

Academy of Scientific  
Research and  
Technology



# Women in science and technology Survey

**Dr. Mohamed Ramadan A. Rezk**

**Director of Egyptian Science, Technology and innovation Observatory (ESTIO)**



المركز المصري للعلوم والتكنولوجيا والابتكار  
Egyptian Science, Technology and Innovation Observatory

www.asrt.sci.eg

أكاديمية البحث العلمي والتكنولوجيا  
Academy of Scientific Research and Technology



**Egyptian Science, Technology and Innovation Observatory (ESTIO)** was established in February 2014 with decree of the president of the Academy of Scientific Research and Technology (ASRT) number 229 for 2014

## **Vision**

An effective national observatory in the field of science, technology and innovation indicators based on international standards.

## **Mission**

Collecting, analyzing, documenting and disseminating national science, technology and innovation indicators and supporting decision makers and relevant bodies with relevant reports and studies.

## **Objectives**

- Providing decision makers with relevant data and reports
- Design, measure and analyze science and innovation indicators using international standards.
- Measuring and analyzing innovation in industry and governorates.
- Measuring the technological readiness in Egypt.
- Conducting future studies for science and technology
- Measuring and analyzing the performance of universities, research centers, research institutions and measuring the research performance of researchers as well, using the international standards.





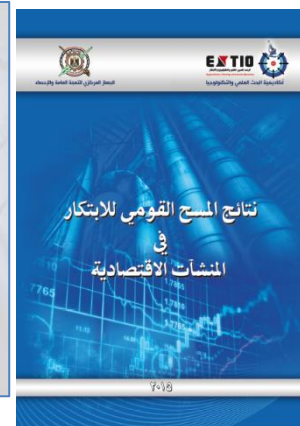
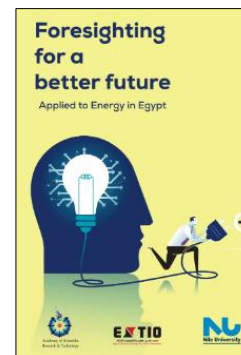
المركز المصري للعلوم والتكنولوجيا والابتكار  
Egyptian Science, Technology and Innovation Observatory

Science, Technology,  
and Innovation  
Indicators

Composite Indicators

S&T Foresight  
exercises

Evaluation and  
Monitoring



أكاديمية البحث العلمي والتكنولوجيا  
Academy of Scientific Research and Technology

www.asrt.sci.eg



# Women in STEM Survey

- The target population for the **Women in STEM Survey** is limited to women researchers in Egyptian research centers and universities working in the areas of science, technology, engineering, and mathematics (STEM).
- The sample was chosen randomly from the Egyptian Science, Technology, and Innovation Observatory (ESTIO) database. It is a recently updated framework that represents research centers and universities.
- The target sample included 411 researchers distributed over 30 research centers and universities covering all Egypt.
- The **questionnaire** is designed by ESTIO, which is affiliated to the Academy of Scientific research and Technology, in cooperation with the British Council.





# Women in STEM Survey

1. Basic Information
2. Scientific and Leadership Background
3. Entrepreneurship
4. Opportunities
5. Challenges



# 1.Basic Information

- Affiliation
- Age
- Skills

1-Name		
2-Affiliation		
3-Job		
4-Degree		
5-Email		
6-Tel		
7-Age	25-35 <input type="checkbox"/>	<input type="checkbox"/> 36-45
	46-60 <input type="checkbox"/>	<input type="checkbox"/> 60 - Higher
8-What is your field of work	<input type="checkbox"/> Natural sciences,	<input type="checkbox"/> Engineering sciences
	<input type="checkbox"/> Medical Sciences	<input type="checkbox"/> Agricultural Sciences
9-Where did you complete your higher education? In country or outside; why?	<input type="checkbox"/> In country <input type="checkbox"/> Outside	If outside Why? <input type="checkbox"/> Grant <input type="checkbox"/> new opportunity <input type="checkbox"/> Others (plz mention .....
10- Did you get a degree outside the country?	<input type="checkbox"/> Master <input type="checkbox"/> PhD <input type="checkbox"/> Post Doctor	



## 2.Scientific and leadership background

<b>11-Did you have any <u>particular role</u> models that inspired you to pursue STEM? (teachers, professors, researchers)</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, please mention
<b>12-Are there any historically influential figures in STEM that you know of?</b>	.....	
<b>13-Have you held leadership positions during your work?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>14-Do you feel there are any <u>particular cultural</u> incentive for women to pursue STEM?</b>		



### 3. Entrepreneurship

15. Did you create an incubator or technology company?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
16. Did you try to set up an incubator or technology company and the attempts were not successful?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, what are the reasons?
18. Did you deal with entrepreneurs outside the research center?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
19. Have you worked in remote or border areas before?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
20. Did you work with the most vulnerable segments of society?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
21. What are the most important obstacles facing women as an entrepreneur?		
22. What are the most important ways to encourage women to enter the field of entrepreneurship?		





