



Ministry of Scientific Research



Science , Technology and Innovation in Egypt



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Table 1.4: Scientists in largest government research centres (2009/10)

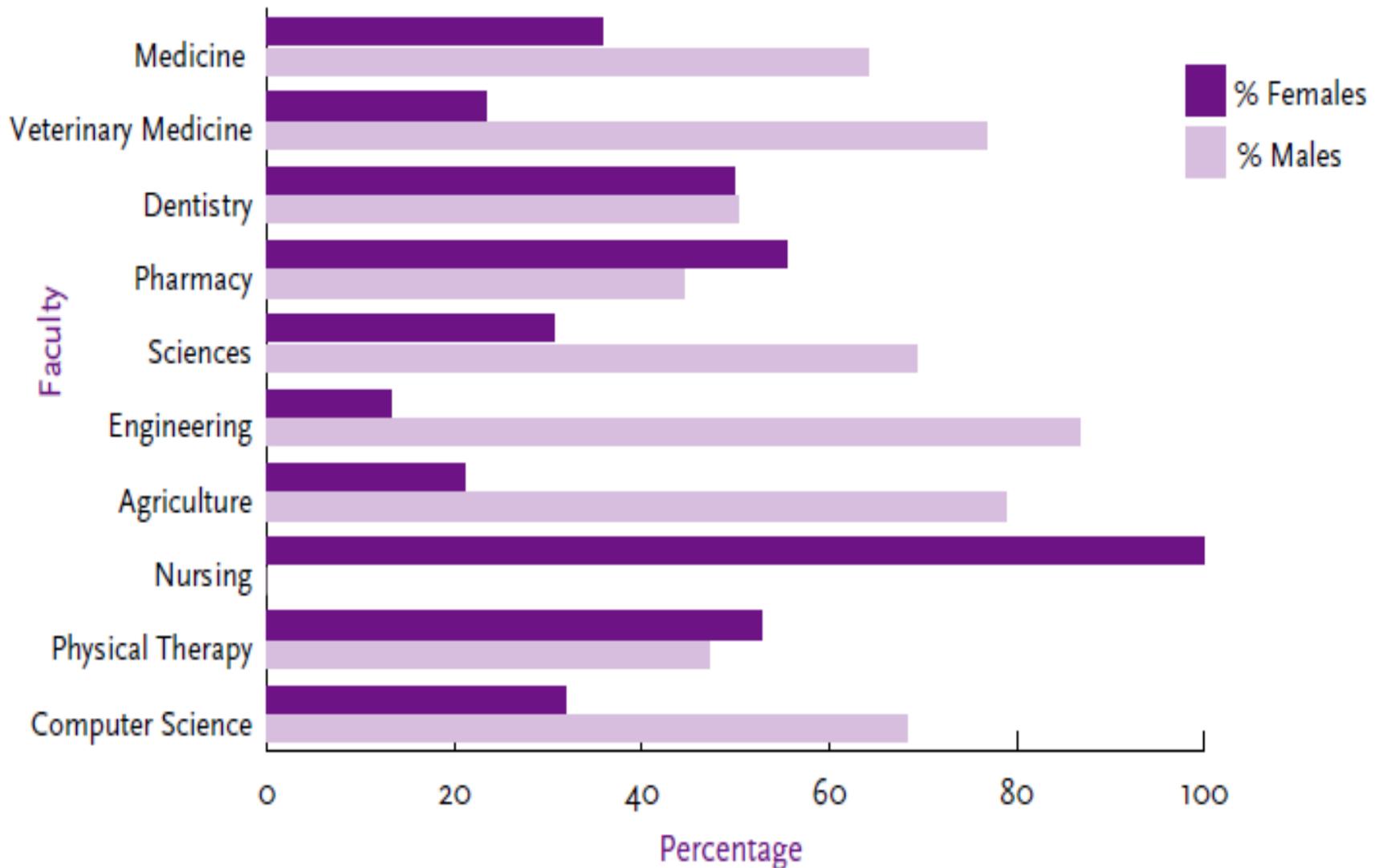
Ministry	Research Centre	Total Researchers
Scientific research	Central Metallurgical Research and Development Institute	166
	Egyptian Petroleum Research Institute	343
	Electronic Research Institute	217
	City of Scientific Research and Technology Applications	129
	National Authority for Remote Sensing and Space Sciences	89
	National Institute of Oceanography and Fisheries	425
	National Institutes of Standard	196
	National Research Center	4,002
	National Research Institute of Astronomy and Geophysics	252
	Research Institute of Ophthalmology	249
Theodor Bilharz Research Institute	403	
Agriculture	Agricultural Research Center	6000
	Desert Research Center	630
Communications	National Institute of Telecommunications	60
Ministry	Research Centre	Researchers
Education	National Center for Educational Research and Development	140
Electricity and Energy	National Center for Radiation Technology and Research	400
	National Center for Nuclear Safety & Radiation Control	265
	Nuclear Materials Authority	278
Health	Center for Applied Research and Field	20
	Research Institute of Medical Insects	32
	National Organization for Drug Control and Research	346
	National Institute of Nutrition	96
	Center for Dental Research	45
Housing	Housing and building National Research Center	264
	New and renewable energy Authority	171
Industry	Tabbin Institute for Metallurgical Studies	21
Water Resources	National Water Research Center	1017

