Challenges of Women in Science: Bangladesh Perspectives

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Bangladesh

- 147,570 km² (56,977 sq mi)
- Dense population (160 million)
- Women- nearly half
- HDI – 0.515
- Adult literacy rate – nearly 50%
## Bangladesh’s human development index

<table>
<thead>
<tr>
<th>HDI rank (value)</th>
<th>Life expectancy at birth (years)</th>
<th>Adult literacy rate (% ages 15 and above)</th>
<th>Combined gross enrolment ratio (%)</th>
<th>GDP per capita (PPP US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>146. (0.515)</td>
<td>120. (68.9)</td>
<td>135. (53.5)</td>
<td>154. (52.1)</td>
<td>155. (1,241)</td>
</tr>
</tbody>
</table>
## Education: Adult Literacy by Gender, 1991-2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Both Sexes</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>37.2</td>
<td>43.3</td>
<td>25.8</td>
</tr>
<tr>
<td>1995</td>
<td>45.3</td>
<td>55.6</td>
<td>38.1</td>
</tr>
<tr>
<td>1999</td>
<td>52.7</td>
<td>60.7</td>
<td>42.8</td>
</tr>
<tr>
<td>2003</td>
<td>50.3</td>
<td>56.3</td>
<td>44.2</td>
</tr>
<tr>
<td>2004</td>
<td>51.6</td>
<td>57.2</td>
<td>45.8</td>
</tr>
<tr>
<td>2005</td>
<td>53.5</td>
<td>58.3</td>
<td>48.6</td>
</tr>
<tr>
<td>2006</td>
<td>53.7</td>
<td>58.5</td>
<td>48.8</td>
</tr>
<tr>
<td>2007</td>
<td>58.3</td>
<td>63.1</td>
<td>53.5</td>
</tr>
<tr>
<td>2008</td>
<td>59.1</td>
<td>63.4</td>
<td>54.7</td>
</tr>
<tr>
<td>Target-2015</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
## Net Enrolment Rate in Primary Education by Gender

<table>
<thead>
<tr>
<th>Year</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>85.6</td>
<td>85.4</td>
</tr>
<tr>
<td>2003</td>
<td>82.6</td>
<td>81.4</td>
</tr>
<tr>
<td>2004</td>
<td>86.4</td>
<td>85.1</td>
</tr>
<tr>
<td>2005</td>
<td>90.1</td>
<td>84.6</td>
</tr>
<tr>
<td>2006</td>
<td>94.5</td>
<td>87.6</td>
</tr>
<tr>
<td>2007</td>
<td>94.7</td>
<td>87.8</td>
</tr>
<tr>
<td>Indicator</td>
<td>Both gender (%)</td>
<td>Male (%)</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Class I-V</td>
<td>29.56</td>
<td>29.80</td>
</tr>
<tr>
<td>Class VI-VIII</td>
<td>13.29</td>
<td>12.96</td>
</tr>
<tr>
<td>Class IX-X</td>
<td>8.05</td>
<td>7.97</td>
</tr>
<tr>
<td>SSC/equiv</td>
<td>5.21</td>
<td>5.86</td>
</tr>
<tr>
<td>HSC/equiv</td>
<td>3.08</td>
<td>3.81</td>
</tr>
<tr>
<td>Degree/equiv</td>
<td>1.55</td>
<td>2.17</td>
</tr>
<tr>
<td>Master's/equiv</td>
<td>0.85</td>
<td>1.24</td>
</tr>
<tr>
<td>Engineering/Medical</td>
<td>0.11</td>
<td>0.17</td>
</tr>
<tr>
<td>Technical/vocational</td>
<td>0.08</td>
<td>0.12</td>
</tr>
<tr>
<td>Others</td>
<td>0.01</td>
<td>0.02</td>
</tr>
</tbody>
</table>
Academic ladder

High school to highest academic positions, the representation of women – declines substantially
Percentage of women in academic ladder

