor in whether participants pursued education in the same

field or similar fields. Many stated a preference for more business and marketing-oriented fields, while others suggested preference for developing existing teaching capabilities. It was emphasized by some that professional certificates, training courses, and partnering with other organizations were key to giving competitive advantages in finding employment. Finally, a suggestion regarding holding interviews for candidates was put forth, as the recipients stated they preferred to meet the HQSF personnel responsible for these decisions.

The assessment of the HQSF Program is based on the entire population of HQSF grantees for the last three years. It should be noted that through the year ending 2011, the HQSF has provided assistance to 735 grantees at the undergraduate level. Of these grantees 95.65% were in engineering fields and 4.35% were in IT and computer science. Also of note is the fact that 41.64% of the grantees were

female. The top three universities grantees attended were Al-Najah National University (42.31%), the Islamic University of Gaza (36.33%), and Birzeit University (11.02%)<sup>10</sup>. The sample was intended to include the entire population, but due to non-response the sample comprised of the following: 13 majors for undergraduate grantees covering 410 grantees. Only 72 grantees responded, representing 10 majors. For the graduate grantees, 24 graduates of 62 grantees responded to the questionnaire covering 21 out of 38 majors. Because the non-response rate is high, the data were weighted by major, then by non-response. The sample weight is the product of the major weight times the non-response weight, each of the weights is 1/probability of selection. All statistics were derived with sampling weights accounted for. The assessment of the HQSF program is based on measuring the impact of the grant itself on the grantee and correlating employment opportunities that were offered to this grantee. Therefore, the key factors to be assessed in this exercise, in no given order, are:

- Job Search;
- Salary and Compensation;
- University;
- Scholarship Type;
- Major.

These factors were cross-referenced in order to map the career path of the grantee from graduation to obtaining employment. This process was then compared to that of the rest of the Palestinian job seekers who are new graduates in the previously mentioned fields covered by the HQSF in its grants.

## 3.2 Hani Qaddumi Scholarship Foundation Undergraduate Engineering Grantees

### General Information

Of the HQSF undergraduate grantee respondents, 60.5% were in engineering fields, whereas the remaining 39.5% were recipients of IT or computer science related grants. In terms of specializations, computer engineering accounted for 25.7% of the respondents, followed by electrical engineering and civil engineering with 24.7% and 20.8% of the respondents respectively.

In terms of scholarships offered, 49.2% of the respondents were engineering grantees at the Islamic University of Gaza, followed by 38.1% of respondents from Al-Najah National University and 4.6% from Birzeit University. However, 48.6% of the respondents majoring in architecture received their undergraduate degrees from the Islamic University of Gaza (48.6%), followed by 25.7% from Al-Najah National University and 25.7% from Birzeit University.



Table 8: Distribution of Engineering Respondents According to University

	Al Quds	An-Najah	Birzeit	Islamic-Gaza	PPU	Total
Percentage of Engineering Respondents	4.1	38.1	4.6	49.2	4.1	100

Source: MAS Research Team HQSF Questionnaire Analysis

Table 9: Distribution of Engineering Respondents

Specialty	Overall %	Engineering %
B.Sc. Architectural Engineering	10.8	17.8
B.Sc. Civil Engineering	20.9	34.5
B.Sc. Mechanical Engineering	2.5	4.1
B.Sc. Electrical Engineering	22.2	36.5
B.Sc. Electronic Engineering	2.5	4.1
B.Sc. Industrial Engineering	1.8	3.0
Total	60.5	100

Source: MAS Research Team HQSF Questionnaire Analysis

## Monthly Salary

In terms of salary, nearly 85% of the respondents with engineering grants reported that they received a monthly salary of less than \$1,000. Essentially, only architects and electrical engineering grantees were able to break the \$1,000 monthly threshold, as 23.5% of architects earned up to \$1,500 a month and an additional 11.8% earned up to \$3,000 a month. Aside from the architectural grantees, electrical engineering graduates also found moderate success relative to other grantees, as 16.7% earned up to \$1,500 a month.

Table 10: Total HQSF Undergraduate Engineering Respondents: Salary

	Less than 1,000	1,001 - 1,500	1,501 - 2,000	2,001 - 3,000	3,001 - 4,000	Total
B.Sc. Electronic Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Architectural Engineering	64.7%	23.5%	0.0%	11.8%	0.0%	100.0%
B.Sc. Civil Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Electrical Engineering	83.3%	16.7%	0.0%	0.0%	0.0%	100.0%
B.Sc. Industrial Engineering	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Mechanical Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>84.9%</b>	<b>12.8%</b>	<b>0.0%</b>	<b>2.3%</b>	<b>0.0%</b>	<b>100.0%</b>

Source: MAS Research Team Analysis\*

When the Gaza respondents are further explored, 92.1% of the respondents earned less than \$1,000 a month. Again, architectural grantees realized the most success, as 23.5% earned up \$1,500 a month, but that seemed to be the ceiling for engineering grantees from Gaza.

Table 11: Islamic University of Gaza Undergraduate Engineering Respondents: Salary

	Less than 1,000	1,001 - 1,500	1,501 - 2,000	2,001 - 3,000	3,001 - 4,000	Total
B.Sc. Architectural Engineering	76.5%	23.5%	0.0%	0.0%	0.0%	100.0%
B.Sc. Civil Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Electrical Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Industrial Engineering	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>92.1%</b>	<b>7.9%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>

Source: MAS Research Team Analysis\*

Upon reviewing the results of the West Bank engineering grantees, the salary status was somewhat improved. Again, the architectural grantees were the most successful, as nearly half (47%) of the respondents in this field earned more than \$1,000 a month. In addition, 23.5% earned more than \$2,000 a month. Again, a third of electrical engineering grantees earned up to \$1,500 a month as well.

Table 12: Undergraduate Engineering Respondents from West Bank Universities: Salary

	Less than 1,000	1,001 - 1,500	1,501 - 2,000	2,001 - 3,000	3,001 - 4,000	Total
B.Sc. Electronic Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Architectural Engineering	52.9%	23.5%	0.0%	23.5%	0.0%	100.0%
B.Sc. Civil Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Electrical Engineering	66.7%	33.3%	0.0%	0.0%	0.0%	100.0%
B.Sc. Industrial Engineering	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Mechanical Engineering	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>77.1%</b>	<b>18.1%</b>	<b>0.0%</b>	<b>4.8%</b>	<b>0.0%</b>	<b>100.0%</b>

Source: MAS Research Team Analysis\*

## Job Search

In terms of overall responses, nearly 40% of respondents stated that employment was obtained within one month of graduation. Upon further review, architectural grantees were overwhelmingly more successful than others, as 77.1% reported finding employment within one month and 88.5% within six months. On the other hand, electrical engineering grantees faced more difficulty in obtaining employment relative to their peers.

Table 13: Total HQSF Undergraduate Engineering Respondents: Job Search

	Less than 1 month	2 - 6 Months	6 - 12 Months	More than 1 year	Total
B.Sc. Electronic Engineering	0.0%	0.0%	0.0%	100.0%	100.0%
B.Sc. Architectural Engineering	77.1%	11.4%	11.4%	0.0%	100.0%
B.Sc. Civil Engineering	32.9%	44.3%	11.4%	11.4%	100.0%
B.Sc. Electrical Engineering	16.7%	50.0%	0.0%	33.3%	100.0%
B.Sc. Industrial Engineering	50.0%	50.0%	0.0%	0.0%	100.0%
B.Sc. Mechanical Engineering	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>39.4%</b>	<b>35.4%</b>	<b>6.9%</b>	<b>18.3%</b>	<b>100.0%</b>

Source: MAS Research Team Analysis\*

As the table below states, employment opportunities for grantees seeking job opportunities in the Gaza Strip are more difficult to find. However, 60.5% of the grantees were able to find employment within six

months. In the context of specializations, architects were more likely to find employment than their peers in other specializations. The contrary was true for electrical engineering respondents however, as two-thirds required more than a year to find employment.

Table 14: Islamic University of Gaza Undergraduate Engineering Respondents: Job Search

	Less than 1 month	2 - 6 Months	6 - 12 Months	More than 1 year	Total
B.Sc. Architectural Engineering	52.9%	23.5%	23.5%	0.0%	100.0%
B.Sc. Civil Engineering	17.0%	48.9%	17.0%	17.0%	100.0%
B.Sc. Electrical Engineering	33.3%	0.0%	0.0%	66.7%	100.0%
B.Sc. Industrial Engineering	0.0%	100.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>27.5%</b>	<b>33.0%</b>	<b>13.2%</b>	<b>26.4%</b>	<b>100.0%</b>

Source: MAS Research Team Analysis\*

When comparing employment opportunities available for engineering grantees according to West Bank universities, the outlook seems more favorable based on the responses of the questionnaires. All architectural majors were able to find employment within one month of graduation. Also of note is the improved condition of electrical engineering majors, with nearly two-thirds (65.2%) finding employment within one month and the remaining 34.8% obtaining employment within six months of graduation. Overall, over half (52.4%) of respondents were able to procure employment within one month of graduation, and 90.5% were able to obtain employment within six months. This reflects an improved employment outlook for HQSF grantees based on the responses gathered and analyzed from the participants' questionnaires.

Table 15: Undergraduate Engineering Respondents from West Bank Universities: Job Search

	Less than 1 month	2 - 6 Months	6 - 12 Months	More than 1 year	Total
B.Sc. Electronic Engineering	0.0%	0.0%	0.0%	100.0%	100.0%
B.Sc. Architectural Engineering	100.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Civil Engineering	65.2%	34.8%	0.0%	0.0%	100.0%
B.Sc. Electrical Engineering	0.0%	100.0%	0.0%	0.0%	100.0%
B.Sc. Industrial Engineering	100.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Mechanical Engineering	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>52.4%</b>	<b>38.1%</b>	<b>0.0%</b>	<b>9.5%</b>	<b>100.0%</b>

Source: MAS Research Team Analysis\*

### 3.3 Hani Qaddumi Scholarship Foundation Undergraduate Computer Science/IT Grantees

#### General Information

The results of several interviews conducted with local IT and IT related firms, such as iConnect, BCI, and Wataniya Mobile, yielded the following observations:

- The assumption that every IT job is linked to three other administrative or supporting positions in fields such as hospitality, services, and finance and banking;
- Most of employees are from local universities;
- Local graduates require more training in technical areas in addition to soft skills (communication, report writing, and time management);
- Computer engineering majors are found to be more competent as the quality is higher than computer science;
- There is a general level of saturation in the market when it comes to computer engineers;
- Specializations most in demand are computer engineering, software engineering, software development, and software quality assurance.

As stated before, the undergraduate grantees from the fields related to IT and computer science accounted for 39.5% of the responses. In addition to this, computer engineering as a major was represented by 25.8% of the responses. Additionally, grantees from the Islamic University of Gaza (36.7%) and Al-Najah National University (35.2%) comprised 71.9% of the respondents collectively.

Table 16: Distribution of Computer Science/IT Respondents According to University

	Al Quds	An-Najah	Birzeit	(IUG) Gaza	PPU	Total
Percentage of Computer Science/IT Respondents	14.1	35.2	14.1	36.7	0	100

Source: MAS Research Team HQSF Questionnaire Analysis

Table 17: Distribution of Computer Science/IT Respondents

	Information Technology	Total
B.Sc. Computer Engineering	65.6%	25.8%
B.Sc. Computer System Engineering	7.0%	2.8%
B.Sc. Information Technology (IT)	27.3%	10.8%
<b>Total</b>	<b>100.0%</b>	<b>39.4%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

## Monthly Salary

Responses from undergraduate computer science/IT grantees indicate that 93.5% earned less than \$1,500 a month, with over half (51.1%) earning less than \$1,000 a month. According to major, computer engineering realized the most relative financial success, as 12.5% reported earning up to \$2,000 a month, and 37.5% earning up to \$1,500 a month. Information technology followed with 34.3% of respondents earning up to \$1,500 a month. Also of note is the fact that computer systems engineering grantees all earned between \$1,000 and \$1,500 a month.

Table 18: Total HQSF Undergraduate Computer Science/IT Respondents: Salary

	Less than 1,000	1,001 - 1,500	1,501 - 2,000	2,001 - 3,000	3,001 - 4,000	Total
B.Sc. Computer Engineering	50.0%	37.5%	12.5%	0.0%	0.0%	100.0%
B.Sc. Information Technology (IT)	65.7%	34.3%	0.0%	0.0%	0.0%	100.0%
B.Sc. Computer System Engineering	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>51.1%</b>	<b>42.4%</b>	<b>6.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

The respondents from Gaza accounted for 36.7% of responses and were assumed to actually drag the overall salary levels downwards. However, only 31.4% of the Gaza grantees earned less than \$1,000 a month. Those earning up to \$1,500 a month represented 51.4% of grantees, and 17.1% earned up to \$2,000.



Table 19: Islamic University of Gaza HQSF Undergraduate Computer Science/IT Respondents: Salary

	Less than 1,000	1,001 - 1,500	1,501 - 2,000	2,001 - 3,000	3,001 - 4,000	Total
B.Sc. Computer Engineering	25.0%	50.0%	25.0%	0.0%	0.0%	100.0%
B.Sc. Information Technology (IT)	45.5%	54.5%	0.0%	0.0%	0.0%	100.0%
B.Sc. Computer System Engineering	n.a.	n/a	n/a	0.0%	0.0%	0.0%
<b>Total</b>	<b>31.4%</b>	<b>51.4%</b>	<b>17.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

Surprisingly the earning power in the West Bank was less than that of the Gaza respondents. In this case, 63.2% of the grantees reported earning less than \$1,000 a month. The remaining 36.8% of this group earned no less than \$1,500 a month. The most lucrative opportunities were enjoyed by grantees majoring in computer systems engineering.

## Job Search

With respect to the overall job search for grantees, obtaining employment was relatively more favorable for IT grantees, as 72.1% found employment within one month, and overall, all grantees found employment within one year. Another interesting note is the fact that these results were universal for the three specializations addressed by the respondents. Particularly interesting is the stark contrast in opportunities available to HQSF grantees as opposed to the overall labor market in this field which has an unemployment rate of 30.3%.

Table 20: Total HQSF Undergraduate Computer Science/IT Respondents: Job Search

	Less than 1 month	2 - 6 Months	6 - 12 Months	More than 1 year	Total
B.Sc. Computer Engineering	71.4%	21.4%	7.1%	0.0%	100.0%
B.Sc. Information Technology (IT)	66.7%	33.3%	0.0%	0.0%	100.0%
B.Sc. Computer System Engineering	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>72.1%</b>	<b>23.3%</b>	<b>4.7%</b>	<b>0.0%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

The data from the Gaza grantees reflected less favorable results relative to the overall findings. Only 37.5% of Gaza grantees were able to obtain employment within one month of graduation. As there were no responses regarding the computer systems engineering, the specializations of computer engineering and IT were the focus of the analysis. Exactly half of grantees majoring in IT were able to find employment within one month, with the remaining half requiring up to six months. The surprising statistic was the situation of computer engineering majors, where only one quarter found employment within one month, half within six months, and another quarter required up to one year. This was a completely different case for grantees from West Bank universities. One of the main reasons for this contrast is the availability of firms in the West Bank focusing on being an outsourcing center for foreign clients in North America and Europe.

**Table 21: Islamic University of Gaza HQSF Undergraduate Computer Science/IT Respondents: Job Search**

	Less than 1 month	2 - 6 Months	6 - 12 Months	More than 1 year	Total
B.Sc. Computer Engineering	25.0%	50.0%	25.0%	0.0%	100.0%
B.Sc. Information Technology (IT)	50.0%	50.0%	0.0%	0.0%	100.0%
B.Sc. Computer System Engineering	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>37.5%</b>	<b>50.0%</b>	<b>12.5%</b>	<b>0.0%</b>	<b>100.0%</b>

**Source: MAS Research Team HQSF Questionnaire Analysis**

Finally, with respect to the job search, grantees from West Bank universities had a relatively less cumbersome experience compared to their peers in the Gaza Strip. All grantees reported finding employment within six months, with 92.6% obtaining employment within one month. Specializations such as IT, computer systems engineering and computer engineering all enjoyed success on this front.

