



# Women in Leadership Roles in Science and Research : Plugging the Leaky Pipeline



**Prof Dr.Farida Habib Shah**

**Vice President**

**Organisation of Women in Science for Developing Countries (OWSD)**

**Executive Council Member TWAS**

**Founder, FS Natural Story Sdn Bhd**

**shahf2@yahoo.com**



# INTRODUCTION



- We need to address issues on why women are under-represented in leadership positions in science and research-the barriers
- How do women generally get access to top leading positions
- Strategic ways to plug the leaky pipeline in order to get women to stay in their career and get to the top



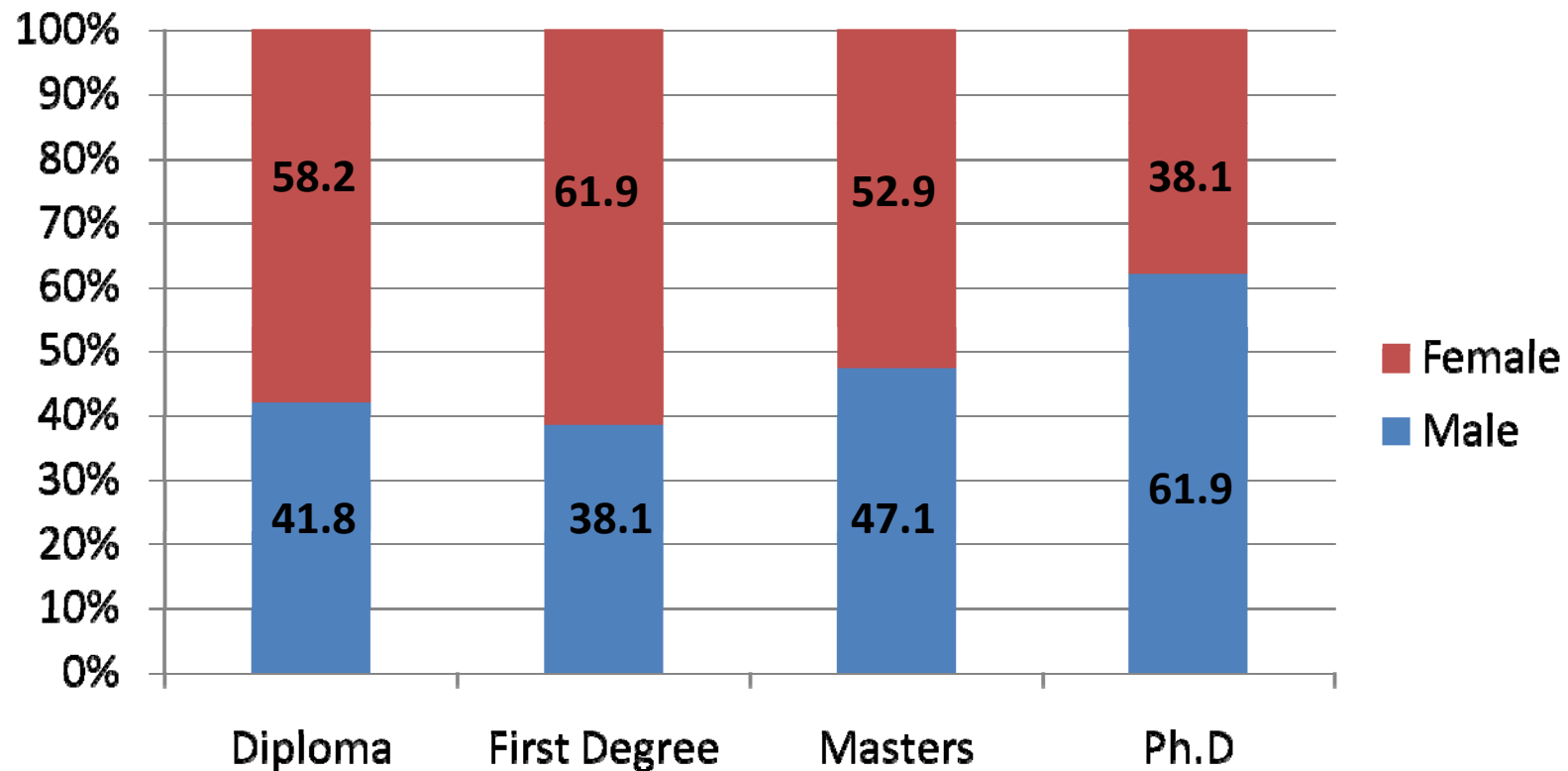
# Leaky Pipeline



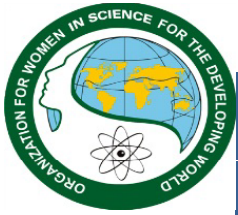
- The leaky pipeline is a concept that has been used to refer to the steady attrition(drop out) of girls and women throughout the formal S&T system, from education to S&T career , decision making, and to leadership roles



