2014

New Trends in Higher Education in Jordan 2014

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Education, Economic and Development
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New trends in Higher Education in Jordan 2014

Professors, can draw on technology applications to simulate real –world environments and create actual environments for experimentation. The professors become coaches, using discussion to prompt students to explore problems, encouraging students to elaborate their thinking and listen to other points of view. Students are able to revise their concepts. The nature of the teacher – student relationship becomes co-learners; knowledge is constructed in collaboration rather than transmitted from teacher to student. Students working together, help each other to learn in a generative and cooperative environment. Computer modules engage students in navigation through concepts and instruments. Technology can draw groups of students into a richly complex setting to stimulate questions, gather information with computer resources and come out through collaborative and multidisciplinary work with answers. Blended learning and interactive approach among group of learners is a challenging pedagogy of the learning process in Jordan.

1. *Reforms in Education:*

In a K-economy policy and strategy, schooling becomes the main incubator of creativity, innovations and entrepreneurships excellence in term of quality and relevance to build the needed human capital for K-economy. Therefore Jordan reform is underway for education starting from KG until *Tawjihi* in general education. Fig. (1) shows the organizational chart of the educational system in Jordan.

Fig. 1: Education System outputs for the workforce
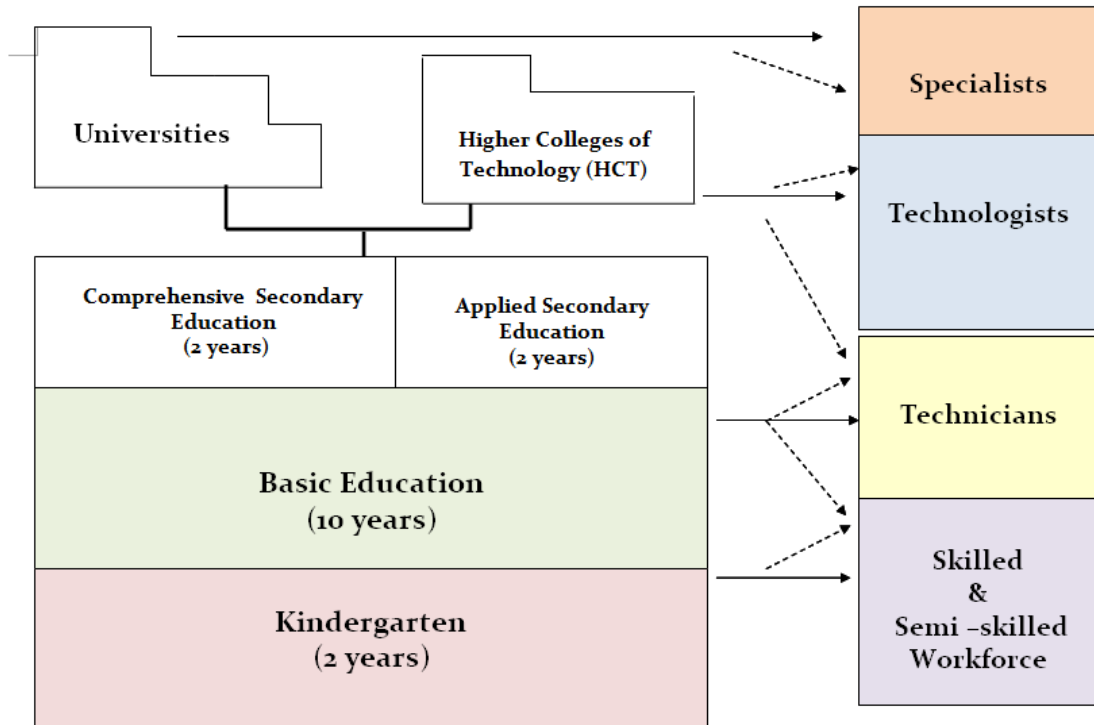
General Education schooling in Jordan is done jointly by the public and private sectors. Private sector provides enrollment for 24% of students.

Private education in Jordan has opened the educational sector to competition toward excellence among schools in teaching, curricula, learning aids, facilities and schooling activities and inducing environment for nurturing the learning process

Fig (2) shows the world average of science scores of students (TIMSS) in Jordan as compared to other countries (2007 and 2011) where Jordan came out in 2007 to be top in science learning in the Arab region again came out to be top in the Arab region after Bahrain in 2011. Also **Fig (3)** shows the average score in mathematics (2007 and 2011) where Jordan again came out to be top in the Arab region after Lebanon in 2007 and the fifth after Bahrain in 2011.   Private Education provides schooling toward the Jordan *Tawjihi*, the IGCSE, SAT and IB, certificates.

Higher Education:

All universities and community colleges are controlled by Ministry of Higher Education in Jordan and subject to the National Accreditation board according to the law.

a. **Curriculum reforms** and new instructors for a new age are in progress, where teachers are trained to become **facilitators** for the **construction of knowledge** rather than their current traditional role as transmitter of information: a role that is becoming obsolete.   Teachers have to become integrated with educational software, multimedia learning, interactive blended learning, virtual schooling and online education to stimulate the learning process. UNESCO approach to learning which lead to the four pillars of education: learning to be, to know, to do, and learning to live together.

   Although investment in general and higher education in Jordan received 9.5% GDP on the average, but it did not contribute in term of **quality and relevance** as education did contribute to the welfare of Western societies. OECD countries spend 6% of their national income (29 world richest Countries) or about $1 trillion on annual education budget (UNESCO World Science Report).

b. **Blended learning** is the approach for Jordan to reform the learning process, where IT –based learning is developed. It is student-centered learning. Data-show and power point are used widely in all classrooms, and wireless internal **smart campuses** are developing quickly in all universities.

c. **E-learning and e-library** are well- developed, IPADs are envisaged to all students in the near future at the university, to replace hard cover text-books and references, and provide links to professors, library-network and other networks on the internet, for interactive learning.

d. Curriculum reform is needed with full participation of policy planners, teachers and civil society to determine what education at various stages should deliver. **Modular education** is a suitable formula to respond to challenges of the future, and accommodate individual differences. In addition, **bridges** should be built between modules to allow **flexibility and mobility** according to **emerging trends**, and **market forces**.

e. **Multimedia software** is becoming creative and it is possible for users to navigate in a broad spectrum of topics as well as in depth into these topics. The possibilities which computers offer as a tool to help students to learn, to **construct knowledge** and to comprehend, constitute a true revolution of the learning process and an opportunity to transform schools. Teachers become **facilitators** for the **knowledge construction**.

2. Challenges ahead:

We are just about entering an era of fast-moving **knowledge-driven** information technologies and networks which have the potential change of every classroom practice. The impact of the use of computers and communication technology will not be limited to the learning process (teachers and students), but will change the whole institutional infrastructure and pattern of behavior within the education system. We are passing through a transformation era in building human capital unparalleled in human history. Education faces the daunting challenges of **preparing individuals for the information – age society:**
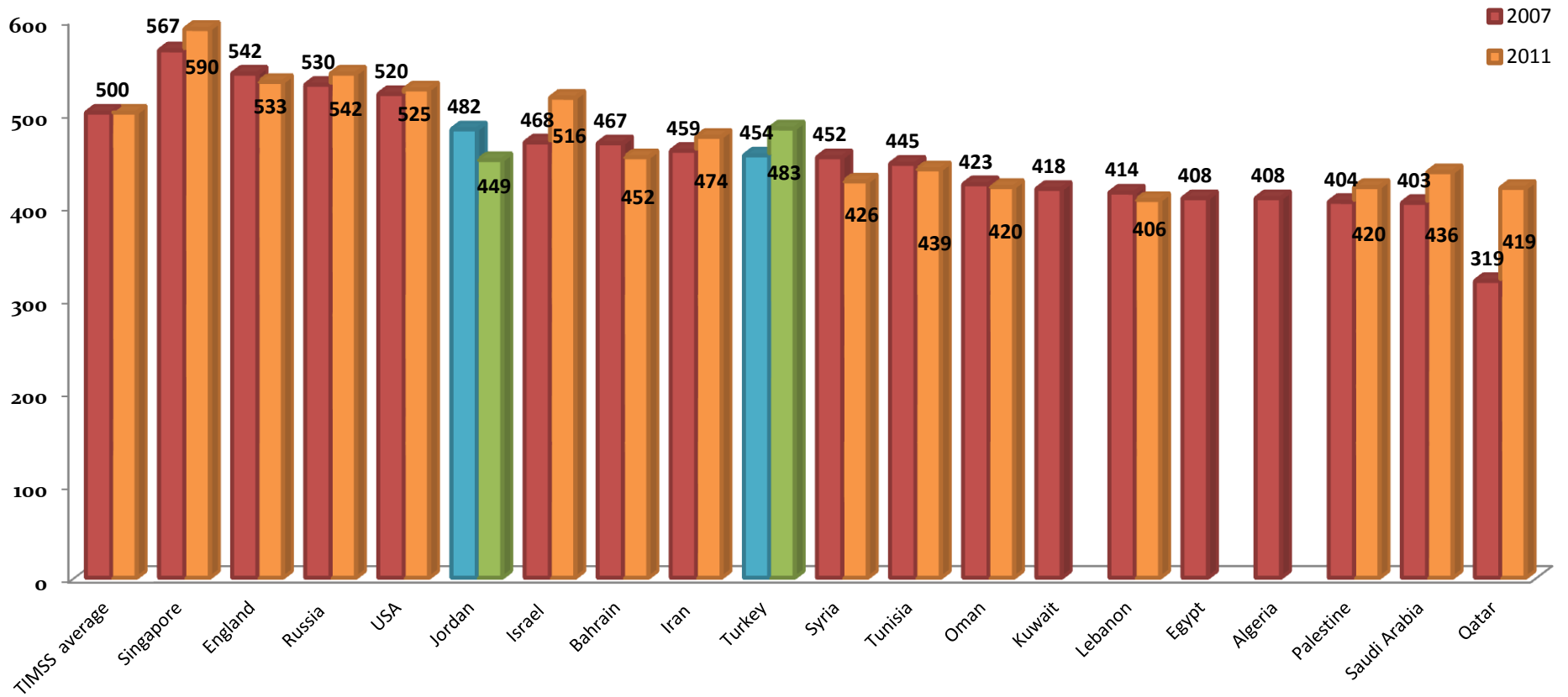
- How to manage an avalanche of information.
- How to prepare the most efficient human capital for the brain-intensive market-place.
- How to prepare flexible human resources to meet the uncertainties of a global economy.
- How to innovate to keep up with a high-speed, knowledge-driven, competitive economy at the workplace.

