Women and Geomatics in The Arab World

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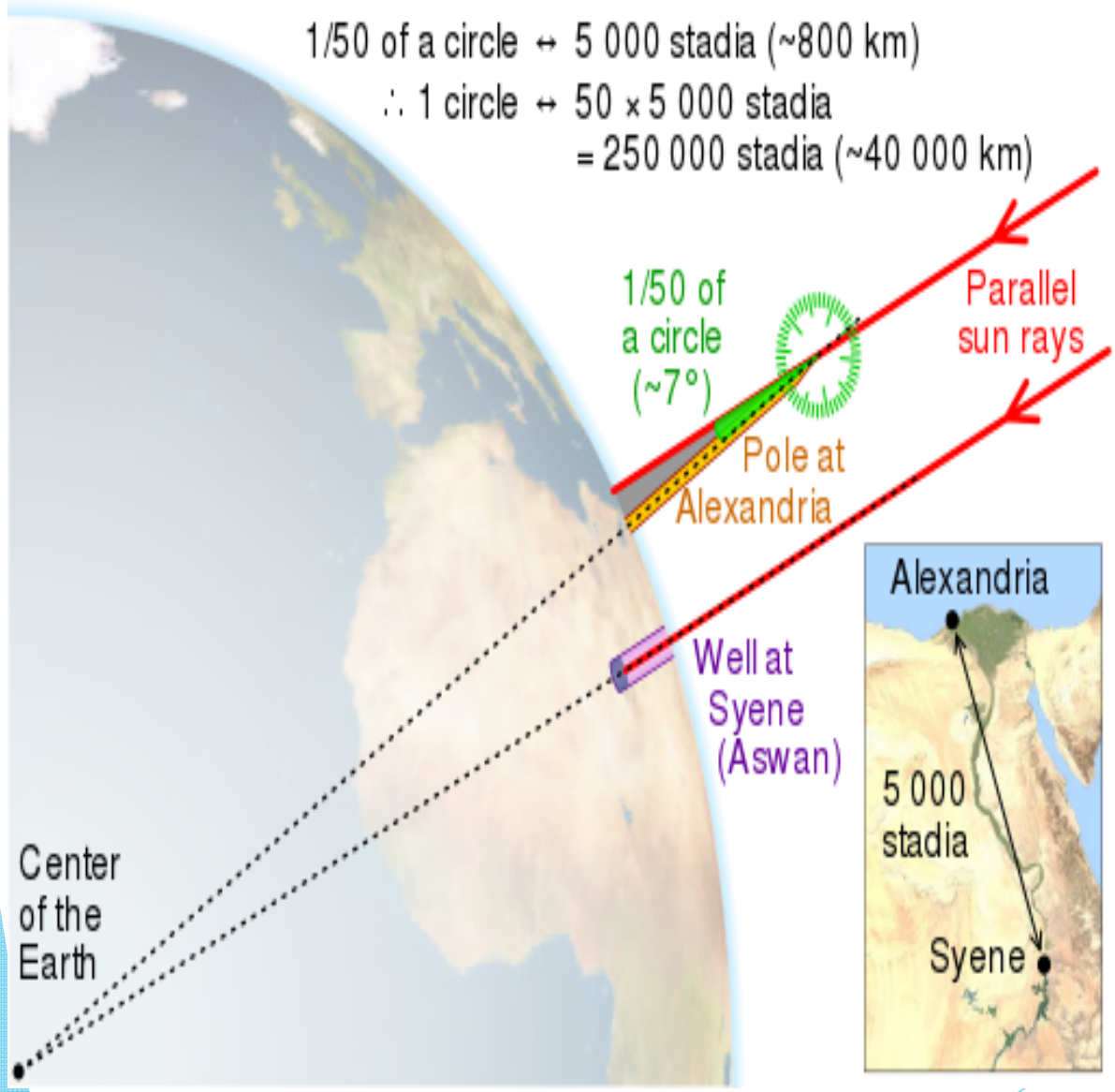
Female Survey Crew
Minidoka Project, Idaho 1918
U.S. Department of the Interior

Eratosthenes (around 200 B.C.) in Egypt with his measurements and observations calculated the circumference of the Earth, and created the first map of the world



Women are the biggest losers from 2 main factors: the invasion from abroad (Desert culture to our River Culture) and the ill-interpretation of religions.

