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# EMPOWERMENT OF WOMEN IN STEM: MALAYSIAN PERSPECTIVE

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# STEM Policy in Malaysia

STEM refers to Science, Technology, Engineering and Mathematics

1986-Formulation of the 1<sup>st</sup> Science & Technology Policy to improve facility for scientific invention and infrastructures

Started in 1970s  
60:40, Students participation in STEM area as compared to arts and humanities

1991-Policy of Vision 2020  
Establish scientific & progressive society.  
Important pillar in establishing S&T related policies and programs

**Main Objective:** To increase the number of experts, which is expected to spur the country's economic development.

# HISTORY OF MALAYSIA'S STEM POLICY (1)

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- ◆ Students who score grade A or B in both Science and Mathematics at the Lower Secondary Assessment are automatically placed in the STEM stream
- ◆ A study conducted by Curriculum Development Division (CDD) in June 2015, revealed that this policy of automatic placement contributed the most to increasing participation of girls in STEM education (BPKb, 2015).



Malaysian government instituted the 60:40 Science/Technical : Arts Policy in education in 1967 and started implementing it in 1970

**In 2014, 45% Science stream + technical & vocational**

- There is a trend of more girls scoring grade A and B in the Lower Secondary Assessment than the boys. For example, in 2013, there were 13% and 11.3% more girls than boys who scored grade A and B in Mathematics and Science respectively.
- **(Issue of “Lost Boys”)**

## HISTORY OF MALAYSIA'S STEM POLICY (2)

Malaysia has always been determined to raise Science awareness and prepare young technocrats

In 1905

The first residential school, Malay College Kuala Kangsar (MCKK) was established. For boys only

In 1947

The first girls' college was established and renamed in 1961 as Tunku Kurshiah College (TKC),

2<sup>nd</sup> Malaysia Plan (1971-1975)

Residential co-ed schools were established. The Science Secondary school (SMS) and Mara Junior Science College (MRSM)

More residential schools for Girls

Most of the students study pure sciences at the upper secondary school level, and majority of them ultimately pursue S&T courses at the university. Currently there are 51 MRSMs throughout the country

Increase the problem of the 'lost boys'.

# Malaysia Woman Policy (MWP)

Malaysia Woman Policy (MWP), 1989 was revised in 2009



1

To develop the potential of women from various strata of society as well as empowering them as agents of change to contribute towards national, economic and social development

2

To promote the dignity and welfare of women by using a holistic approach that targets physical, economic, social, political, health, psychology and spiritual aspects.

3

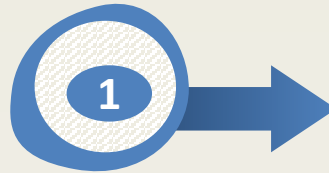
Towards enculturing gender equality and enhancing women participation in decision making at all levels

4

Ensuring that women and men share resources and opportunities in participation, and both enjoy the benefits that accrue from the development of the country through family institutions, community and national development.

# KEY AGENDA IN THE TENTH MALAYSIA PLAN (2011–2015) IS

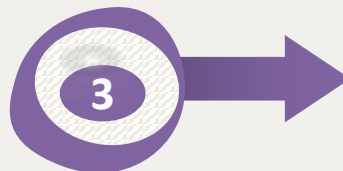
Empowering women to enhance their economic contribution



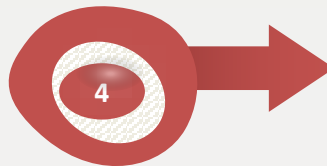
Companies to include a gender diversity index in their annual reports.



Raise the number of women in decision-making positions in the private and public sectors to 30% by 2016.



Career comeback program for women who have left the workforce to take care of their families  
**Increase leave benefits for mothers to 5 children**



Formation of Women's Advisory and Consultative Council which monitors and advises the Government in formulating policies and legislation that address women issues

**In 2015, women held 26.3 % of top management positions across PLCs**

# CEO:

## Tan Sri Dato' Dr Zeti Akhtar Aziz

- Tan Sri Dato' Sri Dr. Zeti Akhtar Aziz, a remarkable corporate woman, is the first and only woman to have been appointed as the governor for Bank Negara Malaysia (2000 – 2016).
- Ranks in the top ten central bank governors of the world.
- Her incredible intelligence and vast knowledge in finance and business was clearly demonstrated when she pulled Malaysia from the Asian Financial Crisis with meticulously developed strategies.



The 7<sup>th</sup> Governor of Bank Negara Malaysia (for 16 years)

Ahmad, R. (2011). Malaysia's Central Bank Governor Zeti Akhtar Aziz.