In addition, education has:

To respond to social needs to "rights to education".
- To "education for all".
- To limited resources (physical and financial).
- To development of citizenship.
- And to maintaining ethical and cultural value systems.
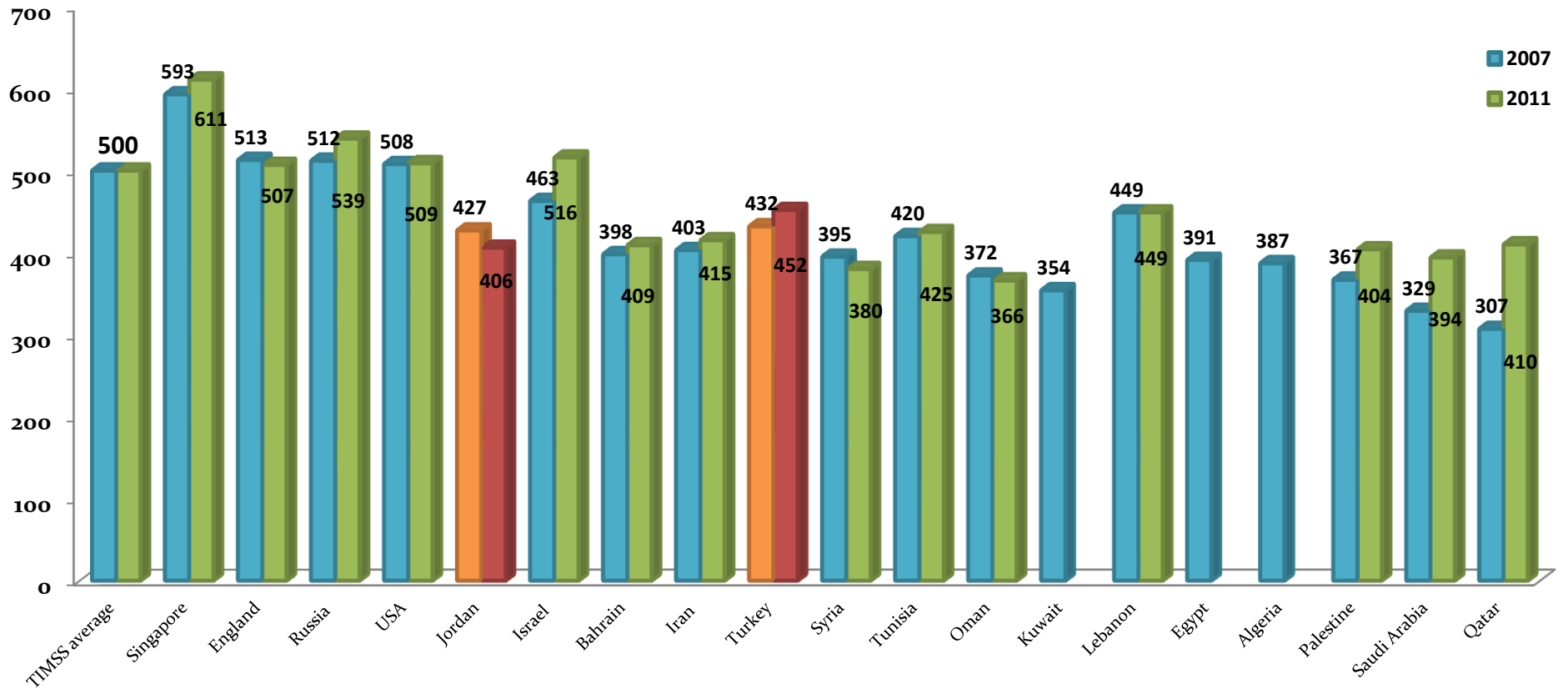
Languages, science & mathematics have to be taught at early childhood to build the microchip of the brain as "acquiring" and not "learning". The old concept of "we're over-loading the poor child" is no longer valid. Injecting technology to make the educational model more efficient equitable and cost-effective, for strengthening "mode of inquiry" and "problem –solving".

Fig. 2: Average science scores of eighth-grade students, by country (2007-2011)[1]

Legend: 2007, 2011

Country	2007	2011
TIMSS average	500	500
Singapore	567	590
England	542	533
Russia	530	542
USA	520	525
Jordan	482	449
Israel	468	516
Bahrain	467	452
Iran	459	474
Turkey	454	483
Syria	452	426
Tunisia	445	439
Oman	423	420
Kuwait	418	
Lebanon	414	406
Egypt	408	
Algeria	408	
Palestine	404	420
Saudi Arabia	403	436
Qatar	319	419

Fig. 3: Average mathematics scores of eighth-grade students, by country (2007-2011)[2]

3. Quality Assurance:

Jordan has started a standard system for accreditation and quality assurance. There are six pillars: teaching, learning-assessment, student achievement, student support and guidance, learning resources, and quality management. Basic criteria are in place with each university responsible for its own standards. Until now, no comprehensive assessment mechanism exists. On a pilot basis, ten Jordanian universities have participated in an evaluation of their overall procedures and capabilities. Based on the results, students will be able to make the right choices regarding to which university to apply, and businesses can then decide from which universities to recruit their future employees. I hope we can develop a system in the future whereby public funding will not be available to those not meeting standards. In Jordan, private universities are subject to such regulations, but public institutions are not.

It is extremely important that we examine the quality of our education when we talk about the marketplace, the knowledge bank, and a brain-intensive economy. Higher education in the Arab region has lagged behind in meeting marketplace demand for certain skills. We have to be competitive because we are speaking of intellectual capital. If we do not deliver quality outputs then we will certainly fail to meet the challenges of globalization and a market – oriented economy.

We must produce graduates who are competitive on a global scale. Businesses are looking for the best graduates, regardless of nationality. Graduates must be prepared for problem-solving and creativity. However, our graduates lack innovation, entrepreneurship, and creativity. We have witnessed significant expansion in terms of quantity. At the same time, we are still in the "skeletal" stages of higher education; only 5% of these millions of undergraduates go on to master's and Ph.D. degrees.

Teachers are merely disseminators of knowledge; they lack motivation for interactive learning, life-long education, self-assessment, and quality control. Traditional teaching and memorization is still popular, with heavy teaching loads and large numbers of students in each classroom. Very few opportunities for real interaction or innovation exist. A lack of case studies and on-the-job training in the Arab region is also a problem. Information is scarce. We must reevaluate our criteria and shift tracks if we are to achieve our potential.

The Quality Assurance and Accreditation system in Jordan evolved as a result of a rapid expansion in the higher education sector:

- **The Accreditation Council:** was established in 1990 to:
  - ❖ Formulate criteria for public and private universities
  - ❖ Establish quality assurance measures
  - ❖ Establish monitoring system to ensure compliance to criteria

The Higher Education Accreditation Commission (HEAC): was established in 2007

- To replace the AC (Accreditation Council), and was granted administrative and financial autonomy
- Its mandate includes overseeing the development and maintenance of quality in higher education institutions in Jordan.
- Runs the National Center for Testing, which establish and conduct tests in all specializations.

Higher Education Accreditation Council (HEAC)

- **Vision:**
  To raise the standard of specializations and faculty members in Jordanian higher education institutions to internationally recognized standards.

- **Aims**:
  ❖ Establishing benchmarks for quality assurance and accreditation in the country
  ❖ Monitoring and ensuring adherence to quality assurance and accreditation procedures in universities.
  ❖ Encouraging Jordanian higher education institutions to cooperate with international research centers and accreditation and quality control commissions.

HEAC's Three-Pronged Focus

1. **Accreditation:**
   ❖ Universities
   ❖ Community Colleges
   ❖ Joint Programs

2. **Quality Assurance**:
   ❖ Institutions
   ❖ Programs

3. **National Testing Center:**
   ❖ Assessments and testing services
   ❖ Consultative services

- Ad Hoc Committee was established in 2011 for establishing the **Ranking System of universities for Jordan,** based on 6 aspects:
  1. Faculty
  2. Research Outputs
  3. Students
  4. Facilities
  5. Finance
  6. University Programs.

Quality Assurance Standards in Jordan: managed by HEAC and centered around:

1. Vision, Mission, Objectives, and Planning.
2. Educational Programs and their Effectiveness.
3. Students and Student Support Services.
4. Faculty Members.
5. Scholarships, Research, & Creativity.
6. Library and Information Resources
7. Governance and Administration.
8. Financial Resources.
9. Physical Resources.
10. Institutional Integrity.
11. Community Engagement.
12. Quality Assurance Management.

4. *Responding to and creating the Marketplace*:

There is no doubt that higher education has to respond to:

- Quality of delivery.
- Relevance to market needs.
- Creating a new market space.

Higher education should ignite entrepreneurship and creativity toward emerging new spaces of science and technology. Although we have succeeded to a certain degree in delivery of graduates in various disciplines that we have saturated the marketplace in many areas of medical, engineering, technological, business and management skills, but we have failed in delivery of R&D output to innovate and create new spaces of start-up businesses, new products, new technological services, and we still in Jordan consume technologies imported from the outside world **(fig. 4)**

Training for alignment with the marketplace

To overcome unemployment among graduates **(fig. 5)**, the public and private sectors in Jordan have started a retraining-continuing education for restructuring qualifications of the unemployed university graduates to new interrelated or interdisciplinary skills for requalification and retraining in new-tasks emerged in the workforces. This was established jointly by ministry of labor and the private sector.

Hands-on evening postgraduate courses for realignment with emerging trends in the market are envisaged by some universities toward a higher one year diploma.

Table (1) shows the working force in Jordan public sector, while Table (2) Shows the working force in Jordan private sector.

We should bear in mind here, that the marketplace in the higher education sector is not limited to Jordan, but graduates in larger numbers now compete for the regional and global markets. Remittances from Jordanian university graduates working abroad exceed 3 billion dollars per year in hard currency. There are plan to develop the Human capital remittances to a target of $5 billion by 2015[3].

