

WISE

WOMEN IN SCIENCE & ENGINEERING - INDIA

NEWSLETTER

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FROM THE EDITOR'S DESK

It has been quite some time since we communicated with our members. A lot of activities have undertaken since the last newsletter. Here are the latest updates.

It gives us immense pleasure to share that WISE is now a registered society under the India Society Act of 1860. We have grown in numbers and the number of members as on date stands at 80. We have still a long way to go.

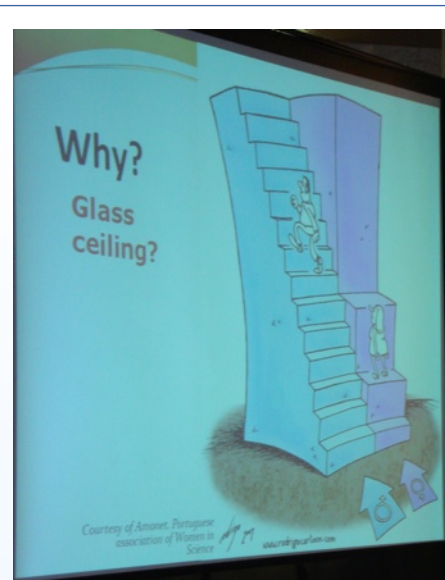
WISE has become the member of the International Network of Society of Women and Scientists (INWES), a global body having its headquarters at Canada, with members all over the world. INWES is working on the promotion of women engineers and scientists at the global arena since 1964. Mrs. Sangeeta Wiji, President-WISE has been selected as the Board Member of INWES. Kudos to her!!

WISE had a more visible presence in the international conference of International Conference of Women Engineers and Scientists (ICWES-15) at Adelaide and World

Engineers Convention (WEC) at Geneva. A large number of WISE members presented their papers, posters and actively participated in their various meetings and workshops. And, we now have our website www.wiseindia.org. All are encouraged to visit the website and give their comments and views to improve it. We also invite suggestions from the members on how to improve the newsletter and share their work experiences, news items, articles for the newsletter.



Have a Bright and Happy New Year!!!



The newsletter will have technical articles, insights about latest technological developments, information about national and international conferences, seminars and workshops, WISE activities etc. The objective of the newsletter is to enliven the overall interaction and participation of all the WISE members so that they work together for the mutual benefit of one another and integrate into the WISE family.

WISE-THE VOICE OF INDIAN WOMEN ENGINEERS & SCIENTISTS

WISE members made their presence felt in ICWES15 and WEC 2011



Four WISE members actively participated in the ICWES 15 at Adelaide, which was held from 19th July- 22nd July, 2011. WISE participated in the Board meetings of the INWES and the Asia Pacific Nations Network. Ms. Sangeeta Wij was selected as the Board Member, INWES. A proposal of India hosting the regional conference of INWES in 2012 was welcomed and WISE is privileged to hold the INWES Regional Conference in New Delhi from October 12-13th 2012.

Sangeeta Wij, Nilanjana Rao, Kamini Gupta and Dillip Pattanaik presented their papers in the areas of women in science and engineering careers, sustainability in built environment, sustainable transport and ICTs for upliftment of women in rural areas of Orissa.

Those interested in their papers kindly contact us at wise.india@gmail.com.



WISE Members at the WEC 2011 Conference

WISE members also participated in the World Engineers Convention at Geneva, held from 4th September -9th September, 2011. The theme of the conference was Engineers Power the World- Facing the Global Energy Challenge.

Rahul Gaba, Nilanjana Rao, Kamini Gupta and Chhavi Dhingra actively participated in Young Engineers Professional forum, Women in Engineering workshops and also were in the organizing committee as volunteers. They also presented papers in the areas of their work. An overall good experience!!!



WISE Team members along with other International participants at the ICWES15 Conference - Australia

WISE-THE VOICE OF INDIAN WOMEN ENGINEERS & SCIENTISTS

Design of engineering education to attract and retain women to engineering careers in India

Nilanjana Rao¹, Prerna Sohal² & Rahul Gaba³

Objective The emergence of India as a major economic engine has created not only a new marketplace for goods and services, but also created new competitors whose major strength lies in their vast resources of human capital majorly in the field of engineering and technology. There is a growing consensus amongst the industry, academia and governing bodies that women make up half of the human resource pool available and the development of the country is bound to suffer if this talent is untapped.

Technical education, especially in the new age of information technology and technological advancement, plays a significant role in strengthening the human resource capital and thereby contributing positively to the national economy and improving the quality of citizens. However, in this scenario, the low presence of women in the engineering subjects is indeed a matter of concern and concerted efforts must be undertaken to address this gender divide.