Source: ASRT 2010



It's only happens once in 2,737 years

The most important scientific specialties

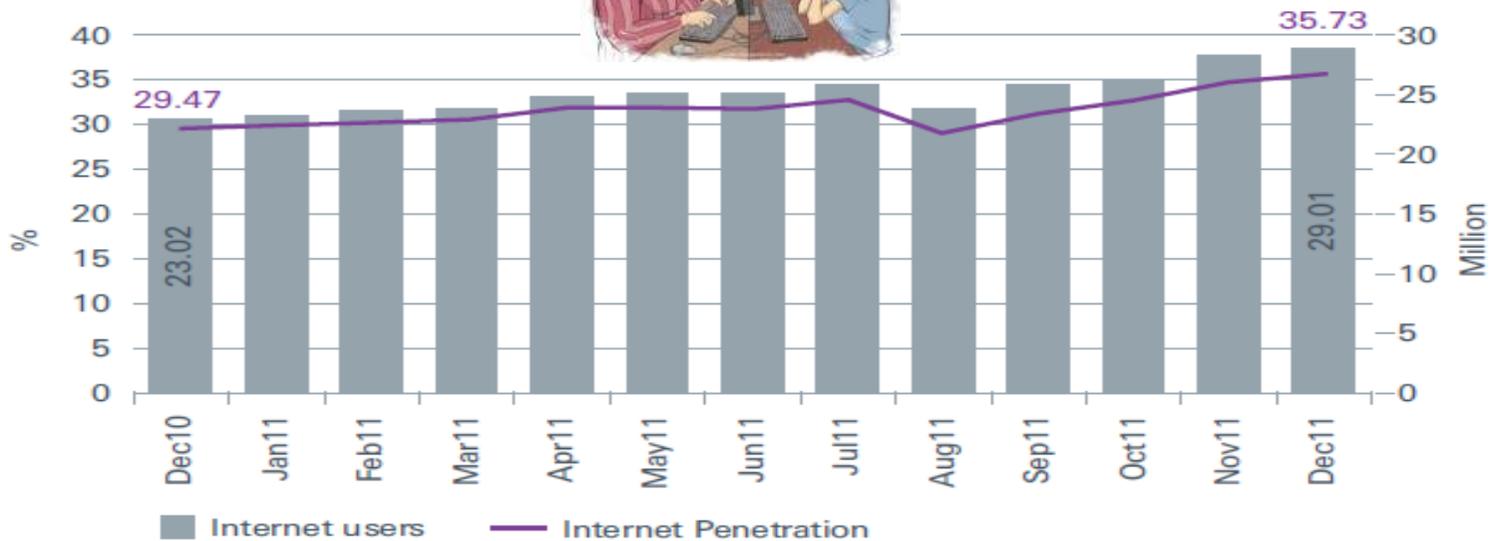


Internet

Indicator	Unit	December 2010	November 2011	December 2011	Monthly Growth Rate (%)	Annual Growth Rate (%)
Internet Users	Million User	23.02	28.54	29.01	1.72	26.01
Internet Penetration*	%	29.47	35.19	35.73	0.55	6.27
International Internet Bandwidth	Gbps	122.30	185.74	185.74**	-	51.88
Proportion of Households Using Internet from Home*	%	32.19	36.44	37.32	0.88	5.13