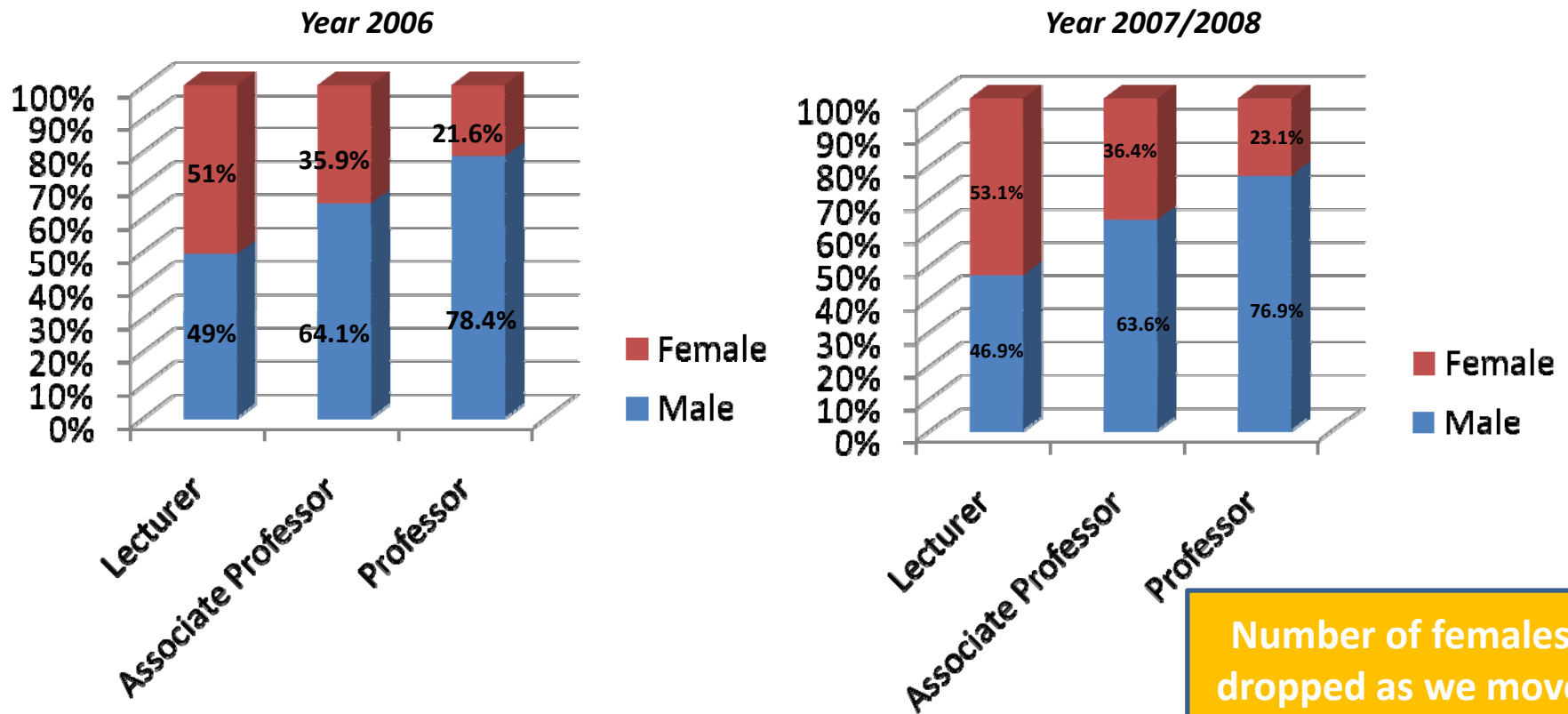
## Student Enrolment in Public Higher Learning Institutions by Level of Study and Sex, Year 2007/2008