**Table 22: West Bank Universities HQSF Undergraduate Computer Science/IT Respondents: Job Search**

	Less than 1 month	2 - 6 Months	6 - 12 Months	More than 1 year	Total
B.Sc. Computer Engineering	90.0%	10.0%	0.0%	0.0%	100.0%
B.Sc. Information Technology (IT)	100.0%	0.0%	0.0%	0.0%	100.0%
B.Sc. Computer System Engineering	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>92.6%</b>	<b>7.4%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>

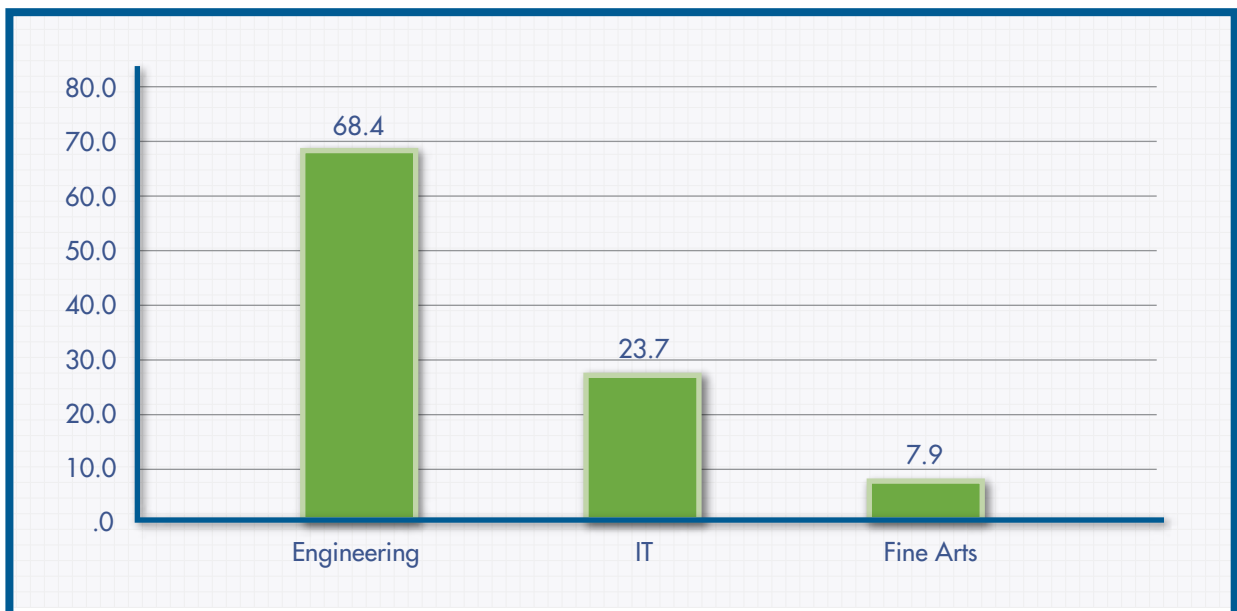
**Source: MAS Research Team HQSF Questionnaire Analysis**

## 3.4 Hani Qaddumi Scholarship Foundation Graduate Grantees

### Introduction

The HQSF graduate grantees were represented by 21 different specializations across three fields. The distribution of responses according to field was 68.4% for engineering-related fields, 23.7% for IT-related fields, and 7.9% for fine arts. The actual specialization distribution is represented in the report annex along with the representative percentages in terms of responses.

Figure 9: Respondents Distribution of HQSF Graduate by Specializations



Source: MAS Research Team HQSF Questionnaire Analysis

Table 23: Distribution of HQSF Graduate Specializations

	Engineering	IT	Fine Arts	Total
Percentage of HQSF Graduate Respondents	68.4	23.7	7.9	100.0

Source: MAS Research Team HQSF Questionnaire Analysis

Moreover, based on the responses, the majority of grantees in graduate fields obtained their undergraduate degree from Al-Najah National University, followed by Birzeit University and the Islamic University of Gaza.

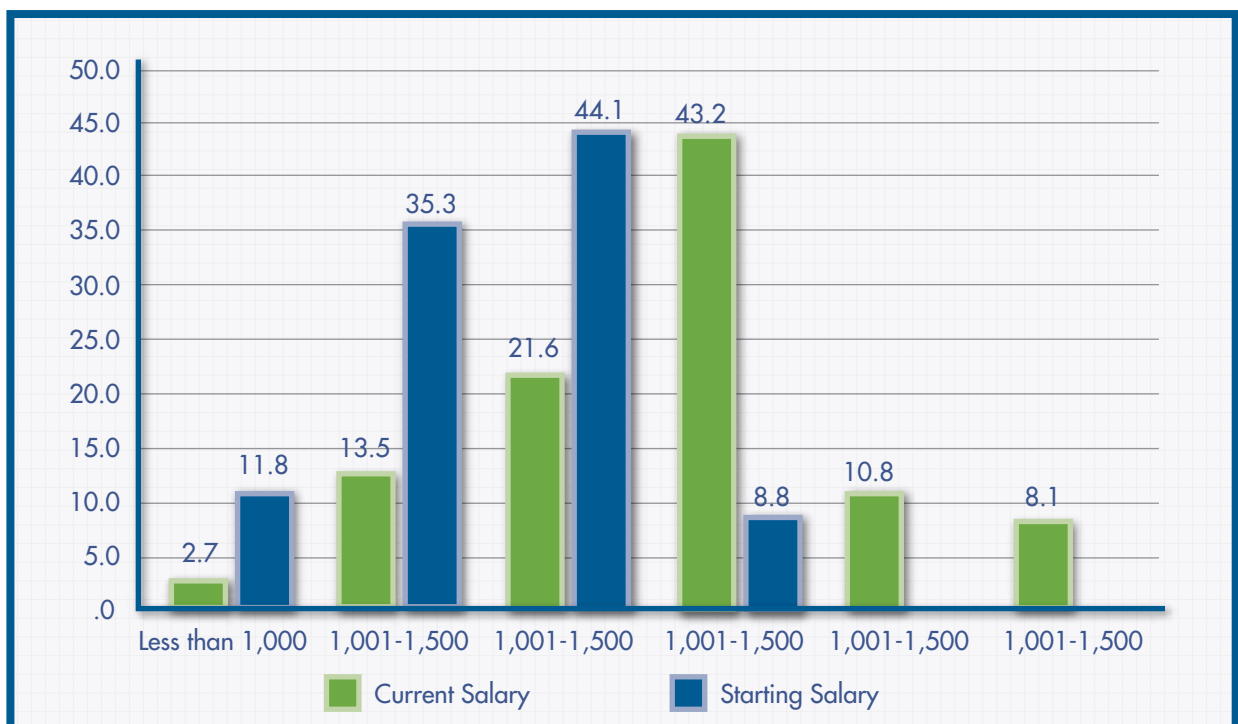
Table 24: Distribution of Respondents of HQSF Grantees by Universities

	Al Quds	An-Najah	Birzeit	IUG	PPU	Total
Undergraduate University	2.9%	51.4%	22.9%	17.1%	5.7%	100.0%

Source: MAS Research Team HQSF Questionnaire Analysis

In terms of salary, the HQSF graduate grantees have realized an increased monthly salary as a result of obtaining a graduate degree, as there seems to be a difference between starting monthly salary and current monthly salary.

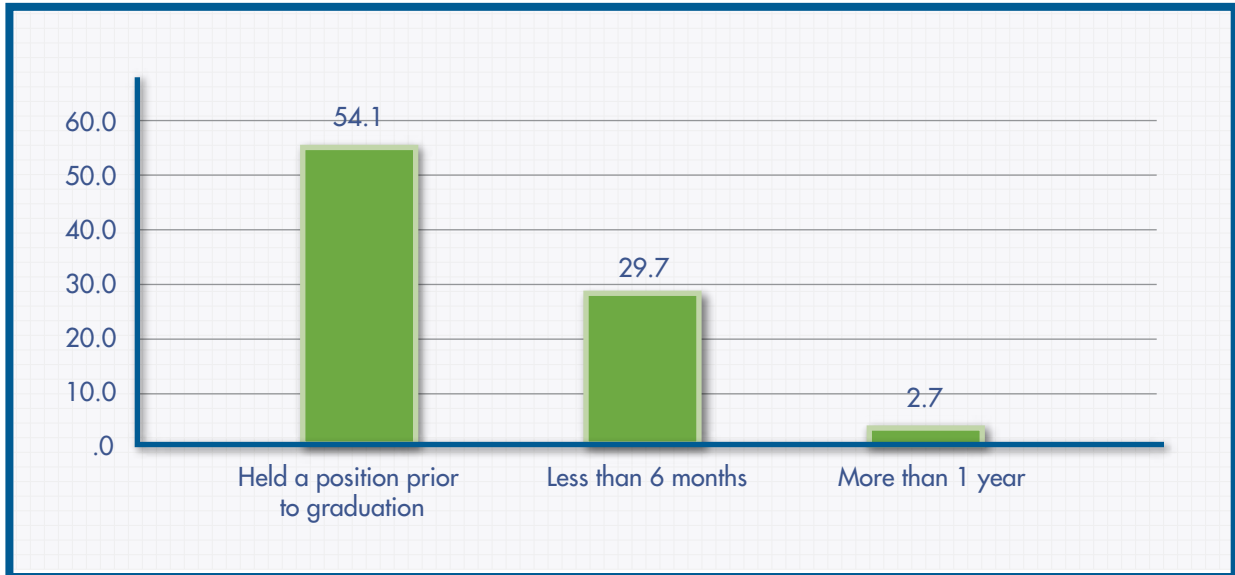
Figure 10: Comparative Monthly Salaries of HQSF Respondents Grantees



Source: MAS Research Team HQSF Questionnaire Analysis

With respect to the overall job search, the HQSF graduate grantees seemed to have little difficulty in securing employment, as 97.3% have reported securing employment within six months of graduation, and 54.1% held positions prior to graduation.

Figure 11: Distribution of Comparative Monthly Salaries for HQSF Respondent Grantees



Source: MAS Research Team HQSF Questionnaire Analysis

### 3.5 Hani Qaddumi Scholarship Foundation Graduate Engineering Grantees

#### General Information

Much like the statement in the undergraduate section, it is important to understand the reach of the HQSF and its efforts. In terms of grantees, for the year ending 2011, 62 grantees received assistance to pursue graduate studies. These grantees all studied abroad, with 74.19% pursuing graduate degrees in the UK, and the remaining being split evenly between the US and Canada (12.90% each). Also of note is the fact that an overwhelming majority of grantees tended to be males, representing 82.26% of all graduate grants offered, whereas females accounted for the remaining 17.74%.

Of the HQSF graduate grantee respondents, 68.4% were in engineering fields, followed by 23.7% in computer science or IT related fields and the remaining 7.9% were recipients of fine arts related grants.

Table 25: Distribution of Respondents According to Graduate University and Field

	Concordia	Imperial	Kent	UCLA	Birmingham	Leeds	Manchester	Nottingham	Southampton	Strathclyde	Westminster	Total
Engineering	32.5%	17.5%	0.0%	0.0%	15.0%	5.0%	10.0%	10.0%	0.0%	5.0%	5.0%	100.0%
IT	0.0%	8.0%	32.0%	0.0%	0.0%	0.0%	16.0%	28.0%	16.0%	0.0%	0.0%	100.0%
Fine Arts	0.0%	0.0%	0.0%	28.6%	0.0%	0.0%	0.0%	0.0%	71.4%	0.0%	0.0%	100.0%
<b>Total</b>	<b>18.1%</b>	<b>12.5%</b>	<b>11.1%</b>	<b>2.8%</b>	<b>8.3%</b>	<b>2.8%</b>	<b>11.1%</b>	<b>15.3%</b>	<b>12.5%</b>	<b>2.8%</b>	<b>2.8%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

Table 26: Distribution of Respondents According to Undergraduate University and Field

	Al Quds University	An-Najah National University	Birzeit University	Islamic University of Gaza	Palestine Polytechnic University	Total
Engineering	0.0%	54.2%	25.0%	12.5%	8.3%	100.0%
IT	14.3%	14.3%	28.6%	42.9%	0.0%	100.0%
Fine Arts	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>3.0%</b>	<b>49.3%</b>	<b>23.9%</b>	<b>17.9%</b>	<b>6.0%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

In order to have more clarity regarding the reach of the HQSF, it is important to note that HQSF grantees have received assistance to 21 universities around the world. Of these universities, 60.8% of the grantees attended the following universities:

- University of Nottingham (14.8%);
- University of Manchester (11.5%);
- University of Birmingham (11.5%);
- Imperial College of London (11.5%);
- Concordia University (11.5%).



Table 27: Distribution of HQSF Grantees Graduate University and Field

	Engineering	Computer/IT	MBA	Total
Concordia University	16.7%	0.0%	0.0%	11.5%
Imperial College of London	14.3%	7.7%	0.0%	11.5%
University of Birmingham	14.3%	7.7%	0.0%	11.5%
University of Manchester	7.1%	23.1%	33.3%	11.5%
University of Nottingham	21.4%	0.0%	0.0%	14.8%
<b>Total</b>	<b>73.8%</b>	<b>38.5%</b>	<b>33.3%</b>	<b>60.7%</b>

Source: HQSF Graduate Grantees

## Monthly Salary

With respect to the field of study and monthly salary, engineering graduate grantees realized a greater relative success, as 62.5% earn more than \$2,000 a month. The graduate grantees from the IT field followed with 44.4% earning over \$2,000 a month. When identifying specific degrees earned, the following specializations reported the highest monthly salaries:

- M.Sc. Communication & Signal Processing (More than \$4,000);
- M.Sc. Computer Engineering (More than \$4,000);
- M.Sc. Road Management and Engineering (\$3,000-\$4,000);
- M.Sc. Software Engineering (\$3,000-\$4,000).

Table 28: Distribution of Respondents' Current Monthly Salaries According to Field

	Less than 1,000	1,001 - 1,500	1,501 - 2,000	2,001 - 3,000	3,001 - 4,000	4,001 or More	Total
Engineering	0.0%	20.8%	16.7%	50.0%	8.3%	4.2%	100.0%
IT	11.1%	0.0%	44.4%	0.0%	22.2%	22.2%	100.0%
Arts	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
<b>Total</b>	<b>2.8%</b>	<b>14.1%</b>	<b>22.5%</b>	<b>40.8%</b>	<b>11.3%</b>	<b>8.5%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

## Job Search

Graduate grantees had less difficulty in finding and securing employment, as well over half (54.3%) held positions prior to graduation. When reviewing this by field, IT grantees experienced the greatest level of relative success as 88.9% held positions prior to graduation, and the remaining 11.1% found employment within six months after graduation. Also of note is the fact that engineering grantees generally found employment within six months after graduation.

Table 29: Distribution of Respondents' Job Search According to Field

	Held a position prior to graduation	Less than 6 months	6 - 12 months	More than 1 year	Total
Engineering	46.8%	40.4%	8.5%	4.3%	100.0%
IT	88.9%	11.1%	0.0%	0.0%	100.0%
Arts	0.0%	0.0%	100.0%	0.0%	100.0%
<b>Total</b>	<b>54.3%</b>	<b>30.0%</b>	<b>12.9%</b>	<b>2.9%</b>	<b>100.0%</b>

Source: MAS Research Team HQSF Questionnaire Analysis

In terms of employment, the grantees realizing the least amount of difficulty in the amount of time spent in job search were the following:

- M.Sc. Electrical and Computer Engineering (15.7%);
- M.Sc. Electronic Communications & Computer Engineering (7.1%);
- M.Sc. Computer Engineering (5.7%);
- M.Sc. Distributed Systems and Networks (5.7%);
- M.Sc. Software Engineering (5.7%).

These grantees accounted for 40% of the respondents, and the relatedness to the IT field seems to be directly related to their respective career paths.

### 3.6 Analysis of MBA

Currently the HQSF offers scholarships to Palestinians seeking to pursue MBA degrees abroad. However, it is important to understand the local landscape of the supply side of the labor market, or in other words, the local universities offering MBA programs. Although the number of graduates was referenced in Table 2 and Figure 4 earlier in the study, it is relevant to know the universities supplying these graduates. Al-Quds University offers graduate degrees through their MBA, accounting, and sustainable development programs. Al-Najah National University also offers graduate degrees in fields including MBA, political economics, and tax disputes. Birzeit University and Hebron University also offer MBA degrees. The most recent trends have shown Birzeit University being the leader amongst local universities primarily due to the number of graduates. Since 2009, MBA degrees have been issued to 483 Palestinians from local universities. Birzeit University alone has issued 282 of those degrees, or 58.39%, followed by the Islamic University of Gaza with 119 degrees issued, or 24.64%.

It is also worth noting the following:

- 34% of students who graduate actually pursue a higher degree according to a 2012 study by the MoHE;
- Obtaining a masters degree does not necessarily help the graduates to enhance their positions at their work places (Raises, titles, etc.);
- Some employers do not permit their employees to leave and come to the university to attend classes – no investment in HR;
- There are exceptions such as Jawwal and PalTel which encourage their employees to advance professionally and support them in different ways, even financially;
- Individual differences in abilities play a major role in the students qualifications and affect the speed of securing a job and acceleration in the career path.