## 4.Opportunities

23-Do you receive any support as a STEM person? If so, from who ?	<input type="checkbox"/> your colleagues	
	<input type="checkbox"/> your managers	
	<input type="checkbox"/> people outside of the field? (ie. family, friends)	
24-Did you receive any particular support to pursue the field?	<input type="checkbox"/> FROM YOUR WORK	
	<input type="checkbox"/> From Government	
	<input type="checkbox"/> From outside	
	<input type="checkbox"/> Others	
25-Have you obtained funding for research projects?	<input type="checkbox"/> National	
	<input type="checkbox"/> International	
	<input type="checkbox"/> No	
26-The percentage of projects that you are the principal investigator	%.....	
27-What are the opportunities that women should take ?advantage of to advance in science and technology		
28-Do women in STEM find it difficult to communicate with the industry?	<input type="checkbox"/> Yes	If yes, what are the most difficulties?
	<input type="checkbox"/> No	
29- Have you participated in any women's initiative before?	<input type="checkbox"/> Yes	If yes what it is
	<input type="checkbox"/> No	



## 5.Challenges

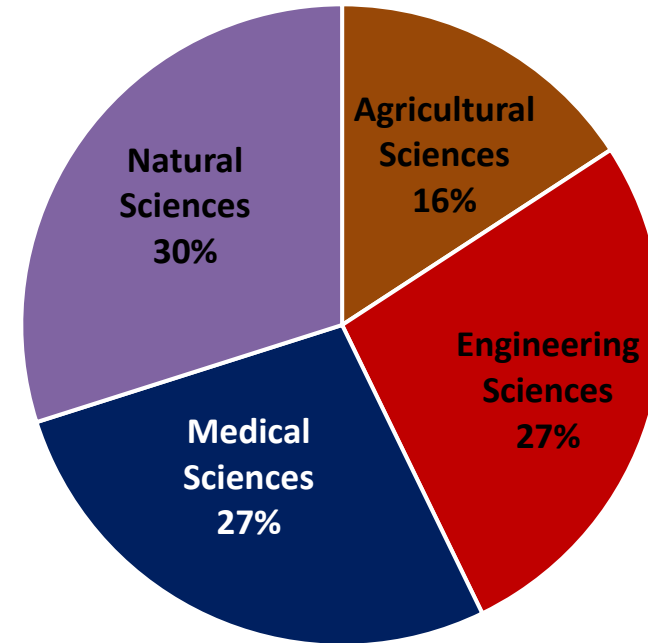
30-How has participating in STEM impacted your:	family life	<input type="checkbox"/> Positive	<input type="checkbox"/> Negative	<input type="checkbox"/> No change
	social life	<input type="checkbox"/> Positive	<input type="checkbox"/> Negative	<input type="checkbox"/> No change
	professional life	<input type="checkbox"/> Positive	<input type="checkbox"/> Negative	<input type="checkbox"/> No change
31-What difficulties/ struggles have you faced within your work and career in STEM?	<input type="checkbox"/> Difficulty obtaining a promotion at work <input type="checkbox"/> Difficulty in obtaining research funding <input type="checkbox"/> Difficulty obtaining training <input type="checkbox"/> Difficulty dealing with the industry <input type="checkbox"/> Difficulty dealing with research agencies <input type="checkbox"/> Others .....			