Fig. 4: Distribution of employees in Jordan age 15⁺
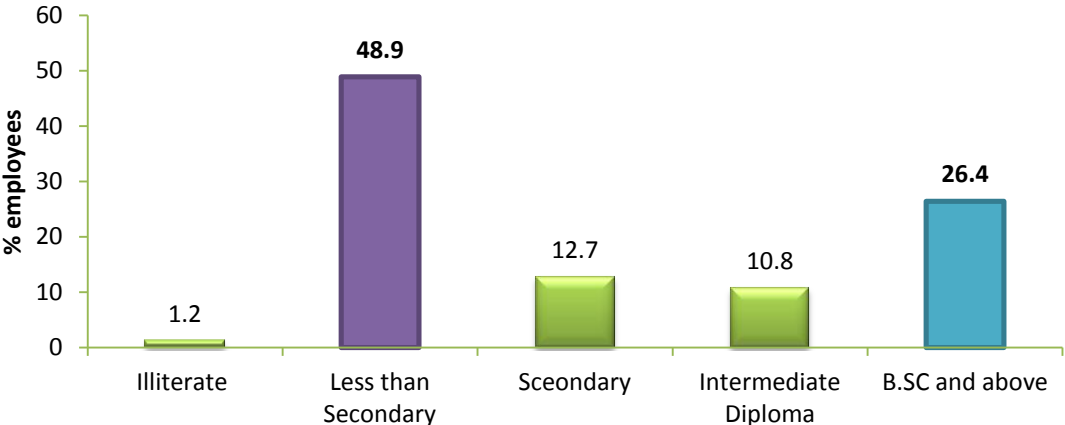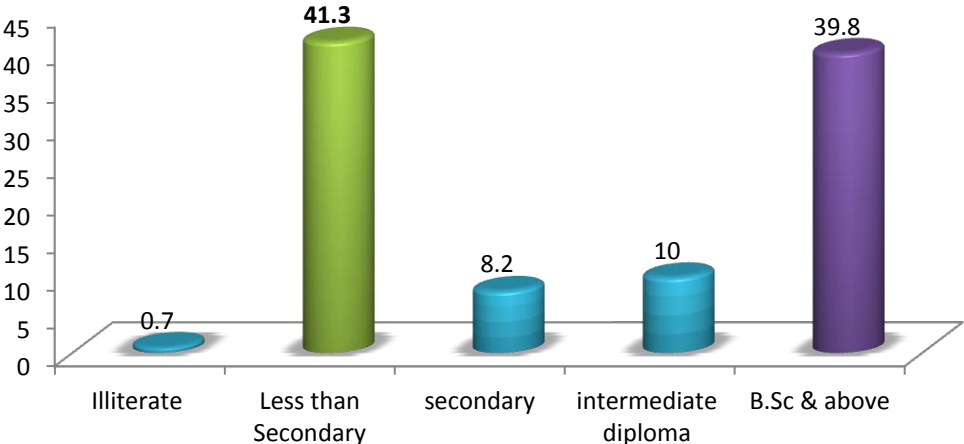*Years by educational level 2013*

Fig. 5: Distributions of unemployed in Jordan age 15⁺
by educational level 2013

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[3] *Department of Statistics, Jordan Statistical Yearbook, 2013*

Table (1) [4]

*Number of Employees in the **Public Sector** Establishments by Major Occupation Groups & Nationality, 2010-2012*

Major Occupation Groups	2010			2012		
	Non-Jordanian	Jordanian	Total Employees	Non-Jordanian	Jordanian	Total Employees
Legislators, Senior Officials & managers	12	10307	10319	7	12762	12769
Professionals	241	136868	137109	233	154750	154983
Technicians & associate professionals	93	37866	37959	82	34625	34707
Clerks	88	36638	36726	104	36368	36472
Service Workers & shop market Sales workers	311	15994	16305	312	13833	14145
Craft & related Trade Workers	121	12122	12243	132	11991	12123
Plant & Machine Operators & assemblers	633	18450	19083	471	15660	16131
Elementary Occupations	3152	33244	36396	2589	38436	41025
TOTAL	**4651**	**301489**	**306140**	**3930**	**318425**	**322355**

Table (2)

*Number of Employees in the **Private Sector** Establishments by Major Occupation Groups & Nationality, 2010-2012*

Major Occupation Groups	2010			2012		
	Non-Jordanian	Jordanian	Total Employees	Non-Jordanian	Jordanian	Total Employees
Legislators, Senior Officials & managers	907	32560	33467	1362	37043	38405
Professionals	2935	101039	103974	2001	120080	122081
Technicians & associate professionals	817	44153	44970	1716	54168	55884
Clerks	1769	47431	49200	1968	50427	52395
Service Workers & shop market Sales workers	16733	149789	166522	13504	158154	171658
Craft & related Trade Workers	30595	86990	117585	24029	94044	118073
Plant & Machine Operators & assemblers	31730	53261	84991	28795	59376	88171
Elementary Occupations	31587	39277	70864	31704	40515	72219
TOTAL	**117073**	**554500**	**671573**	**105079**	**613807**	**718886**

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[4] *Source: Department of Statistics /Employment Survey 2012+2013*

Strategy of Higher Education in Jordan:

Ministry of higher education has adopted a strategy of seven pillars

1. **University governance and management**
   University autonomy, EMIS, leadership, management of human and financial resources, feasibility and economy of quality teaching and research.

2. **Admission Policy**
   Merits, intellectual, competition-based.

3. **Accreditation and quality assurance**
   Norms and standards, quality of delivery, quality of staff, reform of academic programs.

4. **R&D and graduate studies**
   Funding R&D, inducive environment. R&D-linked to development priorities. Create R&D culture. Bridging with industry and users.

5. **Technical & Technological higher education**
   Reforms toward technological colleges. Expanding HCTs. Programmed training, create technical and technological culture.

6. **Financing higher education:**
   R&D Trust fund, students fund to support needy students, university trust fund, government support of students fund.

7. **University environment for human development:**
   - Extra curriculum activity in cultural and social student clubs.
   - Integrating students in physical art and cultural activities on the campus.
   - Interacting with community.
   - Provide excellent services to students.
   - Guidance and orientation.

Students Enrollment in Higher Education in Jordan:

In Jordan, there is a partnership in providing higher education by both the public and private sectors. Higher Education institutions are spread through the demography and geography of Jordan **Fig. 6**.

The total student enrollment in higher education is **310,606** students in community colleges and universities. There are **29 public community colleges** and **21 private community colleges that** is a total of **50 community colleges.** Number of students enrolled in public colleges is **28265**, while number of students enrolled in private colleges is **14191**. So total number of students enrolled in all community colleges is **42,456** as shown in table (3) and fig. (7).

There are **10 public universities** of **201,495 students** enrollment, and **18 private universities** of **66,655 students** enrollment, that is a total of **28 universities** of total enrollment **268,150 students** (higher diplomas, BScs, Master and Ph.Ds.) So total enrollment in both public & private higher education is **310, 606 students**.

Fig. 6: Geographical Distribution of Universities in Jordan[5]
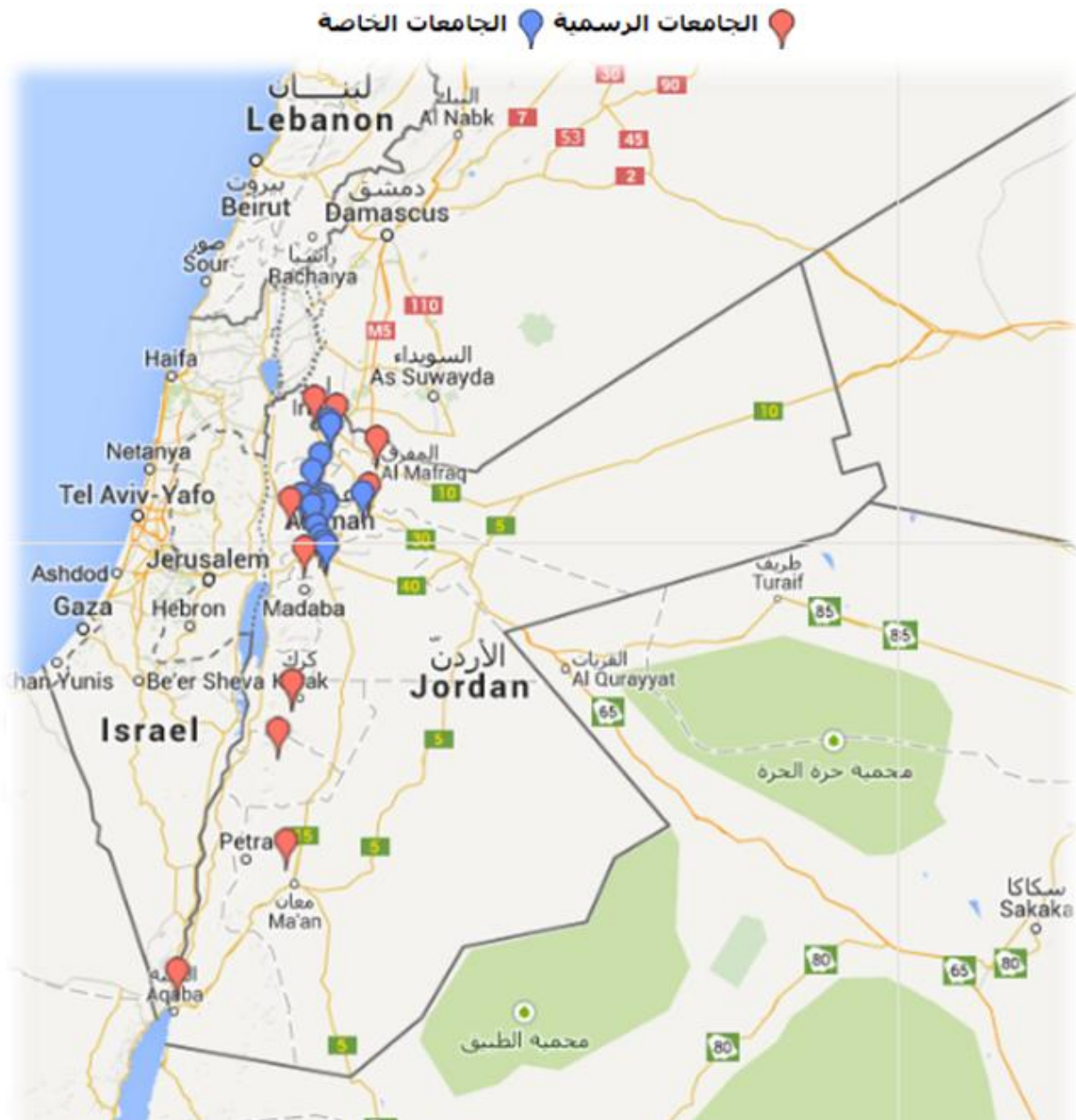
[5] *Source: Ministry of Higher Education and Scientific Research in Jordan website.*

Table (3) [6]

Students enrolled in Higher Education (Public & Private) in Jordan 2012/2013

	No. of Community Colleges	No. of students enrolled in community colleges	No. of Universities	No. of students enrolled in Universities
Public Sector	29	28265	10	201,495
Private Sector	21	14191	18	66,655
Total	50	42,456	28	268,150