Interviews were conducted with regarding the analysis of the MBA grants offered by the HQSF, as well as the impact on the Palestinian labor market.

The experience of going away for school does seem to add value, as it exposes the candidates to negotiating various issues depending on themselves, and dealing with different cultures.

In terms of job search and pay, an increase in salary is expected, with job opportunities in the private sector, public sector, and NGOs. However, the period involved in the job search is typically three to six months. There are cases of a job search involving up to one year. Age and experience are factors in the job search and the amount of time spent. Younger and less experienced candidates tend to have

longer waiting periods, whereas older and more experienced candidates don't spend much time, and typically return to their previous place of employment.

The following conclusions were obtained from the interviews:

- Although the local MBA programs might be adequate for the Palestinian job market, the experience of being on your own and taking charge of your decisions can only be obtained by studying abroad;
- The mentoring programs offered by programs are instrumental in developing one's character;
- The HQSF should seek out leaders in different fields. In other words, rather than simply offering an engineering scholarship, finding the person and allowing him/her to choose a degree program would have a greater impact on many areas such as fine arts and healthcare;
- Personality tests should have more weight in the selection process to identify leaders, as passion and dedication in their chosen fields are key components to facilitate re-entry into the Palestinian labor market and have a positive impact;
- A network or community is critical to the future of the HQSF as the alumni can offer mentoring and network with each other, thus affording more opportunities to Palestinians, both locally and abroad;
- An orientation or preparation session should be instituted for all grantees, as well as an exit or debriefing session upon obtaining their degrees;
- The students' mindset must be developed in order to facilitate critical thinking and analytical skills in order to solve problems and use resources in an optimal fashion.

### 3.7 Analysis of Fine Arts

Much like the MBA analysis, interviews were undertaken to capture the experience of the HQSF grantee and ascertain the points of emphasis regarding the university and the specialization. Currently, degrees in fine arts are offered through a number of universities, as part of their arts programs, with Al-Najah University operating a fully functional separate faculty dedicated to the fine arts in the West Bank. It is important to understand the local capacity in terms of the labor market for fields in fine arts. Therefore, it is imperative to know how a leading local institution operates and is able to absorb candidates while ushering them into the workplace by identifying the opportunities that exist.

One of the primary advantages of pursuing the degree in other parts of the world is the proximity to the thriving media and film industry that exists in locations such as Los Angeles and New York. Therefore, having access to film experts and artists was instrumental in applying and practicing the craft. This field

has potential to offer opportunities to local Palestinians in a global context. Today's technology allows an artist to work from his/her home and contribute to a production in another part of the world. This however isn't simply limited to films, as this technology and skill set can be applied to other endeavors such as creating applications for smartphones and tablets, as well as digital marketing efforts. Applying this acumen to various fields is possible only through being exposed to

new ideas through networking events and accumulating experience through various collaborations. Outside of Palestine, this is considerably more possible due to the convergence of diverse talents in countries such as the US. However, to develop an industry in Palestine, cinematographers, digital artists, 3D modelers, and user interface engineers, amongst others, are needed and require the necessary training in established programs. These programs not only add credibility based on name recognition, but force the candidate to interact with others and exchange ideas and share knowledge, thus enhancing the experience.

Some of the areas of focus will be on children's programs or youth efforts. If undertaken properly, with the necessary accumulation of talent, an entrepreneurial business model can be adapted rather than seeking funding from donor nations. This would afford the efforts to be independent of any restrictions or stipulations.

As for the HQSF, creating a community for the grantees for networking and possibly cooperative efforts frequently cited as vital. Also, particularly for fine arts candidates, academic records alone aren't enough to truly attract or qualify a candidate. A portfolio of the candidate's work, and assessment of his/her personality would be far more effective.

## **Some Observations on the Fine Arts Market Needs**

Over the course of the study, several field interviews with stakeholders in the Palestinian labor market revealed the following points:

- Graduates in music work in education teach at MoE schools. Also, a large number engage in entrepreneurial efforts in providing entertainment services. A small portion of graduates of fine arts work in teaching, and the rest work in the private sector or are self-employed where they sell their own paintings in galleries. The private sector is the biggest employer for graduates from applied arts as engineering firms and carpentries use their creativity and artistic touch;
- Unemployment rate is close to zero;
- Job search period is largely based on individual interest and abilities. The students are obliged to undertake a practical training, some students get employed through that avenue, while others take longer to find the right opportunity;

- Applied arts graduates are the fastest to obtain jobs as the market is more open for them;
- The market needs qualified artists, designers, media specialists, and so on;
- Other majors to be funded include drama, theater, directing, script writing, and fashion design. There are institutes to prepare technicians, but no academic qualification.





# 4. CONCLUSIONS AND POLICY RECOMMENDATIONS



This study was carried out for the purpose of assessing the Palestinian labor market and its needs, in addition to providing an in-depth analysis of the HQSF's program relative to the labor market and its needs. Specifically, the study's aim was to outline the mismatch between supply and demand in the Palestinian labor market, and explore the key factors that determine the competitiveness of HQSF scholarship recipients in the Palestinian market. Below are the main findings of the assessment:

- Health, engineering, natural sciences, and business are fields in which unemployment is below average despite the fact that LFPR is above average. This implies strong demand for these fields;
- In terms of engineering and IT related fields, HQSF grantees at the undergraduate and graduate levels seem to have an advantage in obtaining employment relative to the other participants in the labor force;
- Wages and monthly salaries for IT and engineering grantees tended to increase substantially when they pursued graduate degrees in the respective engineering and IT fields offered by the HQSF;
- Employment for IT and engineering grantees tended to be based in local firms in the private sector. This may indicate that these grantees, based on their performance in their given fields of study, were preferred by local firms;
- Specializations in the fields within the fine arts are underrepresented in the LFPR and in need of investment. These areas of study or specializations are necessary to develop this aspect of Palestinian society in order to preserve heritage and promote cultural endeavors;
- The demand for a Master's in Public Administration (MPA) is strong due to the large number of employees in the public sector, which is assumed to meet the more specific needs of public institutions operating in the oPt;
- In terms of the labor market, certain degrees and specializations such as mechanical engineering and computer science lead to underemployment and underutilization of valuable human resources. Newer and more state of the art fields of study are desired in order to enhance the competitiveness of Palestinian firms and skills offered to local and international organizations and agencies;
- Personal services, architecture and construction, mathematics and statistics, and law have below average unemployment, but labor force participation is also below average. This suggests the need to slow down the growth in labor supply in these fields to maintain wages and unemployment;
- The mismatch (LFPR above average and unemployment rate above average) is most obvious in the following: social and behavioral sciences, mass media and information, and computer sciences. This means that reducing grant allocations to these fields is recommended as necessitated by the current demand conditions.

The following points are to serve as recommendations for the HQSF. Therefore, these points are to outline the needs of the Palestinian labor market, in order to identify the optimal methods in which the HQSF can utilize its resources:

- In terms of finding and securing employment, training and cooperative efforts between the university and the private sector were critical. Internship and post-graduation job placement programs with the private sector and civil society organizations help improve the chances of identifying, applying for, and successfully securing meaningful jobs post graduation;
- English language skills in conversation and report writing are among the most important factors cited by employers;
- Proper use of the Arabic language is also important, in terms of report writing and other forms of communication (i.e., memorandums, emails, etc.).
- Critical thinking and problem solving skills are critical, as employers are in need of people who can think through problems and provide solutions and answers based on sound assessment and proper evaluation;
- More specializations or concentrations in certain majors as opposed to generalities (i.e., rather than just having a business administration degree, a concentration or minor in a specified field such as human resource management or development, accounting);
- With the high level of public sector employees, development of more programs and degrees tailored to promote effectiveness in certain administrative positions with Master's in Public Administration (MPA) degree programs;
- More training and work-oriented programs (i.e., internships) for in various fields to accelerate the acclimation into the work environment post graduation.

The following recommendations are proposed to the HQSF based on the analysis of the desk review, the questionnaires from respondents, in-person interviews, and focus groups:

The HQSF is encouraged to develop its scholarship program by introducing the following services to its scholarship recipients:

1. More support for the fine arts:

- Better attention and more resources are needed to support fine arts majors. The market is in need of the creative input of people with the right training and proper skill set especially in media, advertising, and film-making;

- Music is another neglected sector that requires investment. Many people in this field do not attain any steady employment outside of a few institutes such as the Edward Said National Conservatory of Music which is limited due to lack of funding;
  - When speaking to several individuals in the field of fine arts, it was noted that an increase in expertise would lead to more competitive cultural centers which would directly and positively impact the Palestinian tourism industry. Investment in this sector would be sensible as there is an abundance of historical and religious sites which could be the basis for growing the Palestinian economy;
2. A greater emphasis on creating a community among HQSF grantees is necessary for networking purposes. As it stands, the HQSF program does not focus enough on building a network between the program's current and past alumni, which means the loss of an opportunity to leverage relationships to secure job placements and training opportunities;
3. Specialized graduate and post graduate degrees in business and business related fields such as finance and investment management would help improve the competitiveness of students graduating from local universities when compared to graduates from international universities:
- There are no licensed actuaries for the insurance companies operating in the oPt. This degree in itself, with government regulations on insurance policies, competition, and a service based economy would create opportunities for many individuals not only in insurance companies but also investment and finance companies
  - Geographic Information Specialists (GIS) are a scarce resource valuable to local engineering firms and local government agencies such as municipalities (since they are tasked with planning and identifying opportunities and threats based on geographical and topographical information);
  - The PTUE stated that there aren't enough opportunities for engineers with advanced degrees in telecommunications, electrical and mechanical engineering. New fields such as renewable energy, electromechanical, and mechatronics may be in demand for further development projects:

**FUNDING SHOULD BE DIRECTED (TO WHICH FIELD)  
(0 LEAST IMPORTANT – 5 MOST IMPORTANT)**

5

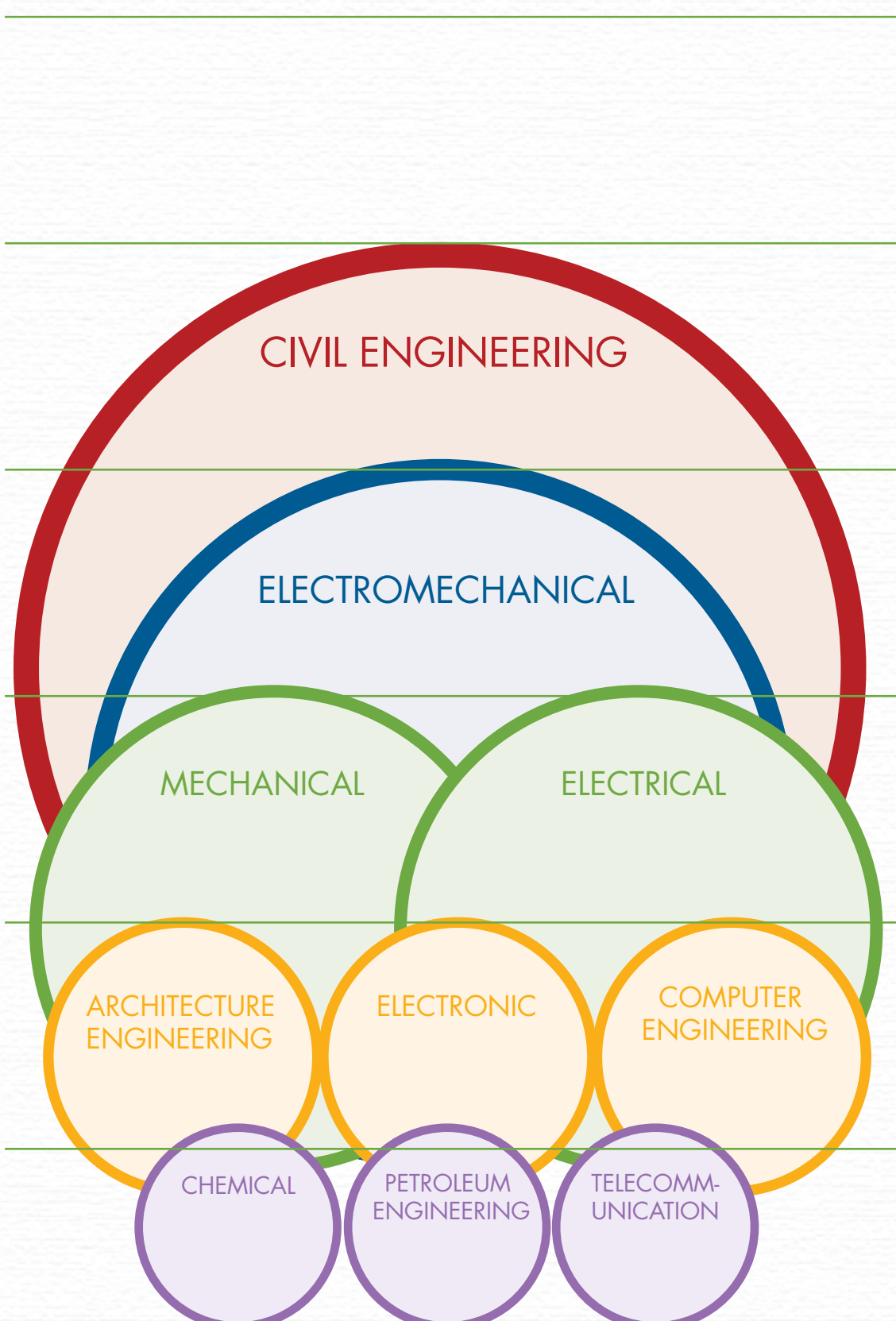
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- For IT related fields, software engineering and systems engineering are preferred for companies that market their services to foreign companies for outsourcing purposes as the skill sets possessed by these individuals are far more desirable. Also, this group has ideal candidates for graduate degrees in marketing or business related fields as companies are becoming more reliant on technology, and these fields enhance the communication process between clients and these firms.

#### 4. More support for healthcare related fields:

- Healthcare is currently not offered by the HQSF despite the growth evident in this field. As a result of the imposed restrictions and the nature of a services-based economy, healthcare and related fields would offer a welcome outlet for those students with higher scores resulting from their secondary education (i.e., Tawjihi, SAT, etc.);
- Pharmacy, nursing, nutrition, and medicine are all fields that require much needed support and are more than willing to absorb these undergraduates and graduate grantees in both the practical and professional fields as well as the academic:
- Programs tailored with local and foreign universities for students in these fields to be exposed to modern techniques and improved operating models;
- Using partner organizations to implement training programs for third and fourth year students in these fields to enhance the employability of candidates;
- Forming of a blue ribbon panel to assess current and future needs in medical related fields to more aptly place these candidates and identify opportunities;
- Currently, most opportunities exist for dietitians, nutritionists, and nurses due to the employability of their respective skill sets and their adaptability outside of the hospital setting, where private consultations and cooperative efforts with other institutions may be present:
- To seize upon this opportunities, interdisciplinary programs such as business, MBA, entrepreneurship, marketing, and so on should be packaged to allow for the candidates to be more proactive;
- Currently 49 hospitals operate in the West Bank and East Jerusalem, under various administrative types (public, private, NGO, and UNRWA) and all have needs in these vital areas. Many specialists such as pathologists and hematologists are currently unavailable or very scarce, which means many diseases and centers such as blood banks are grossly neglected and understaffed;



- There is a very evident gap between what is available in terms of specialists and experts, and what is needed. For example, in the Palestinian Medical Complex in Ramallah, one of the largest medical centers in the West Bank providing secondary healthcare services for roughly 750,000 Palestinians, the bed to nurse ratio is 40:1 on average. At best, it only improves to 20:1, which is just one glaring example of the staffing crisis prevalent in Palestinian healthcare. The need for nurses is so great that often the school background impacts employability only minimally. Thus, hospitals and medical centers do not necessarily have the luxury to sift through applicants and hire nurses as they become available. In fact, many nurses work in more than one institution, and also do private work, stretching out a very thin corps of staff to begin with, diluting any quality that may be evident. Therefore, the challenge becomes in developing a quality group of candidates that distinguish themselves in a positive way to not only ensure employability, but rather to serve as a first step towards developing the sector as a whole. Therefore, an approach that targets developing character becomes important, while simultaneously fostering partnerships with other institutions, both local and foreign, in order to make sure that these candidates will continue to be exposed to the latest techniques and developments in their field;
- In terms of capacity, the faculties locally are unable to meet the demand for applicants, thus enabling people to slip through the proverbial cracks. Therefore, one of the recommendations of some of the instructors in fields such as nursing or pharmacology is to foster more partnerships or opportunities for exchanges for students and staff members. These endeavors tend to yield positive results such as enhanced research and case studies that would undoubtedly add credibility to any research or actions to be undertaken. To be more specific, in terms of the local healthcare sector, education must be directly tied to the national system, regardless of the administrative type (NGO, UNRWA, private, or public). This would encourage some of the primary and secondary healthcare institutions to become teaching facilities, thus yielding opportunities for the candidates, while encouraging more professionals to teach, thus expanding capacity and allowing for more students to be enrolled in health related fields, which should ultimately improve the overall quality of the services offered;
- Regarding the other majors such as nutrition and clinical laboratory sciences, outlets may be found in these very same institutions in order to further develop the collective acumen of the candidates affording them opportunities to learn, while delivering value-based solutions to these institutions due to their obvious and universal budgetary constraints. These candidates must be able to pursue graduate and post graduate education in order for a significant and lasting impact to be realized. This will create opportunities in both practical and research-based fields such as pathology or hematology to thrive, whereas currently specialists in these fields are unfortunately quite rare in Palestine;
- One of the most glaring examples of this point can be seen in the ratios of certain types of healthcare professionals to the population. According to Giacaman, et al, (2009), there were only an average of 1.8 physicians to 1,000 people in the West Bank. Even more so, as stated earlier, the nursing situation is also well passed any crisis level as there is only 1 nurse for every 1,000 Palestinians in the West Bank. Countries such as the UK, and Canada have ratios of 12.2 and 10.0 respectively.