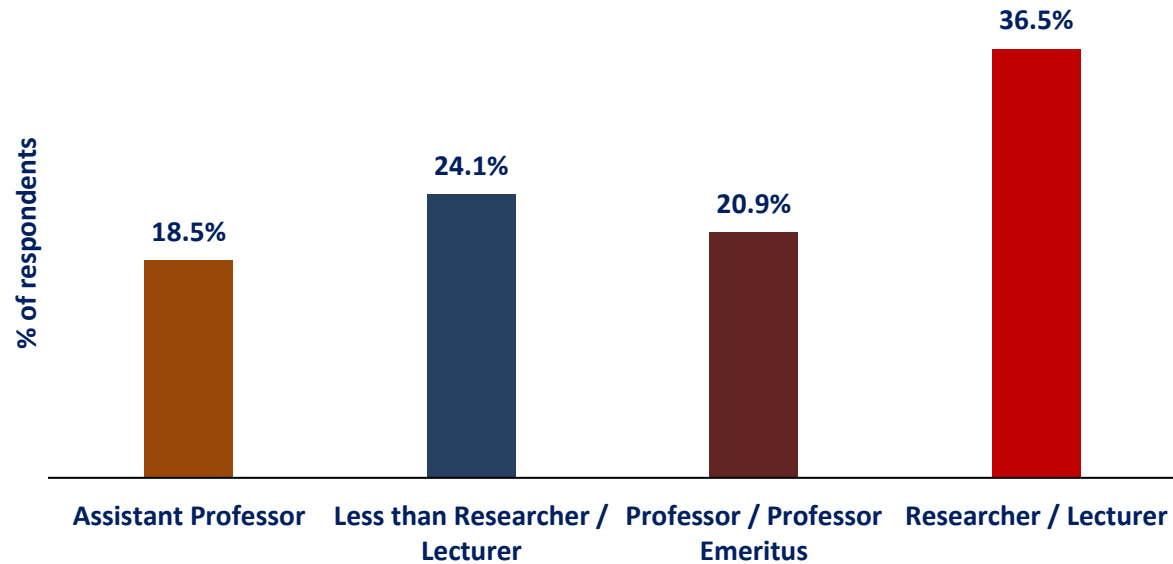
## Distribution of the Participants in the Survey by Organization

Institution	No. of Participants	Percentage
Al Azhar University	38	9%
Electronics Research Institute	29	7%
Suez University	25	6%
National Institute of Oceanography and Fisheries	24	6%
National Research Center	24	6%
Arab Academy for Science, Technology and Maritime Transport	22	5%
New Valley University	21	5%
Theodor Bilharz Research Institute	21	5%
Mansoura University	20	5%
Banha University	18	4%
Damanhur University	18	4%
National Authority for Remote Sensing and Space Sciences	17	4%
Al-Shuruq Academy	14	3%
Matrouh University	13	3%
6th October University	12	3%
National Calibration Institute	12	3%
Agriculture Research Center	11	3%
Zewail City	11	3%
Research Institute of Ophthalmology	9	2%
South Valley University	9	2%
Egyptian University for E-learning	8	2%
Pharos University	8	2%
Petroleum Research Institute	7	2%
Heliopolis University for Sustainable Development	6	1%
Desert Research Center	4	1%
Others	10	2%
Total	411	100%