Total no. of students in higher education: *310,606 students*

Fig. (7)
Total Number of Students enrolled in Higher Education (Public & Private sectors) in Jordan 2012/2013

■ No. of Students enrolled in colleges   ■ No. of Students enrolled in univ

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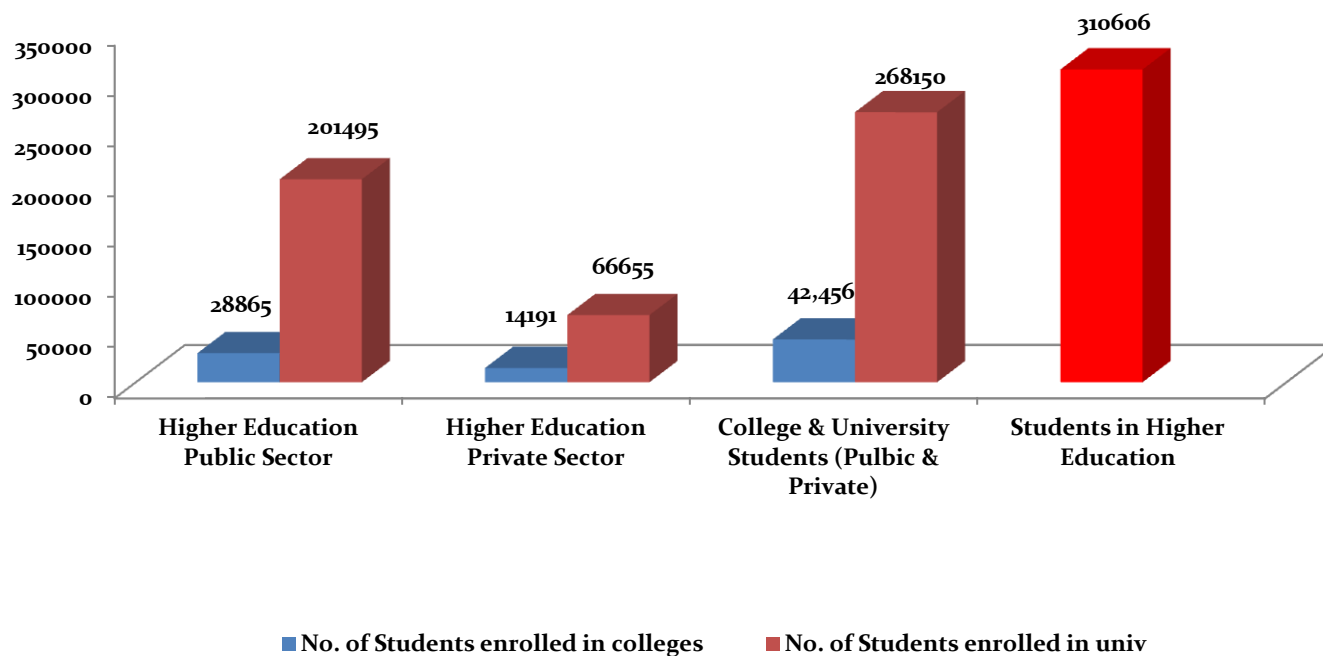
[6] *Source: Ministry of Higher Education & Scientific Research statistics 2012/2013*

Fig. (8) [7] shows the total number of students enrolled in public universities **201,495**. There are ten public universities distributed in various regions of Jordan, Northern, Middle and Southern regions. University of Jordan is the 1st university established in Amman 1962 and now has **37,980** students, while Jordanian-German university was established recently in 2004 and accommodate **2,990** students.

Fig. 8: Students enrolled in Public Universities in Jordan for the academic years (2011/2012 & 2012/2013)

	الألمانية GJU	الطفيلة TTU	الحسين HTU	آل البيت ABU	مؤتة MU	العلوم والتكنولوجيا JUST	الهاشمية HU	البلقاء BAU	اليرموك YU	الأردنية JU
2011/2012	2156	5117	7249	11263	15957	18069	19503	31038	32305	34859
2012/2013	2990	6211	2506	14954	18519	23203	27048	33360	35029	37980

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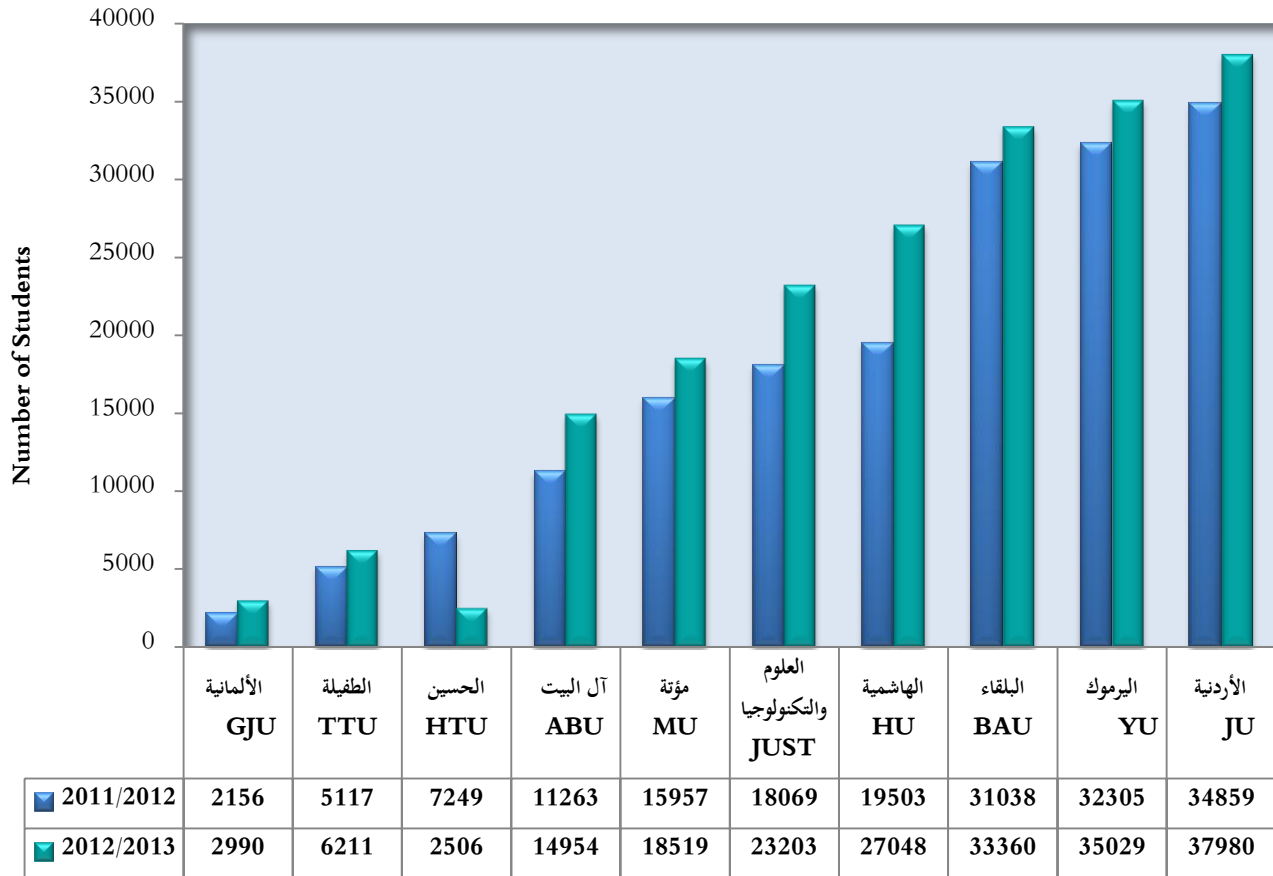
[7] *Source: Ministry of Higher Education & Scientific Research statistics 2012/2013*

Fig. (9) shows the total number enrolled in graduate studies at public universities in High Diploma 14%, MA\M.Sc. 71%, and Ph.D. 14%. Here we can see that master program of graduate studies is attracting the highest number due to the demand of the expanded private sector particularly MBAs in business, marketing, banking, etc....

Fig. (9)[8]

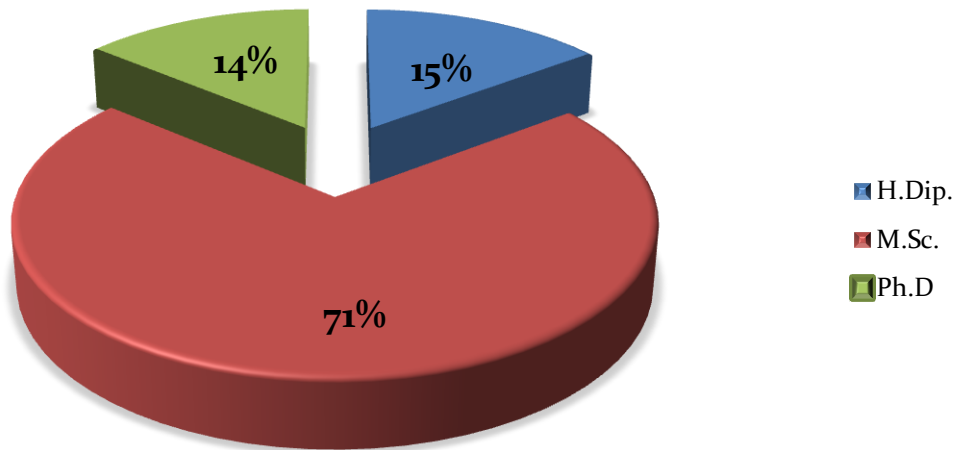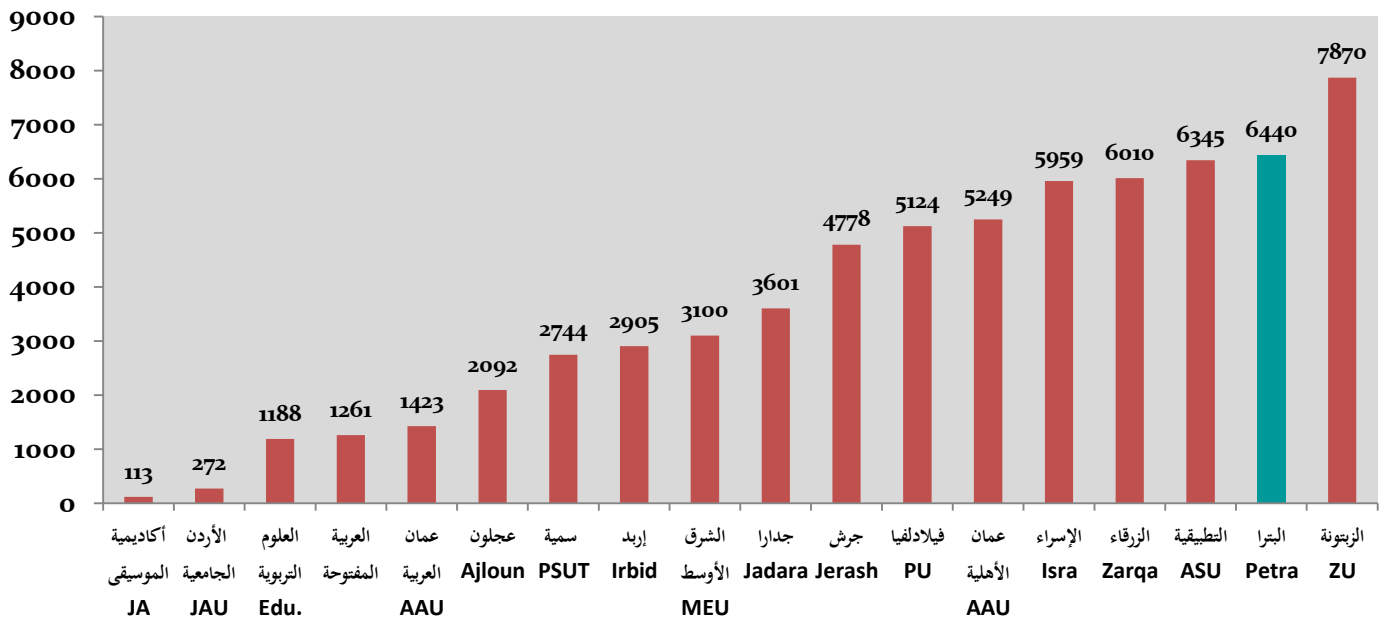*Students enrolled in Public Universities in Jordan per certificate 2012/2013*

