# WOMEN in technical education AND profession

**Preamble** ***There was a time when it was taken for granted that women are not suitable in the technical fields..... Then there was a time when it was thought that women cannot excel in the technical fields.....*** (even if they can somehow get in) But now the time has come when all these notions have been disproved. All over the world women are emerging as successful technical professionals, fully capable of competing with men. The general attitude towards women has changed a lot. As technology gets more sophisticated, the power of brain over brawn increases and so does the role of women in their profile as technologists. **IT IS NOW A RECOGNIZED FACT THAT WOMEN DO NOT REALLY NEED SPECIAL PRIVILEGES, ONLY ADEQUATE OPPORTUNITIES AND A POSITIVE ENVIRONMENT TO REACH APPROPRIATE POSITIONS IN LIFE.**

**The situation** At present in Bangladesh, we can see examples of women engineers, architects and planners operating in the professional field. Although the number of women students, academicians and professionals are steadily on the increase, the fact remains that a very low percentage of an even lower proportion of women of the total educated populace is encouraged in these fields. This is partly due to the widespread belief that it is difficult for women to comprehend technical knowledge. As professional women often have less time for their personal and family lives, the social attitude towards them is not always favourable. Lack of exposure is another reason for this situation, apparent from the fact that very few women outside Dhaka pursue careers in engineering, architecture or planning profession.

**Objective** The main objective is to encourage greater number of meritorious female students to seek careers in the technical fields. The academic programs, facilities and services provided in BUET is highlighted here, alongwith discussions on the positions, problems and prospects of women students and professionals.

## GENDER STRATEGY COMPONENT

### Background

This supplement will depict the situation concerning women involved in technical education and profession in our country. The major focus of the BUET-U of A Institutional Linkage Project is on education and research. In recognition of the policy of the Government of Bangladesh (GOB) in expanding women's education and their involvement in development process, the project management committees both at Alberta and BUET have been actively searching qualified women for different positions and trainings. Unfortunately, participation of women has been discouraging. There was no female candidate for a linkage fellowship study programme despite the fact that the advertisement clearly stated a preference for women. In another instance a female candidate selected for a Ph.D. programme declined the offer. The management of the U of A-BUET Linkage Project raised the issue of gender balance on several occasions and decided to focus on formulation of a strategy to address it. In November 1991 CIDA Bangladesh Desk in Edmonton, Alberta, Canada, piloted a briefing module on Bangladesh Desk Gender Strategy for implementing the CIDA's Women in Development (WID) policy. This was followed by a decision in Project Management Committee (PMC) meeting to organise a gender analysis workshop at BUET. A workshop on "Women in Development : Technical Education and Profession" was held on October 1992 at BUET. The response was enthusiastic. There were about 110 participants comprising of students, teachers, parents and professionals . A questionnaire survey to obtain input from different cross- sections of females in technical profession and education was conducted. The response rate for the 400 questionnaire circulated was about 67%.

### Inception

In November 1994, an Executive Committee was formed to promote Gender balance. The activities of the committee are as per specific TOR which include: ■ Maintaining liason with Gender Forum ■ Selection of female students for scholarships at BUET and to pursue higher studies in Canada. ■ Promotion of technical education among women students at college level. ■ Counselling women students at BUET on career opportunities and higher education.

### Financial Assistance

Within its limited scope the project developed a spousal support program for spouses of long term scholars. Under this program eight spouses have already received support in Canada. At BUET three post graduate and five undergraduate students were awarded scholarships from the program. Initially the scholarships at BUET were exclusively for female students of the Chemical, Mechanical, and Industrial Production Engineering Departments. Subsequently the restriction was relaxed to include other departments as well. At present the fund is utilised to provide scholarships to 20 under-graduate and two post graduate students based on merit and economic solvency.

### Building Awareness

Creation of awareness on the opportunities and prospects of technical education among girl students is in progress. To inform pre-university level female students of the programs in BUET, about 800 copies of leaflets were sent to the principals of different colleges all over Bangladesh. On December 1995 a television program highlighting BUET's education system and facilities was aired. Counselling to female students on academic programs, career opportunities and problems specific to female students are available. Efforts are underway to provide female students in BUET access to better facilities. Very recently a photocopying machine has been installed in the female hall of residence.