Source: Ministry of Women, Family & Community Development



# Number of Academic Staff in Public Higher Learning Institutions, 2006 - 2007/2008

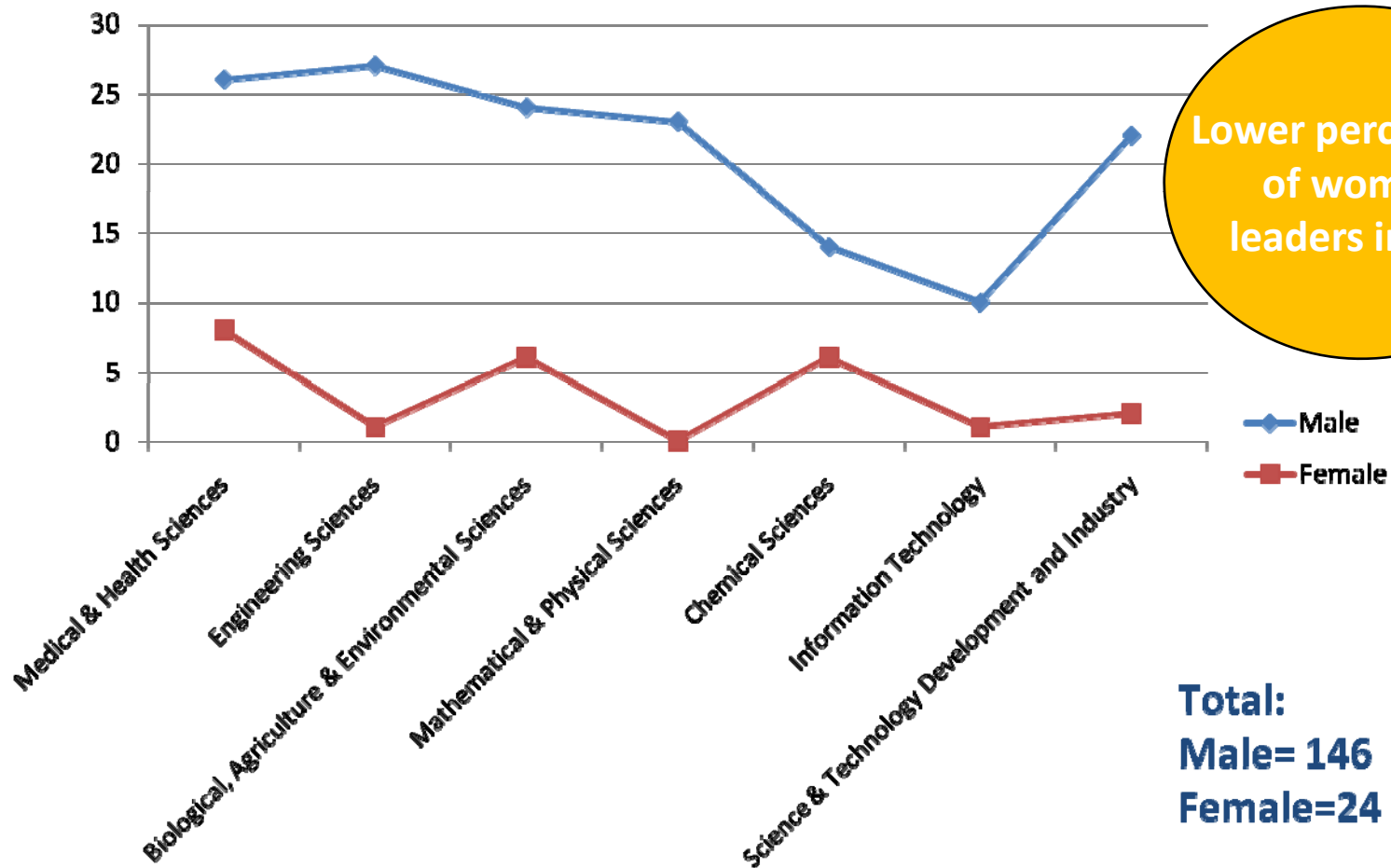


Number of females dropped as we move towards professorship level

Source: Ministry of Women, Family & Community Development



# Statistics of Women vs. Men as Fellows in the Academy of Sciences, Malaysia



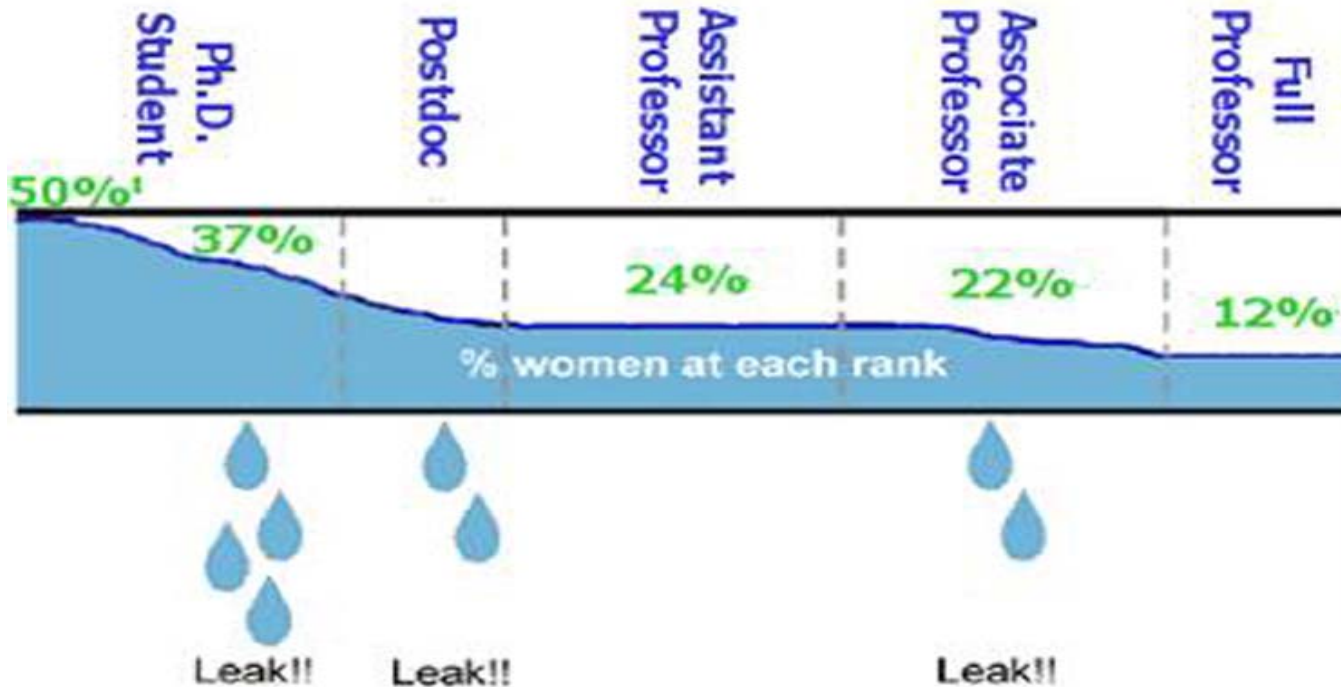
Source: Aini Idiris, Knowledge Society & the Status of Women in Science in Malaysia, 2010



# Berkeley University (Chemistry)



## Leaks in the Academic Pipeline for Women





# Critical Periods of Attrition in the Pipeline



- School level
- Tertiary
- Postgraduate
- Employment – job entry
- Moving up the ladder
- Decision making committees
- Leadership Positions
- Women in Technopreneurship- corporate level





## Fixing the leaky pipeline: women scientists in academia



- The main cause of attrition: Family formation
- Most importantly marriage and childbirth—accounts for the largest leaks in the pipeline between Ph.D. and the acquisition of tenure (permanent position) for women in the sciences in USA and other parts of the world
- **\*How can this be addressed and how can women be helped to enable them to continue?**



## Women needs to balance:

- **Family responsibilities & Commitments**

**VS**

- **Career Development**





# Barriers preventing women to get to top leadership positions?



- **Lifestyle choices and family obligations-self restriction**
  - How do we help women have a work-life balance : society and environment not addressing the issue
- **Gender discrimination in promotion exercise**
- **Biasness in academic and other appointments , at many different stages**
- **Under- recognition of women at the work place**
  - Mainly by sexism and discrimination
    - Smaller research space
    - Smaller start-up packages and salaries
    - Higher teaching loads and administration
    - Fewer resources and lack of support
- **Self restriction or lack of confidence of women themselves**



