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Egyptian Strategy for the Enhancement of Scientific Research

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Egypt



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- Center of Muslim and Arab World
- 200 Years of Modern Civilization
 - Mohammed Ali
 - early 1800's
 - Egyptian Renaissance



Arab States in UNESCO Science Report 2005



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DISTRIBUTION OF FTE RESEARCHERS

Bahrain	86
Egypt	10 744
Iraq	1 391
Jordan	401
Kuwait	440
Lebanon	205
Oman	82
Qatar	34
Saudi Arabia	846
Syria	356
United Arab Emirates	107
Yemen	270

Source: ESCWA-UNESCO reports.



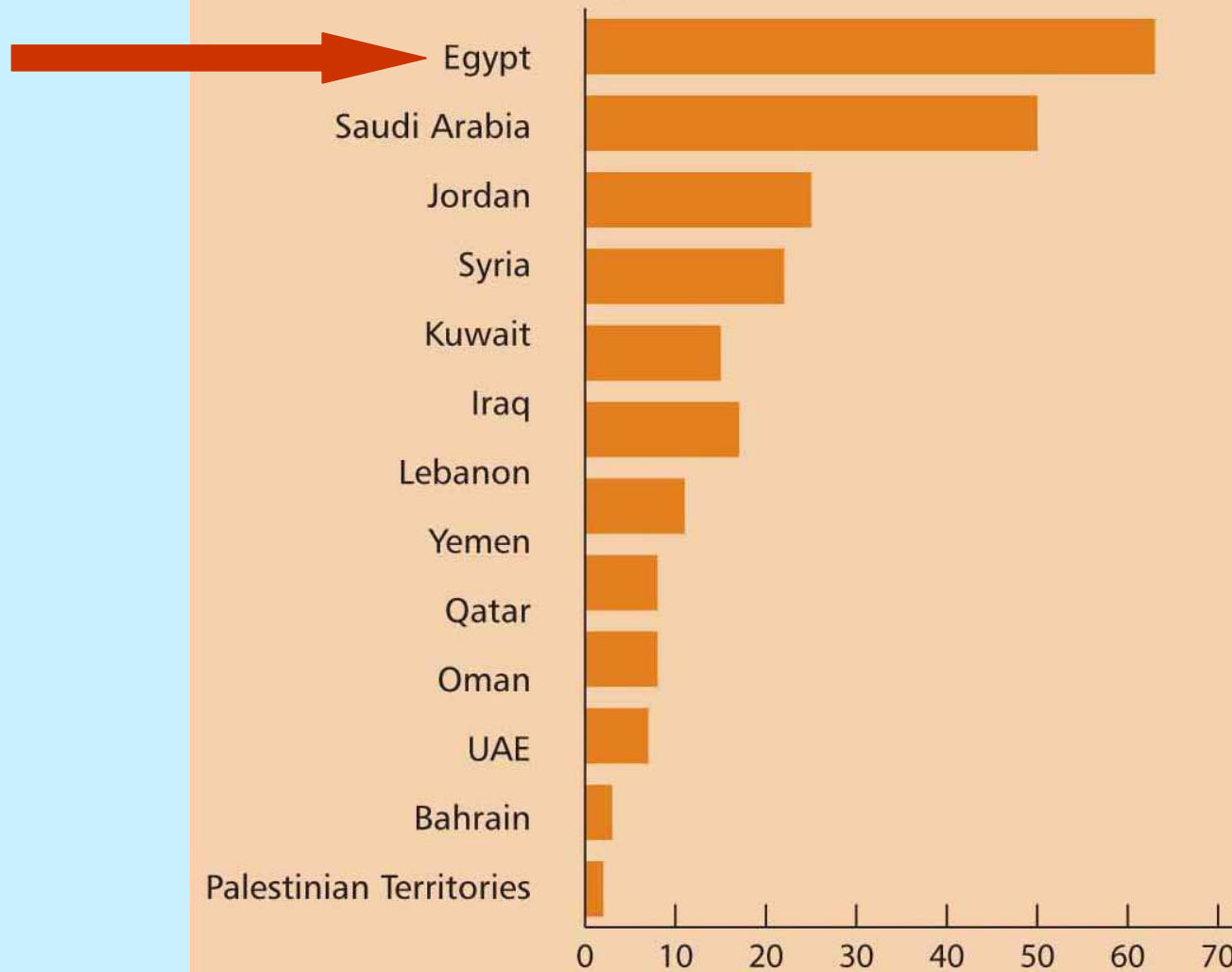
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NUMBER OF R&D UNITS IN SELECTED PARTS OF THE ARAB REGION, 1999



Source: ESCWA (1999) *Science and Technology Policies in the Twenty-first Century*.