## Message

Dr. John Deyell
Counsellor and Head of Aid, CIDA
Canadian High Commission
Bangladesh

The Hon. Prime Minister recently announced a "National Action Plan" to improve the prospects of Bangladesh's women. Women, all over the world, are no longer confined to clerical, services or retail jobs; more and more they excel in fields as diverse as the sciences, engineering and finance. This is Bangladesh's vision and national priority as well. Recently I was pleased to attend a function at which the Institute of Chartered Accountants launched a program to encourage and positively assist more women to enter their profession. A real sign of changing times! The engineering discipline is not slow to take up this challenge: BUET, with the encouragement and support of the Canadian International Development Agency (CIDA), has undertaken to improve the participation of Bangladeshi women in the technical professions. Congratulations to BUET for taking the initiative in this regard, and best wishes for the success of its program!

## Message from the Advisers

GENDER STRATEGY COMPONENT

Prof. Khaleda Rashid
Head, Dept. of Architecture, BUET
&
Adviser, Gender Strategy Component

Bangladesh cannot achieve its development goals leaving its women outside the development stream. Women are second to none in every field of human activity. Technical arena is no exception. It was in 1962-63 session that three female students were enrolled for the first time in the 86 years history of the institution which is now the Bangladesh University of Engineering and Technology (BUET). That was a modest beginning of involvement of women in technical education. It was not a mean achievement in a social environment where female literacy was insignificant compared to that of men and technical education was conceived of as an exclusive male domain. Since that small step, BUET has made commendable strides in improving women's involvement in technical education. Female enrollment has increased to 500—13.5% of the total in the current sessions. Today 39—almost 9% of the faculty in BUET is women, compared to nil in the sixties. This is all the more impressive considering that selection of students in BUET is based on scholastic ability and merit alone. The admission policy in BUET has always been one of equal opportunity for males and females.

At the threshold of 21st century, long 35 years after the epoch making event, it is perhaps time for retrospection — a time to look back on past success and failures, to assess the present and to set a course for the future. The newspaper supplement is meant to set the tone and provoke thoughts in this direction. We appreciate the hard work and enthusiasm shown by colleagues and students, particularly those in BUET-University of Alberta Institutional Linkage Project, Office of the Directorate of Advisory, Extension and Research Services (DAERS), BUET and Canadian International Development Agency (CIDA) in making the supplement a reality. Their enthusiasm gives us reasons for hope and encouragement. On behalf of the Executive Committee of Gender Strategy Component, we extend our heartfelt thanks to all who have contributed to this effort. It is for all of us to do our own bit, to bring about a change to facilitate women's involvement in nation building. We owe it to this nation, to ourselves and above all, to posterity.

Prof. Dr. Dil Afroza Begum
Head, Dept. of Chemical Engineering
BUET
&
Adviser, Gender Strategy Component

Dr. Zebun Nasreen Ahmed
Associate Professor,
Dept. of Architecture
BUET

As a woman professional I am encouraged by the acceptance that I feel from the newer generations. However, the orthodoxy I encounter amongst my older male colleagues often depresses me despite the optimism of my first comment.

Samina Chowdhury
Lecturer,
Dept. of Electrical and Electronics Engineering
BUET.

Technical education offers a wide scope in the academic and practical fields. As engineering education only requires intelligence and diligence which women are as likely as men to possess, therefore, female students have every chance of competing with male students on equal footing in the academic field and even outstripping them. Women are proving their brilliance every year - above 80% of the female students in BUET obtain First Class.

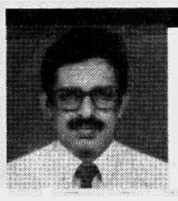
Sharmin Banu
Lecturer, Dept. of Computer Science and Engineering
BUET

These days professional women may contribute significantly in family earning which allows them to play a greater role in family decision- making. A professional woman should retain all the good qualities of her ancestors and broaden her scope in view of changed perspective. To get a degree from a university is only a part of the way to be a professional but one has to grow the mentality of a professional and think professionally, to become so.