Retrieved from <http://www.reuters.com/article/malaysia-cenbank-idUSCENBANKMY20110223>

# CEO

## Dato Yasmin Mahmood

- Started work as an analyst programmer with a local bank after
- Become the General Manager of Hewlett Packard Malaysia's Commercial Channels Organisation
- General Manager and Regional Corporate Director of Dell Malaysia.
- Executive Director of YTL e-Solutions Bhd.
- Managing Director of Microsoft Malaysia Sdn. Bhd.
- General Manager of HP Sales Malaysia.
- CEO for the Multimedia Development Corporation of Malaysia (MDEC)





# CEO

## Professor Emeritus Datuk Dr. Mazlan Othman

- Malaysia's first Astro-Physicist
- Director of National Space Agency
- First head of Malaysia's Angkasawan Project
- Director of MegaScience 3.0 (futures-planning project of Government of Malaysia)



# LIST of Female CEO

Dato Yasmin  
Mahmood, CEO of  
Malaysia Development  
Corporation

Datin Paduka Sa'adiah  
Binti Sheikh Bakir  
CEO of KPJ Healthcare

Dato' Rohana binti Tan  
Sri Datuk Haji Rozhan  
CEO of Astro Malaysia

Yvonne Chia  
CEO of Hong Leong  
Bank

Aireen Omar  
CEO Air Asia Berhad  
(malaysia):

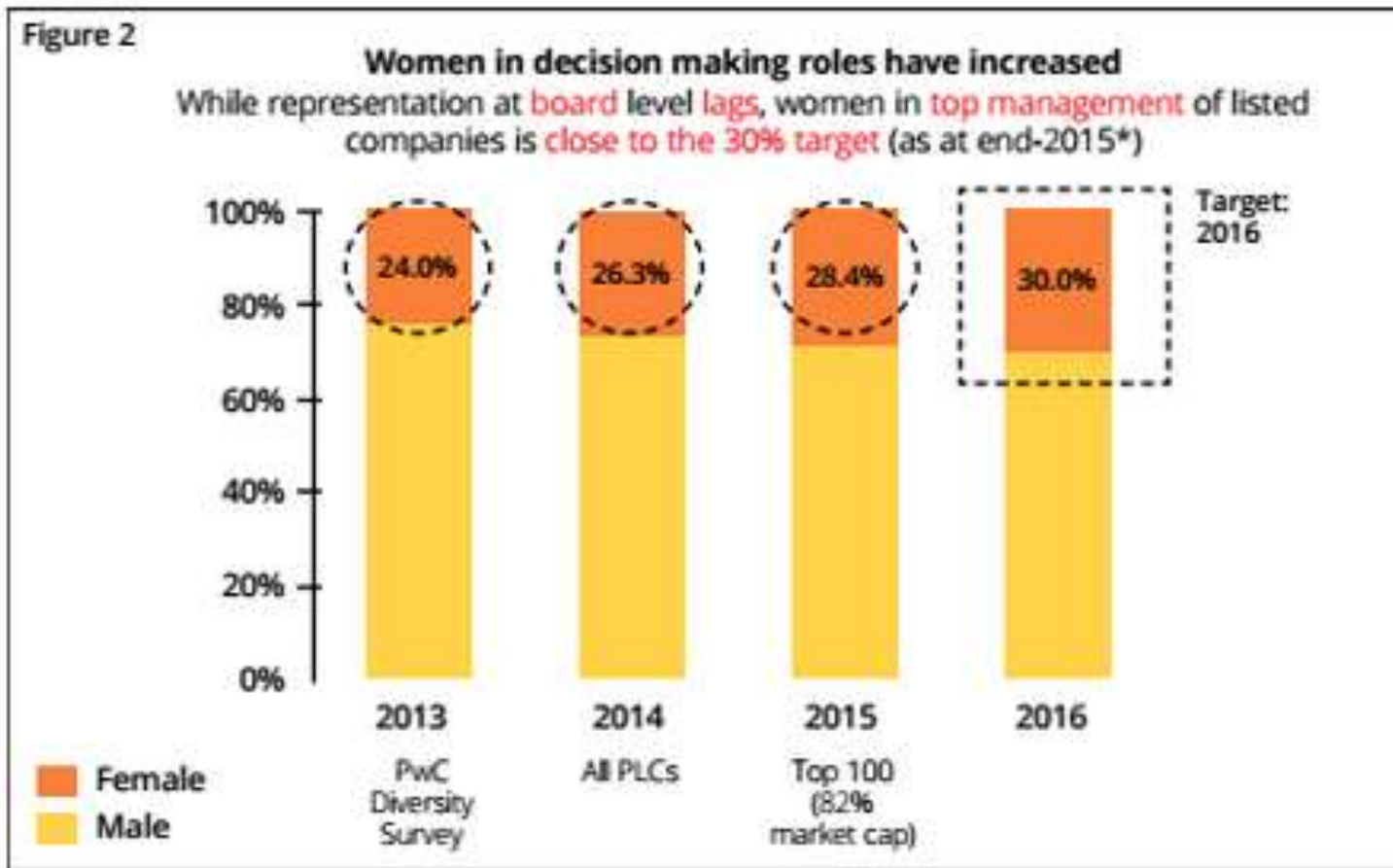
Ruth Yeoh  
Executive Director of  
YTL Singapore Pte

Masnizam Hisham  
Prasarana Integrated  
Management:

Shareen Shariza Abdul  
Ghani  
Talent Corporation  
Malaysia (talentcorp):

Chong Chye Neo  
IBM Malaysia:

# Statistic of women in decision making roles



Based on 2015 Bursa annual returns, women accounted for 26.3% of top management across all listed companies

# Gender equality surveys on Malaysia by HAYS

68 %  
women

- Aspire to reach a top leadership position in their career

42 %  
women

- Feel they have the opportunity to self-promote at workplace

58 %  
women

- Feel that their organizations do not have any formal gender diversity policies and practices in place.