Fig. (10) shows students enrollment in private universities in Jordan 2012/2013, totaled **66,655 students,** in 18 universities. Growth of private universities was 18% per year from **36642 students** in 2000 to **66,655 students** in 2013.

Private universities started in 1990 with two universities, and have grown to 18 universities in 2012.

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[8] *Department of Statistics, Jordan 2013*

Fig. (10)[9]

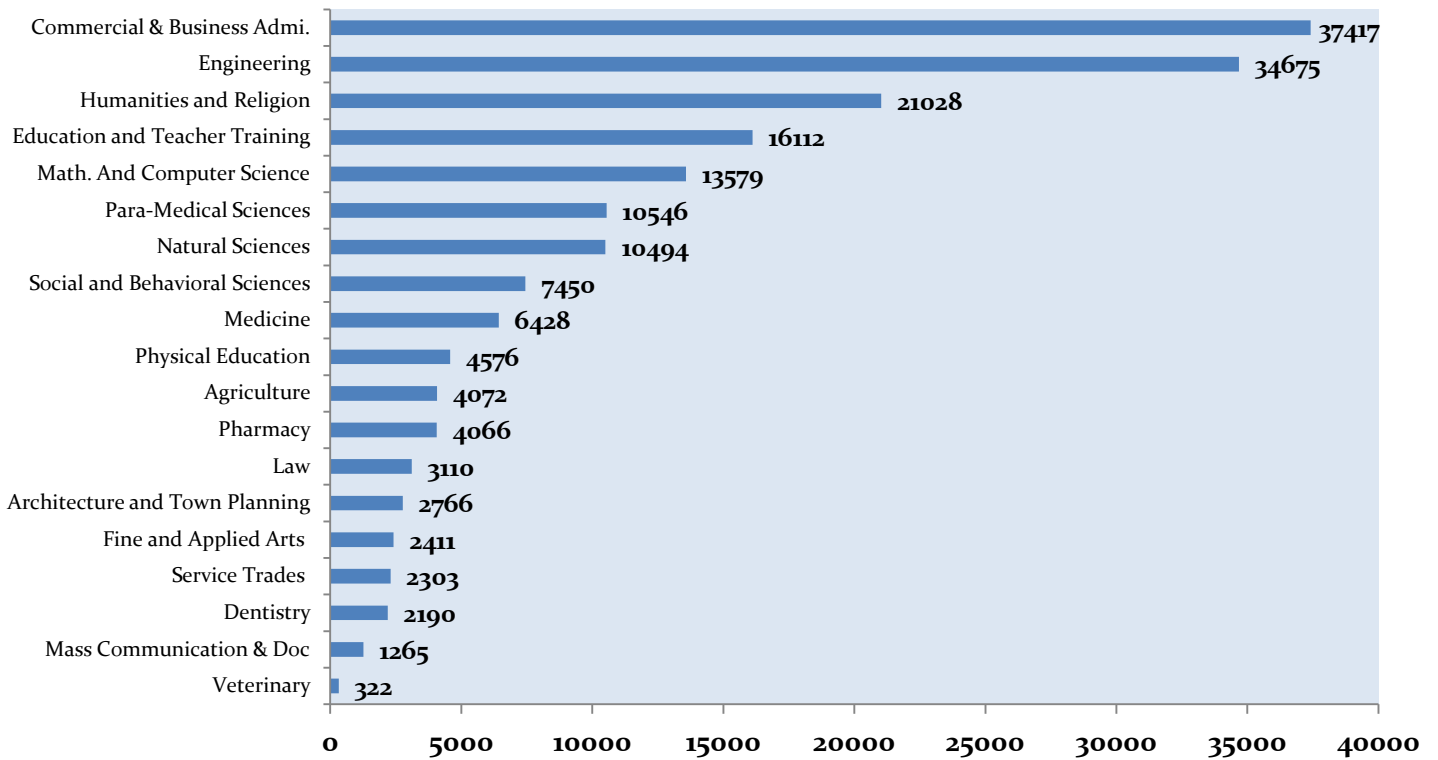*Students enrolled in Private Universities in Jordan by year 2012/2013*

Total Number of students enrolled in Private Universities in Jordan: 66,655 students

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[9] *Source: Ministry of Higher Education and Scientific Research, Jordan*

Fig. (11) shows undergraduate students distribution according to academic programs in public universities. Commercial & Business. is attracting the highest enrollment of **37417 students**, seconded by engineering of **34675 students**. The total number of undergraduate students enrolled for BA (B.Sc.) degrees according to academic programs is **184,810 students.**

Fig. (11)[10]
Undergraduate Students at Public Universities in Jordan
by program, 2012/2013

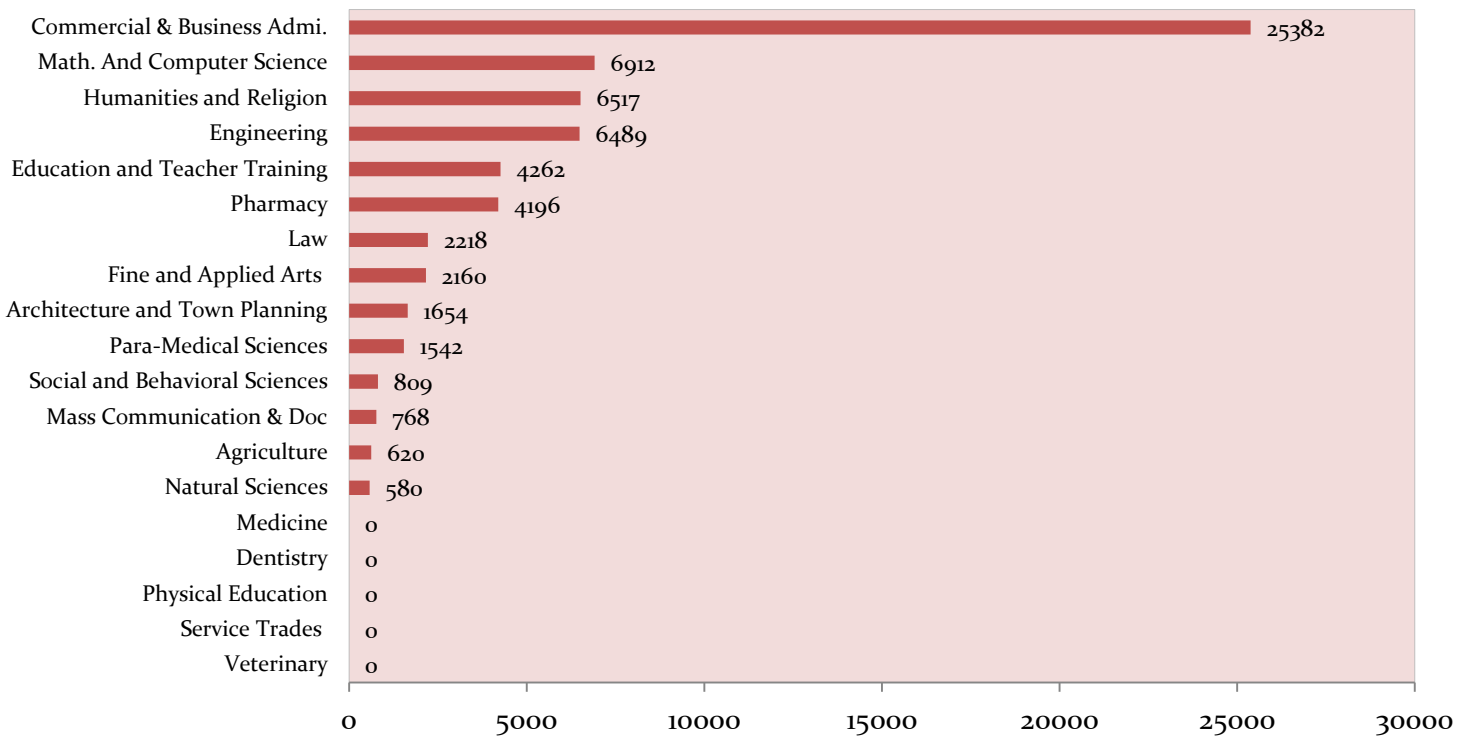| Program	Students
Commercial & Business Admi.	37417
Engineering	34675
Humanities and Religion	21028
Education and Teacher Training	16112
Math. And Computer Science	13579
Para-Medical Sciences	10546
Natural Sciences	10494
Social and Behavioral Sciences	7450
Medicine	6428
Physical Education	4576
Agriculture	4072
Pharmacy	4066
Law	3110
Architecture and Town Planning	2766
Fine and Applied Arts	2411
Service Trades	2303
Dentistry	2190
Mass Communication & Doc	1265
Veterinary	322

Total Number of students enrolled in Jordanian Public Universities for the BA degree per subject: 184,810 students

