THE ROLE OF EXPATRIATES IN SUPPORTING DEVELOPMENT EFFORTS IN THE ARAB REGION

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First Science Institute: 786-Iraq,
First University: 841-Morocco,
First modern hospitals: 874-Egypt, 982-Iraq
Founders of Modern Chemistry: Jabir Ibn Alhayan, Al-Kindi 722-873 Iraq
Founder of Modern Algebra: Khawarzmi 850-Iraq
Optical science discovery : Ibn AlHaithem 1011 Egypt
Blood circulation discovery: Ibn Nafis 1242-Syria

Source: 1001 Inventions, Muslim Heritage in our world.
Wikipedia
State of Education in the Arab World Today

- **World Bank report**: Educational institutions in the Middle East as "not yet fully equipped to produce graduates with the skills and expertise necessary to compete"

- “The educational systems of many countries in the Middle East and North Africa need a complete overhaul”

- **UNESCO report (2005)**: Identified the Arab region “as the least research-and-development-intensive area in the world, spending a staggering trillion dollars importing technology over the past three decades”
Education and Science in the Arab World

Total Research and development expenditure as % of GDP 2005

- Saudi Arabia: 0.04
- Algeria: 0.07
- Kuwait: 0.1
- Egypt: 0.25
- Sudan: 0.29
- Tunisia: 1.02
- United States: 2.61

Source: World bank
Low literacy (1984-94) 56% in Arab region, 67% in developing, 76 % World

Published papers (2000-2010 35k research papers vs 269K in South Korea, 763K in Germany)

University ranking

Academic curriculum

Job placement of graduates (30% unemployment among young in 2005)

Unequal distribution of resources and human capacity

Brain drain
## Migration from the Arab World

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
<th>Expatriates</th>
<th>Expatriate % of population</th>
<th>Number of Highly Skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab World</td>
<td>296,262,000</td>
<td>4,462,391</td>
<td>1.5%</td>
<td>967,548</td>
</tr>
<tr>
<td>China</td>
<td>1,266,838,000</td>
<td>1,928,199</td>
<td>0.15%</td>
<td>1,000,735</td>
</tr>
<tr>
<td>India</td>
<td>998,056,000</td>
<td>1,649,711</td>
<td>0.16%</td>
<td>653,286</td>
</tr>
</tbody>
</table>

Sources:
Organization for Economic Co-operation and Development,
League of Arab States,
United Nations
Current Challenges

- Lack of infrastructure
- Lack of up-to-date talent and skills
- Lack of science funding
- Lack of local industry involvement in science
- Lack of research interest by government or academic leadership
- Political instability
- No short cuts for science advancement
Solutions

- Decentralization
- A genuine focus of new governments to advance science
- Freedom of expression
- Openness towards collaborations with outside scientific entities
- Elevate the status of the scientist
- Better use of resources and transparency
- The Diaspora
Society for the Advancement of Science and Technology in the Arab World
The Society for Advancement of Science and Technology in the Arab World (SASTA)

- Well Trained Expatriates
- First generation immigrants
- Dedicated to the cause
- Independent
- Unselfish volunteers
- Highly selective process
- Support by recognized international entity
Mission: To mobilize and catalyze the engagement of scientists, professionals, NGO’s, academic institutions and professional societies to advance higher education, science and research in Arab countries.

SASTA will seek to achieve these objectives by
- Developing and maintaining a comprehensive database
- Establishing partnerships with universities, NGO’s, professional societies and industries in and outside the region.
- Developing programs to help train local students and scientist in areas of special importance to their local society needs and/or national priorities
- Acting as an independent non-partisan scientific body on issues related to science and its advancement in the Arab region
- Doha 2007
- American University in Cairo
- Al-Azhar University
- King Abdul Aziz University
- Jaizan University
- Kuwait University
- Rabat University
- Jordan University of Science and Technology
Joint initiative between SASTA and the Department of Expatriates started in 2011
Objective of the SASTA-Arab League Initiative

- Establishing cooperation networks between Arab expatriate scientists and scientific institutions in different Arab countries;
- Updating and developing the present Arab scientists database at the Arab League and SASTA to be accessible to scientists in the Arab World;
- Determining the priorities of scientific research at the national and regional levels in the following fields: biomedical and health sciences, alternative sources of energy, information and communication technology;
- Calling for observing intellectual property rights and to boost efforts exerted for establishing a regional patents bureau.
- Pursuing efforts for the development of human resources and infrastructure for scientific research in the Arab World;
- Pursuing efforts for developing a mechanism to facilitate marketing of primary models.
Arab Natural Products