Baher Ibrahim

Education is the most powerful weapon which you can use to Change the world

Nelson Mandela

The Arab Region

- Consists of 22 countries who are members of the Arab League, and around 450 million inhabitants.
- Gender discrimination is more complicated and has many nodes: backward traditional attitudes, wrong interpretation of religions, social constrains, economical….etc.
- These actual anomalies required more and more in-depth analysis and efforts.
- Recently, the Arab popular assertion is that sustainable development is only achievable through empowerment of women and gender equality.

Current Situation

- World Bank: the percentage of women studying engineering and related sciences in the Arab countries is comparable to, and even be higher than in more developed countries.
- In Kuwait, Qatar and the United Arab Emirates (UAE), two thirds of university science students are women, but their numbers are not replicated in the research workforce, of which women comprise only 12%. Similarly in Morocco, 70% of students enrolled in scientific universities are women, but few achieve leadership positions in the research field.
- UNESCO 2014: statistics reveal that women comprised 50% of total students enrolled in Computer Science in Saudi Arabia, while the figures in the UK and USA were around 20%.

Current Situation

- Less percentage of women who graduated with engineering qualifications go into surveying professions.
- In spite of surveying women have contributed already in several cases to develop several Mega projects for sustainable development. Our societies see women as delicate and engineering as bold.
- **Most of women surveyors are not prepared or trained to work in the field or with international agencies. They are not supported by the use of appropriate technology and information.**
- **The first graduate women surveyors in the Arab region were 6 females in 1968 (just 50 years ago).**

1st Arab Land Conference

Dubai - 2018

Women Enrollment in Education and Labor Force In The Arab World

Primary Education

92%

Secondary Education

74%

Universities & Institutes

48%

Labor force before marriage

29%

Labor force after marriage

18%

Women only hold 5% of the high-level positions in scientific sectors

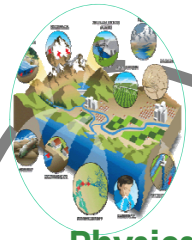
Females & Education:

Illiteracy rate

Country	Primary Schools	Secondary Schools	Universities	Labor Force
Algeria	99	73	41	20
Bahrain	98	97	60	17
Egypt	96	83	38	21
Iraq	91	47	34	18
Jordan	97	89	51	21
Kuwait	95	81	68	25
Lebanon	97	79	52	28
Morocco	88	76	44	29
Oman	71	67	58	14
Palestine	99	86	47	13
Qatar	96	92	63	13
KSA	90	70	46	11
Syria	98	66	56	20
Tunisia	99	80	48	24
UAE	96	80	65	12
Yemen	61	25	21	8
Av/country	92	74	50	18

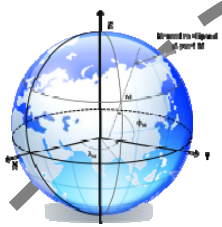
SURVEYING ENGINEERING DEPARTMENT – FACTS & NUMBERS

The first Surveying Dept. initiated 1963
Total 3875 Graduates/ 840 Female.
1968 - 2018



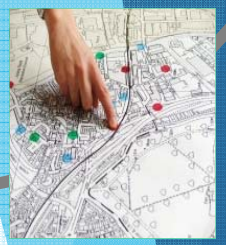
Physics
Mathematics
Meteorology

Surveying
Mine Surveying
Route Survey



Geodesy
Ph. Geodesy
Map Projection
Astronomy

Photogrammetry
Close Range Ph.
Photo Operation
Remote Sensing



Cartography
GIS
Project Management

8 Academic Semesters

47 Courses	109 Lecture Hours	127 Practical Hours

The B.Sc. program

Post Graduate Education Facts & Numbers:

- In spite of the reasonable percentage in the undergraduate education 22%, it is 5% at the post-graduate level specially in surveying sciences.
- Recently the working community of surveying in our region is better w.r.t. the number of female surveyors.
- e.g. surveying sciences in Egypt shows that women are only:
  - 5 Professors
  - 8 Associated Professor
  - 15 Doctors
  - Around 50 have Masters of Science Degrees.
- Looking at all other Arab countries there are few post graduate women in Surveying Engineering.