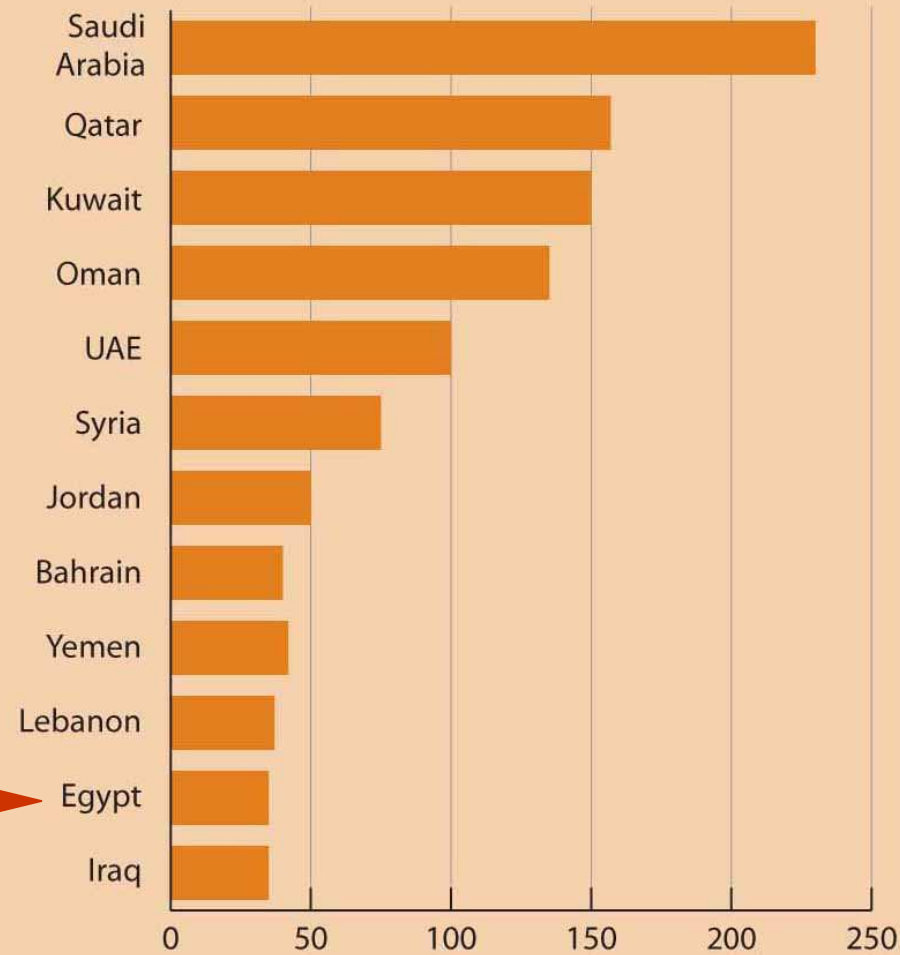
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GÉRD PER FTE RESEARCHER IN SELECTED ARAB STATES, 1996
US\$ thousands



Source: adapted from UNESCO-ESCWA (1998a) *R&D Systems in the Arab States: Development of Science and Technology Indicators*.