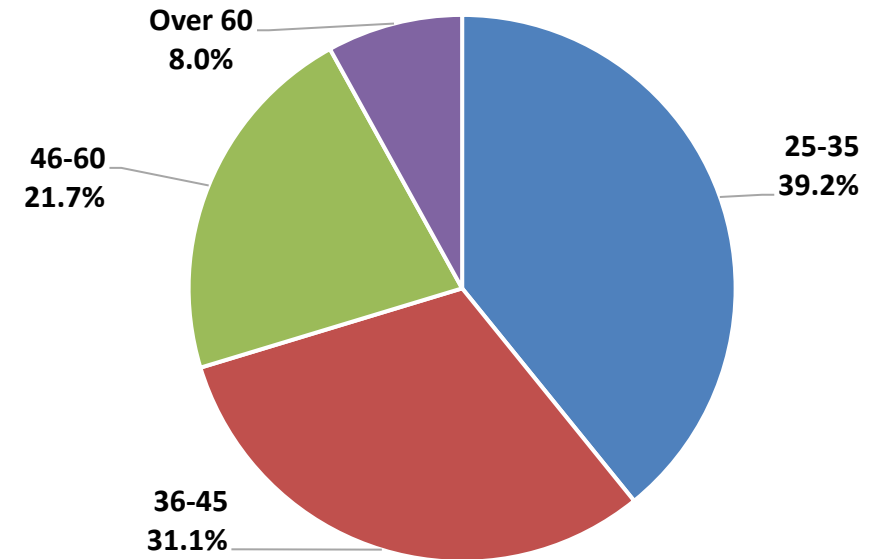
## Respondents Specializations



## Respondents of the Survey by Research Degree



## Respondents Classified according to Age

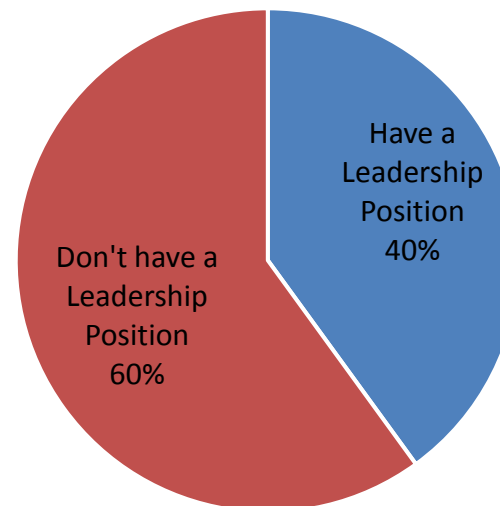


# Scientific and Leadership Background

**Distribution of Leadership Positions by Research Degree**

Research Degree	Women Researchers That have Leadership Positions		%
	Yes	No	
Less than Researcher/Lecturer	18	81	18%
Researcher/Lecturer	40	110	27%
Assistant Professor	32	44	42%
Professor/Professor Emeritus	73	13	85%
Total	163	248	40%

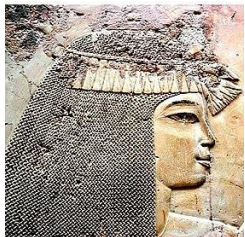
**Women Researchers that Held a Leadership Position**



The leadership positions for women varied across universities and research centers. The results showed that women took over various leadership positions such as the head of a research center or the dean of a Faculty, the President and the Vice President of a university, head of a research department







### Merit-Ptah

was thought to be a female chief physician in the pharaoh's court during the Second Dynasty of Egypt, c. 2700 BCE; she purportedly referred to as such on an inscription left on her grave at Saqqara by her son.



### Princess Fatma Ismail

(1853-1920) was unique among the daughters of Khedive Ismail (1863-1879) for the footprint of philanthropy and social work she left on Egyptian history, most notably in the form of today's Cairo University.



### Huda Sha'arawi

(1879–1947) was an Egyptian feminist who influenced not only women in Egypt but throughout the Arab World. She was a pioneer in feminism.



### Marie Curie

(1887-1934) was a Polish and naturalized-French physicist and chemist who conducted pioneering research on radioactivity; for her huge contribution to finding treatments for cancer; she was awarded the 1903 Nobel Prize for Physics. She was the sole winner of the 1911 Nobel Prize for Chemistry. She was the first woman to win a Nobel Prize.



### Sameera Moussa

(1917-1952) was the first female Egyptian nuclear physicist. Sameera held a doctorate in atomic radiation. She hoped her work would one day lead to affordable medical treatments and the peaceful use of atomic energy.



### Lotfia Elnadi

(1907 – 2002) was an Egyptian aviator. She was the first Egyptian woman as well as the first woman from the Arab World to earn a pilot's license.



### Mona Bakr

(1968 - 2017) was the Director of Egypt Nanotechnology Center (EGNC) affiliated to Cairo University. Mona Bakr was a young female Egyptian pioneer in nanotechnology and contributed to establishing this vital scientific field in Egypt.