Arab Governments & Working Women:

- **If** the Arab governments are serious to improve the technical standard and the productivity they have to give attention to the overall potential of human resources. *Gender equality is a critical factor.*

- Actual *permitted space* for the female is not equal to the male in the Arab technical communities. The collected disaggregated data at the regional level shows the *huge* gender gap at decision making level in governmental sector.

- Highly skilled and well qualified jobs are reserved just for men. *Arab Governments think that Engineering Sciences are masculine*.

Non-governmental Sector:

- Efforts of non-governmental sectors have been underway in several Arab countries. They promote women to work in engineering and surveying departments.

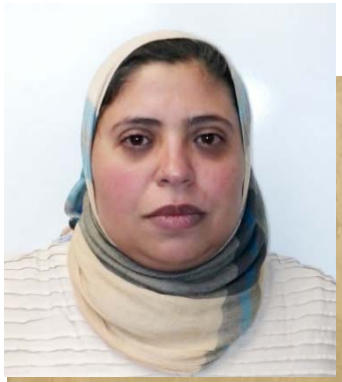
- Evidence shows that, *without any exceptions,* successful information centers, GIS sector, RS institutions, and communication private companies in the Arab region depend on the skills of women surveyors.

Role of Women Surveyors in The Arab Countries:

- Women Surveyors can identify the best practices for attracting women to careers in Geomatics, and encourage who are working in the same field.
- Women Surveyors can shed light on factors preventing women from entering the field.
- According to our regional old traditions; Women Surveyors can communicate better with women in rural areas.

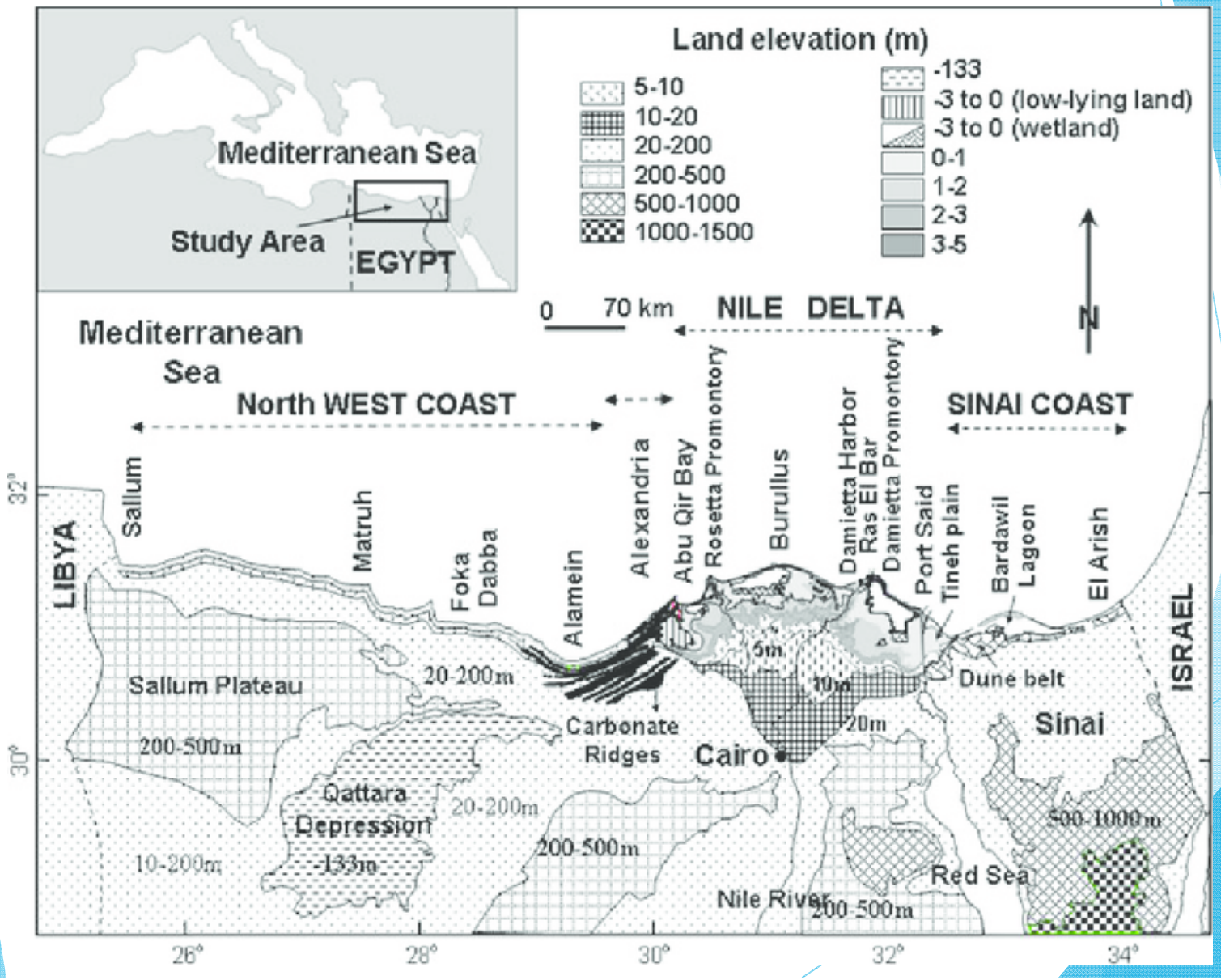
First Mega project :The New Valley Project (Toshka)

