Scientific and Technological Empowerment of Women - Role, Relevance and Application

Dr.(Mrs.) Manju Sharma
Distinguished Woman Scientist Chair – NASI

2nd Summit of South Asian Science Academies
24 to 27 September 2013
INSA, New Delhi
FORMER PRESIDENT, Honble, DR. ABDUL KALAM’S SPEECH

Address at the Inauguration of the National Seminar on Women, Science and Technology – Bangalore 21st August, 2006

“Definitely all women scientists can play an important role in the national development.” .....  

“The number of women scientists’ world over has been growing at a faster pace. Removing any impediments that come in the way of our harnessing this vast pool of brilliant, hardworking and dedicated knowledge power, should be the focus of this Seminar.”
It is to be ensured that a people centric sustainable development ensures women’s equal access to science & technology, education, training, economic resources, information, communication and marketing.
Women constitute half of humanity, yet the number in mathematics, physical sciences, engineering, etc. is low. Also these professional women seldom reach the pinnacle of the hierarchy in academic and research institutions.
Phenomenal technological advances

A critical mass of scientists, engineers, educators, health and agriculture professionals, technicians covering a wide spectrum are needed.
Utilization of the talents of women should not be viewed only from the perspective of gender equity. It must be understood that full involvement of women in scientific and technological efforts is today essential for rapid economic development and sustainable happiness.
Key Considerations – Underlying Issues

- Science and technology are essential for solving global problems
- Inclusion of women in scientific and technological endeavours essential
International Initiatives

Many events and activities world over have drawn the attention of UN bodies, Governments, NGOs, academies and many others. First conference of UN in Mexico in 1975 discussed various issues related to women.
- First UN Conference Mexico 1975
- Beijing Declaration 1995
- UNU-IAS report on women and science 2005
- TWAS Standing Committee on Women 2005
- UNESCO report 2006
- Coordination and collaboration between organisations such as TWOWS, TWAS, UNESCO, UNSCED, OECD, IAC and IAP
Beijing Declaration of the Fourth World Conference on Women described gender equality beautifully as “an inalienable, integral and indivisible part of all human rights and fundamental freedoms (United Nations 1995)
Beijing Declaration adopted at the 4th World Conference on Women (Sept. 4-15, 1995) aimed to achieve the goals of:

- Equality
- Development, and
- Peace of women globally
Many meetings and conferences
IAC Advisory Panel on Women for Science
TWAS Committee on Women in Science
College of Agricultural Development at China Agricultural University has a Women and Development Project
Consultative Group on International Agricultural Research (CGIAR) has 8000 scientists, technicians and managers and has established the gender and diversity programme.
Indian Government’s Initiatives

- A separate Ministry for Women and Child Welfare
- A scheme for S&T for Women by DST and DBT
- A National Task Force on Women
- Technology Parks; exclusive Biotechnology Park for women at Chennai
After independence, policy statements for the promotion, development, utilization and progress of Science & Technology in the country. The importance of science for women has been included in all the policy statements.

In 1958 there was the Scientific Policy Resolution (SPR); Technology Policy Statement (1983) and a Technology Policy Implementation Committee; Science & Technology Policy 2003 and The Science Technology and Innovation (STI) Policy 2013
The Scientific Policy Resolution (SPR) 1958 states: “To ensure creative talent of men and women is encouraged and finds full scope in scientific activity.”

The Science & Technology Policy Policy 2003 again emphasizes; “To promote the empowerment of women in all Science & Technology activity and ensure their full and equal participation.”
All these statements in one way or the other have emphasized the need for according priority to women scientists and technologists, in particular focusing on harnessing science & technology for their benefit.
The latest STI Policy clearly mentions about encouraging women in Science & Technology as given “Gender Parity - Participation of women in STI activities is important. New and flexible schemes to address the mobility challenges of employed women scientists and technologists will be put in place. A broad scope for re-entry of women into R&D and facilitation mechanisms for special career paths in diverse areas will be sought.”
The Ministry of Science & Technology Government of India also brought out a document entitled “Towards gender parity in S&T sector.”

Based on the policy statements very large number of programs are under implementation covering both the aspects i.e. promoting women in science and application of science & technology for their benefit.
- Academies in India are playing major role – INSA, IASC, NASI, Agriculture Academy etc.
- This year NASI organised eight workshops in different regions of the country – Health & Nutrition, Agriculture, Environment, Employment, Education, Empowerment, Training etc.
- Major recommendations for various agencies formulated.
Scientific and Technological Empowerment

- Global Capacity Building
- Gender equality
- Access to information
- Retention of girls in leaky pipeline, specially at the tertiary and mid-career level
Statistics have been presented in many reports and the trend is in the last two decades, increasing number of women joining science and technology e.g. in U.S., very large number of Ph.Ds in Biological Sciences, Chemistry, Mathematics and other areas.