<table>
<thead>
<tr>
<th>STAGE</th>
<th>STUDENTS</th>
<th>TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSC</td>
<td>45</td>
<td>25</td>
</tr>
<tr>
<td>HSC</td>
<td>40</td>
<td>22</td>
</tr>
<tr>
<td>UNIVERSITY</td>
<td>23</td>
<td>15</td>
</tr>
</tbody>
</table>
Women in science

In the transition to graduate school, more women than men with science and engineering degrees opt into other fields of study.
Enrolment in science education....
Percentage of students in Science in Public Universities

Percentage of the students of science and general subject of public universities in 2006

- Science: 17%
- General: 83%
Status of Women in University

• The gender distribution in teaching staff and the student’s enrolment shows an alarming disparity in male versus female ratio.

• In these institutions of higher education, number of female teachers account for less than 20% of the male teachers.

• The female teachers have to face tougher competition compared to male counterparts for getting jobs in educational institutions though performance wise they show better potentiality in terms of acceptance and popularity with the students.

• Number of female students in both the public and private universities is nearly 30% of the male counterpart.
Enrolment in Universities by management and gender

<table>
<thead>
<tr>
<th>Year</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The chart shows the enrolment in universities by management (public vs. private) and gender (male vs. female) from 2001 to 2006.
University Teachers by management and gender

[Bar chart showing the number of University teachers by management and gender from 2001 to 2006 for both public and private sectors. The chart includes bars for Male and Female, with Male bars being significantly higher in most categories.]
Percentage of **female students** in different types of educational institutes, 2011

![Bar chart showing percentage of female students in different educational institutes.](chart1)

Percentage of **female teachers** in different types of educational institutes, 2011

![Bar chart showing percentage of female teachers in different educational institutes.](chart2)
Percentage of female teachers and female enrolment in different types of University, 2011
Gender equality - Present scenario

- Women in Bangladesh very often face discrimination in career in every field of Science and Engineering.

- A study was undertaken to see the barriers limiting the appointment, retention, and advancement of women faculty in the Universities, Administration and other Academic Institutions.
Dhaka University student by Gender in science faculty
DU Student by Gender in Bio-science faculty
Status of faculty in University

• The percentage of women teachers, Professors and Ph.Ds in the faculty of science and bioscience of Dhaka University are shown.

• Similar data are shown also for Bangladesh University of Engg. And Technology (BUET) and that for Jahangir Nagar University.

• It is obvious from all the data presented in these figures that the percentage of female teachers are significantly less then that of male teachers.
Women faculty in Science and Bioscience of Dhaka University
Gender- BUET students

![Graph showing gender distribution of BUET students from 2000 to 2007]

- **Girls**
- **Boys**
Gender - BUET Faculty

The chart shows the number of women and men faculty members from 2000 to 2007. The y-axis represents the percentage, ranging from 0 to 100, while the x-axis represents the years from 2000 to 2007. The chart indicates a consistent number of men faculty members across the years, with a slight decrease in 2007. The number of women faculty members is relatively lower compared to men faculty members in each year.
Percentage of women among Ph.D. and Professors of BUET
Percentage of women among Ph.D. and Professors of JNU
Status – Developed country

According to the Scientific American, women represented only 27 percent of those employed in science and engineering in the USA.

More specifically, women made up only 17 percent of professionals in the Engineering and Science Faculty at Rice University last year.
Women in science in a developed country
Women in professional sector

![Bar chart showing enrollment and teaching of women in Medical, Dental, and Nursing fields]

- Medical: 10 teaching, 30 enrollment
- Dental: 20 teaching, 40 enrollment
- Nursing: 70 teaching, 90 enrollment
Women in Policy and Civil Administration

The bar chart illustrates the percentage of women in various roles within the policy and civil administration over the years 2008 to 2009. The roles include Minis, Secre, Ad Sec, Jt Se, Dep Sec, Sr Astt, and Astt sec. The chart shows a comparison between men (light blue bars) and women (dark blue bars) for each role and year.
Percentage of Women in other Professions

BAU, 2007
MED COL, 2005
BSMMU, 2007
Challenges of women in science

• Women succeed in science as a result of their own merit, initiative and drive.