Main Researcher: Dr. Nagwa ELashmawy



- In 1997 the Egyptian government decided to develop a **new valley** project where agricultural and industrial communities would develop. It has been an ambitious project which was meant to help Egypt cope with its rapidly growing population.
- The **Project** consists of building a system of canals to carry water from Lake Nasser to irrigate part of the sandy wastes of the Western Desert of Egypt,(540,000 Fed.).

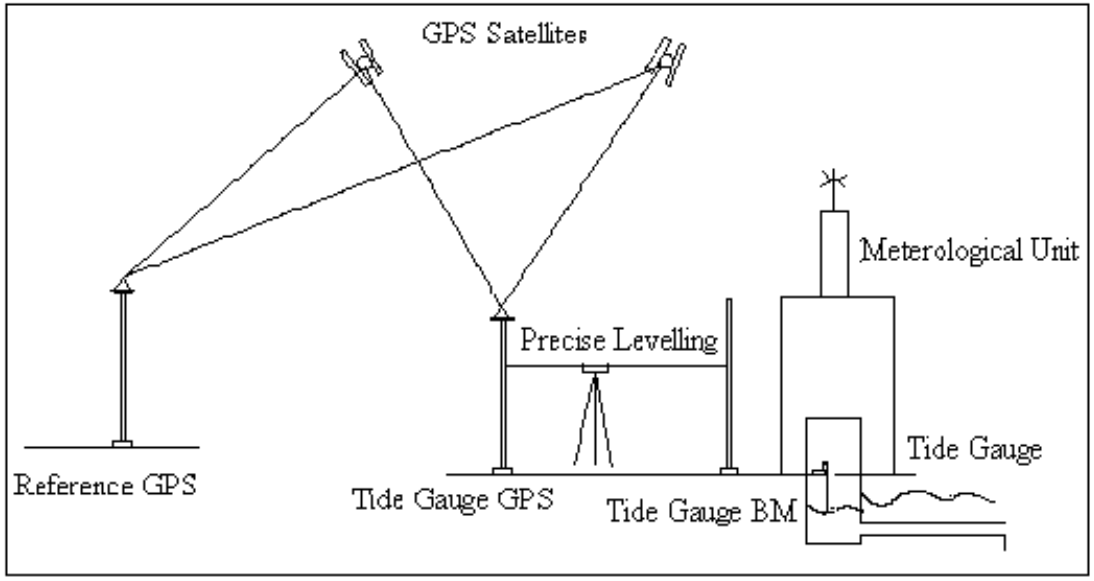
Second Mega Project: Climate Change Impact on MSL of the North Coast