In India, about 40% of university positions taken by women in 2000.

22% in engineering and technology, 40% in science (INSA 2004 Report)
A critical issue is the inclusiveness on part of the S&T leadership world over.
Commitment at the highest level.
Review of policies and procedures.
Transparency in appointments, recruitments, promotions, awards, etc.
Leadership training and mentoring.
Technological Empowerment of Women at the grass-roots essential

- Training of the trainers
- Setting up Knowledge Centres
- Institutional framework
- Generating a cadre of women scientists and engineers.
- Empowering women at the grass-roots
- Community based projects
Skill Improvement

- To ensure livelihood at the grass root level
- Identification and development of appropriate technologies
- Establishing training and mentoring centres, promoting entrepreneurship development
- Ensuring financial assistance and setting up knowledge centres
The basic philosophy must be to advocate S&T application which would foster job oriented economic growth and social happiness.
Specific focus in the areas of agriculture, healthcare, biotechnology, information technology, in addition to basic science of physics, chemistry and mathematics.

Some examples – DBT, DST Projects
Role of Academies

- **U S PANEL**
- *(Times of India : 20.09.2006)*
- “Such underuse of precious human capital”
- “Unless a deeper talent pool is tapped, it will be difficult for our country to maintain our competitiveness in science and engineering”
Academies to Lead the Way

- Commitment from the top to Good Management Practice
- Establish a diversity committee that reports to the President and Council
• Academies all over the world being the global professional bodies must lead the way for welcoming women scientists and engineers.
• They should include gender issues on their agenda, widen the nomination pool.
• continuously data monitoring
• Increasing women’s participation and visibility.
• Sponsoring and evaluating research etc.
Critical Issues

- Realizing women’s intellectual potential is a big challenge
- Academies are uniquely placed to lead in the shaping of the scientific workforce
- Academy members are uniquely placed to reinforce the commitment to women in their institutions

The science community can only change if the elite sets the example.
Women Enrich S & T

“Voices that are silenced or ignored, for whatever reason, represent not only an injustice but also a valuable resource that has been wasted, a tragic waste of human capital”

Role, Relevance and Application

Key Tool - Good Management Practice

- Top-level commitment
- Reviewing policies & procedures for gender impact
- Transparency in communication, recruiting, promoting
- Widening the “inner circle”
- Leadership training and mentoring
- Supporting a healthy work-family balance
- Regular monitoring; sex-disaggregated statistics
Advocating and promoting education and careers of women
Engaging women as partners in S & T global capacity building
Creating inclusive institutional climate
Advising governments and key players on specific actions.
Science & technology must be harnessed in a gender sensitive manner.

Urgent need for confidence building amongst women scientists

It is important to understand and take into account the multiple role women have to play and provide suitable support systems to reduce their drudgery and strain are important.
To consider health, food and nutritional security absolutely critical; advise governments to launch specific targeted missions to take care of pregnant and nursing mothers and children in particular.
Networking amongst women scientists and technologists, academic and research institutions, NGOs, international bodies and governments.
- Establish a committee that addresses gender issues and track progress
- Promote women members to decision-making levels and appoint women scientists to panels and committees
- Increase the number of women scientists in the nomination pool for membership, prizes, and awards, give visibility to women scientists, and represent women as well as men in the academy’s portrayal of science
Pay attention to gender implications of the research it supports and evaluates

Adopt good management practice—that is, inclusiveness—in its institutions and advocate such practice across the S&T community
To Conclude

- Scientific and technological tools can be harnessed to benefit women, both from the viewpoint of their livelihood security, and lifestyle, on a sustainable basis. Also, other facet of science and technology is to encourage more and more women to take up science as a career.
It is visible today that young girls are pursuing science and taking up various disciplines for their future progress. However, what is important is their mentoring and nurturing, creating adequate social environment conducive for women scientists and technologies and providing large number of scholarships, research grants, awards and recognitions etc.
The dawn of 21st Century marked by a clear message – sustainable transformation through knowledge as a driving force for human development. Knowledge of science leading to the industrial revolution and important technological capabilities driving and opening up new production avenues.
The Millennium Summit has recommended an unprecedented and extensive use of knowledge for the welfare of the humankind. The 3rd Millennium Development Goal also calls for gender equity and empowering of women.
Academies can give a major thrust world over to create knowledge-based society with full involvement of women scientists and technologists; create a strong sustainable science & technology base which will affect all the social levels. This intellectual capital of half of the human resource on the planet Earth should be an integral part of the accelerated S&T drive towards progress, peace and happiness of humanity.
Gender Revolution in S&T

French physics olympiad winning team
Women Essential for Capacity Building

“When a man is educated, an individual is educated, when a woman is educated, a family and a country are educated”

Gandhi
MANY MANY THANKS & BEST WISHES