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PATENTS REGISTERED AT THE USPTO ORIGINATING FROM ARAB STATES, 1995–99

Non-Arab states are given for comparison

Year	Total
Bahrain	1
Egypt	22
Jordan	11
Kuwait	22
Oman	2
Saudi Arabia	67
Syria	1
United Arab Emirates	8
China	473
Republic of Korea	9 984
Israel	3 076

Source: United States Patent and Trademark Office: www.uspto.gov



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STUDENT ENROLMENT IN HIGHER EDUCATION IN THE ARAB REGION, 2000

Percentage of age cohort

	Males	Females	Total
Libya	51.7	50.6	51.2
Lebanon	35.2	38.2	36.7
Jordan	26.8	30.6	28.6
Qatar	13.7	46.2	27.7
Bahrain	19.6	31.1	25.2
Palestinian Territories	29.2	17.9	24.0
Egypt	27.1	17.8	22.4
Saudi Arabia	19.6	25.4	22.4
Kuwait	13.0	30.0	21.1
Tunisia	19.6	19.0	19.3
Algeria	15.8	11.0	15.0
Iraq	17.5	9.5	13.6
United Arab Emirates	4.9	20.7	12.1
Yemen	16.7	4.6	10.8
Morocco	10.6	8.0	9.3
Oman	8.8	7.1	8.0
Sudan	7.1	6.6	6.9
Syria	17.6	12.6	6.1
Mauritania	6.6	1.3	5.6
Somalia	3.6	1.1	2.3
Djibouti	0.4	0.3	0.4



Source: Arab Fund for Economic and Social Development (2002) *Unified Arab Economic Report*; Database 2003.



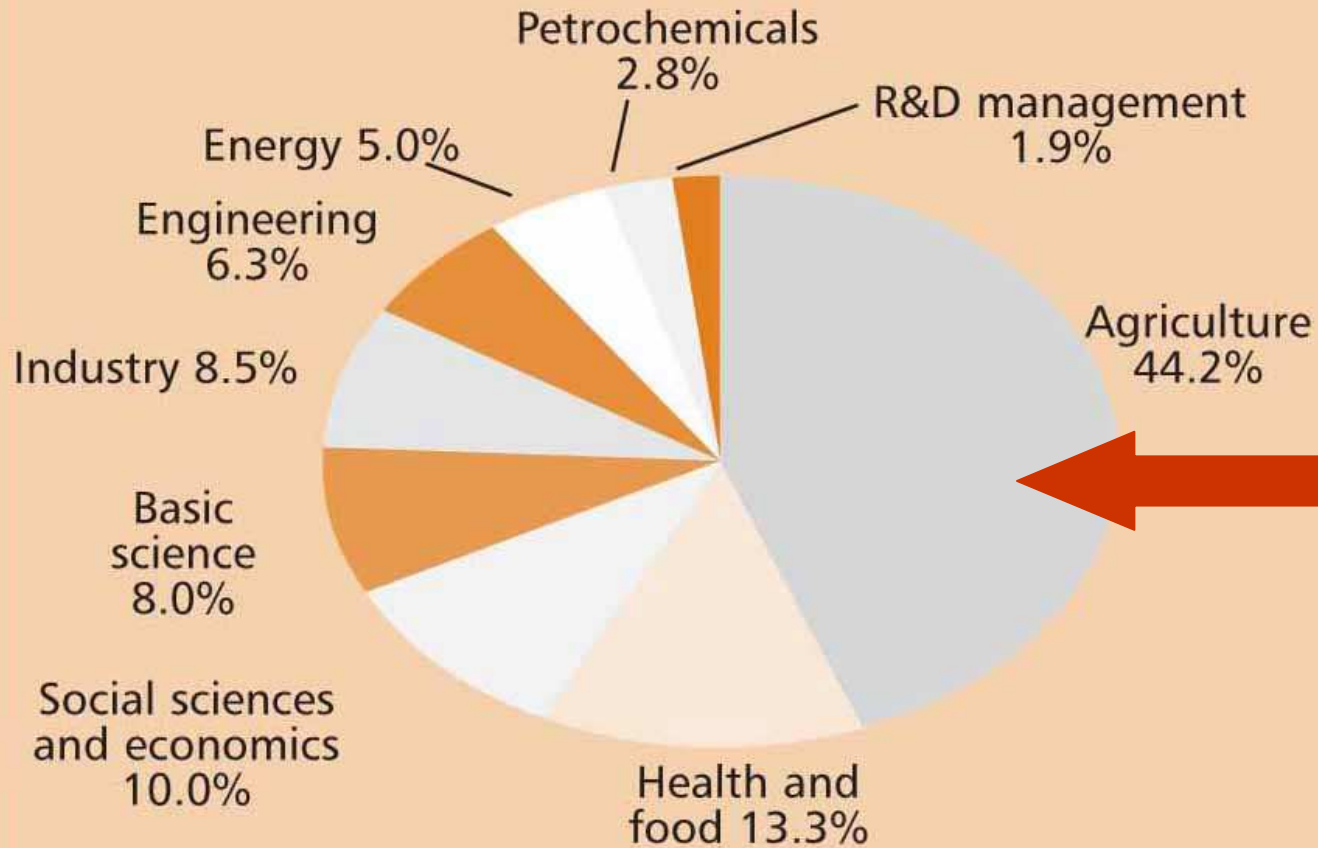
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RESEARCHERS IN THE ARAB REGION, 1996 By sector of activity