### WOMEN AS ENGINEERS

Qamrun Nahar B.Sc. Engg (Civil), M.Sc. Engg. (WRE) M.Sc. (Computing)
System Programmer Consultant, National Data Bank Project

The number of woman in the technical profession is very negligible. Thus the nation is being deprived of the potential services of our women. Effective incentives are to be provided so that more women can enroll in the technical education.Beside BUET, there are 4 engineering colleges in the country, of which one college is reserved for the engineering diploma holders. There is no separate engineering college for women; moreover inadequate number of engineering colleges and universities makes the situation acute.Except BUET, the engineering colleges do not have separate hostels for female students. We can find no woman engineer occupying the top post both in the government and non-government organizations. This may be due to late entry of women in the engineering profession. Presently, promotions in the Gov't. services are considered on the basis of length of service and not on merit only. This system has generated frustration among the deserving efficient officers and should be changed.



### GENDER STRATEGY OF ITN-BANGLADESH AT BUET

Prof. Dr. M. Feroze Ahmed
Dean, Faculty of Civil Engineering, BUET.
Project Director ITN, BUET

The International Training Network (ITN) is an initiative of the UNDP/World Bank Water and Sanitation Program to provide training, disseminate information and promote appropriate technology and applied research in low cost water and waste management. Women play a major role in environmental sanitation and hygiene practice at family level in both urban and rural areas in Bangladesh. In the rural areas women are involved in bringing as well as storage of water for drinking, cleaning houses, educating children in proper sanitation practices and safe disposal of household wastes. Presently women are taking active interest in maintenance of tubewells and sanitary latrines. Women participation is therefore considered very important in any initiative to improve water supply and sanitation in the country. This centre has duly emphasized on gender issues in water supply and sanitation and considered women as an important target group for all activities of the centre. The ITN-Bangladesh at BUET under its gender strategy will ■ promote women in technical education and professional activities in water and sanitation ■ prefer recruitment of women consultants and staff for the centre ■ ensure greater participation of qualified women specialists and consultants in conducting training and research activities and ■ encourage participation of female trainers and trainees in training programs conducted by the centre. ■ The ITN-Bangladesh will promote participation of women in all educational, training and research activities of the project and thus address the gender issues in human resource development in water supply and waste management.

### PROFESSION AND WOMEN : A BANGLADESH SCENARIO

Lailun Nahar Ekram, B.Arch.(BUET), M.Arch(USA)
Principal Architect, Engineers and Consultants Bangladesh Limited (ECBL)

Statistics depict that adoption of profession among women in Bangladesh have not taken considerable stride and some of the main reasons are:

1. Not all professions advocate diffusion which are equally responsive to the women-specific attitude as well as their entry level educational qualification.
2. Professions, even if women adaptable ,demand different practicing attitude both by the fellow professionals and subsequently by the beneficiary.
3. Segmented or fragmentary approach to the women specific problems. A woman even though professionally qualified choose to continue practices either in public, private organisation or as self-employment enterprise under conditions of
   i. consent (of parents / husband / in-laws)
   ii. manageable household (availability of proper house help for domestic chores).
   iii. spareable time after taking care of children.
   iv.personal security in office and transportation to office.
   v. job does not require out of station travel (if children are young)
4. Conservative social norms and belief both at society as well as at work place.
5. Non-harmony between the scale of technology in profession and the management capability of women.

It is felt that a forum for Women Technical Professionals be organised to voice the issues regarding their problems both at home and at international level. The forum should create opportunities for women professionals to meet and discuss about career, especially encouraging enrollment in technical education.



### UNIVERSITY OF ALBERTA-BUET INSTITUTIONAL LINKAGE PROJECT.

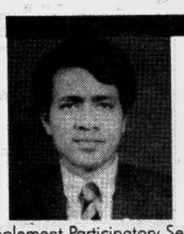
Dr. M. Abdur Rouf
Professor of Civil Engineering &
Project Manager, U of A-BUET Linkage Project, BUET.

The origin of this project dates back to 1984, when the University of Alberta (U of A) began its institutional contacts with several Bangladeshi institutions involved in key development areas. A proposal concerning linkages with four Bangladeshi institutions was modified to the present project linking the University of Alberta and the Bangladesh University of Engineering & Technology (BUET). The modification was brought about for practical reasons and due to realisation that BUET has the potential for providing skilled manpower which would further the objectives of Bangladesh in the Energy and Water sectors.