### Rashika El Ridi

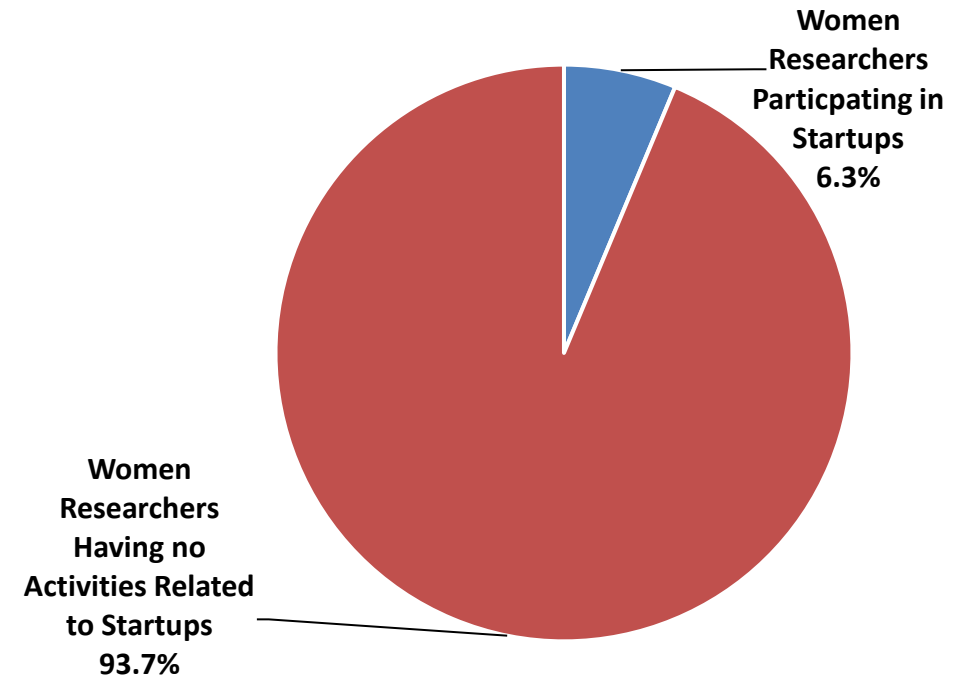
(1941) is a Professor of Immunology at the Department of Zoology, Faculty of Science, Cairo University. In October 2010 Professor El Ridi won L'Oréal-UNESCO Award for Women in Science for the year 2010 within the five most achievable works in the continents of the world.



# Entrepreneurship and Relation to Industry

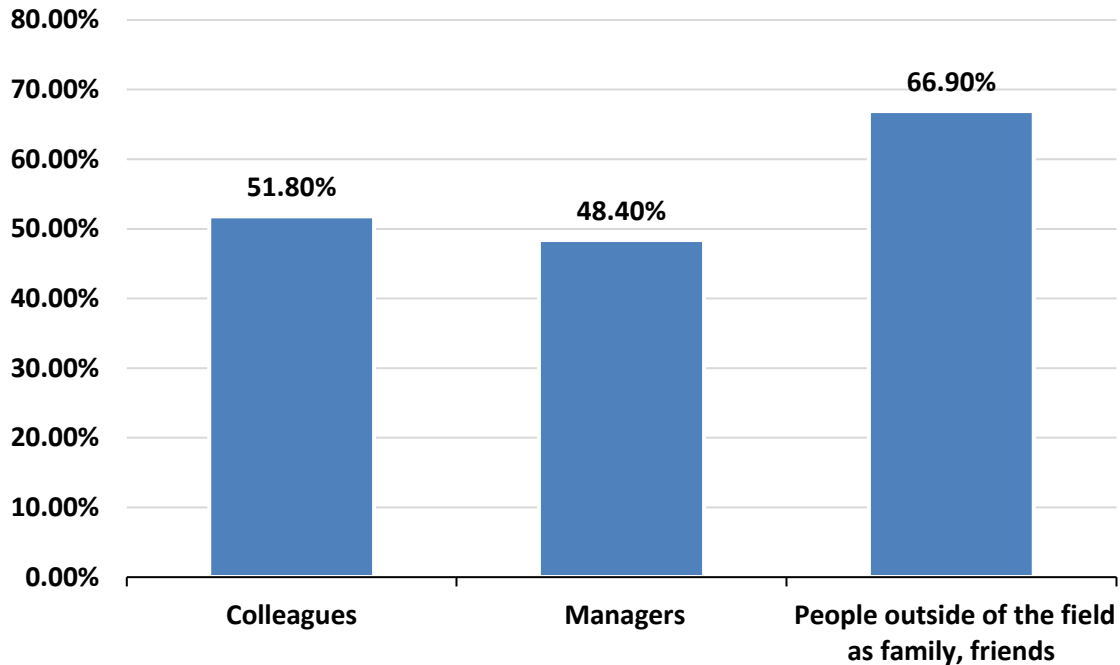
## Barriers Facing Women to be Entrepreneurs

- The lack of training for academic and university professors, especially women
- Women's family responsibilities
- Social and cultural restrictions
- Lack of knowledge of marketing methods
- Absence of women's awareness of entrepreneurship
- Lack of awareness among women about the procedures and the nature of projects that they can start with
- Lack of knowledge regarding the establishment of a commercial or investment activity
- Difficulty in obtaining funds
- Difficulty in accessing the market
- Social duties, less facilities and absence of financial support