Internet Users



Source: Ministry of Communications and Information Technology
National Telecom Regulatory Authority

Scientific research: Egypt ranks the 4th among middle East and Mediterranean countries and the 41st globally

Table 1.5: Scientific publications per million population in selected OIC and comparative countries 2010

Finland	2645	Iran	377	Egypt	102
Korea	1141	Kuwait	375	Algeria	82
Malaysia	524	Jordan	344	Libya	73
Qatar	495	Lebanon	300	Morocco	71
UAE	448	Oman	278	Iraq	23
Tunisia	425	Saudi	226	Syria	19
Turkey	409	Brazil	233		

Source: SCImago Journal and Country Rank portal and World Bank



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Roxy Trip - South Pacific

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Patents: Egypt ranks the fifth among the following countries

Table 1.6: Patents applied for in selected OIC and comparative countries 2010

Country	Residents	Non-residents	Total
Algeria	76	730	806
Brazil	2705	19981	22686
Bangladesh	66	276	342
Egypt	605	1625	2230
Finland	1731	102	1833
Jordan	45	429	474
Korea	131805	38296	170101
Kyrgyzstan	134	6	140
Malaysia	1233	5230	6463
Morocco	152	882	1034
Saudi Arabia	288	643	931

Source: World Intellectual Property Indicators 2011, WIPO

**Number and Percent distribution of patents granted by the
egyption Patent office during the period (1999-2011)**

Total	Granted to forigns		Granted To Egyptians		Statement Years
	Total %	العدد	Total %	No	
410	90.7	372	9.3	38	1999
454	88.1	400	11.9	54	2000
430	86.7	373	13.3	57	2001
757	84.4	639	15.6	118	2002
638	86.0	548	14.0	90	2003
325	80.3	261	19.7	64	2004
147	66.0	97	34.0	50	2005
130	55.4	72	44.6	58	2006
299	73.0	218	27.0	81	2007
361	77.6	280	22.4	81	2008
321	82.9	266	17.1	55	2009
321	88.2	283	11.8	38	2010
484	87.4	423	12.6	61	2011

Knowledge Based Economy



Greater interaction is required between business with science and technology focusing on our basic needs is a must

- **Failing to meet basic needs is indeed one of the great sources of degradation.**
- **The provision of such basic needs should be anchored on the creation of employment opportunities and the ownership of assets and knowledge.**
- **To achieve such an objective, economic and social changes are required in the region.**
- **Science and technology should be applied for achieving sustainable development of business and industry .**
- **Decision makers must call for business, industry, universities and polytechnics to create a greater synergy by expanding their connections.**
- **Linkages between business and industry on the one hand, and research institutions on the other, need to be focusing development. Accordingly, industrial resources allocated to research and development will be increased.**
- **Heavy reliance on government-funded research should be reduced.**
- **Capacities for selecting, absorbing and integrating the major technological transfers through direct investment should be improved, enabling building up of endogenous scientific and technological strength.**

**To fulfill our aim: from academia to industry
we have to evaluate S,T&I indicators,
IP policy and Innovation index**



Importance:

- **Help to describe and design S,T&I policies, programs and its impact on the society and the economy.**
- **Build a capacity for S&T documentation in stakeholder institutions.**
- **Plan to conduct surveys to collect S&T data in Egypt.**

Present status:

- **Need to be more systematic and complete.**
- **Difficult to obtain especially from private sectors.**
- **There is no standard method to collect data of S&T**

Innovation is built on three pillars: higher education, R&D and support from the government and private sector.

I. Higher Education System

Higher Education system produces less good students and science, due to :

- 1.Reduction of Education Expenditure from 6% of GDP in 2002 to 3.9% in 2009.
- 2.The great density of students.
- 3.Passive learning and lack of critical thinking.
- 4.Education curricula are irrelevant to market and employers' needs.