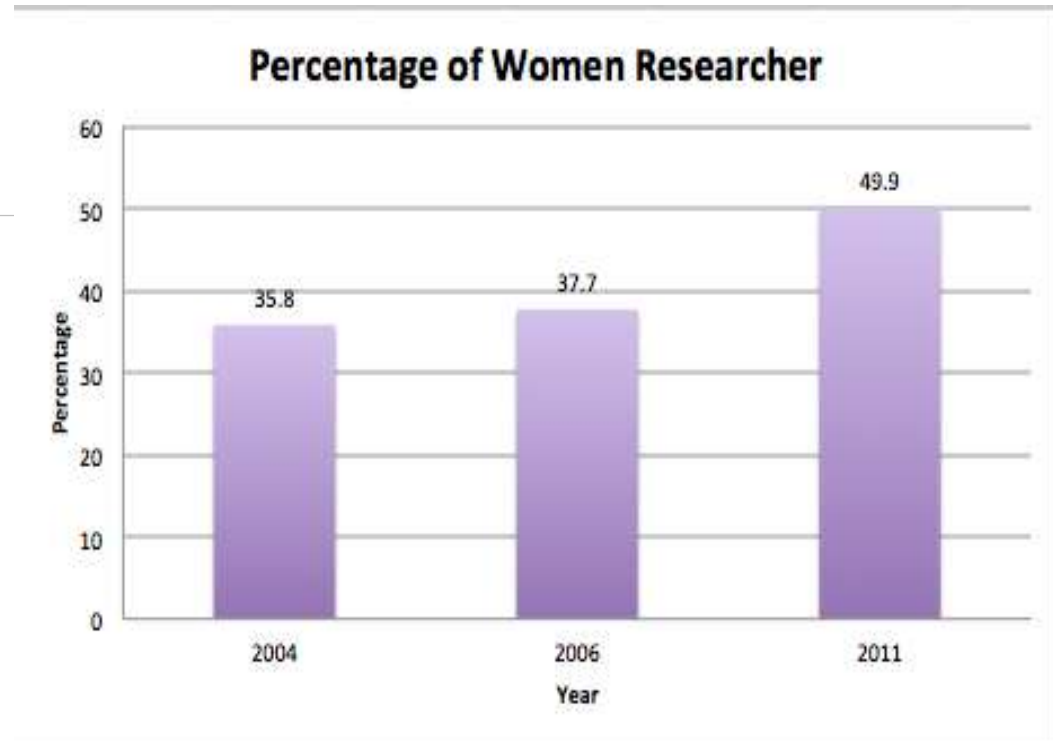
60 %  
women

- Think that the same career opportunities are open to equally capable colleagues regardless of gender

## WOMEN IN STEM

In the field of STEM, the Policy seeks to empower women adequately so that they can be competitive and not marginalized in national development.

STEM is conceived as one of the key drivers in improving the potential of women towards acquisition of knowledge and skills and participation in the pathways for innovation



- In 2006, the annual National R&D Study by the Ministry of Science, Technology & Innovation (MOSTI), women researchers **increased** from 35.8% in 2004 to 37.7%.
- By 2011, the percentage of female researchers rose to 49.90% (UNESCO Institute for Statistics, 2015).

# Case study: From enrollment to Employment to Empowerment (STEM Education Sector)

Malaysia Gender Gap Index (2014)

Score: 0.652

Rank in the world : 107

“Global Gender Report 2014”

# WOMEN IN EMPLOYMENT

Malaysia

## Achievements in Malaysia

### Outcome 1

- Malaysia is among the countries that have reached gender parity in research, with 49.9% of researchers being women

### Outcome 2

- Women make up the majority of students enrolled in undergraduate programs at university

### Outcome 3

- In 2015, women held 26.3 % of top management positions across Public Listed Companies**