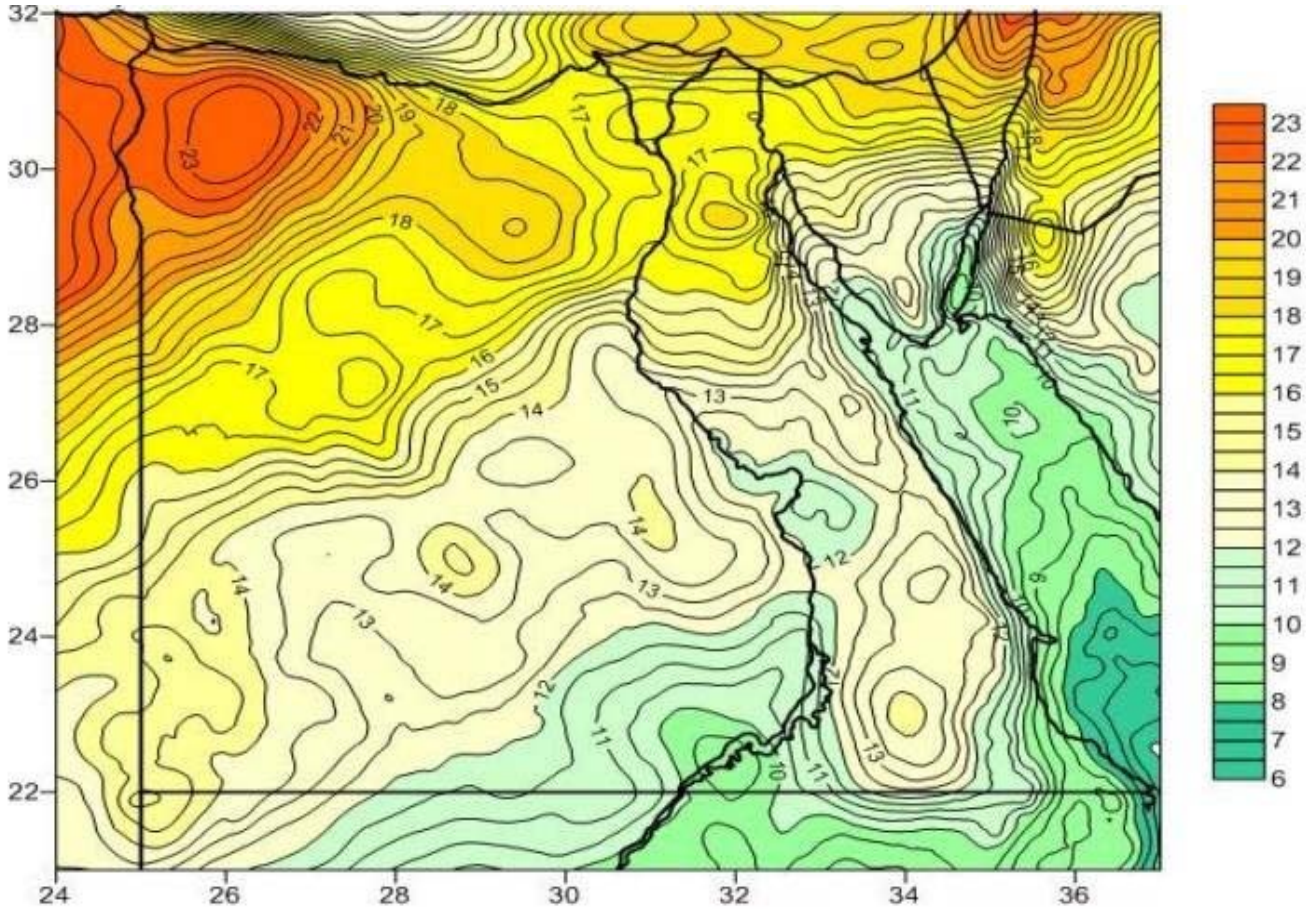
Climate Change Impact on MSL of the North Coast,

Main Researcher: Dr. Hoda Faisal

- Tide Gauge (1944-2016) MSL +1.7mm/year
- Permanent GPS (1999-2016) -0.47mm/year
- MSL raise at the North Coast +2.17mm/year