II-R&D Personnel Brain Drain

1. Egypt has been steadily losing scientists.
2. One third the students studying overseas do not return home.

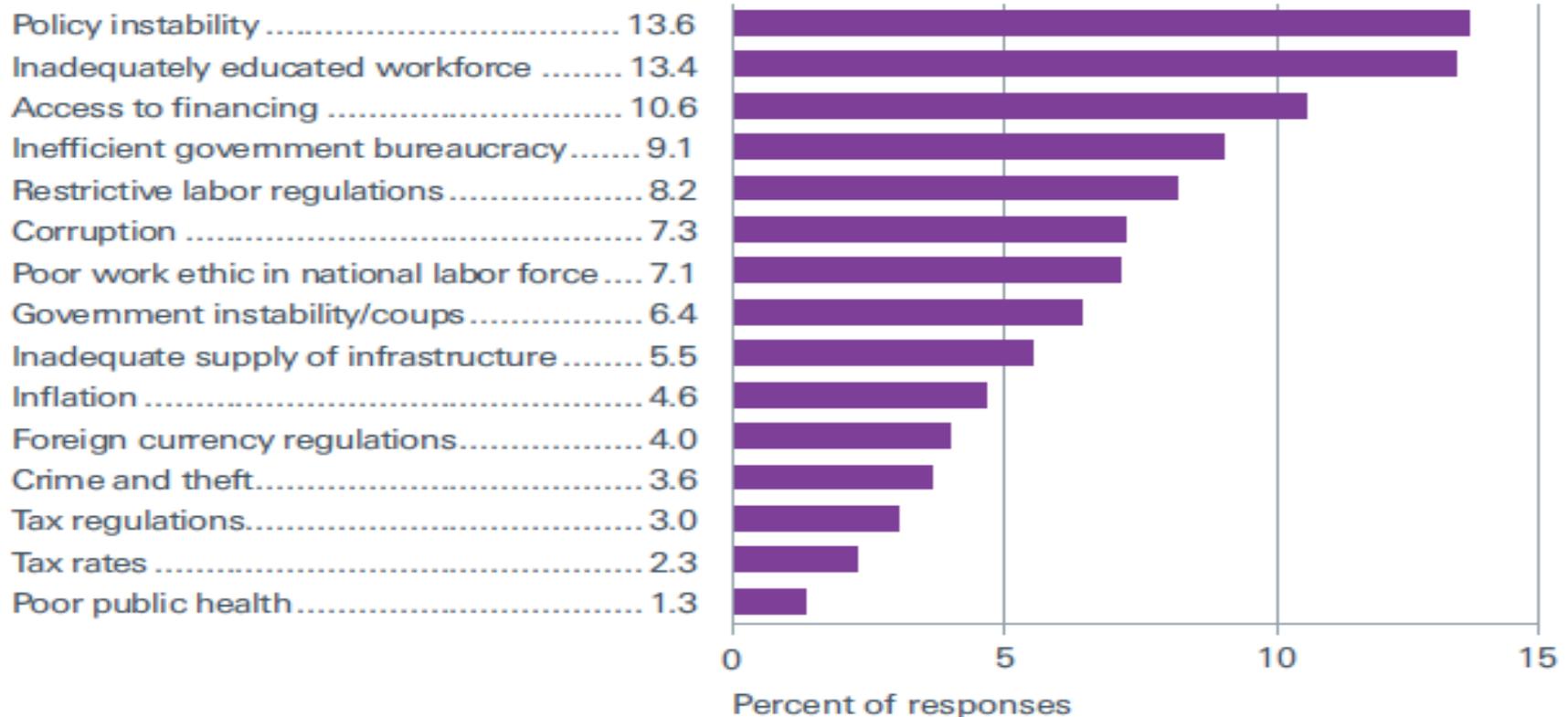
III-Government and private sector interventions

1. Building state of the art research facilities.
2. Program of STDF encourage young researchers to return home.
3. Joint venture model or PhD program, which splits time and financial support between travelling and infrastructure building at the home institute.
- 4-Current legislations makes it hard for research institutes to commercialize their own work for private sector.

Final Destination of Scientific Research:

- Unfortunately, transfer of technology from R&D institutes to enterprises is low.
- The support from the private sector is limited.
- Egypt ranks number 135/142 in collaboration between academia and industry.
- Researchers prefer to remain in government funded jobs than to venture in private business.

The most problematic factors for doing business



Steps towards solving the problem:

- It is important to reform the university admission system to select students according to their needs, talents and resources.
- MOSR should offer support to industrial capacity building.
- Tax exemptions have to be offered to companies on any expenditure related R&D.
- Support should be continued to collaboration with international agencies such as ASTII, OECD, WIPO, NEPAD, JPO etc..... to guide and ensure proper survey and enable global competitiveness and evaluation.