Most Researchers in the Arab Region are specialized in Agriculture and related fields

Source: UNESCO-ESCWA (1998a) *R&D Systems in the Arab States: Development of Science and Technology Indicators.*



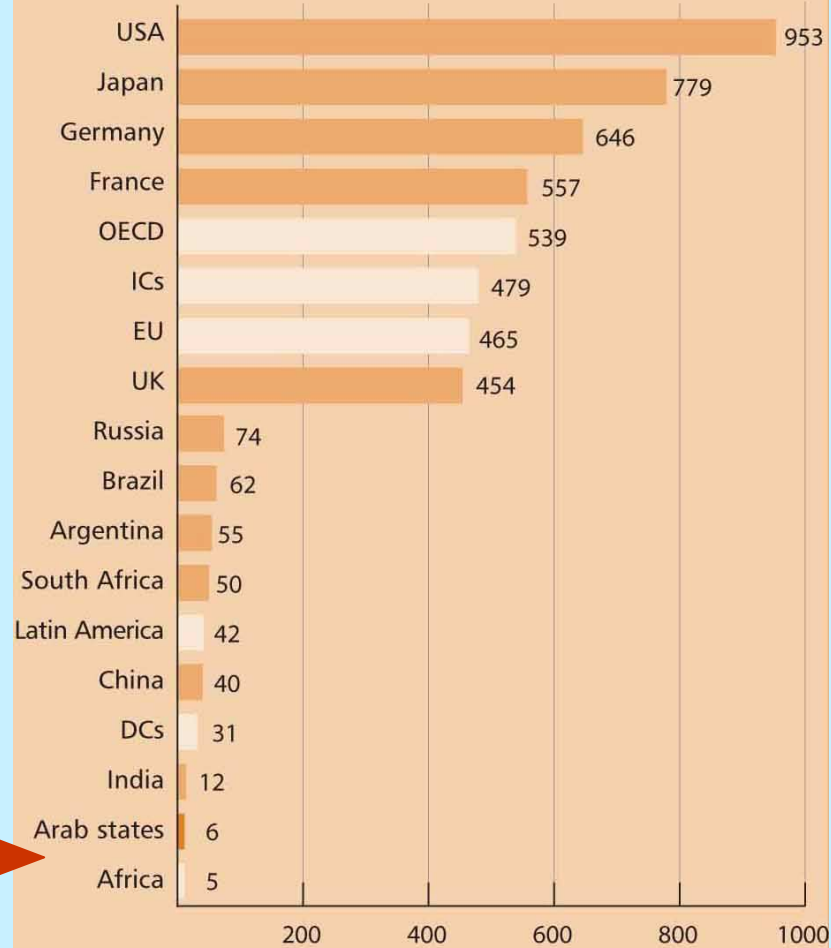
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GERD PER CAPITA IN THE ARAB REGION, 2000
Other countries and groupings are given for comparison (in \$PPP thousands)



Gross Domestic Expenditure on R&D (GERD)



ICs: Industrialized countries
DCs: Developing countries
NICs: Newly industrialized countries

Source: UNESCO (2003) *Global Investment in R&D Today*.