Also, another figure to be taken into consideration is the level of healthcare administrative staff. When compared to the UK, there is a difference of nearly 20 per 1,000 people. This is indicative of the need for more structure and management in this field. Therefore, whether through supply from local or foreign universities, these challenges must be addressed immediately<sup>11</sup>.

5. Partnering with the private sector, universities, and NGOs in developing training and development programs for students and graduates. This will enhance the employability of the graduates while keeping the HQSF in more direct contact with the marketplace and its needs. This point should not be taken lightly, as HQSF will have more information at its disposal for the granting of scholarship and other support for higher education.

## HQSF Opportunities For Specializations Cited From Stakeholder Interviews

In general, one of the major themes that resulted from the stakeholder interviews had to do with emphasizing entry level positions for new graduates across different fields. Essentially, these positions would greatly assist the acclimation process that transpires between new entrants and the organizations they work for. This also allows for new employees and organizations to also better identify potential career paths and skill sets to be developed for the benefit of the employee and the organization. Using this method as a basis for analysis of different fields, the following specializations were gleaned from the stakeholder interviews regarding some of their needs:

### Business Related

- Actuaries
- Forensic Accountants/Certified Fraud Examiners
- Branding/Product Development

As can be seen in the above points, each of the general fields has particular areas of concern. In terms of business related fields, one of the main specializations in demand is that of an actuary. An actuary basically performs quantitative analysis and estimates the likelihood of accidents, mortality, and so on. This function is usually associated with insurance companies as this person is instrumental in providing the analysis necessary for many of the decisions and policies to be undertaken by a given insurance company. Therefore, Palestinian insurance companies have to seek outside experts in this field rather than having access to local ones.

In addition to this, marketing specialists in fields such branding and product development are also in short supply. These fields may enhance the image of Palestinian products and marketing efforts for both the local and international markets. Also of note, areas that seem to be surfacing for those graduates in the

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<sup>11</sup> The ratios spoken of in this paragraph are found in Table A16 in Annex 2.



finance and accounting related fields are specializations such as forensic accounting and certified fraud examiners. This is due in large part to the economic hardships being faced not only by Palestinians, but by donor nations as well, which often leads to reduced funds and higher levels of accountability.

## Engineering

- GIS (Geographical Information Systems) Officers
- Electro-Mechanical Engineers
- Industrial Engineers
- Environmental Engineers

In terms of engineering fields, based on the stakeholder interviews and analysis of the HQSF grantee questionnaires, fields that would be considered in demand include geographical information systems, electromechanical, industrial, and environmental engineering. These fields are affiliated with many of the new infrastructure projects and have skills that are able to navigate between the private and public sectors. This is substantiated by the fact that with projects in the public and private sector, these fields are often attractive to firms bidding on the projects, which also offers opportunities for these individuals to find sustainable employment either as employees or subcontractors. Also of note is the fact that the nature of these projects in many cases can be ongoing concerns, further cementing the viability of these fields.

## IT

Software Engineers

Systems Engineers

Network Administrators

The Palestinian IT sector, as stated before, is not free from challenges. The sector mainly relies on outsourced services from the region and beyond. Therefore, the flexibility and skill sets possessed by majors such as software and systems engineering, as well as network administrators is critical to the sector's success. As with the engineering fields, much of the work is based on development projects with both the public and private sectors. In addition to this, a set of soft skills is required in order to attract interest from clients and investors. The specializations mentioned allow for the management and oversight of projects, linking customers' needs to technical solutions, and the ability to work on multiple platforms. This is very important with the advent of technologies such as Cloud and increased use of mobile devices and applications, thus providing a positive outlook for opportunities in these fields. Not to be neglected is the nature of directly affecting the interface users will be engaging. A number of research studies have been undertaken in a variety of fields such as artificial intelligence, Arabic lexicons, and dialects, to name a few. As such, localization of software and providing local and regional solutions to companies and various organizations are to be expected.

## **Fine Arts**

Graphic Designers/Animators

Media

Art History

Music

Drama

Production/Writing

The takeaway from the interviews and work undertaken regarding fine arts resulted in the following assessment; the sector needs not only to be developed, but to be properly established. There are a host of opportunities based on the fact that the Palestinian economy is essentially service based. Therefore, with certain technical proficiencies (i.e., production, writing, animation, directing, etc...), these services can be developed and become attractive to both markets that are local and abroad. With investment in media production services, local Palestinians can be an attractive option for production companies around the world. In addition to this, fields such as art history, music, and drama would essentially contribute or enhance the attractiveness of a sector such as tourism, which is estimated to be in excess of \$92 million annually<sup>12</sup>. Aside from the economic impact, the fact that fine arts afford Palestinians to preserve heritage based and cultural treasures is critical to for national survival.

## **Medical/Healthcare**

PharmD's

Nurses/Nurse Practitioners

Speech/Hearing Therapists

Dieticians/Nutritionists

Pathologists

Based on recent developments in this field, and its sheer impact on virtually every Palestinian, healthcare and medically based specializations have been thrust to the forefront. Evidence of this is present in the donor programs such as the Belgian initiative (BTU), the USAID based "Flagship Project" and other support offered from Arab countries, among others. Aside from the donor aid, the local Palestinian universities have also either opened or expanded programs in medical and clinical fields. Therefore, the sector needs to be developed from the ground up, aside from having qualified physicians, a support staff to supplement and complement the efforts of the physician is necessary to achieve any measure of success. As stated earlier, nurses, pharmacists, dieticians, pathologists, and therapists are required to ensure a higher level of quality care being offered to Palestinians. With respect to the specializations, there was a special emphasis on the linkages with local institutions such as hospitals and healthcare centers. For example, the nursing program in Bethlehem University is perceived as being successful for

a number of reasons, such as the course content, quality of instructors, and the linkages to the hospitals and medical centers in Bethlehem, many of which are part of an international network of relief agencies which often have a higher level of requirements in terms of bedside manner, level of exposure to diverse situations and cases, as well as dealing with a range of different people with different backgrounds.

Furthermore with regards to medical health professionals, according to the data provided by the Ministry of Higher Education, 4,401 individuals in the West Bank, Gaza Strip and East Jerusalem have obtained medical degrees in a variety of fields such as nursing, pharmacology, medical imaging, laboratory services, and midwifery among others. While it is true that many of these degrees have been issued in the specified fields of nursing and pharmacy, it is important to note that the quality of the degrees should be taken into account. At least 685 of these degrees were issued by local colleges or institutes and not by universities. Also, the programs in the universities have recently come under scrutiny in terms of the number of required hours to complete a degree and the necessary training to accompany the degree holder upon graduation. For example, for nutritionists and dieticians, the union has devised a test that filters out the candidates and allows them liberties assuming they pass the test and acquire various certificates. Therefore, the glut of health professionals stems from the need for enhanced quality in local programs and requires the Ministry of Higher Education to review the process by which they are afforded credibility in Palestine so that better opportunities arise for their graduates and candidates.

With specificity on the issue of pharmacists and nurses, there is a demand, locally and internationally for those individuals who are holders of a doctorate in pharmacy as well as master's degrees for nurses and similar degrees or certifications to be nurse practitioners to alleviate the pressure on the healthcare system, especially as they relate to the availability of physicians in rural areas.

With respect to the medical specialties, it is important to note that as it was stated, these specialties can't be stipulated or alleviated right away as there is a lag between a student entering medical school and selecting a specialty upon completing their rotations, and finally fulfilling any and all obligations to the university or medical school from which they have obtained their respective degree. This process can take anywhere from 8-12 years given the school, specialty, and candidate. However, given the fact that nearly 37% of the population is under the age of 14 according to the PCBS, specialties such as pediatricians and pediatric surgeons seem to be in demand. Also, in line with global trends, surgical specialties such general surgeons, urologists, cardiologists, neurologists, and vascular surgeons are in demand and will be in demand given the projections of the demographic makeup of Palestinian society.

**Linkages with the Private Sector** Recently, there have been efforts on the parts of universities and the private sector to engage students and fresh graduates in order to offer a smoother transition to the Palestinian workforce. For example, universities such An-Najah, Birzeit, and Bethlehem have certain requirements for their students in the form of training or internship programs. In addition to this, universities since the late 1990's and early 2000's have instituted career days to invite the private and public sector to the campus to interact with students directly. Also, another recent trend has been the establishment of career centers in these universities to further reach out to the private sector and solidify relationships

between academia and the market. There are issues associated with lack of visibility or awareness however, as public relations or promotion of these services is often subject to the availability of funds within universities to truly promote these services to students and potential partners.

Another recent trend has been that of cooperative educational programs. In these programs, students essentially are interviewed and selected by private sector firms for an extended internship program. In this scenario, students will take an entire semester away from the university and essentially become “employees” of the firm for about three months or the duration of a semester. The following semester the student will register for classes. The student is expected to have his/her experience for the previous semester show in terms of performance, confidence, and the ability to apply soft skills (i.e., communication, problem solving, report writing, etc...) in the classroom and benefit other students, directly or indirectly. The third semester results in the student again goes back to the workplace with a renewed and solidified theoretical background and fresh perspective. The goal is to give an extended “dress rehearsal” for both the student and firm so that expectations are understood and integration into the workforce is as smooth and seamless as possible.

Also of note, recent efforts with organizations such as Palestine Education For Employment, the Welfare Association, and GIZ, and other NGOs have tried to fill in these gaps by offering programs that compensate organizations and companies that employ fresh graduates or students about to graduate.

Also, several private sector firms have also initiated programs such as Jawwal’s “Go Professional” or PADICO’s “Tammayaz”. In these programs, these firms engage junior or senior level university students and fresh graduates and introduce them to professional environments or atmospheres in order for them to get acclimated more quickly, and thusly making these students and graduates more attractive to the labor market.



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# ANNEXES



## Annex 1:

Table A1: Number of Graduates by University and Specialization in the

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Islamic University of Gaza	640	624	726	904	955	1001	1145	1014	1183
Health and Social Services	71	58	52	127	150	164	167	145	186
Health	71	58	52	127	150	164	167	145	186
Medical Analysis	44	58	52	27	34	33	48	43	53
Nursing	27			60	79	82	84	86	100
Ophthalmology				40	37	49	35	16	33
Science			75	41	55	116	110	76	88
Computer and Information Technology			75	41	55	116	110	76	88
Software Development							17	29	29
Computer Science			54	18	15	25	23	9	18
Information Systems			21	23	40	91	70	38	41
Social Sciences and Business, and Law	323	376	320	314	289	253	376	374	443
Business and Management	323	376	320	314	289	253	376	374	443
Business Administration-Finance					73		46		
Business Administration-English							54	58	56
Business Administration	104	67	172	60	72	54	59	60	101
Commerce-General/Arabic Language		1							
Finance and Banking		101		87		61		60	70
Accounting	219	207	148	167	144	138	160	113	133
Accounting-English							57	83	83
Engineering-Manufacturing-Construction	246	190	279	422	461	468	492	419	466
Architecture and Construction	116	110	96	194	230	271	289	241	266
Civil Engineering	116	110	96	150	169	207	214	183	195
Architectural Engineering				44	61	64	75	58	71
Engineering and Applied Engineering	130	80	183	228	231	197	203	178	200
Industrial Engineering	36		28	28	24	26	34	34	36
Electrical Engineering	46		64	95		97	7	86	80
Computer Engineering	48	80	91	105	127	74	87	53	81
Electrical Engineering-Telecommunications					80		75	5	3

## Palestinian Territory

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Arab-American University of Jenin		156	406	569	552	497	414	414	490
Health and Social Services		18	58	95	123	141	130	56	139
Health		18	58	95	123	141	130	56	139
Medical Imaging							12		22
Nursing									15
Physical Therapy		8	15	31	32	41	30	16	25
Occupational Therapy		6	12	24	24	17	8	7	13
Medical Laboratory Sciences		4	15	15	34	39	35	33	16
Oral Surgery and Dentistry			16	25	33	44	45		48
Science		22	120	151	146	120	66		64
Computer and Information Technology		22	120	151	146	120	66		64
Telecommunications			26	34	42	46	12		1
Accounting Information Systems			67	97	82	56	39		37
Multi Media									12
Computer Science		22	27	20	22	18	15		14
Social Science, Business, and Law		116	228	323	283	236	218	358	274
Business and Management		116	228	323	283	236	218	358	274
Business Administration		29	31	29	17	17	29	33	36
Health Information Systems		2	9	23	15	10	13	7	8
Marketing		10	23	25	20	31	32	22	33
Finance and Banking				44			2	130	
Finance and Banking		13	30	22	32	18	16	23	30
Accounting		20	42	54	57	34	34	57	93
Management Information Systems		42	93	126	142	126	92	86	74
Engineering, Manufacturing, and Construction									13
Engineering and Applied Engineering									13
Telecommunications Engineering									13

Source: PA Ministry of Higher Education

Table A2: Number of Graduates by Specialization-Arab American University of Jenin

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Arab-American University of Jenin		156	406	569	552	497	414	414	490
Health and Social Services		18	58	95	123	141	130	56	139
Health		18	58	95	123	141	130	56	139
Medical Imaging							12		22
Nursing									15
Physical Therapy		8	15	31	32	41	30	16	25
Occupational Therapy		6	12	24	24	17	8	7	13
Medical Laboratory Sciences		4	15	15	34	39	35	33	16
Oral Surgery and Dentistry			16	25	33	44	45		48
Science		22	120	151	146	120	66		64
Computer and Information Technology		22	120	151	146	120	66		64
Telecommunications			26	34	42	46	12		1
Accounting Information Systems			67	97	82	56	39		37
Multi Media									12
Computer Science		22	27	20	22	18	15		14
Social Science, Business, and Law		116	228	323	283	236	218	358	274
Business and Management		116	228	323	283	236	218	358	274
Business Administration		29	31	29	17	17	29	33	36
Health Information Systems		2	9	23	15	10	13	7	8
Marketing		10	23	25	20	31	32	22	33
Finance and Banking				44			2	130	
Finance and Banking		13	30	22	32	18	16	23	30
Accounting		20	42	54	57	34	34	57	93
Management Information Systems		42	93	126	142	126	92	86	74
Engineering, Manufacturing, and Construction									13
Engineering and Applied Engineering									13
Telecommunications Engineering									13

Source: PA Ministry of Higher Education



Table A3: Number of Graduates by Specialization-Al Quds University (Abu Dis)

	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012
Al Quds University		314	211	446	448	565	565	637	632
Human Studies and Arts		5	4		20	21	23	24	18
Arts		5	4		20	21	23	24	18
Fine Arts		5	4		20	21	23	24	18
Health and Social Services		174	78	238	219	283	277	344	364
Health		174	78	238	219	283	277	344	364
Medical Imaging			2	29		10	22	31	39
Nursing		28	22	40	33	25	38	41	54
Public Health		53							9
Pharmacology					29	44	43	42	20
Dermatology		47		35	47	86	52	71	62
Pathology		29	33	73	55	34	50	66	64
Physical Therapy		17	21	17	25	21	18	27	32
Medical Laboratory Sciences								1	
Oral Surgery and Dentistry				44	30	63	54	65	84
Science		74	71	81	81	70	69	78	78
Computer and Information Technology		74	71	81	81	70	69	78	78
Education of Technology								13	
Information Technology				12	23	38			3
Information Technology-Management Information Systems							18	21	15
Information Technology-Networks and Communications							16	11	17
Computer Science		74	71	69	58	32	35	33	43
Social Sciences, Business, & Law			5	64	54	111	103	105	103
Business and Management			5	64	54	111	103	105	103
Business Administration				64	31	67	75	70	63
Electronic Advertising			5						
Marketing						2			
Finance and Banking						3	4	3	2
Accounting					22	39	24	32	38
Marketing					1				
Engineering, Manufacturing, and Construction		61	53	63	74	80	93	86	69
Manufacturing and Industrial Processes		7	4	7	16	22	22	37	28
Food Manufacturing		7	4	7	16	22	22	19	18
Materials Engineering								18	10
Engineering and Applied Engineering		54	49	56	58	58	71	49	41
Electronic Engineering		40	37	16	17	18	32	28	12
Computer Engineering		14	12	40	41	40	39	21	29