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[10] *Source: Ministry of Higher Education & Scientific Research statistics, Jordan 2012/2013*

Fig. (12) shows the number of undergraduate students at Jordan Private universities enrolled according to academic programs (2012/2013). Highest enrollment is in Commercial & Business Administration of **25,382 students,** seconded by Mathematics and Computer Science of **6912,** Humanities and religion **6517 students,** engineering **6489,** etc... number of students enrolled in private universities according to academic programs **64,109 students.**

Fig. (12)[11]
Number of Under-Graduate Students at Private Universities in Jordan by program, 2012/2013
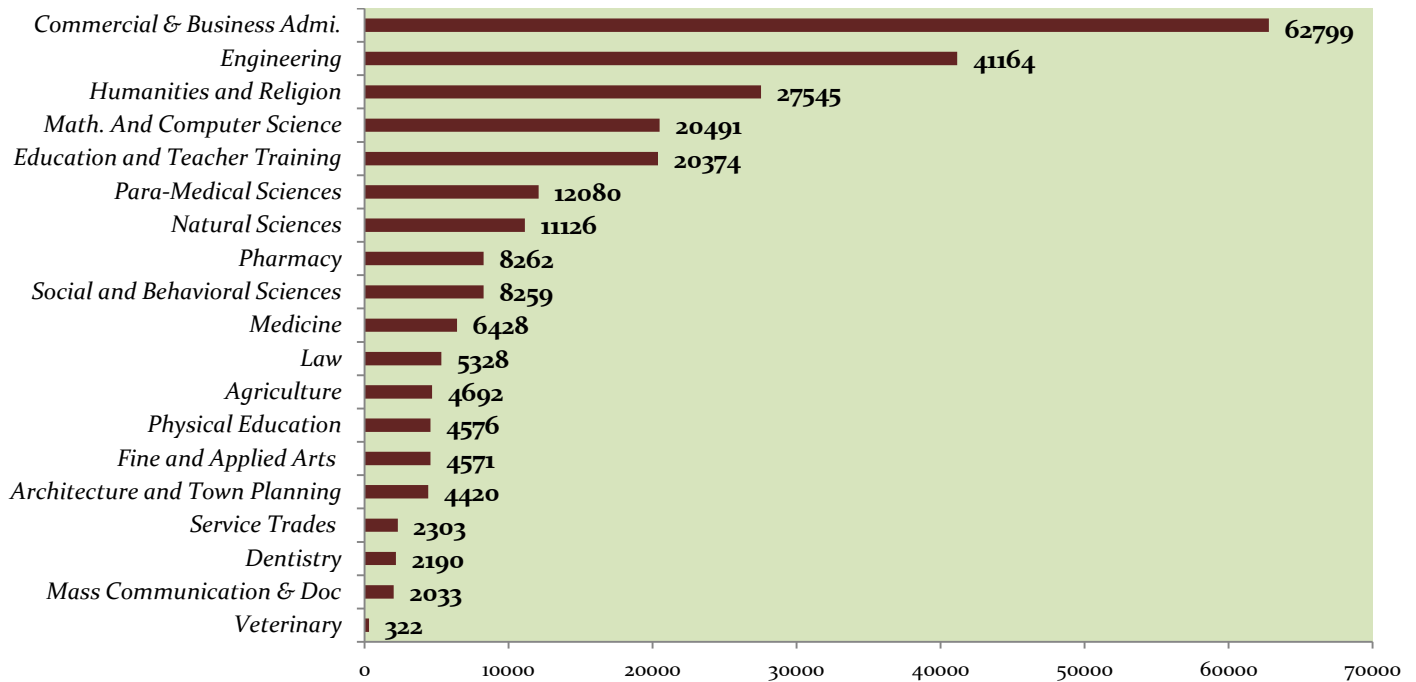
Program	Students
Commercial & Business Admi.	25382
Math. And Computer Science	6912
Humanities and Religion	6517
Engineering	6489
Education and Teacher Training	4262
Pharmacy	4196
Law	2218
Fine and Applied Arts	2160
Architecture and Town Planning	1654
Para-Medical Sciences	1542
Social and Behavioral Sciences	809
Mass Communication & Doc	768
Agriculture	620
Natural Sciences	580
Medicine	0
Dentistry	0
Physical Education	0
Service Trades	0
Veterinary	0

Total Number of students enrolled in Jordanian Private Universities for the BA degree per subject: 64,109 students

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Fig. (13) shows students enrolled in both public and private universities in Jordan (2010/2011) for B.A (B.Sc.) degrees totaled **225,443 students, and in** (2012/2013) for B.A (B.Sc) degrees totaled **248,919 students**.

Fig. (13)[12]
Students enrolled in Public & Private Universities in Jordan
by year 2012/2013

Subject	Number
Commercial & Business Admi.	62799
Engineering	41164
Humanities and Religion	27545
Math. And Computer Science	20491
Education and Teacher Training	20374
Para-Medical Sciences	12080
Natural Sciences	11126
Pharmacy	8262
Social and Behavioral Sciences	8259
Medicine	6428
Law	5328
Agriculture	4692
Physical Education	4576
Fine and Applied Arts	4571
Architecture and Town Planning	4420
Service Trades	2303
Dentistry	2190
Mass Communication & Doc	2033
Veterinary	322

Total Number of students enrolled in Jordanian Public & Private Universities for the BA degree per subject: 248,919 students.

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[12] *Source: Ministry of Higher Education and Scientific Research statistics in Jordan, 2012/2013*

Academic Staff Development:

Jordan public universities have launched a staffing development program strategy of providing mass scholarship program to excellent students graduating with high grade point average to the highest ranking universities in United States and some to U.K in various specializations and sub specializations needed in each discipline and subject matter. Upon their graduate, with Ph.D and postgraduate training from distinguished universities, and their return, they formed the nuclear and core of excellence in each university. In addition, those academic teaching staff and researchers formed a bridging of knowledge and joint research between Jordan and U.S and U.K universities.

When private universities started, higher education law contained an article of providing a minimum of 5% of the private university budget to be allocated to scholarship abroad for Ph.D and for research. Accreditation and Quality Assurance Board of higher education, examine that this item of the budget is executed fully. Otherwise they confiscate unused allocations to fund the national research fund of the ministry of higher education and scientific research.

Nature has reported that Jordan has researchers in R&D 2000 per million populations as compared to 500 researches per million populations in OIC countries.

In addition, each university has an office for academic developments of the staff, in-service training and out-service training, in skills and pedagogy, particularly in e-learning and blended learning.

Table (4) and Fig (14) show the total growth of academic staff (faculty members) in all public and private universities starting from 4560 academic staff members 2000 (out of them 633 females) to **8165** (out of them 1898 females) in 2011.

<div align="center">

Table (4)[13]

Growth of Academic Staff Numbers in the Universities in Jordan Starting from 2000 – 2011 (GRAND TOTAL)

</div>

Year	University	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013
Total	Total	4560	4761	5402	5696	5942	6542	6832	7283	7613	8038	8165	8285	8482
	Female	633	691	822	912	998	1196	1283	1461	1574	1740	1898	1909	2025

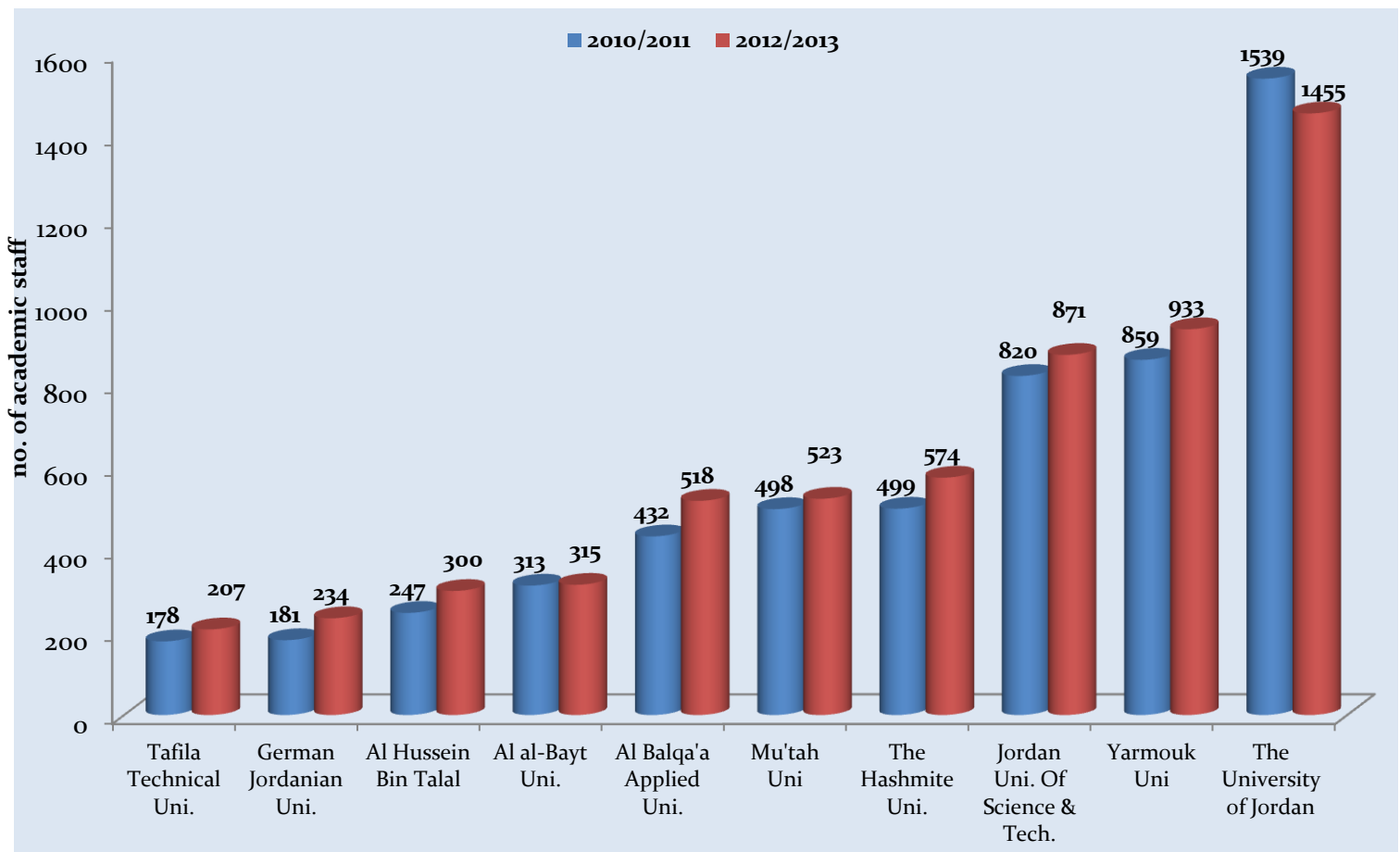<div align="center">

Fig. (14)
Growth of Academic Staff Numbers in the Public & Private Universities in Jordan Starting from 2000 – 2013 (GRAND TOTAL)