#### Tertiary level STEM Students

Male: 61 %  
Female: 39%

#### Tertiary-level STEM graduates

Male: 58 %  
Female: 42 %

#### R&D Personnel STEM

Male: 45 %  
Female: 55 %

#### PhD STEM graduates

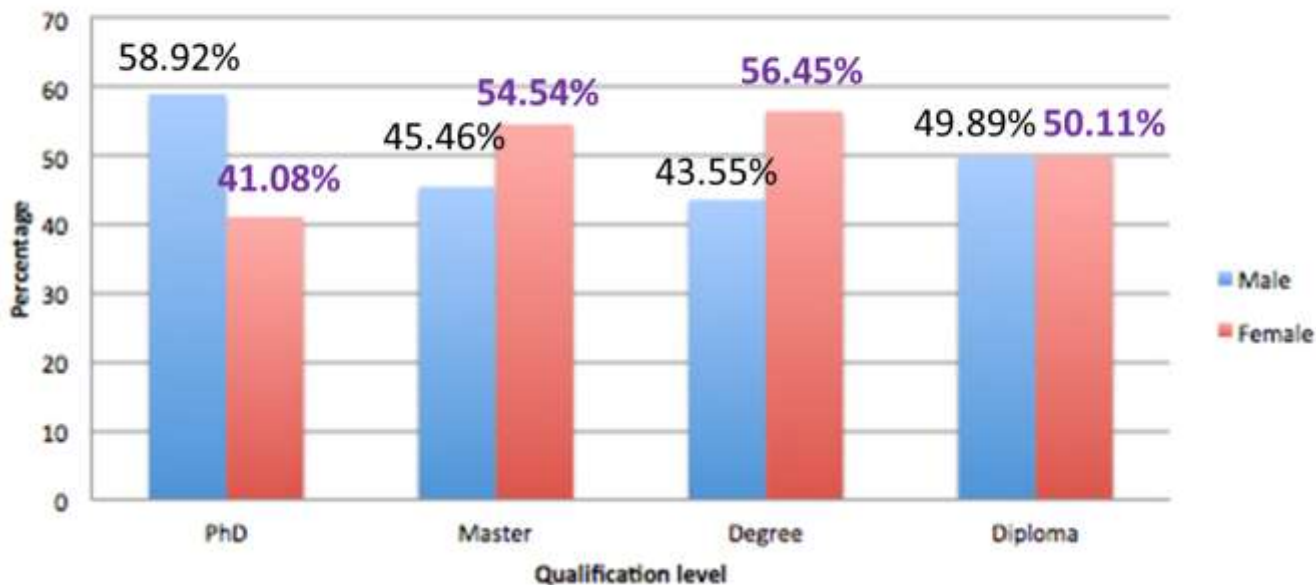
Male: 49 %  
Female: 51 %

## Key Demographic and Economic Indicators

GDP (US\$ billions).....	207.73
GDP (PPP) per capita (constant 2011, international \$).....	21,897
Total population (millions).....	29.72
Population growth (%).....	1.62
Overall population sex ratio (male/female).....	1.03

# Statistic of Students Output in Science & Technology

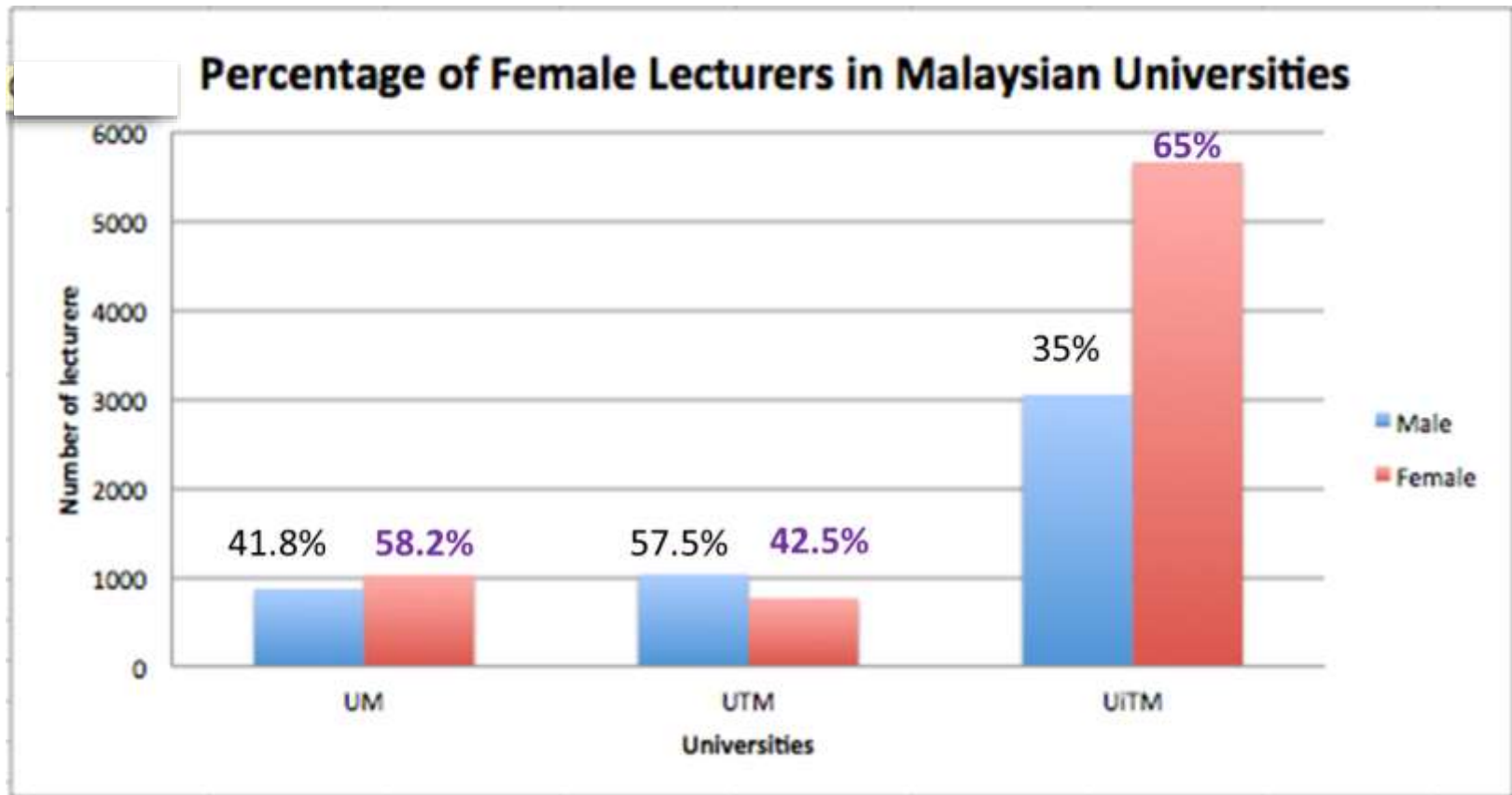
Percentage of students output for Science and Technology Area