Government interventions

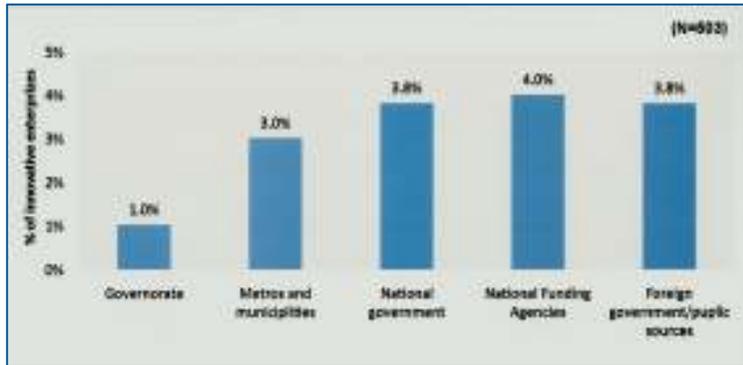
- Several research institutes have started programs for investor's supporting knowledge transfer to industry.
- Egyptian research institutes network must be easily accessible to major business clusters.
- Academic people must be aware of the needs and the mechanisms of technology transfer to industry.
- Government initiates building of innovation capacity in industry.
- RDI launched the Egypt-EU Innovation Fund to support the link between research sector and industry.

Legislations

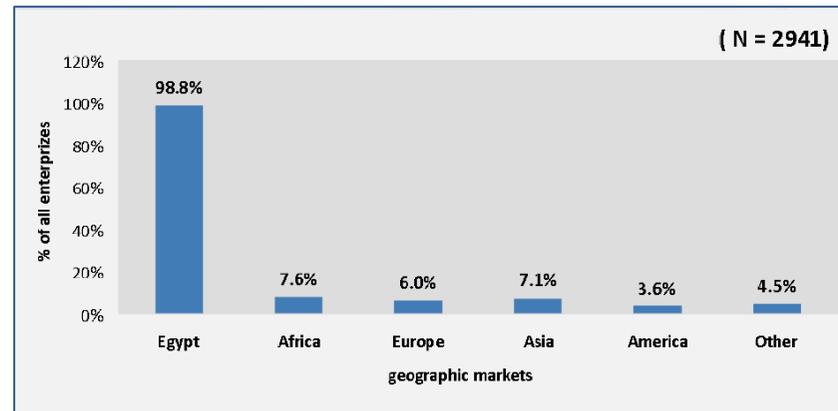
- Governmental incentives and financial support programs to encourage private sectors to benefit from R&D.
- Currently, we are discussing a law in Egypt which facilitate the application of scientific research.

Success Stories

- **Molecular Biology project conducted by MOSR:** Establishing semi-industrial units that will produce molecular biology kits for diagnosis, enzymes for industrial uses and chemicals for PCR.
- **City of scientific research and technology in Alexandria:** has a technology investment zone for incubators taking advance of R&D.
- **Tudor Bilharz institute:** Liver transplantation.
- **NCI:** Clinical trials for ameliorating treatment protocols.
- **The Aswan heart center:** established by Sir. Magdy Yacoub, has a lab based research unit.
- **National Research Center:** avian flu vaccine, high protein bread, hospital facilities, waste management etc...
- **Central metallurgical research and development Institute:** new allows resisting corrosion with high degree of hardness and low weight, medical nails for fractures and metallic mandibles.
- **Egyptian Petrol research Institute:** Different petrochemicals, asphalt with high solidarity, nanomaterial paints against rust and corrosion.
- **Agricultural research center with MOSR:** New molecular engineered products, new techniques for increasing the yield of different crops like wheat and maize, rice with less water needed for irrigation, crops cultivated with salty water, medicinal herbs.
- **Youssef Jameel S&T research center:** kits for HCV diagnosis.
- **Dreamland development park :** adopt nanomaterials for biomedical imaging, solar desalination, quantum dot photovoltaic cells, detergents, disincentives ...etc...
- **National Institute of standards:** standerdising equipments for military and other puposes.
- **ICT:** many products.
- **More and More innventions.**



Innovation does not receive sufficient financial support from the private sector (4% max.)



Egyptian innovation is mainly sold in Egypt

Now is the time to invest in education and apply scientific research to set the stage for true prosperity and secure a much better future for the next generations (Samih Saweris).