- Develop an interdisciplinary training program
- Organization of workshops, seminars, summer schools and conferences.
- Facilitate the exchange of expertise among Arab countries and the international community at large.
- Directory of Arab researchers in the region and abroad
- Establish a comprehensive electronic database of natural compound of importance in the medical uses in the Arab world
- Leveraging the experience of the Arab Expatriate Scientists
- Promote public-private partnerships in Natural Product-based drug discovery.
launch the three following projects:

a) The effect of the extracts of some plants and herbs from the island of Socotra in Yemen on the malaria parasite, and the isolation and characterization of its active compounds.

b) The discovery of new drug compounds to treat malaria and tuberculosis from a number of plants used in folk Sudanese medicine.

c) Use of natural compounds produced by Nano technology in the pharmaceutical industry for the treatment of incurable diseases in the Arab region, such as anti-malarial, cancer, and the possibility of registering it as patent for pharmaceutical manufacturing.
ICT-Health

1. Mobile Health applications for the prevention of Non-Communicable diseases.

2. Integrated Microsystems and Imaging Technology (CIMI) for atherosclerosis and related diseases: use signal processing technology for early non-invasive diagnosis of atherosclerosis as a major determinant of cardiovascular diseases. New innovative approaches in sensor use, such as the use of The integrated Microsystems and imaging (CIMI) technology

Spectrum Occupancy in the Arab World: objective of this project is to demonstrate a plan to develop a system for monitoring the signal activities in a wireless ecosystem within a target geographical area of the Arab countries by extracting high-level information using the data collected through a cooperative RF sensor network.
Alternative Energy Sources in the Arab World

- Dust Mitigation of Concentrated Solar Power (CSP) Mirrors and Solar Photovoltaics (PV) Panels

- Exploring the Implementation of Small and Medium Nuclear Reactors (SMR) for Energy Generation in the Arab World

- Preliminary studies towards the development of semi-industrial vertical photobioreactor:
 Welcomes the recommendations of the Expatriate Arab Scientists Conference Held in Cairo December 9 and 10, 2012

Requests the General Secretariat in coordination with relevant ministerial Arab councils and in cooperation with SASTA to take necessary steps to implement the recommendation in perpetration for presentation at the next general conference

Thanks the Arab Expatriate Scientists for their participation in the conference and support their efforts in implementing the recommendations of the conference
2013

- The Open Book Project
- Young Arab Graduate Network
  - Guidelines
  - Facebook
  - Virtual helpdesk for graduates
- Regular seminar series
- Evaluate research projects
- Host an annual/biannual regional conference
- Mobile Eye Clinic
Gulf states should work together on research

Wael K. Al-Delaimy and Hilal A. Lashuel
11 June 2008 | EN

A regional strategy and a focus on capacity building would strengthen Gulf investments in S&T, say Wael K. Al-Delaimy and Hilal A. Lashuel.

We and many fellow Arab scientists have been following the development of ambitious research and education projects in Gulf countries with great interest.

Eye-catching announcements in the past year have included the Emir of Qatar's decree allocating 2.8 per cent of gross domestic product to fund research in Qatar. This follows the establishment of Education City, a 2,500-acre site north of Doha, housing branch campuses of five US universities and several science, research and policy centres. Set up by the Qatar Foundation, led by Her Highness Sheikha Mozha bint Nasser Al Misisné, Education City will include a state-of-the-art medical research centre, which is being built with a US$10 billion endowment.
Arab world needs its science diaspora

As members of the Society for the Advancement of Science and Technology in the Arab World, we strongly believe that engaging the scientific diaspora — the research community of Arab scientists working abroad — is crucial for successful science diplomacy in the region.

In addition to the underlying political and societal problems and failed economic policies responsible for recent dramatic events in Arab countries, the failure of the educational systems is to blame. Academic institutions are not producing the skilled workforce necessary to meet local challenges and compete in today’s global economies (Nature 470, 147–149; 2011). The domino effect of protests and change we are witnessing today, and its potential consequences for regional stability, indicate that correcting this shortcoming should be a regional and international priority.

The international community must, through focused research and funding initiatives, assist in the areas of education, research and technology most likely to have the highest impact on society. Arab scientists abroad represent a huge reservoir of talent that could catalyse these efforts and strengthen partnerships with countries in the region. Investing in training and research programmes that harness the expertise, resources, networks and enthusiasm of these Arab scientists would contribute significantly to reversing the ‘brain drain’. And it would encourage local efforts to establish academic and research institutions that will nurture creativity and entrepreneurship.

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