Percentage of women undergraduate and Masters students are higher than men, but fewer women reach the highest level (PhD).



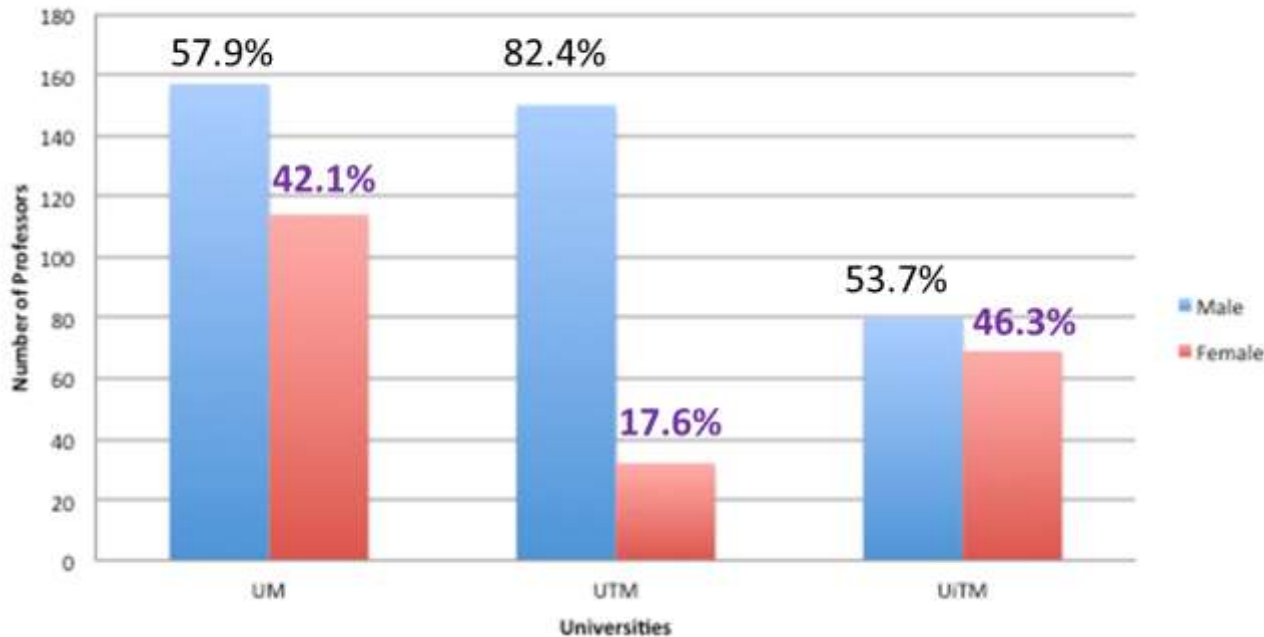
# Statistic of Lecturers in Malaysia Public Universities (2015)



The percentage of female lecturers is higher than male lecturers in UM and UiTM. These are comprehensive universities. The percentage of male lecturers in UTM is higher as UTM is technological university