# An Enabling Environment



- What issues need to be addressed – this may vary between different societies
  - A new way of thinking - Men and women as equal partners in home management and parenting
  - To inculcate the notion that the woman or the wife's career is equally important to that of her husband
- Globally, how does the organization help women to stay in their career and move up the career ladder
- \* **By providing an enabling environment**



# Barriers preventing women to top leadership positions?



- The small starting pool of researchers, with even a smaller pool of **role models and mentors**. Hence the movement to the top is smaller and slower
- Need to enhance the pool of future women in research leadership
- Young researchers are not presented with many examples of women role models and mentors to give advise, to motivate them with positive attitudes, to boost self-confidence and self efficiency and instilling discipline and working smart



# Ways in which women in science reach to leadership positions ?



- Evaluation by selection committee-for decision making bodies
- Advertisement for positions
- Nominated positions-same old boys club
- Elected via election system among members of institution
- Elected into a think tank and escalate from their position to the top

**Need specific strategies to increase participation of women !!!**



## How can we reduce or prevent the leaky pipeline so women can get to the top?



- Schools- secondary level
- Tertiary level
- **Careers**
  - a. In academic institutions
  - b. In the private and public sectors
  - c. By national academies of science

>>>>.Government and Organizational Policies



## Enhancement of women's opportunities to stay in S&T career to proceed to the top



1. Need firm strategies to influence women to stay in science
  - - mentors-mentee systems
  - - networking
2. Create more incentives such as UNESCO chairs, etc
3. Create more awards to motivate women scientists
4. Professional Associations which encourages and coach women
5. Networking





## What can work to enhance women's opportunities in S&T at mid career level: Campus level



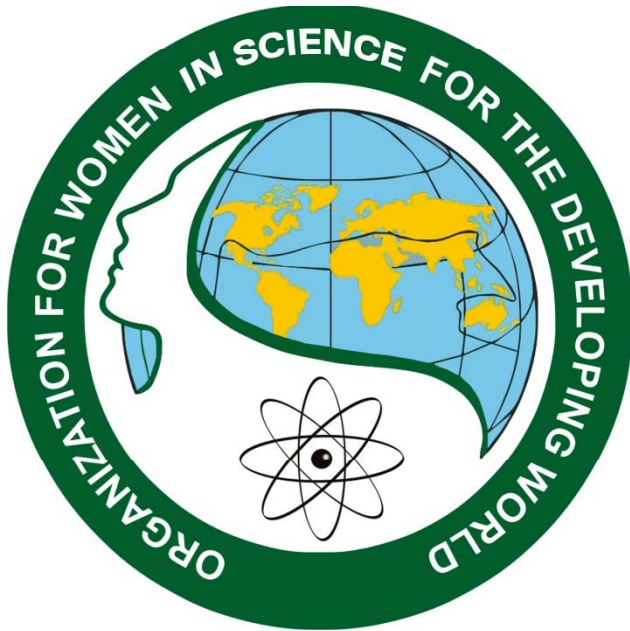
- 1. Strategies aimed at influencing women –one to one**
  - **Mentors.**
  - **Networking**
  - **Science camps**
- 2. Review campus information on equity**
- 3. Enabling environment for women**
- 3. Learn and find out about outstanding women in campus**
- 5. Collating best practices**



# THE ROLE OF OWSD AND THE TWAS-OWSD ADVISORY PANEL



## EMPHASIS IS ON THE YOUNG



1. Collating role models
2. Collating information on successful women in science in hard copy and online
3. Developing a mentor- mentee system, from school to university to career development
4. Encouraging young women scientists with awards and fellowships
5. Providing more research funds
6. Providing more travel grants for opportunity to network



# Strategies to get women researchers to leadership roles



- Ensure transparency in all procedures including funding procedures
  - Train new leaders and committee members on gender dimensions and issues.
  - Enhance visibility of women in science by ensuring that nomination, promotion and appointment procedures for women in top position is done in a transparent manner.
  - Create high profile and prestigious prizes for women in science (Loreal women in Science) for research or other leadership positions
  - Eradicate gender bias in research activities
- \* All institutions should provide sex disaggregated data and gender imbalance must be updated, assessed to inform decision-makers and the public**