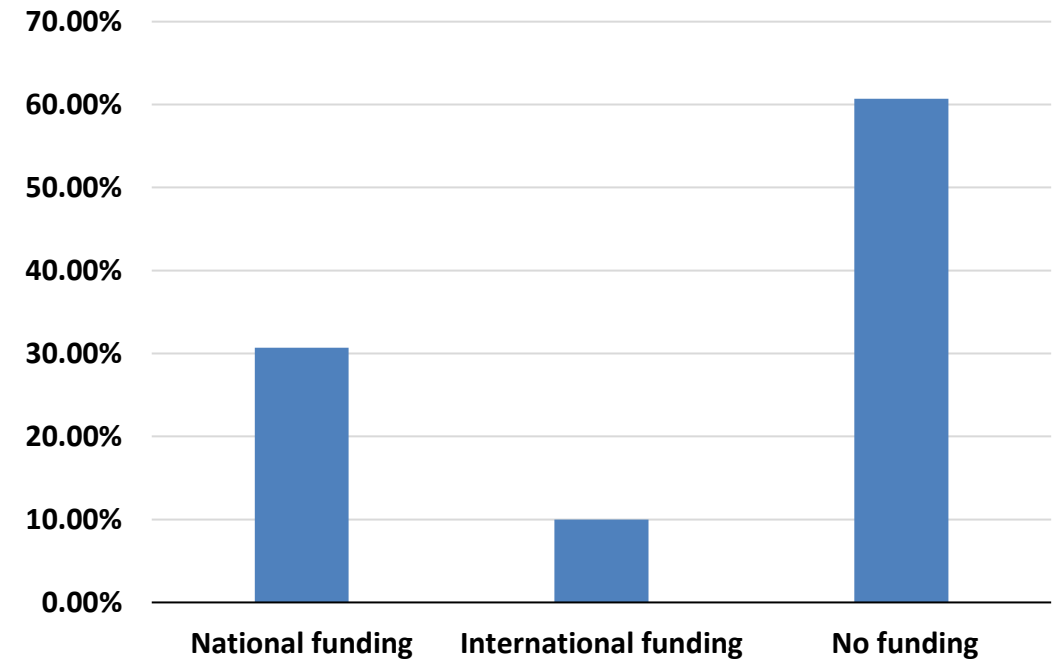


# Opportunities

## Receiving of Support



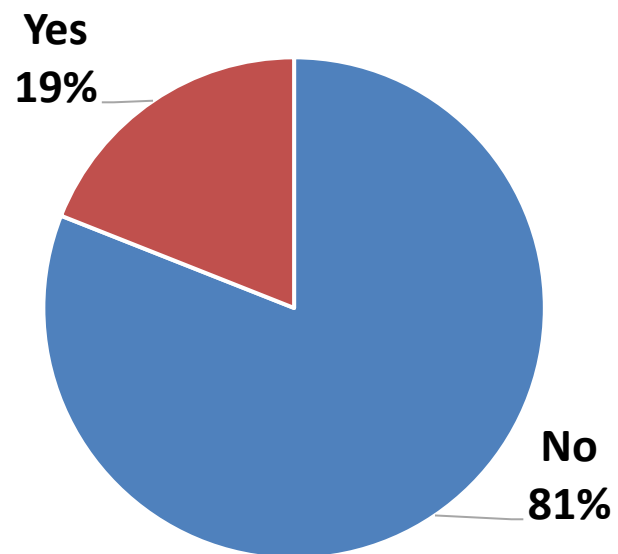
## Source of Funding



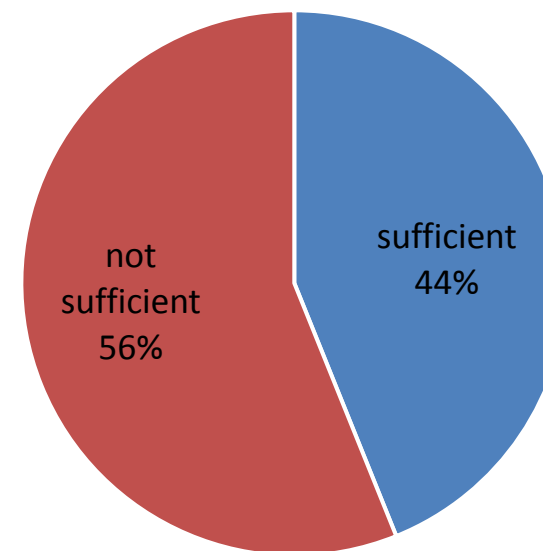
Most of the support they receive comes, respectively, from people outside the field, their colleagues, and their managers.