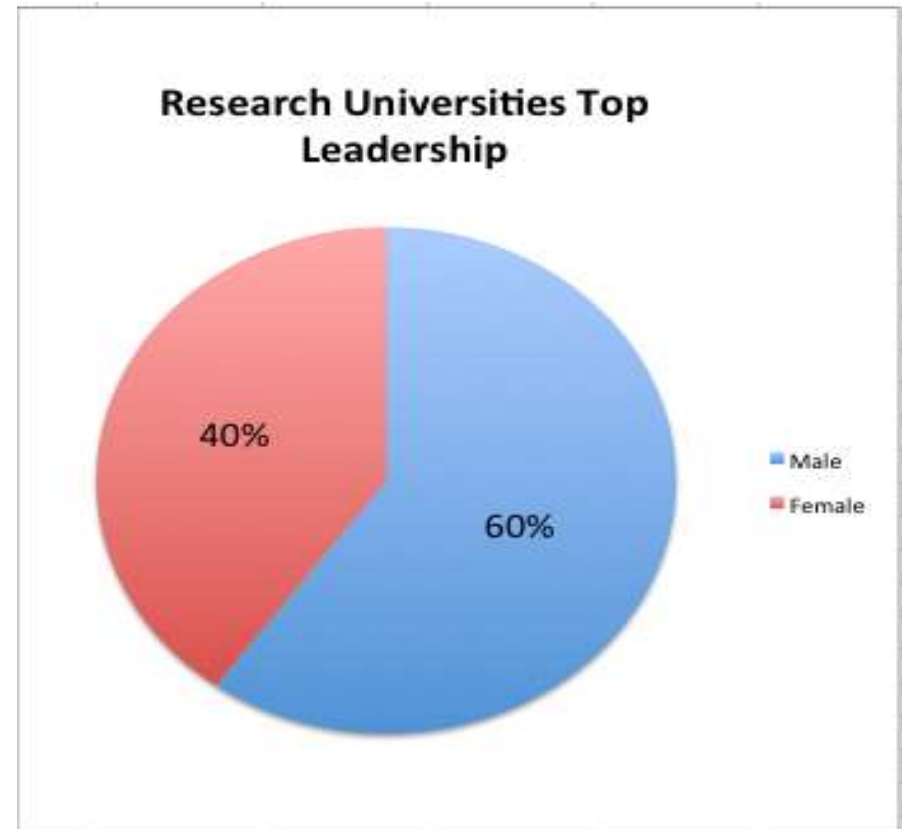
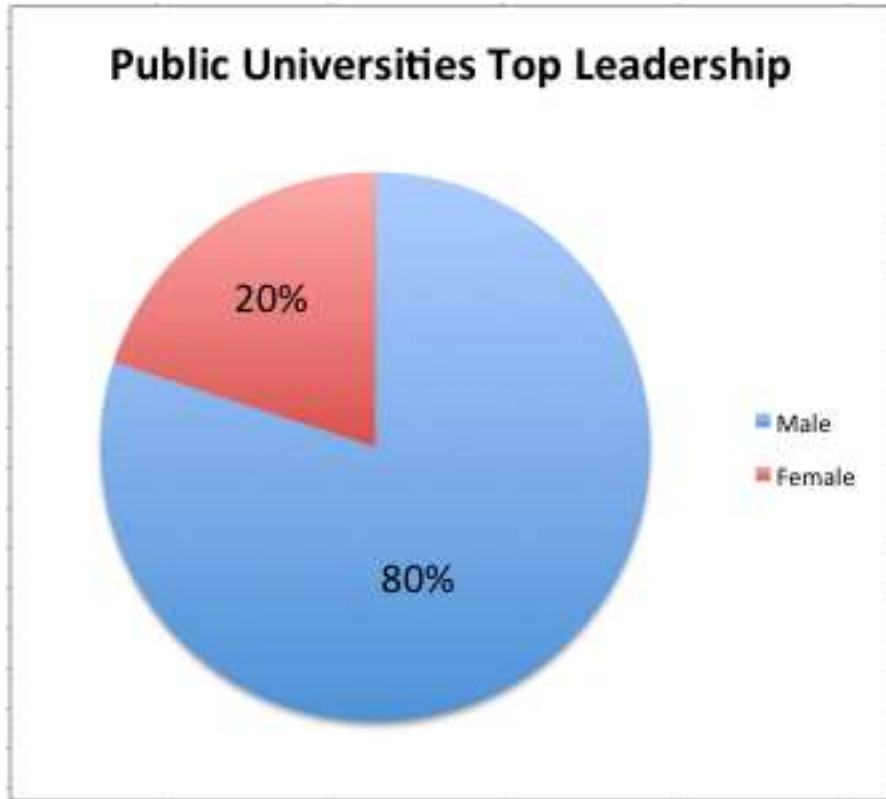
# Statistic of Professors in Public Universities

Percentage of Professors in Malaysian Universities



- Majority of Lecturers are women, only few women reach the top rank (Professor).
- The percentages of male professors are significantly higher compared to women.
- Similar performance indicator used for promotions to both genders.