• Family support, institutional support and most importantly government support are very important for women to succeed in their professional career.
Challenges - contd.

• Easy access to basic and secondary education — especially in science.
• Encouragement in the classroom, family and environment are important - girls may still fall down from science and scientific fields at any stage of the ladder.
• Women and girls are not encouraged to choose scientific professional career in fear of losing them in family affairs.
• Moreover women in scientific professions face discrimination in terms of employment, promotion and retention within S&T careers.
Underrepresentation of women in higher positions

- At the top research or academic institutions, less than 1% women are in the top position.
- In Bangladesh, among 34 public & 70 private universities unfortunately none in public but only two woman could get the position of the vice-chancellor of private university, though there are many qualified women to achieve those positions.
- Although women scientists and researchers of our country are hard working, creative and intellectual but they are still underrepresented in the policy making positions of scientific profession and education.
Desired strategy

- Explore science through Science communication and net-working
- GET involved with science, but also stay involved with science
- Science change the outlook on life and academic aspirations.
- Enquiry based science education (IBSE)
- Engage more women in Science
- Empower women
Way forward....... 

• To ensure economic and social development women participation and gender equality is a must.

• In the initiatives on Science Technology and Innovation, it is crucial to look at the role of women and gender equality within them, where do women fit into these initiatives.

• Recent finding has identified the Millennium Development Goals (MDGs) as grounds for pursuing both gender equality and science, technology and innovation initiatives.

• Social, scientific and technological advancement of a nation can only be strengthened through equal participation of men and women in STI.
BAS- Young Women Scientists (YWS) workshop

- Social, scientific and technological advancement of a nation can only be strengthened through equal participation of men and women.
- An international workshop on “Challenges of Young Women Scientists in New and Emerging Sciences” was organized by Bangladesh Academy of Sciences with partial support from TWAS last year.
- The workshop comprising with 60 young women scientists as ‘mentees’ and 8 ‘mentors’ focused the technical and scientific challenges along with the social barriers that women face in pursuing a career in Science, Technology and Innovation.
YWS workshop- “Mentor-Mentee”
Aim

• To develop a sustained relationship between experienced women scientists who give advice as *mentors* to less-experienced young women scientists i.e. *mentees*.

• The interaction between the mentors and the mentees - to promote the young scientists.
Mentors & Mentees
Issues & Challenges for YWS

• **Successes and barriers for women scientists in pursuing scientific dreams**
• **Public communication for women in science.**
• **Balancing Life** in career, family life and success.
• **Issues related to career development**
• **What women scientists can do for other grassroots in achieving MDG goals**
• How to become an entrepreneur in *Managing Research & Development* - potential for commercialization
YWS: Recommendations

• YWS should be inspired to achieve success in research in their organizations and to create positive impact in their communities.
• YWS who reach higher education and launch their careers, institutional policies such as mentoring, childcare and funding can influence their advancement along with the male colleagues.
• Women scientists should sensitize themselves for self-actualization and self-realization of potentials.
• International research collaboration, networking and the ability to communicate science among fellow women scientists and others will help enhance women scientists’ visibility in science and technology.
Remarks by Phumzile Mlambo-Ngcuka, Executive Director of UN Women on 12 September 2013

1. Expanding women’s leadership and participation
2. Enhancing women’s economic empowerment
3. Increasing women’s participation in peace and security
4. Ending violence against women and girls
5. Planning and budgeting for gender equality, and
6. Promoting accountability for strong UN system-wide action for gender equality and women’s empowerment.
We have no other alternative than promoting and empowering **Women in Science** for socio-economic development
Thank you all