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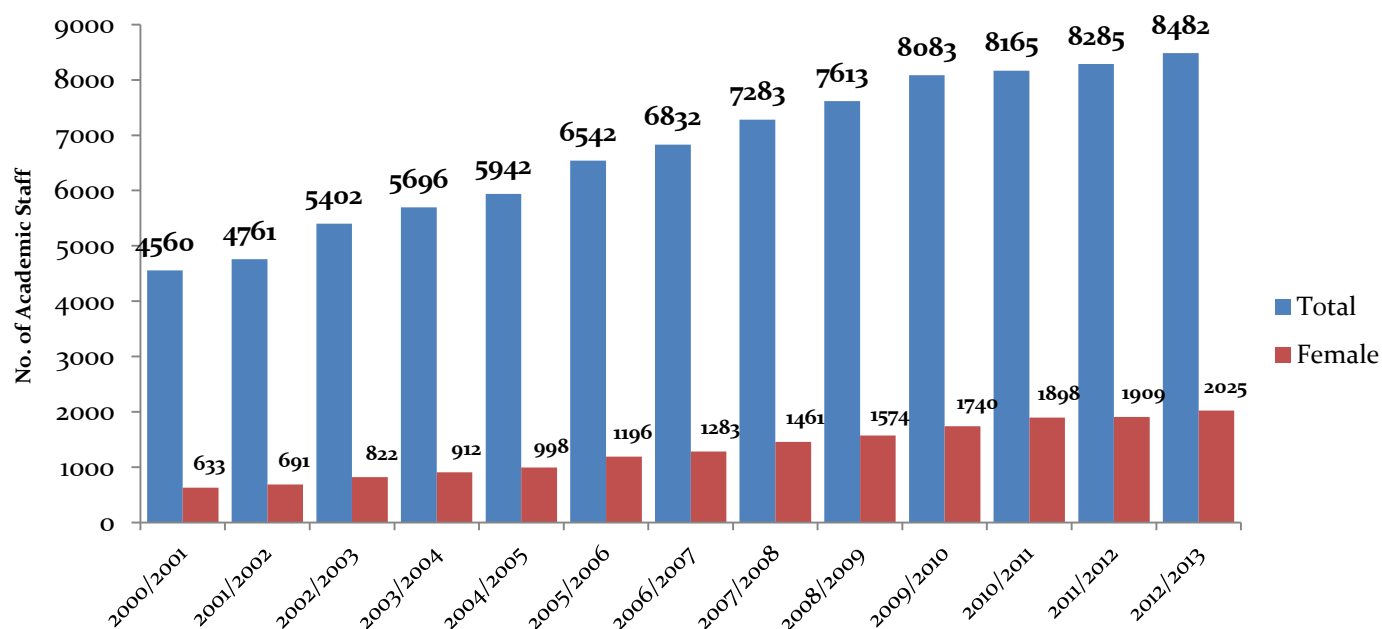
[13] *Source: Ministry of Higher Education and Scientific Research, Jordan*

Fig. (15) shows the academic staff number in every public university (2010/2011) where university of Jordan is the highest (1539 academic staff) next is Yarmouk (859 academic staff) next is JUST (820 academic staff) etc. The total number of academic staff (faculty members) at public universities (2010-2012) is 5566 staff.

Fig. (15) [14]
Academic Staff Numbers in Public Universities in Jordan
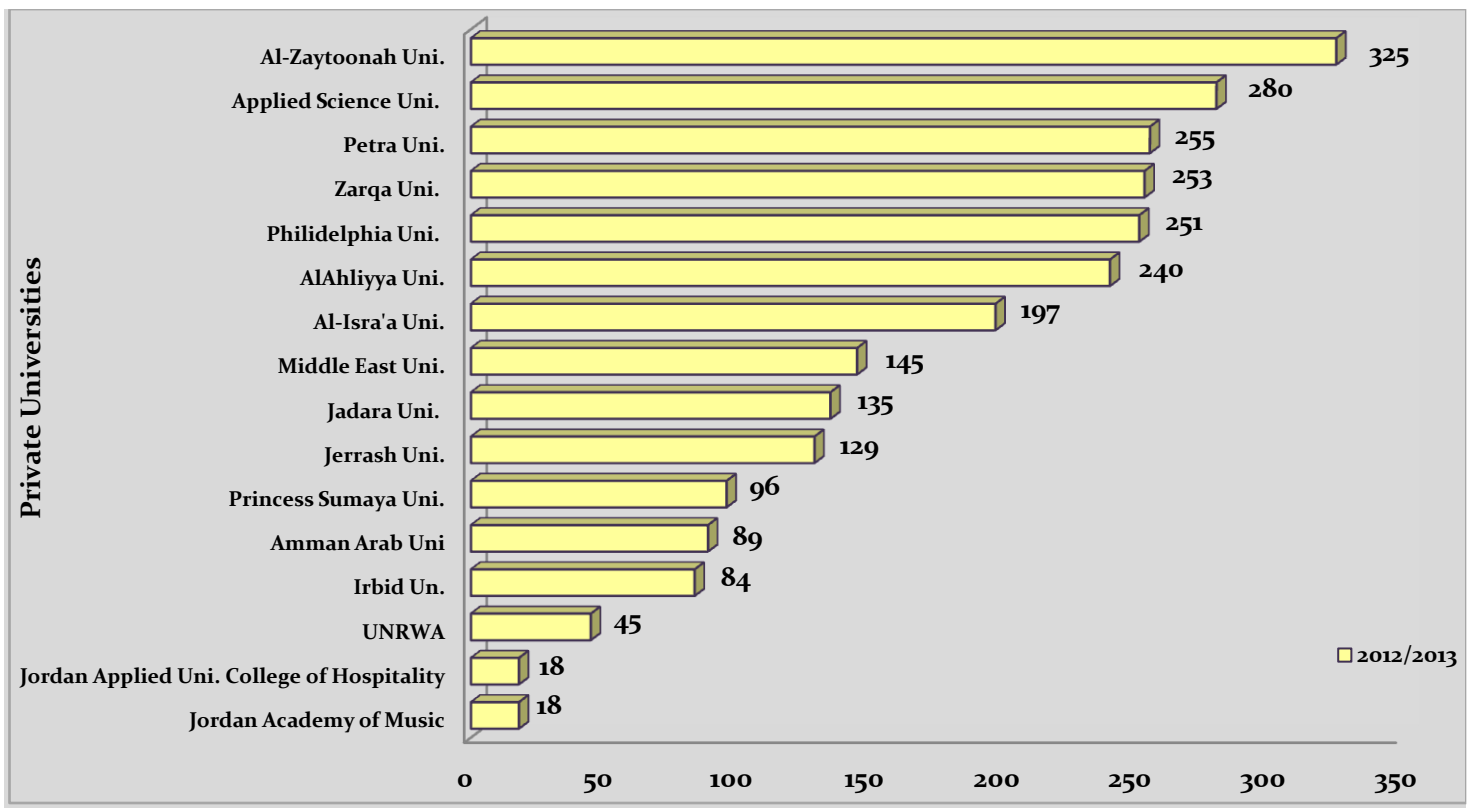*(2010/2011) & (2012/2013)*

Fig. (16) shows the number of faculty members in each private university. The total number of academic staff (faculty members) at private universities are **2599.**

Fig. (16)[15]
Academic staff numbers in Private Universities in Jordan
*for the year (2012/2013)*

[15] *Source: Ministry of Higher Education and Scientific Research, Jordan 2012/2013*

Fig. (17)[16]
Summary data of Jordanian students abroad for Ph.D level
by country for the year 2012/2013
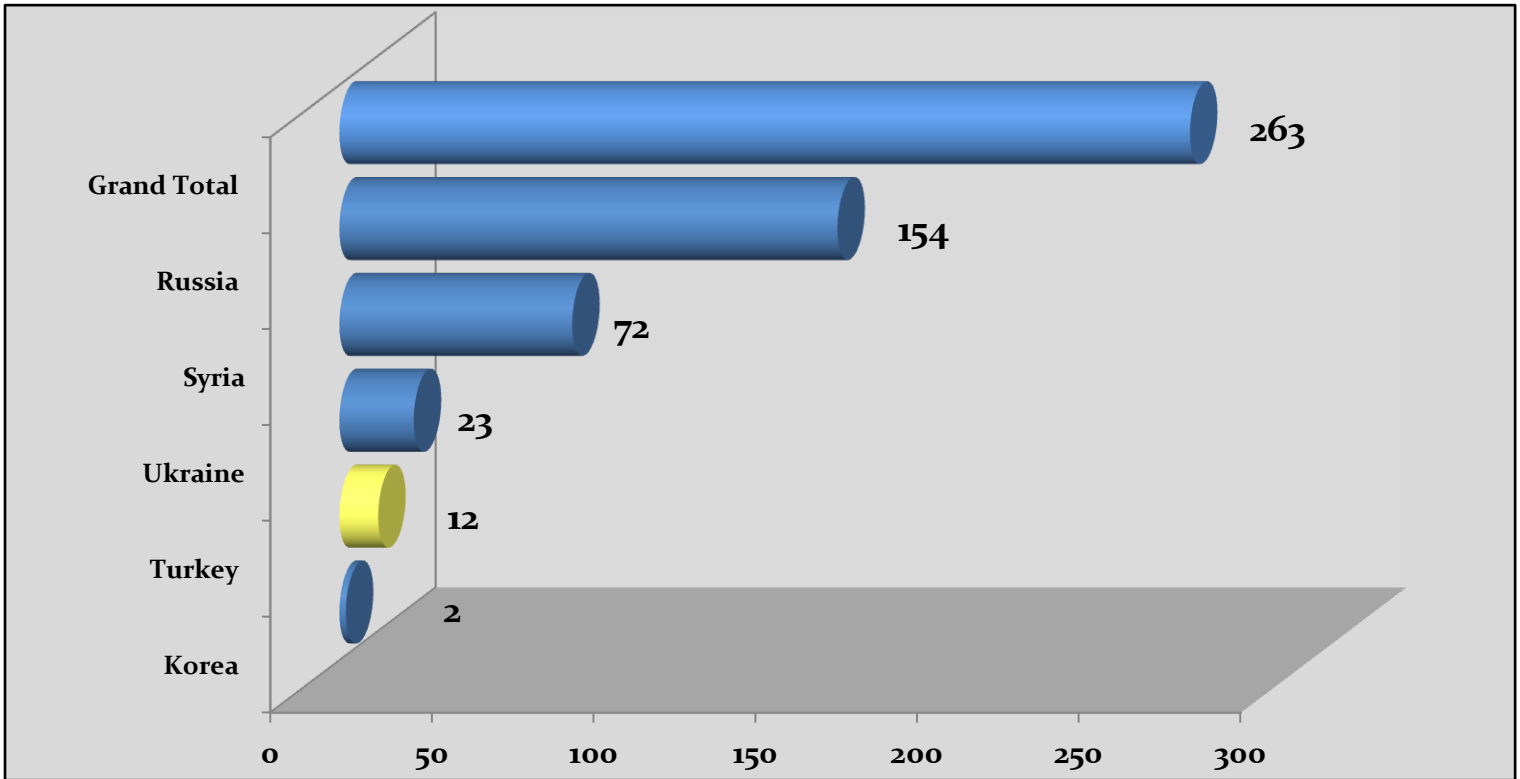
[16] Source: Ministry of Higher Education and Scientific Research, Jordan 2012/2013