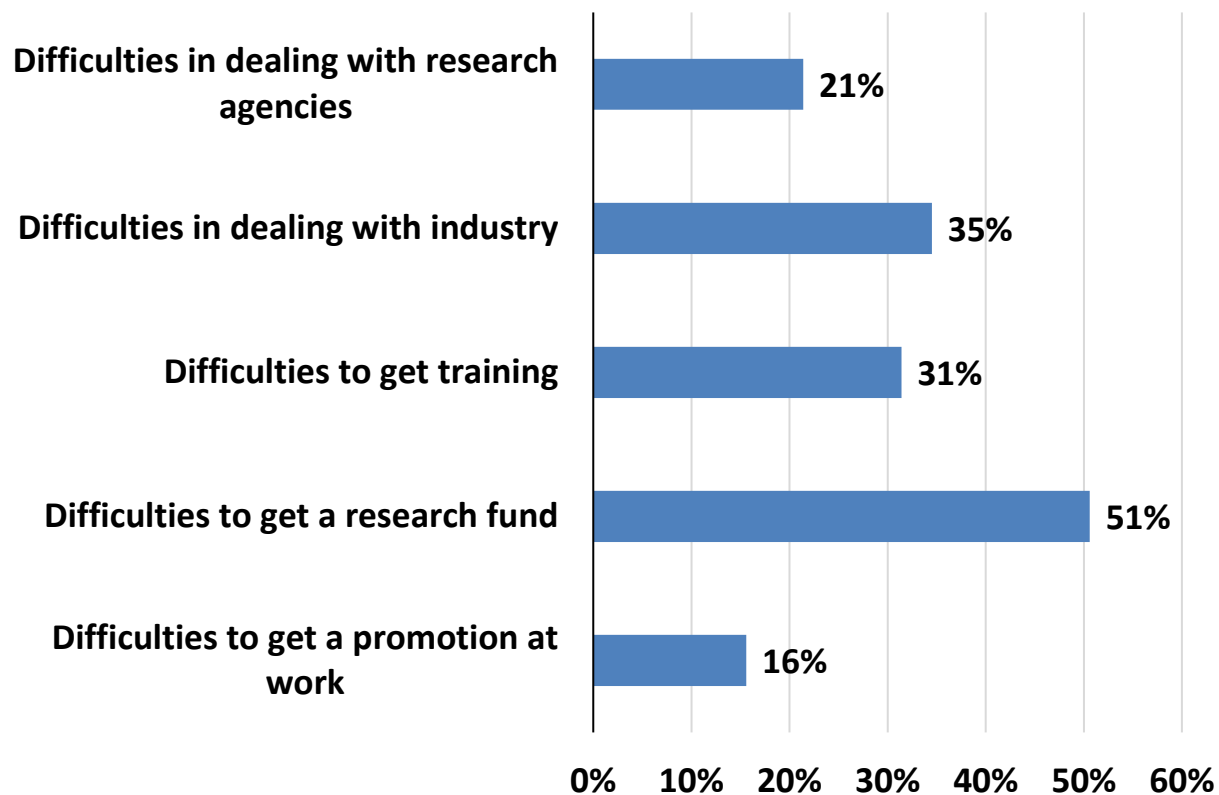
## Participating in Women Initiatives



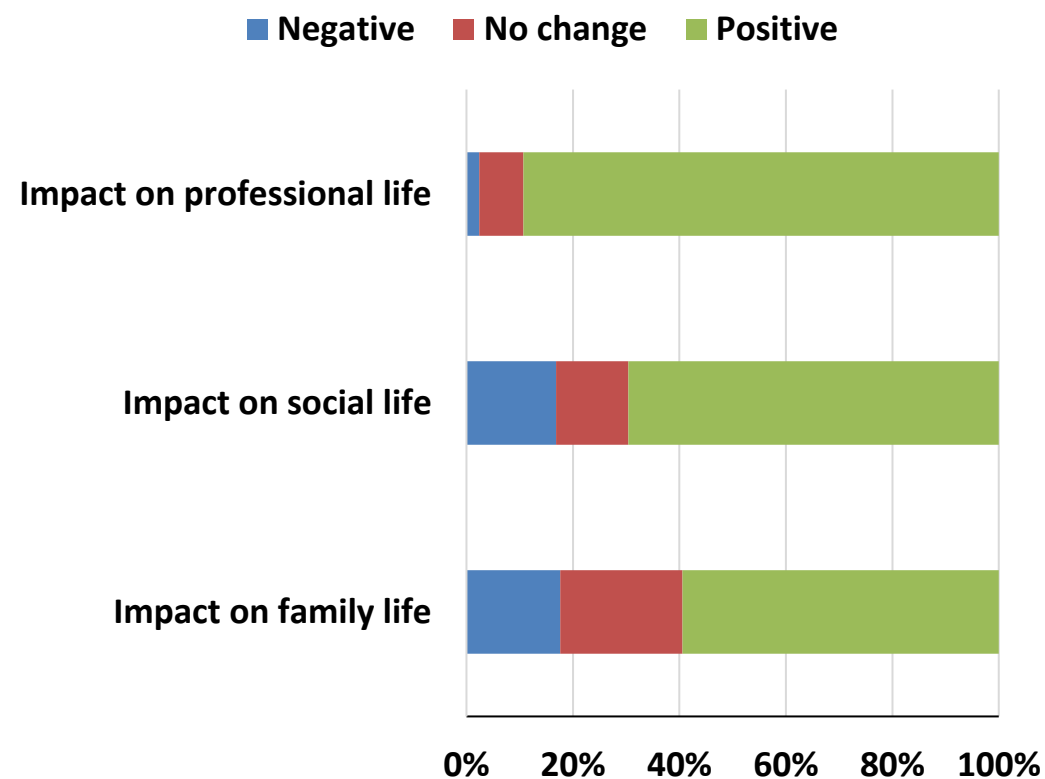
## The Sufficiency of Current Initiatives for Support of Women



## Challenges Facing Women in STEM



## Impact of Participation of Women in STEM





- تشجيع مشاركة المرأة في التطور التكنولوجي وإتاحة الفرص من قبل الحكومة خاصة في المجالات الحيوية مثل صناعات المياه والغذاء.
- مشاركة القطاع الخاص في تمويل وتفعيل البحث العلمي والتكنولوجي للمرأة.
- توفير حاضنات للطالبات داخل الجامعة.
- المزيد من الجوائز في تخصصات العلوم والتكنولوجيا للتجارب الناجحة والمشاريع من قبل النساء.
- القيام بالأنشطة البحثية والمسابقات العلمية للنساء فقط.
- الاحتفاظ بحق المرأة في تقلد المناصب العلمية بتخصيص حصة نسائية لا تقل نسبتها عن 10٪ ويمكن زيادتها.
- تحفيز وجذب المرأة لاستمرار مشاركتها في قطاع التعليم العالي