Source: PA Ministry of Higher Education

Table A4: Number of Graduates by Specialization-An-Najah National University

	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012
An Najah National University	906	781	839	884	1122	1150	1240	1554	1684
Human Sciences and Arts	80	22	78	74	107	113	89	133	113
Arts	80	22	78	74	107	113	89	133	113
Graphic Design	44						23	38	34
Photography	20	14	16	16	27	20	9	19	14
Interior Design			50	48	62	89	50	67	55
Music	16	8	12	10	18	4	7	9	10
Health and Social Services	118	85	96	97	123	176	187	273	316
Health	118	85	96	97	123	176	187	273	316
Ophthalmology						12	13	28	25
Pathology	22	12	29	19	17	44	18	58	86
Nursing						26	38	31	41
Pharmacology	96	73	67	78	106		95	125	138
Dermatology						94	23	31	26
Science	39		44	77	143	128	133	141	138
Computer and Information Technology	39		44	77	143	128	133	141	138
Management Information Systems			29	47	41	36	23	33	45
Accounting Information Systems					55	53	58	60	57
Computer Science	39		15	30	47	39	52	48	36
Social Sciences, Business & Law	466	453	338	327	388	341	419	533	547
Business and Management	466	453	338	327	388	341	419	533	547
Business Administration-Minor Accounting				1					
Business Administration	103	94	96	95	112	76	88	153	162
Marketing	115	87	62	50	63	57	72	116	117
Finance and Banking	119	135	88	53	68	84	136	125	117
Accounting	129	137	92	128	145	124	123	139	151
Engineering, Manufacturing, and Construction	203	221	283	309	361	392	412	474	570
Manufacturing and Manufacturing Industries	28	31	28	22	32	36	44	69	64
Industrial Engineering	28	31	28	22	32	36	44	69	64
Architecture and Construction	115	110	140	156	178	185	178	213	292
Civil Engineering	79	85	97	90	87	95	108	108	200
Architectural Engineering	36	25	43	38	37	39	22	47	35
Construction				28	54	51	48	58	57
Engineering and Applied Engineering	60	80	115	131	151	171	190	192	214
Electrical Engineering	43	45	55	47	51	66	80	74	76
Chemical Engineering	17	13	17	17	22	24	32	30	33
Mechanical Engineering				17	25	35	38	43	59
Urban Planning		1							
Computer Engineering		21	43	50	53	46	40	45	46

Source: PA Ministry of Higher Education

Table A5: Number of Graduates by Specialization-Palestinian Polytechnic University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Palestinian Polytechnic University	154	227	264	305	342	352	380	338	433
Science	24	73	86	96	125	97	129	128	130
Computer and Information Technology	24	73	86	96	125	97	129	128	130
Multimedia/Graphics				12	28	15	30	26	27
Information Technology		41	46	58	53	50	57	47	51
Computer Science			2	4	19	9	16	13	24
Information Technology	24	32	38	22	25	23	26	42	28
Social Sciences, Business, and Law	12	21	37	40	32	30	45	46	70
Business and Management	12	21	37	40	32	30	45	46	70
Modern Business Administration	12	21	37	40	32	30	45	46	70
Engineering, Manufacturing, and Construction	118	133	141	169	185	225	206	164	233
Architecture and Construction	41	53	50	57	82	122	91	81	111
Civil Engineering			50			17			
Civil Engineering-Minor Building Engineering	28	33		37	47	38	45	30	51
Civil Engineering-Minor Surveying and Geomatics	13	20		20	35	30	16	19	19
Architectural Engineering						37	30	32	41
Engineering and Applied Engineering	77	80	91	112	103	103	115	83	122
Electrical Engineering			68			1			
Mechanical Engineering			23						
Electrical Engineering-Minor Telecommunications Engineering								23	49
Electrical Engineering-Minor Automated Systems Engineering	16	15		12	12	20	19	4	6
Electrical Engineering-Minor Health Systems Engineering	12	8		9	15	12	13	4	13
Electrical Engineering-Minor Computer Systems Engineering	30	31		48	40	28	32	9	21
Mechanical Engineering-Minor Heating and Air Conditioning Engineering					9	22	14	9	14
Mechanical Engineering-Minor Automotive Engineering	6	9		12	11	11	20	21	10
Mechanical Engineering-Minor Mechatronics	13	17		31	16	9	17	13	9

Source: PA Ministry of Higher Education

Table A6: Number of Graduates by Specialization-Bethlehem University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Bethlehem University	139	130	131	124	129	157	182	183	236
Health and Social Services	36	24	32	41	35	43	69	49	89
Health	36	24	32	41	35	43	69	49	89
Nursing	25	23	23	19	22	32	30	43	34
Physical Therapy	10	1		22	1		26	1	25
Occupational Therapy			9		12	11	13		
Occupational Therapy	1							5	17
Midwifery									13
Science					25	36	29	36	26
Computer and Information Technology					25	36	29	36	26
Computer Information Systems					25	36	29	36	26
Social Sciences, Business, and Law	103	106	99	83	69	78	84	98	121
Business and Management	103	106	99	83	69	78	84	98	121
Business Administration	51	47	47	31	27	37	30	43	52
Accounting	52	59	52	52	42	41	54	55	69

Source: PA Ministry of Higher Education

Table A7: Number of Graduates by Specialization-Birzeit University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Birzeit University	417	401	479	519	611	671	661	739	778
Health and Social Services			5						17
Health			5						17
Dietetics and Nutrition									17
Environmental and Social Health			5						
Science	35	40	25	33	30	36	22	21	33
Computer and Information Technology	35	40	25	33	30	36	22	21	33
Information Technology-General						4			
Computer Science	35	40	25	33	30	32	22	21	33
Social Sciences, Business, and Law	232	223	265	317	382	409	414	497	520
Business and Management	232	223	265	317	382	409	414	497	520
Business Administration	76	95	63	150	184	136	114	155	107
Business Economics								3	11
Public Administration						31	48	67	66
Marketing								11	25
Public Relations			18						
Finance and Banking	72	53	76	72	87	110	130	136	143
Accounting	84	75	108	95	111	132	122	125	168
Engineering, Manufacturing, and Construction	150	138	184	169	199	226	225	221	208
Architecture and Construction	86	84	106	88	106	100	97	105	95
Civil Engineering	61	55	64	47	69	64	62	65	58
Architectural Engineering	25	29	42	41	37	36	32	35	27
Urban Planning							3	5	10
Engineering and Applied Engineering	64	54	78	81	93	126	128	116	113
Electrical Engineering	38	37	58	35	44	49	45	34	39
Mechanical Engineering	26	17	20	16	19	27	39	37	36
Computer Systems Engineering					30				
Computer Systems Engineering				30		50	44	45	38

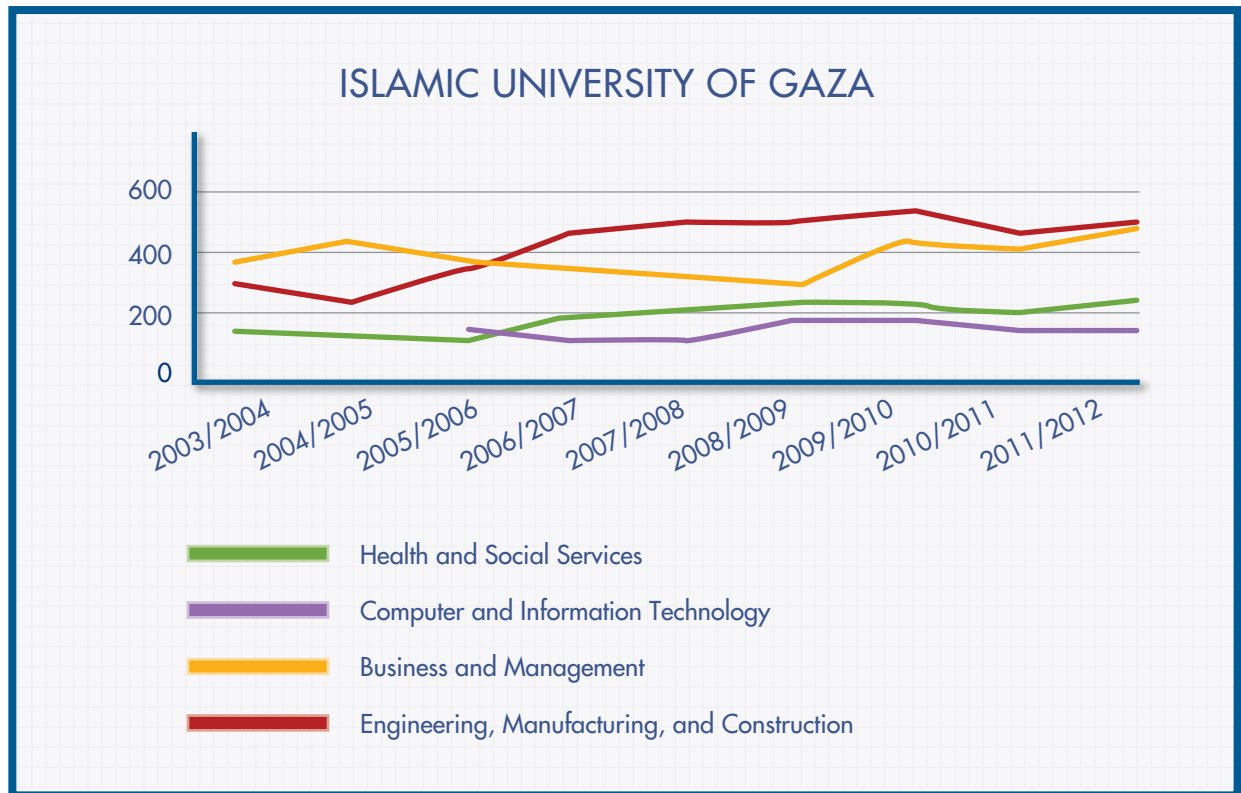
Source: PA Ministry of Higher Education

Table A8: Number of Graduates by Specialization-Al-Azhar University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Al-Azhar University	497	291	296	542	561	608	554	601	646
Health and Social Services	147	35	123	242	219	310	269	323	262
Health	147	35	123	242	219	310	269	323	262
Diagnostic and Therapeutic Radiology	28	13	16	39	35	38	40	51	40
Pharmacology	69		58	131	112	179	139	167	131
Laboratory Medicine	26	5	17		28	39	44	62	57
Physical Therapy	24	17	32	49	44	54	46	43	34
Medical Laboratory Sciences				23					
Science	74	49	44	98	89	126	41	29	25
Computer and Information Technology	74	49	44	98	89	126	41	29	25
Business Information Systems				29	42				
Computer Science	74	49	30	69		5	1		1
Computer Science			5		47	42	40	17	11
Information Technology			9			40		12	13
Program Engineering						39			
Social Science, Business, and Law	265	198	123	182	215	165	164	193	284
Business and Management	265	198	123	182	215	165	164	193	284
Business Administration-English							5	32	43
Business Administration	105	54	49	91	115	74	65	52	90
Accounting	160	144	74	91	100	91	81	83	117
Accounting-English							13	26	34
Engineering, Manufacturing, and Construction	11	9	6	20	38	7	80	56	75
Manufacturing and Industrial Processes	11		6	8	5	7	2	15	15
Food Manufacturing	11		6	8	5	7	2	15	15
Engineering and Applied Engineering		9		12	33		78	41	60
Mechanical Engineering		9							
Mechatronics							24	8	11
Computer Systems Engineering				12	33		54	33	49

Source: PA Ministry of Higher Education

Figure A1: Number of Graduates by Field of Study–Islamic University of Gaza



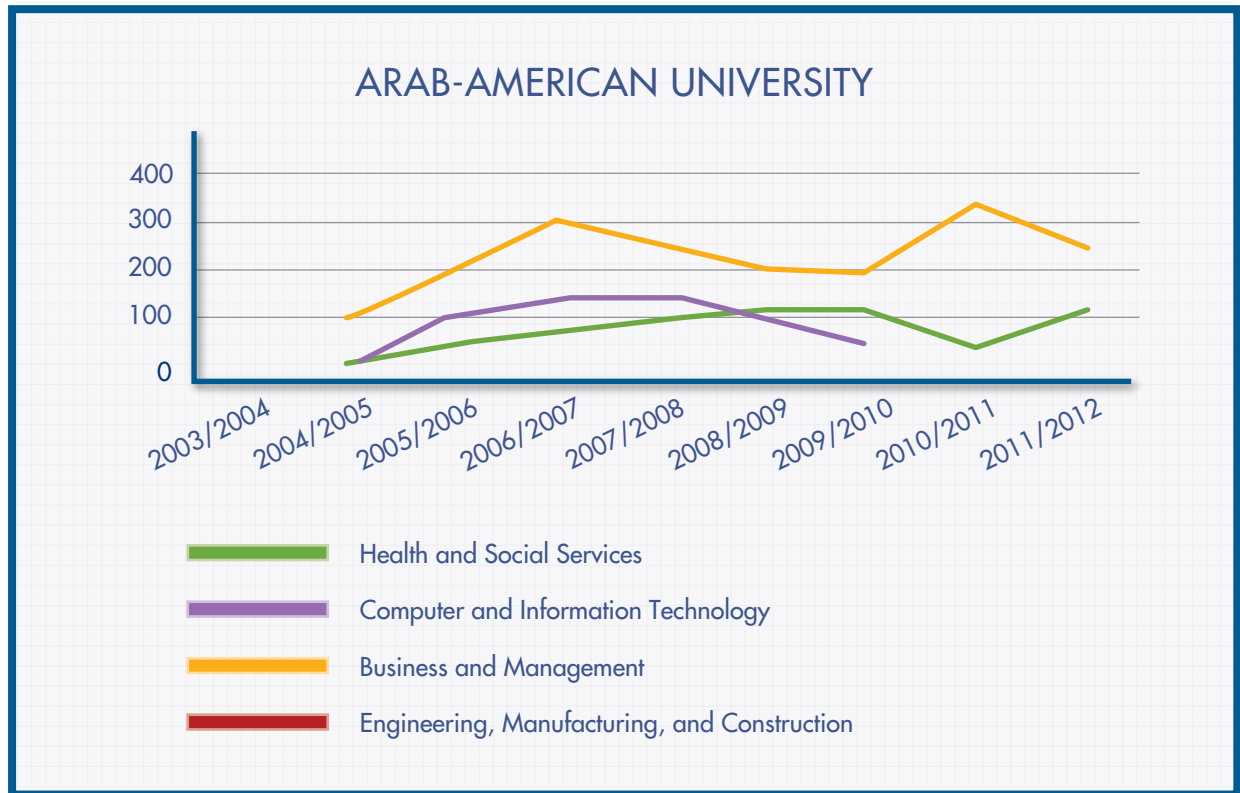
Source: PA Ministry of Higher Education

Table A9: Number of Graduates by Field of Study–Islamic University of Gaza

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Islamic University of Gaza	640	624	726	904	955	1,001	1,145	1,014	1,183
Health and Social Services	71	58	52	127	150	164	167	145	186
Computer and Information Technology			75	41	55	116	110	76	88
Business and Management	323	376	320	314	289	253	376	374	443
Engineering, Manufacturing, and Construction	246	190	279	422	461	468	492	419	466