## **Strategies to improve women's participation for leadership positions**



- 1. Study the work/life issues- how do we improve them**
- 2. Make gender issues visible – how do we mainstream women in science and research at leadership roles**
- 3. Increase the participation of women in leadership positions**
- 4. Increase the participation of women in committees and taskforces**
- 5. Incorporate gender equity concept in campus and organizational planning**
- 6. Ensure that management is receptive when presented with gender issues**



## Involvement of all stakeholders to get women researchers to leadership roles



**Need a gender sensitive policy in S & T**

- **Federal Govt and agencies**
- **Universities and academic institutions**
- **Private and public sectors**
- **National Academies of Science**
- **Among the scientists and academia themselves**

**\* We need to identify 'Male Champions'**



# Plugging the leaky pipeline



## Nurturing the young : Engaging the young

- **Increase the pool : Keeping young scientists in the workplace**
- Create awareness of all stake holders on significance to engage women and getting women into mainstream
- **Organize more training programmes for communication and presentation skills for their scientific work for confidence building**
- **Create possibility to have academic scholarships for women up to 40 years**
- Stop discrimination for applications by women for scholarships
- Having more young women scientists in conference and workshops
- Include young scientists and women scientists from other organizations in committees for any events organized by academies
- Set up mentor -mentee programmes to help young women scientists
- More travel funds for young women scientists and graduates and more PhD and postdoc fellowships- as shown by the no of applicant for TWAS and OWSD fellowships



# Plugging the leaky pipeline



- Collation of best practices along the pipeline between countries for adoption and rolled out to other countries if possible
- Developing mentor-mentee systems for development of women in science
- Highlighting successful women in science ( scientists, researchers and administrators ) as role models
- **Develop more training programmes for capacity building where women are lacking**
- **Providing incentives such as awards, research and development and innovation funds for young women scientists and mid –level to keep them at work**
- **Providing more support and auxiliary facilities that will enable more girls and women to be in each step of the pipe line right up to the top management or professorial levels**



## Recommendations : Federal Govt and Agencies



- Develop policies that are favorable for women with incentives to encourage them to stay in their careers
- Collect and analyze the necessary data on women in various stages of career development, to make sure existing and future policy initiatives are effective in meeting women researchers' and academic needs
- Push to have crèches and/or day care centres at the workplace or by local councils, subsidised or supported by council or agencies





# Recommendations: Academic Institutions



- Ensure that women researchers and scientists are hired into full-time tenure track positions in science and engineering faculties
- Capacity building for more technical work
- Introduce flexi-hours where possible
- Retraining after time off from work from maternity leave
- Help to get funding for back to work women after maternity leave
- No loss of seniority in the workplace during maternity leave



## Private and public sectors



- Provide gender sensitising programmes for senior staff
- Make special efforts to recruit qualified female professional staff
- Ensure that boards of directors include at least 30 percent women
- Provide flexible working hours and recognize the need for work/life balance



# National Academies of Science



Include female scientists on selection boards for prizes and recognition.

Consciously make efforts to ensure nominations get to women

(The achievements of female scientists are often overlooked if their work is not well known by male scientists)



# Scientists and Academia



- **Women themselves should “Take the lead ”**
  - Women scientists themselves should be sensitized about self- actualisation and self realization of their potentials
- **Be in a network : The power of networking :**
  - Strengthening National Chapters of Network such as OWSD and others national and international for women to network
- **More allocation of donor funds**
  - to women researchers and scientists as project leaders
- **Issues of women** in science should a regular agenda in mixed seminars and workshops



# Scientists and Academia



- There should be a concerted effort to abolish discrimination for appointments of women professors and vice chancellors and other scientific bodies
- Capacity building or re- training for returnees
- **Corporate ( technopreneurship)**
- Encouraging and engaging women in Technopreneurships
- Coaching for women in technology based business on how to survive in a man's world



## Share good practices between countries



- Collating and document good practices conducted in various countries for sharing
- What have worked and what have not worked
- What are the issues that have not worked , why and how do we deal with it to plug the leaky pipelines for women to attain leadership roles
- 
- How do other countries that have more women scientists and managers at senior levels do it



THANK YOU

[FS Natural Story Sdn Bhd](#)

[www.thenaturalstory.biz](http://www.thenaturalstory.biz)

[shahf2@yahoo.com](mailto:shahf2@yahoo.com)