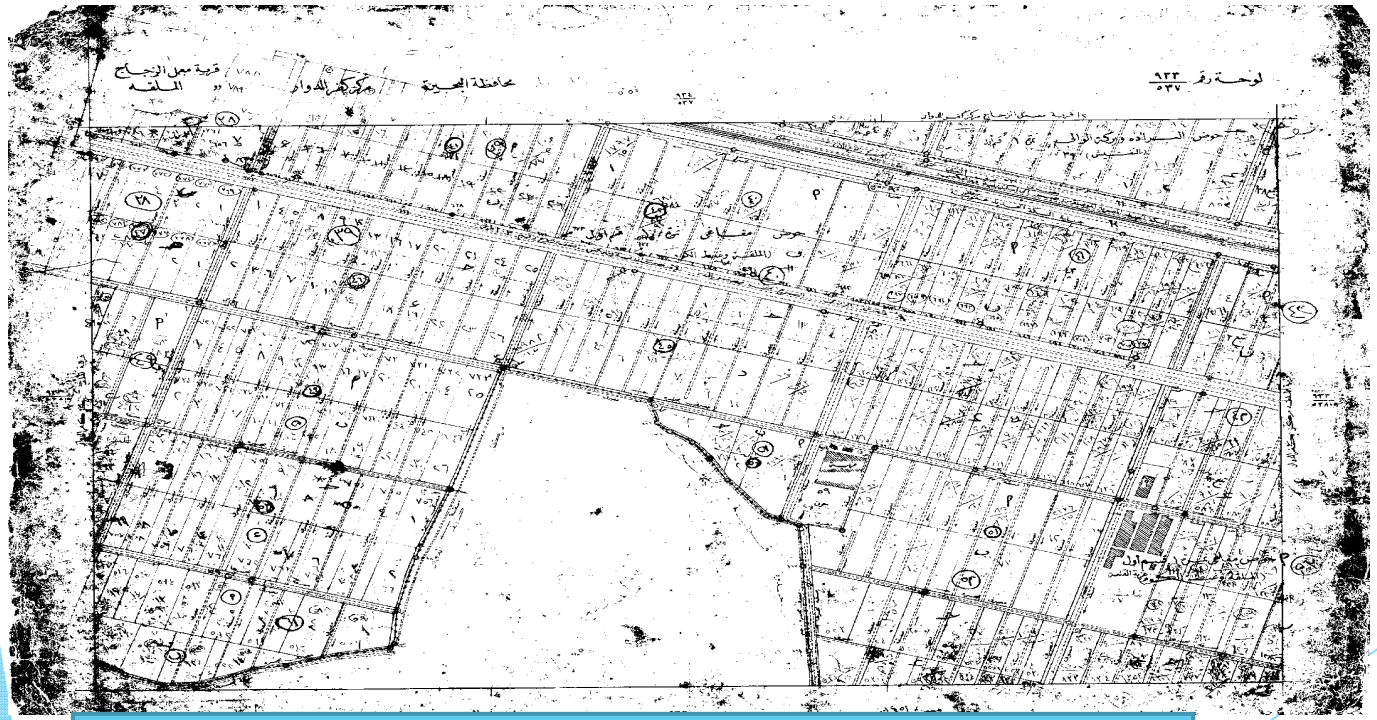
Third Mega Project: The geoid determinations in Egypt (1997):



- A combination of gravity measurements, GPS, precise levelling and astro-geodetic data(heterogeneous data) is used for the precise determination of the geoid in Egypt.(accuracy within 50 cm.)

Fourth Mega Project: Egyptian Nationwide Title Cadaster Survey

It is a cadastral information system for managing cadastral activities in rural and urban areas covered by title registration. This National project objectives are automating, classifying and speeding the registration with min. costs and time.



Total cultivated
Land 8.06 million fed.

Eng. Fatma Abdul Kader

Eng. Kholoud Saad

Boat of Ideas

On the Regional Level:

- Integration of all efforts: Governmental, Educational, Training, Private sector, and civil society to face the challenges for sustainable development by facing the social, political, cultural, environmental and religious factors.
- Spreading tailored awareness campaign for women in rural areas, e.g. media campaigns.
- Establish a common platform for regional cooperation and cross-border programs concentrated on a stakeholder's network to exchange experiences and information.

Boat of Ideas

On the International Level:

- Develop an optimum scenario of cooperation with international organizations (GLTN, WB, FIG, GIZ, AUS,UNESCO … etc.) to have executive solutions instead of scattered and overlapped efforts.
- Initiate Women Surveyors Network. Develop the network's members' skills by effective cooperation between int. organizations to promote training sessions, workshops, seminars…etc.
- Continue working together to increase awareness and initiate the advocate policy recommendations to improve their representation in geomatics and engineering disciplines.

Conclusion:

- The Arab Society is characterized by the general public's stubbornness and male domination.
- Surveying society tries to deny the problem.
- Women surveyors advocated and tried to put real end to negative gender stereotyping.
- The battle will inevitably be won by strong determined women of the region.

In the Arab Region:

Women are able to lead and shoulder the responsibility for changing the overall development process

SUSTAINABLE DEVELOPMENT GOALS

Thank you