In the developed world, educational opportunities at school and college levels are equal for both sexes; whereas in India it is not so. Here the gender gap begins at the primary level of education itself. Firstly the number of girls enrolling at the primary level are lesser and secondly the number of girl drop outs after finishing primary education are much higher which further aggravate the situation. In rural areas, the proverbial leaky pipeline from primary to secondary school is more visible because education and health, particularly of

females are given a low priority as the primary concern in such areas is livelihood. The basic right of school education is denied to girls because they are invariably employed as child labour to augment family income and are further engaged in household chores. Denial of school education blocks the stream that would feed into higher education including science education.

At the high school level, the imbalance in gender parity is clearly prominent in arts vis-à-vis science courses as girls' enrolment in science subjects is much lower in comparison to boys. This is also a cause of great concern. At the university education level, gender disparity and traditional mindset prevent women from opting for courses like science (particularly physical sciences) and engineering, which are perceived as being male dominated subjects. In addition, lesser job opportunities, discrimination in jobs, lesser professional recognition, lack of awareness and role models, societal pressures are other significant reasons resulting in lesser uptake of these subjects by women. Moreover even those women engineers who complete their degrees end up receiving opportunities for secondary roles or for other routine jobs.

Thus, the need of the hour is to understand the current scenario in terms of statistics, articulate the benefits obtained from policy reforms and enunciate the changes needed in design of engineering education to attract and retain women to engineering careers in India. This paper aims to achieve these objectives.

Methodology This paper presents the statistics pertaining to girls' access to education in general. It also presents facts and figures on number of girl students pursuing science subjects at the school level and their enrollment in various science and engineering subjects at the colleges and universities at the undergraduate, graduate, post-graduate and

doctoral levels. This data gathered is used to analyze the pattern of disciplinary choices from a gender perspective. The paper also throws light on the statistics depicting retention of women in the engineering field as a career profession by means of various data collected through survey.

Results The paper presents the measures undertaken and those that are also in process of implementation by the Government of India to attract girls into the engineering careers. These have been obtained through review of the New Education Policy of India and the reports published by Ministry of Human Resource Development, Government of India, Indian National Science Academy, etc. Analysis of these reveal that though few steps have been taken and few others have been recommended, still there there is dearth of policies in the education system which would encourage girls for opting science and engineering subjects.

Conclusions The paper concludes that there is however a silent revolution taking place as demonstrated by the increase in number of women enrolling for engineering subjects. The education policies, especially the policies in engineering education, have to be more gender positive to see higher number of girls opting for science and engineering subjects.

It has been clearly established that in India, the social fabric plays a major role in making disciplinary choices and that there is immense scope of having several times more women engineers in the mainstream than their present level, thus corroborating the need to have effective policies, both at the primary and secondary tiers of the education system to "Catch them Young."

¹DLF India Ltd., New Delhi

²Tandon Consultants Pvt. Ltd., New Delhi

³Emergent Ventures India Pvt. Ltd., Gurgaon

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ForthComing Conferences / Workshops

1. 3-day workshop on Modern and Advanced NDT Techniques for evaluation of reinforced Concrete Structures, February 2-4, 2012, Hotel The Royal Plaza, 19 Ashok Road, New Delhi (WISE is a supporting organizer. WISE members can avail 20% discount on registration fees.)
2. Second Asian Conference on Sustainability, Energy and the Environment - 3 to 6 May 2012 Osaka, Japan (<http://acsee.iafor.org/>). The deadline for submission of abstracts/proposals is 1 February 2012.

3. INWES Regional Conference to be organized by WISE India in New Delhi from 12-13th October 2012. Deadline for submission of abstracts is 15th February 2012.

(www.wiseindia.org)

4. Construction Chemicals International Conference, February 17-18, 2012, Hotel Ramada Powai, Mumbai.

(<http://www.ficci.com/events-page.asp?evid=20286>)

WISE-INDIA NEWSLETTER

Women in Science and Engineering- India

Regd. Office: 11/15, East Patel Nagar,

New Delhi – 110008

Phone:

+91-9811776210

+91-9811756794

E-mail:wise.wiseindia@gmail.com

www.wiseindia.org

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Interested people may contact us for further details.

The present issue is not a complete picture of what the newsletter is conceptualized to be. We hope that the forthcoming issues will be more enriching. We invite all WISE members to contribute articles/news/views/your experiences or any other related information.