- المبادرات التي تدعم عمل المرأة في التكنولوجيا ولا تؤثر على حياتها الأسرية.
- حوافز مالية ومعنوية للباحثات.



- تسهيل مشاركة المرأة في المؤتمرات والندوات داخل وخارج الدولة.
- تشجيع المرأة وتدريبها لزيادة فرص البحث العلمي
- تفعيل دور المرأة في تحقيق عوائد اقتصادية من مخرجات البحث العلمي وتطوير أولوياتها وفق المجتمع.
- إنشاء مبادرة لنقل التكنولوجيا للمرأة في مجالات العلوم والتكنولوجيا.
- تقدير الرجل لها وتشجيعها وعدم التمييز في الأجر بين الرجل والمرأة.
- خلق فرص خاصة للمرأة للتقدم للمشاريع الممولة.
- مراعاة الأوضاع الإنسانية للمرأة.
- تشجيع المرأة في جميع المحافظات وخاصة في المناطق الريفية.
- تنظيم ورش عمل ودورات تدريبية ومؤتمرات تهدف إلى دعم الباحثات في الوطن العربي لخلق فرص عادلة لهن.
- مزيد من الدعم للباحثات اللواتي لم يحصلن على درجة الدكتوراه.



Thank  
you

**ESTIO**

المرصد المصري للعلوم والتكنولوجيا والابتكار  
Egyptian Science, Technology and Innovation Observatory