Source: PA Ministry of Higher Education

Figure A2: Number of Graduates by Field of Arab-American University-Jenin



Source: PA Ministry of Higher Education

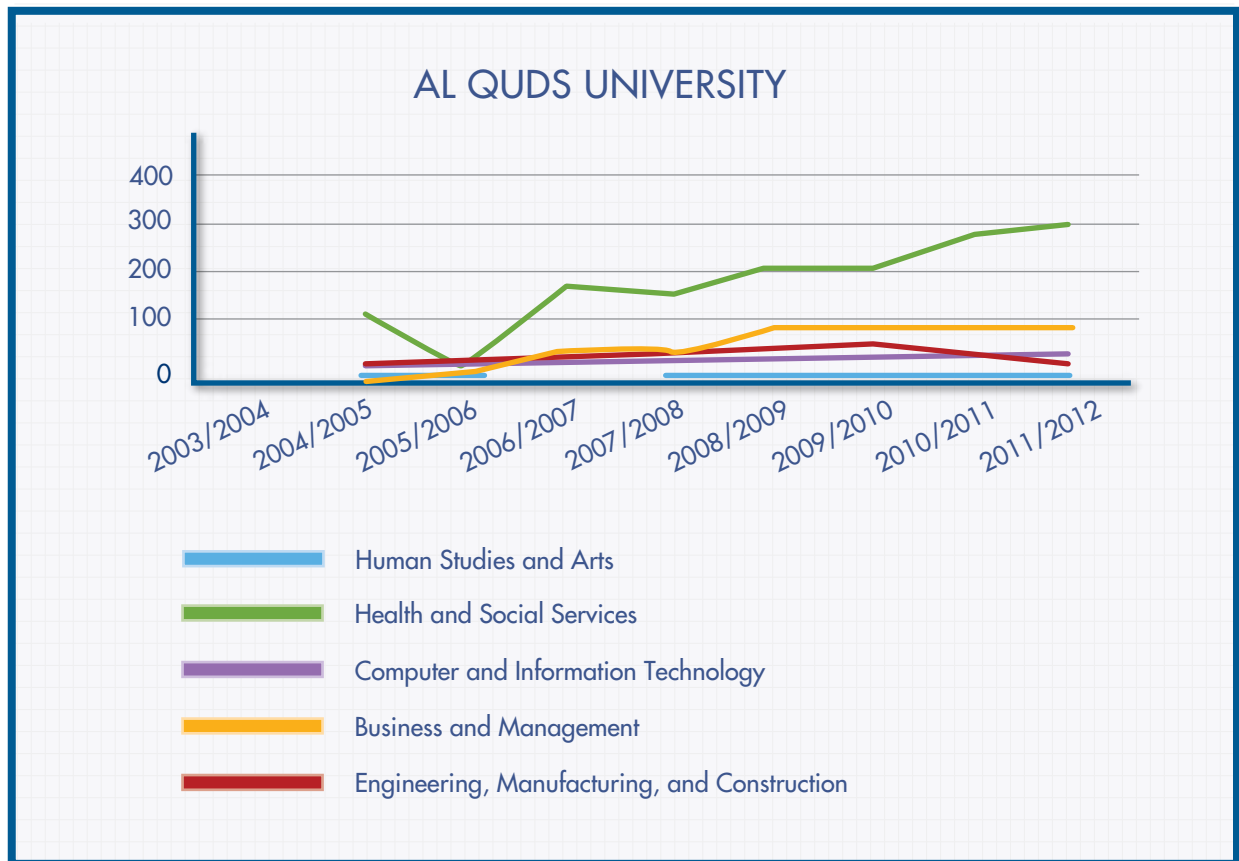
Table A10: Number of Graduates by Field of Study-Arab-American University - Jenin

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Arab-American University		156	406	569	552	497	414	414	490
Health and Social Services		18	58	95	123	141	130	56	139
Computer and Information Technology		22	120	151	146	120	66		64
Business and Management		116	228	323	283	236	218	358	274
Engineering, Manufacturing, and Construction									13

Source: PA Ministry of Higher Education



Figure A3: Number of Graduates by Field of Al-Quds University (Abu Dis)



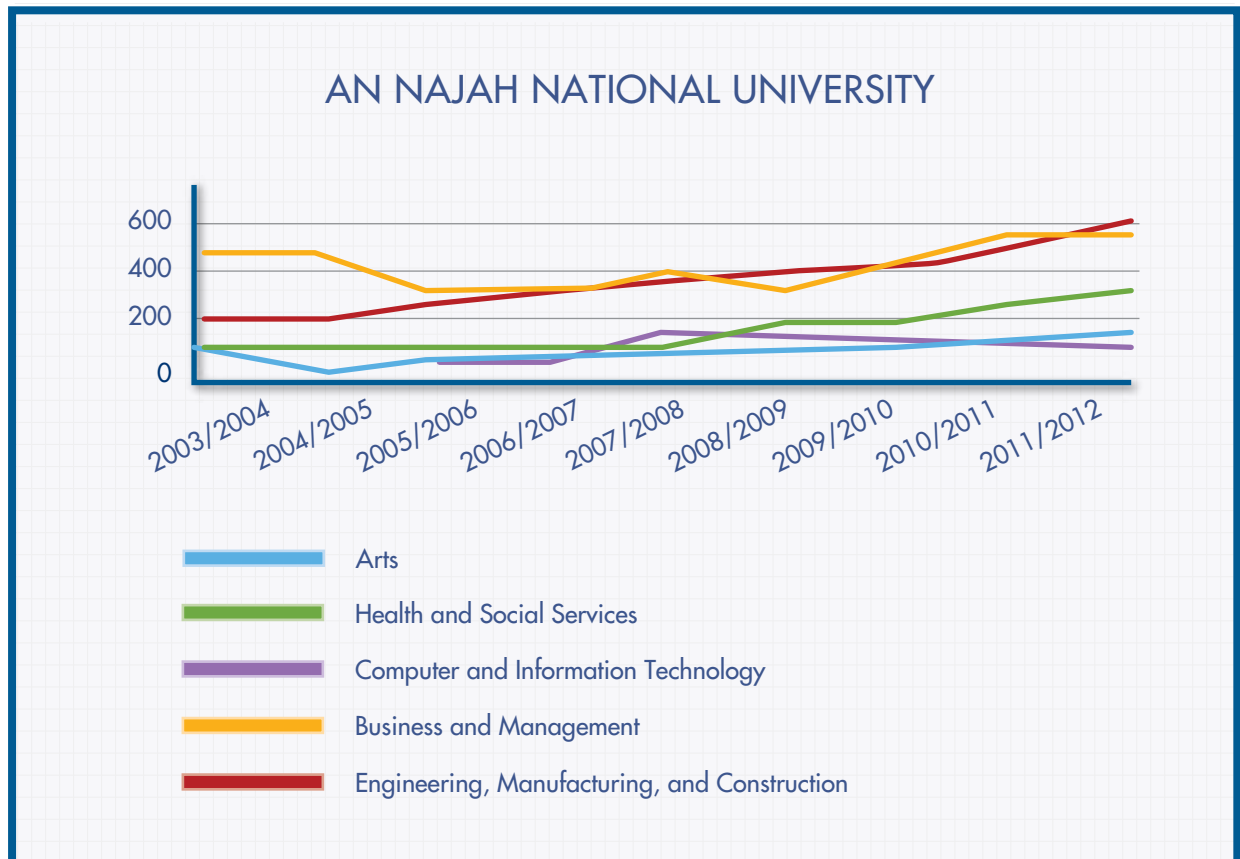
Source: PA Ministry of Higher Education

Table A11: Number of Graduates by Field of Al-Quds University (Abu Dis)

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Al Quds University		314	211	446	448	565	565	637	632
Human Studies and Arts		5	4		20	21	23	24	18
Health and Social Services		174	78	238	219	283	277	344	364
Computer and Information Technology		74	71	81	81	70	69	78	78
Business and Management			5	64	54	111	103	105	103
Engineering, Manufacturing, and Construction		61	53	63	74	80	93	86	69
Engineering and Applied Engineering		54	49	56	58	58	71	49	41

Source: PA Ministry of Higher Education

Figure A4: Number of Graduates by Field of An-Najah National University



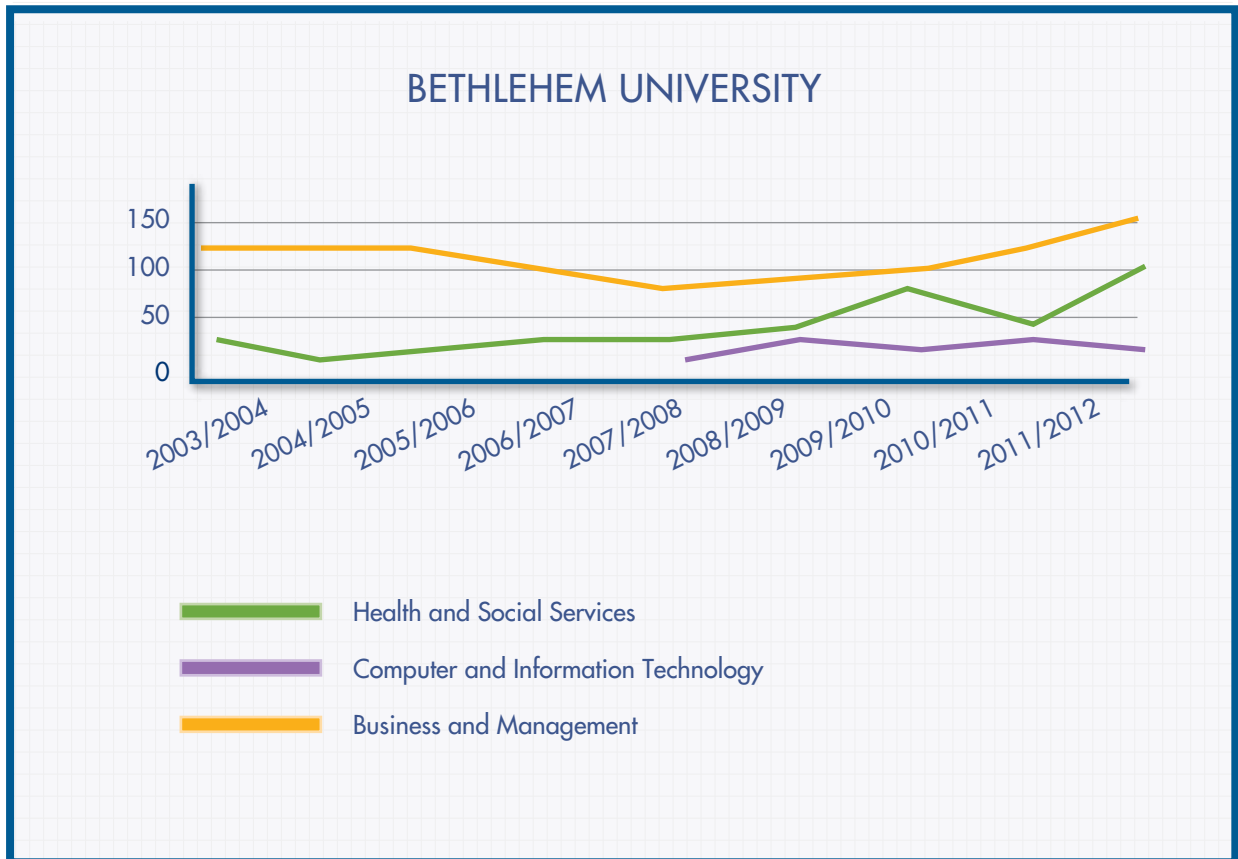
Source: PA Ministry of Higher Education

Table A12: Number of Graduates by Field of An-Najah National University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
An Najah National University	906	781	839	884	1122	1150	1240	1554	1684
Arts	80	22	78	74	107	113	89	133	113
Health and Social Services	118	85	96	97	123	176	187	273	316
Computer and Information Technology	39		44	77	143	128	133	141	138
Business and Management	466	453	338	327	388	341	419	533	547
Engineering, Manufacturing, and Construction	203	221	283	309	361	392	412	474	570

Source: PA Ministry of Higher Education

Figure A5: Number of Graduates by Field of Bethlehem University



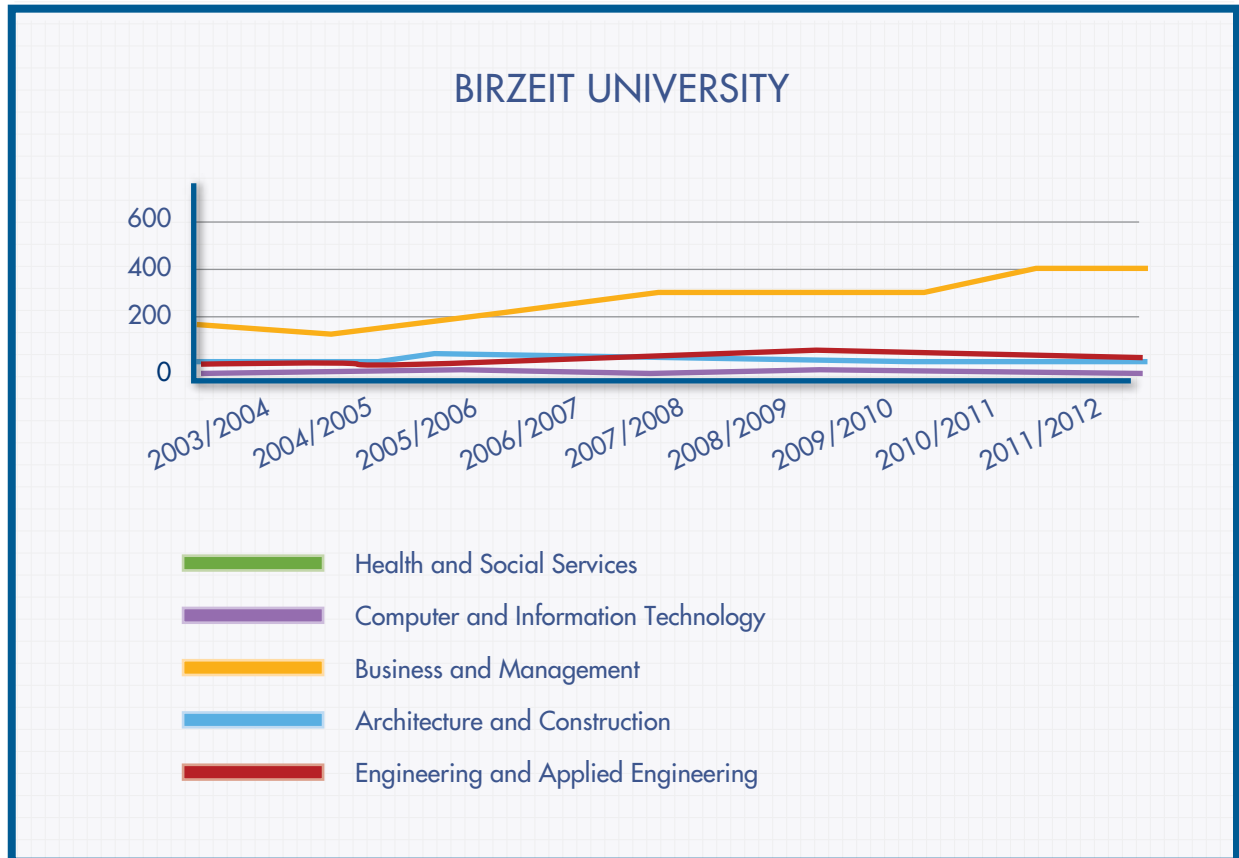
Source: PA Ministry of Higher Education

Table A13: Number of Graduates by Field of Bethlehem University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Bethlehem University	139	130	131	124	129	157	182	183	236
Health and Social Services	36	24	32	41	35	43	69	49	89
Computer and Information Technology					25	36	29	36	26
Business and Management	103	106	99	83	69	78	84	98	121