# Top leadership in Malaysian Public Universities



In addition: Out of 20 faculties in Universiti Teknologi Malaysia, which is a science and engineering focused university, only 10% of the deans are female.

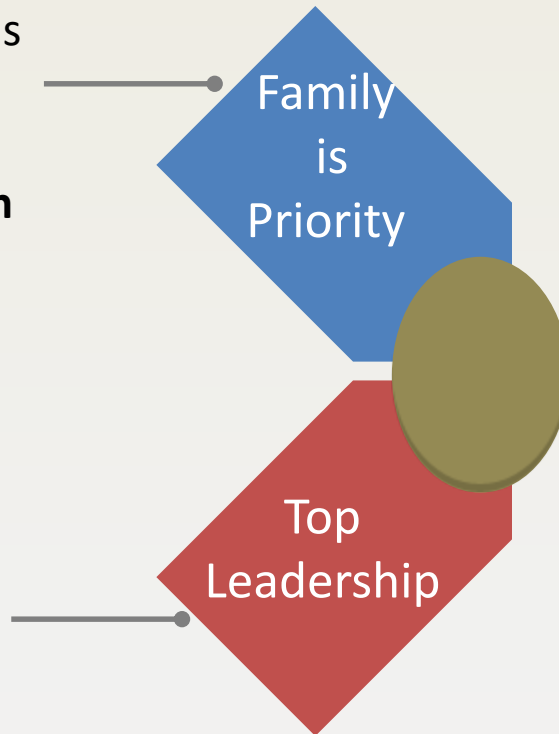
# WOMEN IN MALAYSIA

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Women's role is oriented more towards **family matters** rather than self-fulfilment :**family is always given the priority.**

**68% of Malaysian Women** aspire to reach top leadership position in their career (Hays Report)

Malaysia has the highest percentage of women ambition for MD/CEO globally (Hays report 2016)



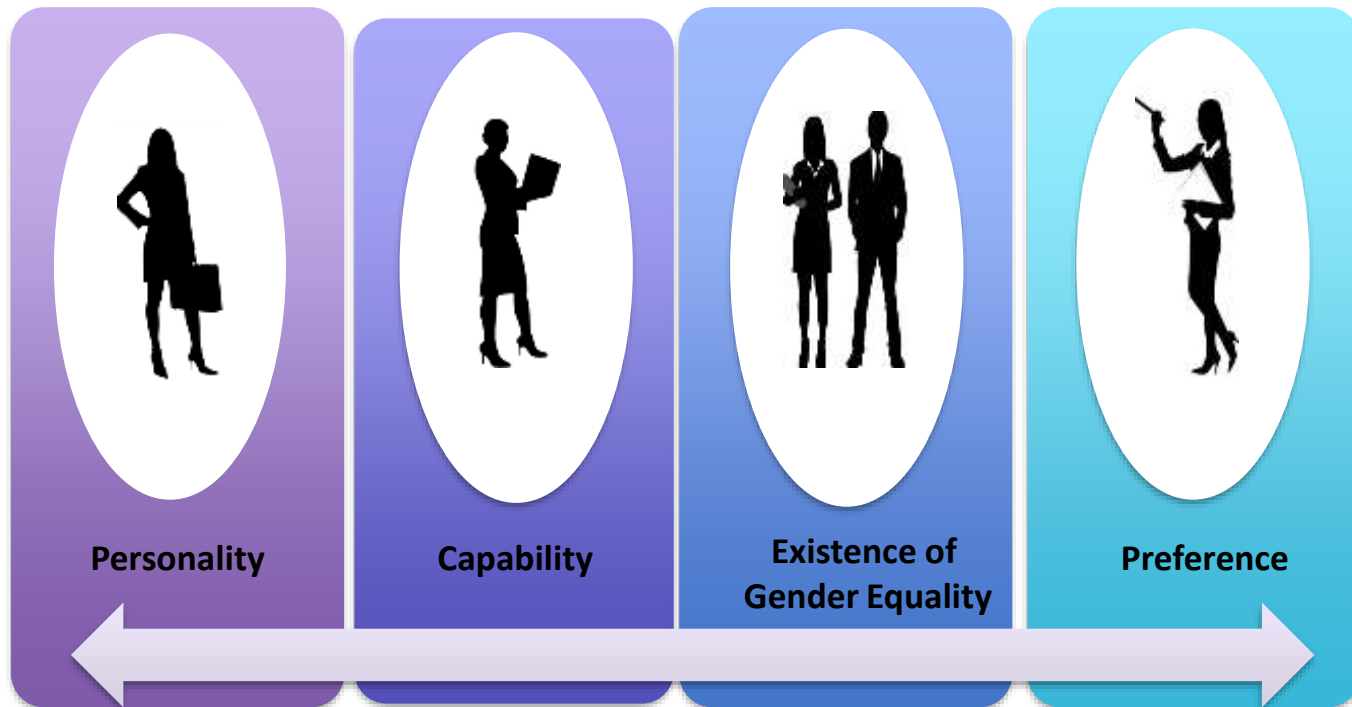
**The Quran treats men and women equally.**