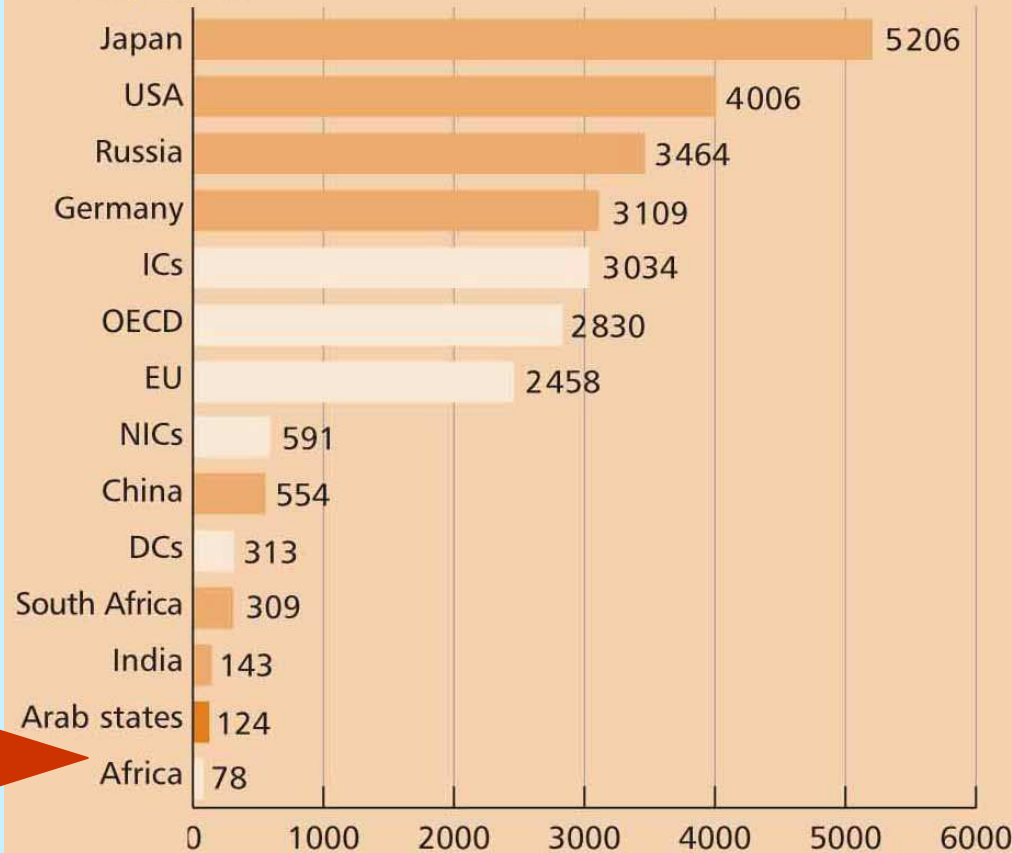
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RESEARCHERS PER MILLION INHABITANTS IN THE ARAB REGION, 2000
Other groupings and non-Arab states are given for comparison



Researchers per Million Inhabitants

ICs: Industrialized countries
NICs: Newly industrialized countries
DCs: Developing countries

Source: UNESCO (2003), *Global Investment in R&D Today*.



Egypt: Current Status



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- We in Egypt realize that we need to advance in our S&T applications
- New S&T Plan
- International Cooperation is a cornerstone of our plan: Science Decade



Egypt S&T Plan



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- Egypt needs to develop towards the knowledge economy
- Egypt needs annual economic growth of at least 9% to sustain its development
- Egypt needs Science & Technology as a vehicle to transform economy
- Need to apply complete cycle of Innovation to impact economy



Human Resources in Science in Egypt



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- The human resources in S&T in Egypt consists of 98000 scientists working in S&T
- 70000 are working in Universities and its research facilities representing 73.5% of the total scientific human resources.
- 15000 working in Industry representing 14.7%,
- 13000 working in Research Institutions representing 12.7%.
- This actually represents a sizable scientific base that we intend to strengthen.