Source: PA Ministry of Higher Education

Figure A6: Number of Graduates by Field of Birzeit University



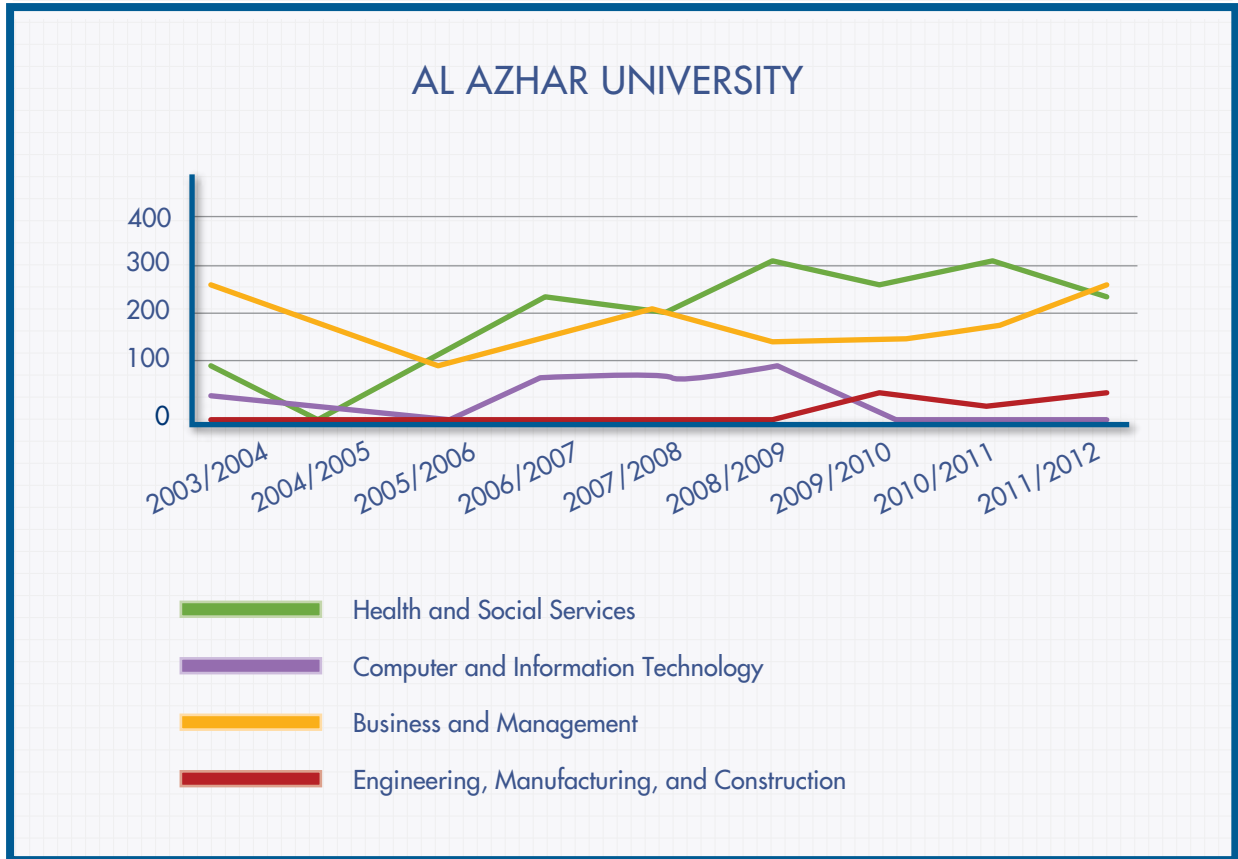
Source: PA Ministry of Higher Education

Table A14: Number of Graduates by Field of Birzeit University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Birzeit University	417	401	479	519	611	671	661	739	778
Health and Social Services			5						17
Computer and Information Technology	35	40	25	33	30	36	22	21	33
Business and Management	232	223	265	317	382	409	414	497	520
Architecture and Construction	86	84	106	88	106	100	97	105	95
Engineering and Applied Engineering	64	54	78	81	93	126	128	116	113

Source: PA Ministry of Higher Education

Figure A7: Number of Graduates by Field of Al-Azhar University



Source: PA Ministry of Higher Education

Table A15: Number of Graduates by Field of Al-Azhar University

	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
Al Azhar University	497	291	296	542	561	608	554	601	646
Health and Social Services	147	35	123	242	219	310	269	323	262
Computer and Information Technology	74	49	44	98	89	126	41	29	25
Business and Management	265	198	123	182	215	165	164	193	284
Engineering, Manufacturing, and Construction	11	9	6	20	38	7	80	56	75

Source: PA Ministry of Higher Education

## Annex 2:

Table A16: Healthcare employees in Palestine

	WB	GS	Total	Jordan	Egypt	UK	Canada
Physicians	1.8	2.6	2.1	2.0	0.5	2.3	2.1
Dentists	0.6	0.5	0.5	1.3	0.1	1.1	0.6
Pharmacists	1.0	1.1	1.0	3.1	0.1	4.5	0.7
Nurses	1.0	2.9	1.7	3.0	2.0	12.2	10.0
Midwives	NA	NA	0.1	0.3	0.1	0.6	NA
Paramedics	3.0	2.2	2.7	1.2	0.1	2.8	NA
Administrative	1.7	2.3	1.9	3.2	0.1	21.2	NA

Source: Giacaman, et al (2009)

Engineering Association:

- Number of engineers registered with the association according to their speciality:

Education Level	Percentage
Bachelor's	78%
Master's	20%
PhD	2%
<b>Total</b>	<b>100%</b>

	Monthly Salary
Less than 320 JD	8%
420 JD	6%
520 JD	4%
620 JD	6%
720 JD	9%
820 JD	7%
920 JD	6%
1020 JD	8%
1120 JD	8%
More than 1200 JD	21%
Not Specified	17%
<b>Total</b>	<b>100%</b>

Employment Sector	
Engineering & Consulting Firms	20%
Contracting Firms	8%
Industrial Firms	4%
Commercial Firms	2%
Education & Schools	2%
Universities	8%
Public Sector	13%
Related Free Lance Activities	2%
Unrelated Free Lance Activities	2%
NGOs	7%
Municipalities	5%
Other	10%
Unemployed	17%
<b>Total</b>	<b>100%</b>

Specialization	
Electrical Engineering	31%
Mechanical Engineering	15%
Civil Engineering	32%
Architecture	18%
Chemical Engineering	4%
<b>Total</b>	<b>100%</b>

- Members of the association according to the place of graduation: 90% local universities, 7% Arab world universities, 2% European universities, and 1% American universities;
- There are no accurate numbers or percentages regarding the distribution of members in different sectors, 850 civil engineer work in the public sector;
- Average starting salary for all majors is about 420 JD;
- The period before obtaining an employment varies. Architectures are the luckiest as they find jobs immediately after graduation, civil engineers wait up to 18 months, and other majors (mechanical and electrical) wait no less than 3 years;

- How do you think funding should be directed (0 least important – 5 most important):

Major	Importance in funding
Civil engineering	4
Architecture Engineering	1
Mechanical	2
Electrical	2
Chemical	0
Petroleum Engineering	0
Electronic	1
Computer Engineering	1
Telecommunication	0
Electromechanical	3



Table A17: List of Stakeholder Interviews

	Organization	Sector	Focus	Interviewee(s)	Position/Title
1	Wataniya Mobile	Private	Telecommunications	Rami Hasan	HR-Recruitment
2	Birzeit University Ethnographic Museum	Semi-Public	Fine Arts/Culture	Tamara Mushasha, Baha Juba	Projects Coordinator
3	HSBC	Private	Banking	Maram Abu Ein	HR Manager
4	Al Bireh Municipality	Public	Local Government	Mohammad Shaltaf	Head of Administration
5	Ramallah Municipality	Public	Local Government	Maha Shehadah	PR Director
6	Ramallah Cultural Palace	Public	Fine Arts/Culture	Fatin Farhat	Director
7	Palestine Education for Employment	NGO	Employment/Research	Saro Nakashian, Darine Zeidan	General Director, Projects Director
8	Ougarit	Private	Advertising/Media	Amal Masri	CEO
9	International Relief Development	NGO	Infrastructure	Naem Mani, Dr. Ihab Barghouthi	Country Director, Chief of Party
10	National Insurance Company	Private	Insurance	Khalil Khoury	Business Development Manager
11	Abdul Muhsin Al Qattan Organization	NGO	Fine Arts/Culture	Bashar Idkadik	Finance Director
12	Nasher for Advertising and Public Relations	Private	Advertising/Media	Jack Rabah, Manal Alami	Business Development Manager, Marketing Coordinator
13	Al Masrouji Holding Company	Private	Medical/Trading	Nisreen Masrouji	Administrative Director
14	Trade Union of Engineers	Semi-Public	Union	Nidal Dallal, Mohammad Zubaidi	Head of Union
15	Popular Arts Center	Semi-Public	Fine Arts/Culture	Khalid Qattamish	Director
16	BCI	Private	Telecommunications	Issa Sayegh	Sales Director
17	Birzeit University Faculty of Nursing and Allied Health Sciences	Semi-Public	Education/Healthcare	Dr. Tamer Issawi, Dr. Mohammad Farraj	Dean, Head of Master's Program
18	Palestinian Ministry of Labor-Department of Employment Services	Public	Government	Mohammad Al Araj	Director
19	Edward Said Music Conservatory	Semi-Public	Fine Arts/Culture	Mohammad Maragha	Project Coordinator
20	Al Mustaqbal Hospital	Private	Healthcare	Dr. Husni Attari	Board Member
21	Unipal Trading Company	Private	Trading	Aya Mtair	HR
22	Mada Internet Service Provider	Private	Telecommunications	Mohammad Zuraib	Marketing Director
23	Annajah National University Faculty of Fine Arts	Education	Fine Arts/Culture	Dr. Hassan Ne'rat	Dean
24	Birzeit University Faculty of Engineering	Education	Engineering	Dr. Afif Hasan	Dean
25	Birzeit University Master's of Business Administration	Education	Business	Dr. Grace Khoury	Program Director
26	Iconnect	Private	Information Technology	Feras Nasr	President

## Stakeholder Interviews' Conclusions

1. Among certain agencies operating in the public and private sectors, a stated need for engineers specializing in environmental and health fields, industrial, and mechanical was overwhelming.
2. The civil or mechanical engineers who were being trained or had applied were not equipped with the practical knowledge needed for the organization they were working for, and required an extended training period, in some cases up to six months, only for the mere purpose of being acclimated to the nature of the work.
3. Business majors, even in some cases those with master's degrees, were not up to date on the current trends affecting the sector or that seemed to be influential. This was stated for engineering and IT as well.
4. There were no actuarial science specialists in the financial sector that were based locally. In terms of insurance companies, or even banks, actuarial sciences become critical to evaluating policies, pricing strategies, and forecasting trends for various groups.
5. There was a lack of Geographical Information Specialists (GIS) regarding some of the public sector entities. Although there are GIS officers currently employed by mostly NGOs, both locally based and foreign based, these specialists would greatly assist in the planning for cities and towns.
6. There were no entry level positions able to absorb fresh graduates or even plot a course for any sort of a career path within a given organization or field of expertise.
7. Firms or entities typically engaged fresh graduates in training programs ranging from three to six months.
8. A lack of English language skills.
9. A lack of infrastructure across many fields to foster innovation and creativity, often impeding tangible progress.
10. The most successful graduates, tended to have stronger personalities, were more self-assured, and were willing to put in their respective dues. This actually was identified according to secondary school, more so than in college or type of program.
11. A need to undergo exchange programs in order to expose the graduates to success stories outside of Palestine to be used as a model for success.
12. No real or tangible support for the fine arts.

13. Not enough true specialists in fields such as art history, anthropology, and so on. Even with the specialists currently present, there are very limited vehicles or mechanisms through which work can be done through.
14. Lack of awareness in the fields and faulty expectations regarding the work environment was present across all sectors. This even flowed back to the university and secondary educational experience of the graduates. A fundamental lack of advisory often allowed a major or specialty to be chosen by default, and not resulting from the interests or skills possessed by the student.
15. Not enough flexibility among graduates, especially those from local universities, regarding job descriptions, and potential to try different jobs outside their given specialty, which can stem from the fundamental lack of soft skills or self-assuredness.
16. The need for more engagement between local universities and the various public and private entities in order to offer a balanced approach in educating Palestinian youth. This may result from a lack of viable training opportunities available to local youth, and where outside universities may provide their graduates with a tactical advantage in procuring employment opportunities.
17. Healthcare institutions are in dire need of solutions in management related fields, as well as IT in order to provide a more streamlined process for administrative control and informational purposes.
18. The fine arts sector, with particular emphasis on cultural institutions stated a need for people specializing in the management of libraries and museums.

## Annex 3:

### Other Scholarship Funds in Palestine

There are a certain number of scholarships offered to Palestinians every year. Of those scholarships, institutions offering them have certain objectives or aims to promote cooperative efforts with their respective institutions, home countries (if not Palestinian based), or supporting certain specializations. The following institutions have been selected for the purpose of comparing the stipulations, criteria, and degree offerings with those of the HQSF:

The Lajee Center (Aida Refugee Camp)  
The German Academic Exchange Service (DAAD)  
The Karim Rida Said Foundation  
A. M. Qattan Foundation  
America-Mideast Educational and Training Services, Inc. (AMIDEAST)

#### The Lajee Center

The Lajee Center offers scholarships to residents of the Aida refugee camp located just outside the city of Jericho. This program is designed to provide financial assistance to those students studying in Palestinian universities in exchange for service or community work for the Lajee Center, usually activities such as teaching English courses or other fields such as math and science. The value of the program revolves around the principle of social responsibility, as the criteria stipulate that a grantee must perform some acts of community service for the benefit of the Lajee Center.

#### The German Academic Exchange Service (DAAD)

The German Academic Exchange Service (DAAD) started operations in 1925 and has offered scholarships to over 1.5 million students. The offered degree programs range from Bachelor's in fields such as translation to Master's degrees in various engineering specialties such as renewable energy, public policy, and IT, in addition to PhD scholarships for German universities focusing on fields such as IT among others.

## The Karim Rida Said Foundation

The Karim Rida Said Foundation is an initiative that addresses Master's degree earning programs in education and development, child development, and Arab culture that seeks to impact not only the grantees, but the communities from which they come. Selection criteria include scholastic aptitude, financial need, and market need for the specialization. These programs are intended for candidates in the Middle East, in particular, Syria, Lebanon, Jordan, Iraq, and Palestine, in addition to UK candidates.

## Abdul Mohsin Al-Qattan Foundation (AMAQF)

The Abdul Mohsin Al-Qattan Foundation began operations in 1993 and offers financial assistance to Palestinians seeking Bachelor's or Master's degrees in various fields, including fine arts, in fields such as music, dance, theater, and other performing arts. Also, the AMAQF has joint programs with the HQSF for providing teachers with the means to further develop existing skills to be more impactful in the classroom.

## American-Mideast Educational and Training Services, Inc. (AMIDEAST)

The American-Mideast Educational and Training Services, Inc. provides a variety of services to those seeking educational and employment opportunities. The scholarship programs available to Palestinians include the Diana Kamal Scholarship Search Fund which offers undergraduate degrees to Palestinians in US universities and the Fulbright Foreign Student Program which is dedicated to graduate and post graduate work with successful candidates returning to their home countries to transfer the knowledge attained.

Table A18: Selected Scholarship Programs Available to Palestinians

Name of scholarship	Degree	Fields of study	Place of study/university	Number of scholarships guaranteed	Requirements
Lajee Center	a. Bachelor's		-Bethlehem -Birzeit - Al Quds (Abu Dis) -Jerusalem Open University system	21	-For Aida refugee camp -Only applicable for those studying in Palestine - Participation in voluntary work at Lajee Center
DAAD	a. Master's	Female: Engineering, sciences  Male: Nursing, basic medical sciences, pharmacy	Jordan (Third Country)		-min. grade 80% - TOEFL paper-based 500/ computer-based 173/ internet-based 61/ IELTS Test Band 5 or above required)
	b. Master's	International degree programs	Germany		-same as the above -should apply to an International degree course in Germany -should pass an interview
	c. PhD				- Palestinians with B.A./B. Sc and M.A./M. Sc from any university, present in Palestine at the time of application and preferably teaching at one of the Palestinian universities. -application not later than 6 years after the last degree earned - Formal acceptance by a German professor for Ph.D.-Studies
The Karim Rida Said Foundation	Graduates only		UK (Oxford and Cambridge)		-Proficiency in English -Students should be from Palestine, Syria, Jordan, or Lebanon -Successful applicants sign a contract to get back to their country -Priority given to those who have work experience -Tofel/ielts - Have a 2-year experience
A.M. Qattan Foundation	a. Bachelor's	Fine Arts	UK, Palestine		Interview
	b. Master's	Fine Arts	UK		Interview
AMIDEAST	a. Diana Kamal Scholarship Search Fund (DKSSF).			8 students were granted in 2012	Interview
	b. American-Palestinian Local University Scholarships	Any 4-year degree program- Bachelor	Palestine	51 (from 2009 most probably)	-expected to receive more than 85% in tawjihi