*And do not covet that by which Allah has made some of you excel others; men shall have the benefit of what they earn and women shall benefit of what they earn (An-Nisa:32)*

**Islamic law does not deprive a woman from the right to work within the limits that protect her honor and dignity. This results to many successful muslim women in Malaysia.**

- ◆ **Maid Support System for Women in Malaysia**
- ◆ **Extended Family System**

# Gender Equality Survey



- Survey has been conducted in a form of a questionnaire using Google Form
- Respondents are from STEM faculties members from Malaysia universities
- We surveyed on respondents opinions on 4 aspects:
  - (1) Capability,
  - (2) Existence of Gender Equality
  - (3) Personality
  - (4) Preference

# (1) Capability

- 74% of respondents agree that women academic administrators can complete a job successfully

<b>Respondent (2)</b>	<b>Agree</b>	<b>Not Agree</b>	<b>Not sure</b>
Male	74%	12%	14%
Female	75%	1%	23%

- 66% of respondents agree that women academic administrator are more meticulous in doing their job

<b>Respondent (4)</b>	<b>Agree</b>	<b>Not Agree</b>	<b>Not sure</b>
Male	70%	6%	24%
Female	67%	5%	27%

40% of respondents are male and 60% are female



## (2) Existence of Gender Equality

- 83% of respondents agree that women academic administrators are given equal opportunity for promotion to the post

Respondent (3)	Agree	Not Agree	Not sure
Male	88%	6%	6%
Female	79%	3%	18%



40% of respondents are male and 60% are female

# (3.1)Personality

- 36% of the total respondents agree that female can handle stressful work life

<b>Respondents(1)</b>	<b>Agree</b>	<b>Not Agree</b>	<b>Not sure</b>
Male	20%	38%	42%
Female	48%	19%	33%

- 30% of respondents agree that women academic administrator are more open to suggestions for improvements

<b>Respondent(5)</b>	<b>Agree</b>	<b>Not Agree</b>	<b>Not sure</b>
Male	18%	24%	58%
Female	40%	26%	34%

40% of respondents are male and 60% are female





## (3.2) Personality

40% of respondents agree that women academic administrators are able to provide a more conducive working environment

<b>Respondent (6)</b>	<b>Agree</b>	<b>Not Agree</b>	<b>Not sure</b>
Male	26%	20%	54%
Female	49%	16%	34%

40% of respondents are male and 60% are female



# (4) Preference

- 56% of respondents prefer to have women as academic administrator in their faculty

<b>Respondent (7)</b>	<b>Agree</b>	<b>Not Agree</b>	<b>Not sure</b>
Male	68%	16%	16%
Female	53%	18%	29%



# Conclusion (1)

- Although 68% of women in HAYS survey are aspired to attain top leadership position in their career but the number is not reflected in our case studies.



- ◆ Lacking of correlation between number of women in STEM and number of achievers among women in STEM at the highest postgraduate level (PhD)
- ◆ As well top management level which demands much of their time and attention can be contributed by women core principal value of “family first” and lack of moral support from their spouses.

# Conclusion (2)

- Although not explicitly expressed in any policy, gender-biasedness is very much present in Malaysia due to cultural and religious beliefs.
- Despite having academically renowned and professionally able staff, a company/ institution may not put equal priority to female in its leadership group due to perception on women characteristic and traits.
- Encouraging gender equality in the leadership pool means greater diversity of thought, creativity, and innovations which, in turn, can lead to improved problem solving and greater benefits

Studying 15 years of data on the management teams of S&P 1500 firms, researchers found that more women in top management improved the performance of firms that were heavily focused on innovation.

Chenlet, David and David Gubbins, Inc. "Does Female Representation in Top Management Improve Performance? A Field Investigation." Strategic Management Journal, vol. 23, no. 9 (October 2002)

# Recommendations

## TOP-DOWN SURVEY

- Although not explicitly expressed gender biasedness in reality is looming in leadership pool, conducting a comprehensive top-down survey (from top management to managers) may reveal some implicit factors to the issue and help to set direction for further improvement

## AWARENESS

- It is important to increase the awareness that gender bias in the mind set of male leaders has a great impact on cultivating female leadership.

## SUPPORT GROUP

- Women is less likely to get strong recommendation in climbing corporate or top leadership ladder within the male-dominant leadership pool.
- Having a strong women leadership council or support group and to be acknowledged and supported by this

## OPEN MIND

- People across the abroad must not be intimidated or shy on gender equality issues.
- Keep an open mind to gender equality issues
- Acknowledge there are rooms for improvement

## MENTORING PROGRAMME

- To change workplace culture by including top leadership mentoring systems specially designed for female executives and women in middle management as well as gender-neutral networking programs.
- This initiative can jump-start the process of changing the management culture.

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