Education



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- Base for Science and Scientists
- Starts from elementary education
- Tertiary education
- Informal education
 - Science Museums
 - Multi-media
- Currently Egypt is undertaking a fundamental reform of its basic and higher education, which started in 2002



S&T Performance



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1. Allocated expenditures and human resources input
2. Levels of science education and training
3. Measurement of activities leading to technological innovation
4. Publications
5. Patents
6. Impact on society



Innovation



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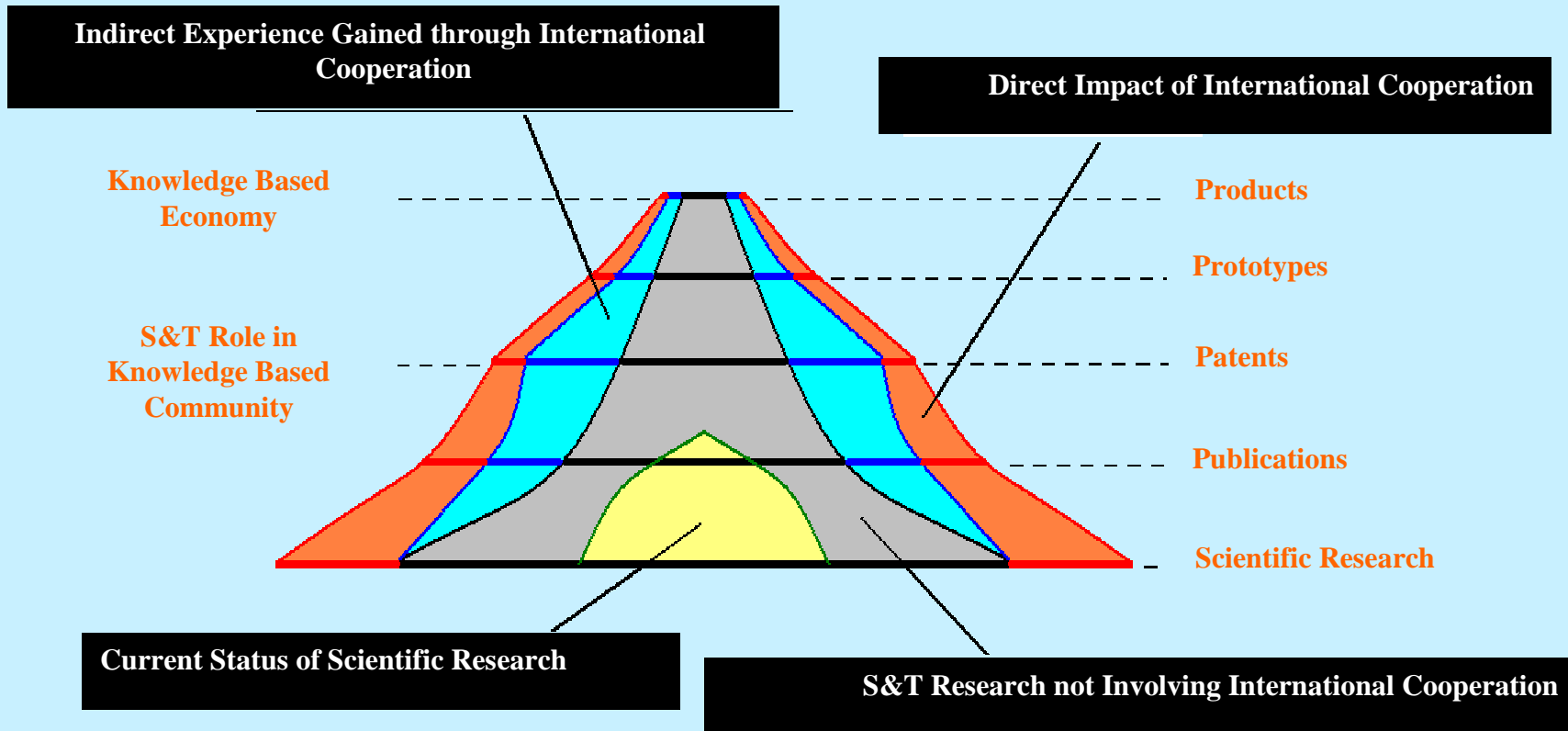
- Complete Cycle for Innovation
 - Basic Sciences Papers
 - Applied Research Patents
 - Technology Prototypes
 - Development Products
- 4Ps Papers Patents Prototypes Products