Source: MAS Research Team Desk Research

Table A19: Graduate Degree Universities and Majors

University	Country	Grant Period	Field
Bath University	United Kingdom	2009 - 2010	MBA
1			
Columbia University	USA	2008 - 2009	Fine Arts
1			
Concordia University	Canada	2003 - 2004	Engineering
Concordia University	Canada	2003 - 2004	Engineering
Concordia University	Canada	2004 - 2005	Engineering
Concordia University	Canada	2005 - 2006	Engineering
Concordia University	Canada	2009 - 2010	Engineering
Concordia University	Canada	2002 - 2003	Engineering
Concordia University	Canada	2002 - 2003	Engineering
7			
Imperial College London	United Kingdom	2010 - 2011	Engineering
Imperial College London	United Kingdom	2009 - 2010	Engineering
Imperial College London	United Kingdom	2004 - 2005	Engineering
Imperial College London	United Kingdom	2005 - 2006	IT
Imperial College London	United Kingdom	2005 - 2006	Engineering
Imperial College London	United Kingdom	2005 - 2006	Engineering
Imperial College London	United Kingdom	2005 - 2006	Engineering
7			
MIT	USA	2009 - 2010	Engineering
1			
The University of Birmingham	United Kingdom	2008 - 2009	Engineering
The University of Birmingham	United Kingdom	2006 - 2007	Engineering
The University of Birmingham	United Kingdom	2004 - 2005	Engineering
The University of Birmingham	United Kingdom	2006 - 2007	Engineering
The University of Birmingham	United Kingdom	2007 - 2008	Engineering
The University of Birmingham	United Kingdom	2002 - 2003	Engineering
The University of Birmingham	United Kingdom	2003 - 2004	IT
7			
The University of Kent at Canterbury	United Kingdom	2003 - 2004	IT
The University of Kent at Canterbury	United Kingdom	2002 - 2003	IT
The University of Kent at Canterbury	United Kingdom	2004 - 2005	IT
3			
The University of Manchester	United Kingdom	2008 - 2009	Engineering
The University of Manchester	United Kingdom	2003 - 2004	Engineering
The University of Manchester	United Kingdom	2003 - 2004	Engineering
The University of Manchester	United Kingdom	2006 - 2007	IT
The University of Manchester	United Kingdom	2007 - 2008	IT
The University of Manchester	United Kingdom	2011 - 2012	MBA
The University of Manchester	United Kingdom	2007 - 2008	IT
7			

University	Country	Grant Period	Field
The University of Nottingham	United Kingdom	2003 - 2004	Engineering
The University of Nottingham	United Kingdom	2008 - 2009	Engineering
The University of Nottingham	United Kingdom	2005 - 2006	Engineering
The University of Nottingham	United Kingdom	2005 - 2006	Engineering
The University of Nottingham	United Kingdom	2011 - 2012	Engineering
The University of Nottingham	United Kingdom	2006 - 2007	Engineering
The University of Nottingham	United Kingdom	2002 - 2003	Engineering
The University of Nottingham	United Kingdom	2004 - 2005	Engineering
The University of Nottingham	United Kingdom	2007 - 2008	Engineering
9			
The University of York	United Kingdom	2005 - 2006	IT
1			
University of California - Los Angeles	USA	2008 - 2009	Fine Arts
1			
University of Carnegie Mellon	USA	2008 - 2009	IT
1			
University of Leeds	United Kingdom	2009 - 2010	Engineering
University of Leeds	United Kingdom	2010 - 2011	Engineering
University of Leeds	United Kingdom	2009 - 2010	Engineering
3			
University of Michigan - Ann Arbor	USA	2008 - 2009	IT
University of Michigan - Ann Arbor	USA	2004 - 2005	Engineering
2			
University of Southampton	United Kingdom	2010 - 2011	IT
University of Southampton	United Kingdom	2008 - 2009	Fine Arts
University of Southampton	United Kingdom	2006 - 2007	Engineering
University of Southampton	United Kingdom	2005 - 2006	Engineering
4			
University of Southern California	USA	2006 - 2007	IT
1			
University of Sterling	United Kingdom	2011 - 2012	MBA
1			
University of Strathclyde	United Kingdom	2011 - 2012	Engineering
1			
University of Surrey	United Kingdom	2009 - 2010	Engineering
1			
University of Toronto	Canada	2003 - 2004	Engineering
1			
University of Westminster	United Kingdom	2009 - 2010	Engineering
1			
61			

Source: HQSF Scholarship Data List



Table 20: HQSF Undergraduate Grantee Respondents

No.	Grantee Name	From	University	Grant Type	Specialization
9	Najat El Geberi	Gaza	Islamic University of Gaza	Partial Grant - One year	B.Sc. Architectural Engineering
23	Ahmed Qasem	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Engineering
36	Hussein Ghanem	Jenin	Al Najah National University	Partial Grant - Two Years	B.Sc. Computer Engineering
60	Wafaa Wafi	Gaza	Islamic University of Gaza	Partial Grant - Four Years	B.Sc. Civil Engineering
84	Ibrahim Kuhail	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Industrial Engineering
100	Mohammed Qerem	Nablus	Birzeit University	Partial Grant - One Semester	B.Sc. Computer Engineering
105	Osama Qanoo	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Computer Engineering
110	Reem Abu El Khair	Gaza	Islamic University of Gaza	Partial Grant - Two Years	B.Sc. Architectural Engineering
114	Samira Al-Ostaz	Gaza	Islamic University of Gaza	Partial Grant - Two Years	B.Sc. Architectural Engineering
117	Yousef Fares	Nablus	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
143	Madhat Salha	Gaza	Islamic University of Gaza	Full Grant - 3.5 years	B.Sc. Civil Engineering
145	Manhal Abu-Safar	Gaza	Islamic University of Gaza	Partial Grant - Four Years	B.Sc. Electrical Engineering
146	Mohab AL-Amawi	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Civil Engineering
161	Salam Turkman	Jenin	Al Najah National University	Partial Grant - One Year	B.Sc. Computer Engineering
169	Yaqoub Mansoor	Qalqilia	Birzeit University	Partial Grant - One Semester	B.Sc. Engineering
177	Ahmed Mustafa	Tulkarem	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
191	Feda Awad	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Engineering
192	Hanan Awwad	Tulkarem	Al-Quds University	Full Grant - Five Years	B.Sc. Computer Engineering
208	Mohamed Hamdan	Nablus	Al Najah National University	Full Grant - Five Years	B.Sc. Civil Engineering
214	Muhammad Qamhieh	Nablus	Al Najah National University	Partial Grant - Two Years	B.Sc. Engineering
225	Sawsan Dwiekat	Nablus	Al Najah National University	Full Grant - Four Years	B.Sc. Computer Engineering
242	Ahmad Odi	Jenin	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
244	Ahmed Salim	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Electrical Engineering
248	Ali Al Omur	Jenin	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
250	Amani Dorgham	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Information Technology (IT)

No.	Grantee Name	From	University	Grant Type	Specialization
258	Arkan Deeb	Nablus	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
268	Doa'a Nassar	Tulkarem	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
278	Hasan Al Muhtaseb	Hebron	Palestine Polytechnic University ( PPU )	Partial Grant - One Year	B.Sc. Mechanical Engineering
305	Mohammad Al Farran	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Engineering
331	Reem Abu Hadda	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Computer Engineering
334	Safa' Mayyaleh	Nablus	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
342	Sultan Nijm Al-Deen	Ramallah	Birzeit University	Partial Grant - One Semester	B.Sc. Engineering
358	Ahmed Radi Al-Shaikh Ibrahim	Jenin	Al Najah National University	Partial Grant - Four Years	B.Sc. Electrical Engineering
363	Amal Walid Herzallah	Jenin	Al Najah National University	Partial Grant - Three Years	B.Sc. Civil Engineering
365	Amjed Sameer Odeh	Gaza	Islamic University of Gaza	Partial Grant - Two Years	B.Sc. Civil Engineering
372	Ebtihal Salah Zeid	Jenin	Al Najah National University	Partial Grant - Four Years	B.Sc. Electrical Engineering
379	Hussein Muhanna Zakarnah	Jenin	Al Najah National University	Partial Grant - Two Years	B.Sc. Industrial Engineering
380	Hussein Yousef Al Najjar	Gaza	Islamic University of Gaza	Partial Grant - Four Years	B.Sc. Civil Engineering
382	Izzat Ahmad Kukhon	Nablus	Al Najah National University	Partial Grant - Four Years	B.Sc. Computer Engineering
391	Mohammad Mustafa Amarnah	Jenin	Al Najah National University	Partial Grant - Three Years	B.Sc. Civil Engineering
396	Noureddin Ibrahim Jaber	Gaza	Islamic University of Gaza	Partial Grant - Three Years	B.Sc. Computer Engineering
405	Wala Jamal Da'as	Tulkarm	Al Najah National University	Partial Grant - Three Years	B.Sc. Electrical Engineering
41	Kholoud Najjar	Hebron	Birzeit University	Partial Grant - One Year	B.Sc. Engineering
43	Mahmoud Adwan	Gaza	Islamic University of Gaza	Partial Grant - Two Years	B.Sc. Civil Engineering
76	Eman El-Shakh Khaleel	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Architectural Engineering
98	Mohammed Al Hamss	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Engineering
112	Saleh Dahman	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Engineering
116	Yazid Al-Badarin	Hebron	Al-Quds University	Partial Grant - One Year	B.Sc. Information Technology (IT)
245	Akram Haj Mansour	Jenin	Al-Quds University	Partial Grant - One Year	B.Sc. Electronic Engineering
275	Ghada Abu Awad	Nablus	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
301	Maryam Abu Etawi	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Information Technology (IT)

No.	Grantee Name	From	University	Grant Type	Specialization
303	Mohammad Taha	Qalqilya	Birzeit University	Partial Grant - One Semester	B.Sc. Engineering
348	Thaer ShaiKh Ibrahim	Jenin	Al Najah National University	Full Grant - Four Years	B.Sc. Electrical Engineering
349	Wajeha Ma'ani	Nablus	Al Najah National University	Partial Grant - One Year	B.Sc. Engineering
368	Ayah Abdel Kareem Sofan	Nablus	Al Najah National University	Partial Grant - Four Years	B.Sc. Computer Engineering
45	May Ahmed	Ramallah	Birzeit University	Partial Grant - One Year	B.Sc. Engineering
72	Amani Krunz	Ramallah	Birzeit University	Partial Grant - One Semester	B.Sc. Architectural Engineering
150	Motaz Arafa	Hebron	Palestine Polytechnic University ( PPU )	Partial Grant - One Year	B.Sc. Engineering
158	Rawand Ahmad	Gaza	Islamic University of Gaza	Partial Grant - One Year	B.Sc. Computer Engineering
165	Tamer Halaykah	Hebron	Birzeit University	Full Grant - 4.5 Years	B.Sc. Computer Engineering
203	Majdi Haj Ali	Nablus	Birzeit University	Partial Grant - One Semester	B.Sc. Engineering
359	Ala' Simon Sa'adeh	Nablus	Al Najah National University	Partial Grant - Four Years	B.Sc. Architectural Engineering
402	Saif Marwan Awwad	Nablus	Al Najah National University	Partial Grant - Three Years	B.Sc. Computer Engineering
404	Thuraya Nawaf Aghbar	Nablus	Al Najah National University	Partial Grant - Four Years	B.Sc. Electrical Engineering
410	Suad Adnan Seirafy	Nablus	Al Najah National University	Partial Grant - Three Years	B.Sc. Computer Engineering
4	Hiba Al-Ayoubi	Jerusalem	Birzeit University	Full Grant - Three Years	B.Sc. Architectural Engineering
378	Hazem Mahmoud Salouha	Gaza	Islamic University of Gaza	Partial Grant - Three Years	B.Sc. Electrical Engineering
323	Omar Qawariq	Nablus	Birzeit University	Partial Grant - One Semester	B.Sc. Computer System Engineering
124	Ahmadalawal Kashif	Nablus	Al Najah National University	Full Grant - Five Years	B.Sc. Electrical Engineering
148	Mona Qamhieh	Nablus	Al Najah National University	Partial Grant - One Year	B.Sc. Architectural Engineering

Table 21 : HQSF Graduate Grantee Respondents

No.	Grantee Name	University	Country of Study	Grant Type
1	Wesam Haboush	The University of Kent at Canterbury	United Kingdom	Full Grant - One Year
7	Wasim Zoghbi	The University of Kent at Canterbury	United Kingdom	Full Grant - One Year
8	Amer Abu Zeineh	The University of Manchester	United Kingdom	Full Grant - One Year
12	Saher Al Shakhshir	Concordia University	Canada	Partial Grant - Two Years
17	Rawya Abu Ermaileh	University of Birmingham	United Kingdom	Full Grant - One Year
19	Amer Samara	Concordia University	Canada	Partial Grant - Two Years
22	Samer Arandi	Imperial College London	United Kingdom	Full Grant - One Year
23	Mohammed Othman	Concordia University	Canada	Partial Grant - Two Years
24	Imad Eid	Imperial College London	United Kingdom	Full Grant - One Year
25	Randa Al Asmar	Imperial College London	United Kingdom	Full Grant - One Year
26	Abdel Hafiz Rabi	The University of Nottingham	United Kingdom	Partial Grant - One Year
27	Kamel Saleh	The University of Nottingham	United Kingdom	Partial Grant - One Year
29	Yacoub Sabatin	University of Manchester	United Kingdom	Full Grant - One Year
34	Mohammad Tahhan Antar	University of Birmingham	United Kingdom	Full Grant - One Year
36	Wisam Zaqoot	University of Manchester	United Kingdom	Full Grant - One Year
37	Ghada Mubarak	University of Nottingham	United Kingdom	Full Grant - One Year
43	Anjad Hithnawi	The University of Nottingham	United Kingdom	Full Grant - One Year
47	Zohair Abu Shaban	Imperial College London	United Kingdom	Full Grant - One Year
48	Mohammad Yassin	University of Leeds	United Kingdom	Full Grant - One Year
54	Lana Jodeh	University of Westminster	United Kingdom	Full Grant - One Year
55	Hamdi Mohammad Joudeh	Imperial College London	United Kingdom	Full Grant - One Year
57	Amer Omar Almani	Southampton - University	United Kingdom	Full Grant - One Year
59	Adel Adnan Al Baba	University of Strathclyde	United Kingdom	Full Grant - One Year
46	Inass Yassin	Southampton – Winchester of Art	United Kingdom	Partial Grant - One semester

Table A20: Graduate Degree Majors and Responses

	Specialization	Population	Sample perfect	Sample Actual
1	Geotechnics Engineering	1	1	1
2	Infrastructural Engineering	1	1	0
3	M.Arch. Urban Design	1	1	1
4	M.S. Information Technology	1	1	0
5	M.Sc. Civil Engineering	1	1	0
6	M.Sc. Advanced Computer Science and IT Management	1	1	0
7	M.SC. Architecture, Culture Identity and Globalization	1	1	1
8	M.Sc. Communication & Signal Processing	3	3	3
9	M.Sc. Communications Engineering	3	3	0
10	M.Sc. Computer Engineering	2	2	1
11	M.Sc. Computer Science and Engineering	1	1	0
12	M.Sc. Concrete Structures	1	1	0
13	M.Sc. Construction Management	1	1	0
14	M.Sc. Distributed Systems and Networks	2	2	1
15	M.Sc. E-Business Technology	1	1	1
16	M.Sc. Electrical and Computer Engineering	6	6	1
17	M.Sc. Electronic and Computer Engineering	1	1	0
18	M.Sc. Electronic Communications & Computer Engineering	3	3	1
19	M.Sc. Environmental Engineering and Project Management	1	1	1
20	M.Sc. Environmental Engineering	4	4	0
21	M.Sc. Environmental Strategy	1	1	0
22	M.Sc. Geotechnical Engineering	1	1	0
23	M.Sc. Informatics Systems Engineering	1	1	1
24	M.Sc. Mechanical Engineering	2	2	2
25	M.Sc. Operations Management	2	2	1
26	M.Sc. Project Management	2	2	1
27	M.Sc. Radio Frequency Communication Systems	2	2	0
28	M.Sc. Renewable Energy and Architecture	1	1	1
29	M.Sc. Road Management and Engineering	1	1	1
30	M.Sc. Software Engineering	2	2	1
31	M.Sc. Soil Mechanics & Business Management	1	1	1
32	M.Sc. Structural Engineering	1	1	0
33	M.Sc. Thermal Power and Fluids Engineering	1	1	0
34	M.Sc. Engineering in Information Systems Security	1	1	0
35	Masters of Art	3	3	1
36	MBA	2	2	0
37	M.Sc. Electrical Engineering	1	1	1
38	M.Sc. Advanced Computing	1	1	1

Source: HQSF Scholarship Data List

Table A21: Undergraduate Degree Majors and Responses

		Population	Sample - Perfect	Sample - Actual
1	B.Sc. Architectural Engineering	27	27	8
2	B.Sc. Civil Engineering	52	52	9
3	B.Sc. Computer Engineering	70	70	14
4	B.Sc. Computer Science	2	2	
5	B.Sc. Computer System Engineering	7	7	1
6	B.Sc. Electrical Engineering	62	62	9
7	B.Sc. Electronic Engineering	1	1	1
8	B.Sc. Engineering	149	149	19
9	B.Sc. Industrial Engineering	5	5	2
10	B.Sc. Information Technology (IT)	27	27	3
11	B.Sc. Mechanical Engineering	6	6	1

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