The project was aimed to build BUET's capacity to address this need by helping to train its staff, by supplying relevant laboratory equipment, by developing new courses and improving BUET's linkage with the Energy and Water Resources Engineering community. The Phase -I of the project came into being when Canadian International Development Agency (CIDA) agreed to provide a fund of 4 million Canadian dollars for the linkage project. In April 1988 two universities signed a linkage agreement to assist Bangladesh to develop the human and laboratory resources necessary to serve its emerging needs in the energy sector and to enhance its water resources capabilities.

The accomplishment of Phase-I are : (1) Establishment of a new teaching Department of Petroleum & Mineral Resources Engineering (PMRE). (2) Establishment of a well-equipped laboratory in PMRE Department to serve research students and to offer testing facilities to Petroleum & Gas Industry. (3) Enhancement of capabilities of the Water Resources Engineering (WRE) Department of BUET by strengthening laboratory facilities of the department to serve the needs of both the students and the practicing professionals. (4) Long-term training of BUET teachers, at Ph.D. Level, at University of Alberta to develop its human resources.





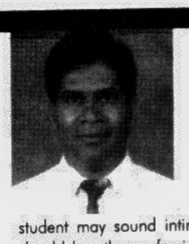
(5) Short-term training of BUET staff and people from petroleum organizations at University of Alberta, Canadian Institute of Petroleum Industry Development (CIPID) and Northern Alberta Institute of Technology (NAIT). (6) Organization of short courses for BUET staff and practicing engineers in the Petroleum and Water Resources Industries in Bangladesh. (7) Establishment of Gender Strategy for improving participation of women in technical field.

The Phase-I was completed in 1995. During this phase a very strong institutional linkage has been forged between the University of Alberta and BUET. The evaluation team of CIDA conducted an evaluation of the project and expressed their complete satisfaction on the achievements of the project. CIDA also suggested that the project was running efficiently and it may implement Participatory Self Monitoring & Evaluation (PSME) process to monitor and evaluate itself.

After successful completion of Phase - I of the project, CIDA agreed to contribute to the Phase - II of the project at a cost of around 4 million Canadian dollars to further enhance the human resources in Gas Engineering and to enhance the institutional capacity of BUET to make it a centre of excellence in the fields of Energy, Environment, Management and in Gender issues.

The Phase - II concentrates on downstream (processing and distribution) aspects of natural gas against the upstream (exploration & production) output which was the focus in Phase - I. The project will support Bangladesh commitment to the development as well as management of natural resources. The Phase - II also opens a new venture in the management area to develop BUET to offer a comprehensive and effective degree & non-degree program in Engineering Management for graduating students and also for practicing professionals.

The project is administered through two project offices, one at BUET and the other at U of A. There are several committees to monitor the activities of the project. The Project Management Committee, Project Review Committee, Industrial Advisory Committee, CIPID Selection Committee, Gender Advisory Committee, Monitoring & Evaluation Unit, and Stakeholders Committee. The project offices also get continuous cooperation from Canadian High Commission, CIDA, UGC, Ministry of Education & Ministry of Planning of the Government of Bangladesh.



### PETROLEUM ENGINEERING: A CAREER CHOICE FOR WOMEN

Dr. Edmond Gomes, B.Sc. Engg. (Chem) BUET, M.Sc.Engg.(Chem), Ph.D. (Pet. Engg.)
Assistant Professor, Dept. of Petroleum and
Mineral Resources Engineering (PMRE ), BUET.

Considering Petroleum Engineering as career for a female student may sound intimidating at first as convention says that Petroleum Engineering should be the profession of a man. However, there is a significant number of women Petroleum Engineers working in oil and gas companies, research and educational institutions all over the world, and many of them are very successful in their career. Among the areas of research emphasis in the PMRE Dept., BUET, Reservoir Engineering, Reservoir Simulation, and some areas of Natural Gas Engineering are especially suitable for women engineers. Admission into the program is competitive and demands hard work from the students. But this should not pose a problem for motivated students with a vision to build a successful career in Petroleum Sector. Although admission into the program is open to all students having a basic engineering degree, students having Chemical and Mechanical Engineering background are preferred. Deserving students are provided financial assistance. Admission requirement may be relaxed for the people working in the Petroleum Sector. The PMRE Department possesses the only PVT apparatus in the country and has facilities and equipment to ensure a world class education. The department invites highly motivated female students to get into its academic program and build an exciting career in Petroleum Sector and accept challenges of the 21st Century of being women professionals in a highly male dominated field.

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