Innovation and International Cooperation



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Funding



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- Public Funding for Basic Science
- Private Sector Fund Applied Science
- Venture Capitalists Fund Technology
- Investment Banks Fund Development



Role of Government



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- Governing System Conducive for Research and Development
- Fund Basic Research
- Encourage Private Sector Investment in Science and Technology
- Encourage Universities to act as Incubators
- Promote Centers of Excellence

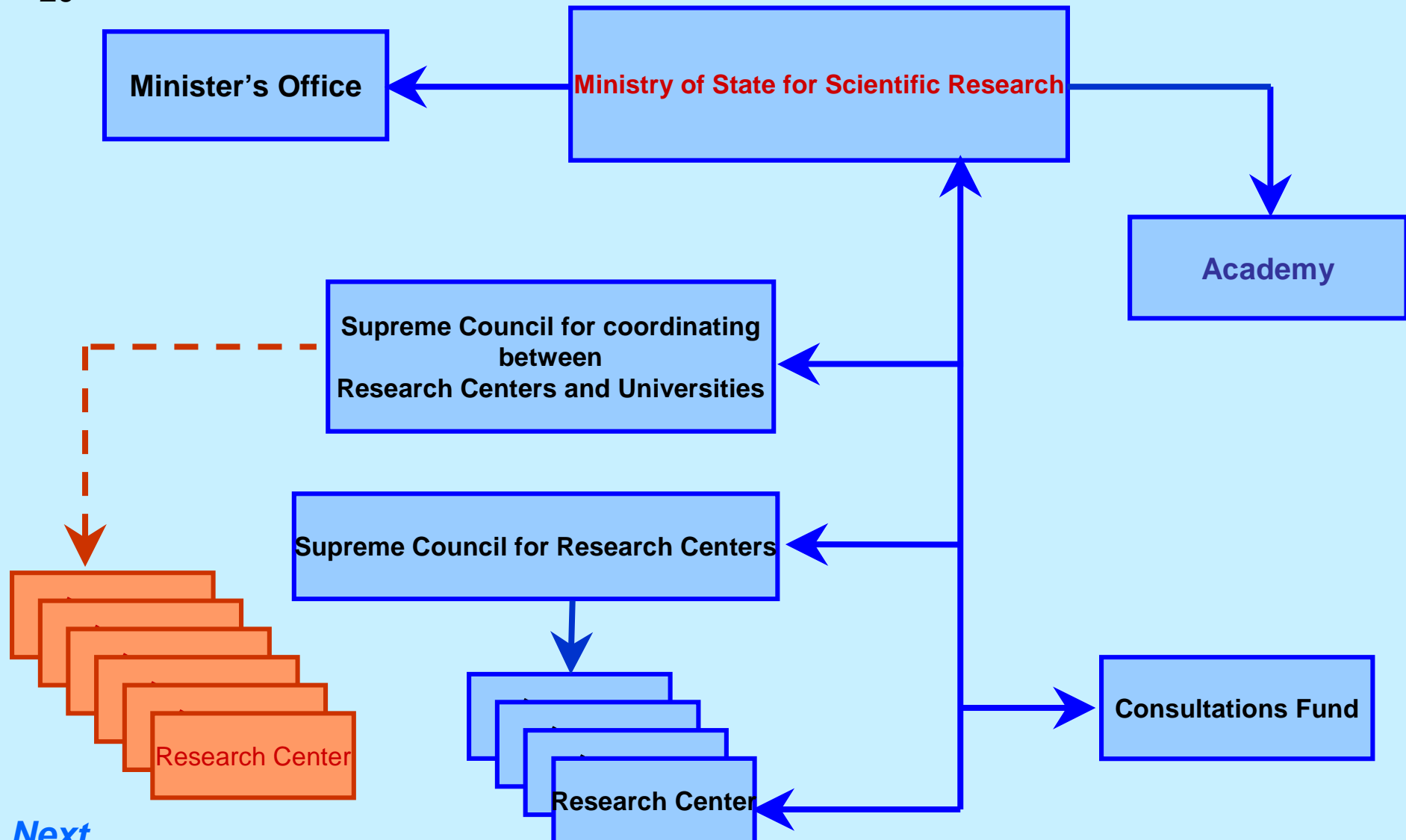


Current Structure of Scientific Research



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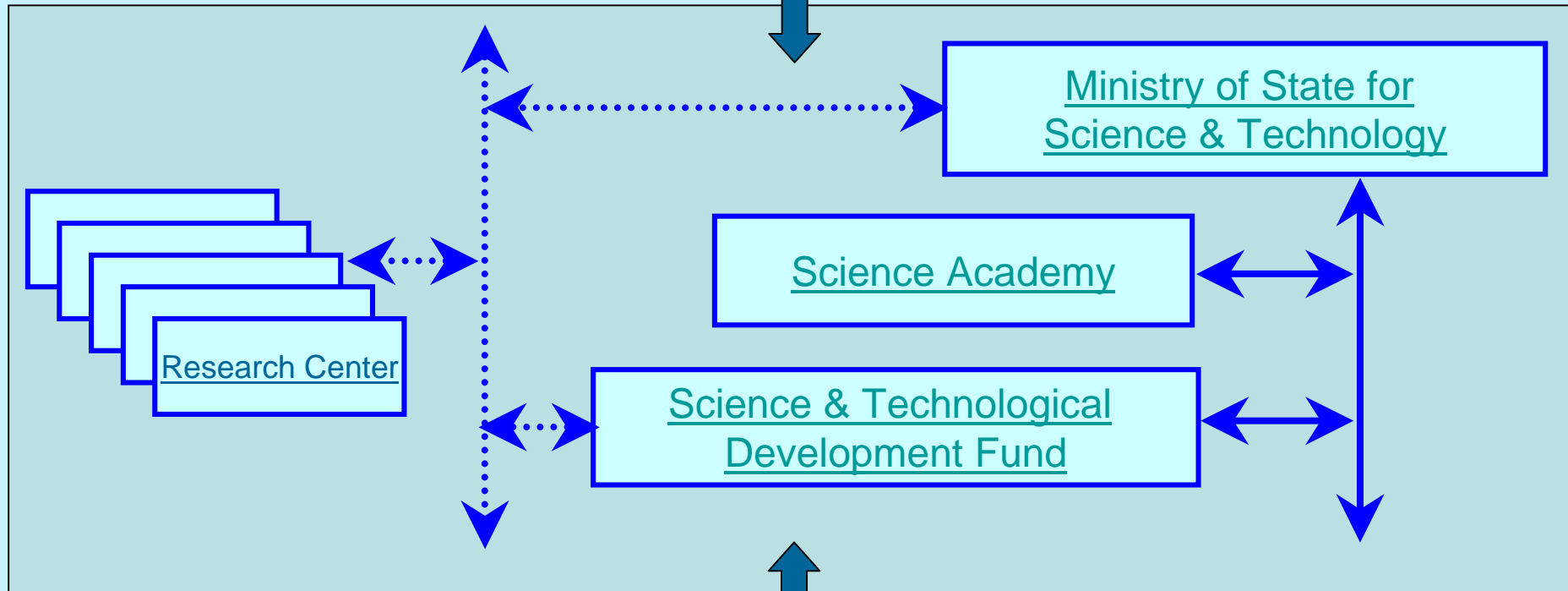
S&T Governance



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Supreme Council for Science & Technology
Chaired by the Prime Minister



Production, Service and Social Sectors



S&T Plan



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- Major Restructuring for S&T Governance
- Political Support for S&T
- Funding Plan:
 - L.E. 7.45 Billion – Capital Investment
- Concentrate on Innovation
- Objective: Knowledge Society



Conclusion



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- Egypt is the door to Arab and Muslim World – Steady Economic Growth of 9%
- Strong Human Resources in S&T
- Restructuring and Capital Fund
- The Science Year should bring us closer together
- International Cooperation is an axiom of Egypt's S&T plan