Fig. (18)[17]
Summary Data of Jordanian Students abroad for B.SC. level by country for the year 2012/2013

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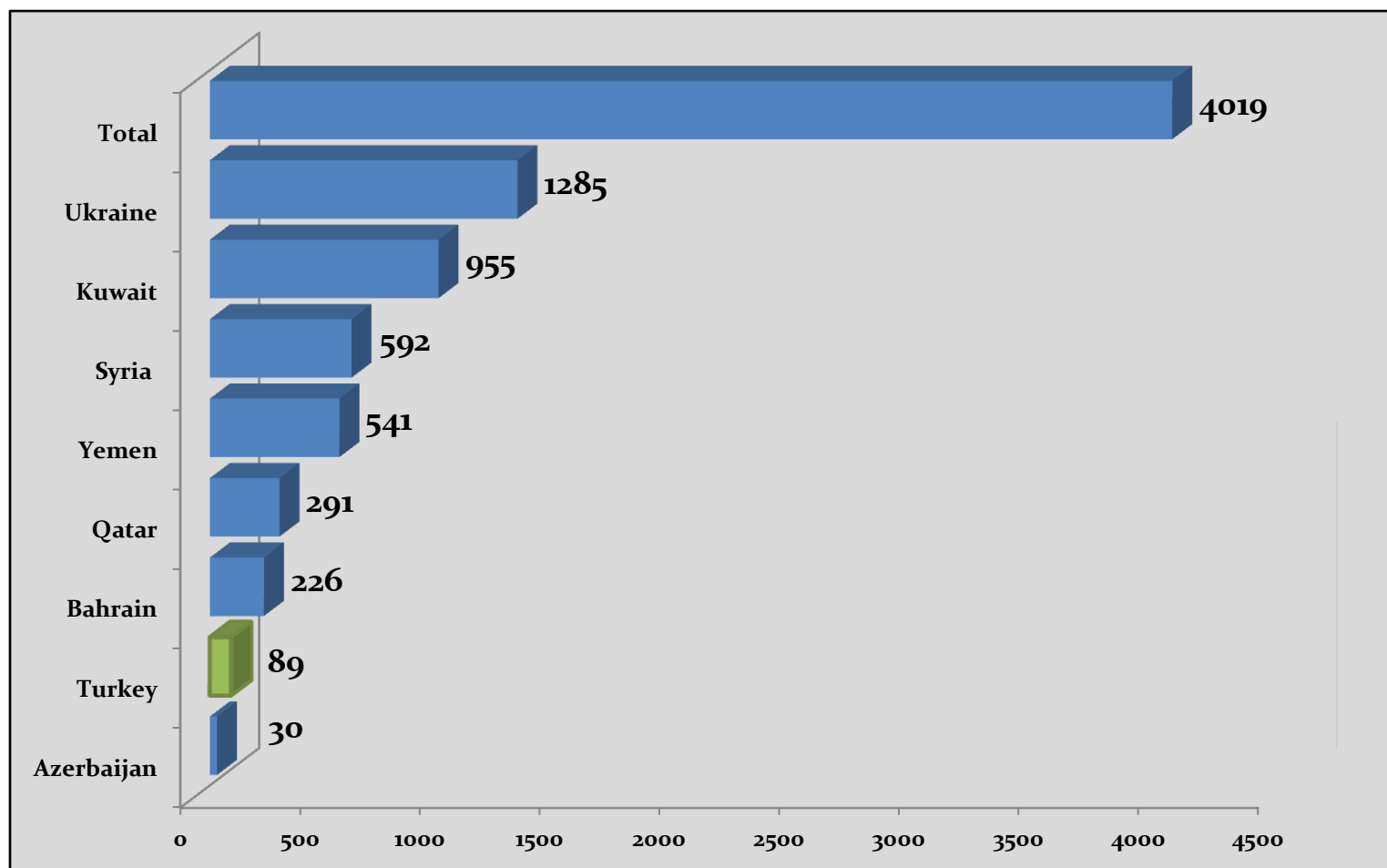
[17] *Source: Ministry of Higher Education and Scientific Research, Jordan 2012/2013*

Fig. (19)[18]: Number of Universities/million population in different countries

Country	No. of Universities	No. of Universities/million
India	8407	6.72
USA	5758	18
Argentina	1705	39.6
Spain	1415	30.1
Bangladesh	1268	8.62
Japan	1223	9.62
France	1062	16.1
China	1054	0.77
Egypt	38	0.43
Jordan	28	3.82
Arab Countries	700	2

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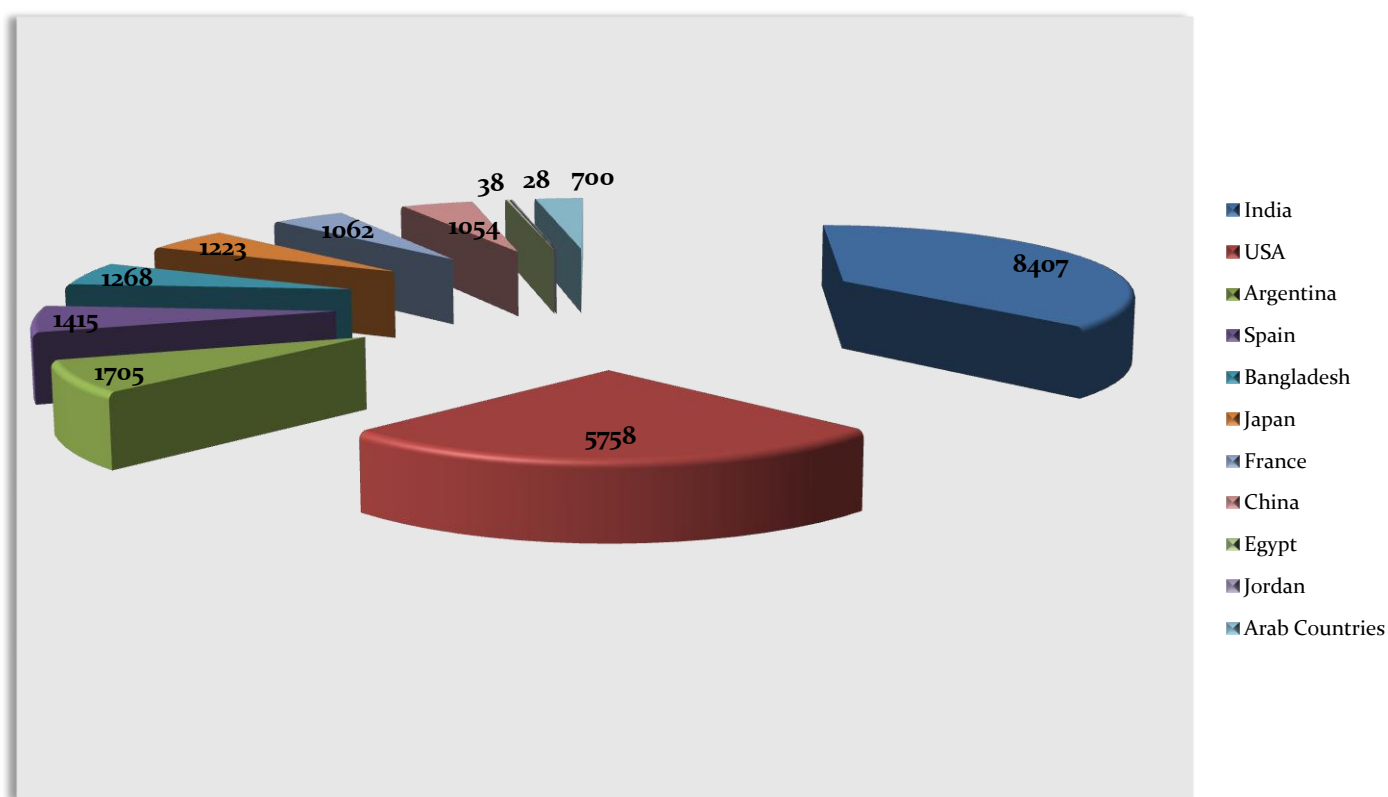
[18] *Source: Economics of Higher Education in Jordan and the role of Private Universities; Badran, Ibrahim Sep 17, 2014*

Financing Higher Education:

The total investment in Education in Jordan at the current market value is $25 billion.

The total annual expenditure of higher education is:

- $ 666   million public
- $ 240   million private

- **906%   Million Total**

Government contribution is around 75$ million /year to public universities

The annual expenditure of Higher Education is:

- **6.5%**   of GDP on public higher education
- **2.5%**   of GDP on private higher education

- **9.0%   of GDP Total**

Recommended cooperation between Universities in Jordan and Universities in Turkey

Areas of Cooperation
1.   The development of collaborative teaching and research projects.
2.   The organization of joint academic and scientific activities, such as courses, conferences, seminars, symposia or lectures.
3.   The exchange of research and teaching personnel.
4.   The exchange of publications and other materials of common interest,
5.   The exchange of students.

Implementation
1.   Elaboration of the responsibilities of each institution for the agreed-upon activity.
2.   Schedules for the specific activities.
3.   Budgets and sources of financing of each activity.
4.   Any other items necessary for the smooth and efficient conduct of the activity.
5.   To meet periodically to review and evaluate past activities and to work out new ideas for future cooperative agreements.

Financial matters
Except as maybe stipulated in any specific program agreement, each institution shall be responsible for expenses incurred.