REPORT

Workshop On

“Defining Role of Women Scientists and Teachers in Promotion and Application of Science & Technology”

(October 5-6, 2012)

Organised by

The National Academy of Sciences, India
Allahabad
Foreword

Women, the 50% of human resource are vital for the progress of the society. To empower women is to increase their control over the decision-making that affects their lives both within and outside the household. Dogmas of gender and science developed over the period of time resulted in the exclusion of women from science for a long time from all over the world, not only this, the women were barred from their fundamental right of education itself. Even today, their participation is restricted and limited in many areas because of lack of proper means of communication and awareness.

It is important to educate women in the field of science, because science education not only enhances awareness level but also builds a mindset with an ability to judge between right and wrong. It provides a scientific approach to cope up with the problems being faced by the women, ensuring their socio-economic development. The teachers and women scientists can provide the lesser privileged with opportunities by making them aware on several scientific & societal issues, thus bridging the gender gap and removing the barriers of negative attitude. They can be the role models and become instrumental in attracting young girls into science.

Therefore, realizing the gravity of situation as well as the role of women scientists and teachers in providing help, support and solution, the Council of the Academy (NASI), welcomed the proposal of Prof (Mrs.) Manju Sharma, NASI Distinguished Woman Scientist Chair and former Secretary to the Govt. of India, to organize a series of workshops on "Defining Role of Women Scientists and Teachers in Promotion And Application of Science and Technology". A meeting of the sub-committee comprising Prof Manju Sharma (Chair), Prof Kasturi Datta, Prof Sneh Bhargava, Prof Paramjit Khurana, Prof Krishna Misra and Dr Archana Pandey, to organize the workshop at Allahabad was held at NASI on 21th July, 2012. It was decided to organize the workshop under the convenership of Prof (Mrs.) Manju Sharma on October 05-06, 2012 at NASI, Allahabad.

In the light of above, The National Academy of Sciences, India (NASI), Allahabad organized a two-day workshop on Oct. 5-6, 2012.

A large number of distinguished women scientists from all across the country including Women Scientists, members of faculties, women research scholars and post graduate students from the University of Allahabad, P.G. colleges, medical, engineering, agriculture and other scientific institutions of Allahabad and other destinations participated in the workshop held in the auditorium of the Academy.
Inaugural Session

The program commenced with the welcome address by Prof. Krishna Misra, General Secretary, NASI highlighting the importance of education for women. Prof. Misra said that the role of women in society is absolutely vital for the country’s progress, as they are a great human resource; and therefore, it is essential to educate them.

Prof. Sneh Bhargava, Prof. Manju Sharma and Prof. Kasturi Datta lighting the lamp during the inaugural function

Prof. Sneh Bhargava former Director, AIIMS, New Delhi inaugurated the workshop.

Narrating the theme of the workshop Prof. Manju Sharma said, “Women must be educated and Science education is pivotal for women as it provides a scientific approach to thinking, and helps them understand the things better.” She further added that women are knowledge power, so they could be the role models in spreading awareness to promote Science.
Prof. Kasturi Datta of the Special Centre for Molecular Medicine, JNU, New Delhi, delivering her keynote address on ‘Challenges, Opportunities, Promotion: Can we make it?’ said that in case of rural population the factors responsible for the ill fate of women are poverty, food insecurity, sex discrimination, sanitation, illiteracy, inadequate knowledge of local and natural resources and dependence on traditional means for their livelihood. It is challenging for women to maintain a balance in life and work, but opportunities are always there, provided they get the support of the family and society.
Scientific Sessions

After the inauguration of the workshop the Scientific Sessions were held on the following themes:

- **Writing research proposals for financial support**
- **How to write scientific papers and give presentation**
- **Malnutrition**
- **Agriculture, Horticulture, Animal Husbandry and Value Addition**
- **Health Care and Environmental Hygiene**
- **Availability of Research Funding**
- **S and T Education, Training and Awareness Building**

The Scientific Session on **Writing research proposals for financial support** was chaired by Prof. Shelly Bhattyacharya, Department of Zoology, Vishwa Bharti Central University, Shantiniketan. The distinguished speakers were Dr. Madhu Dixit, Scientist ‘F’, Div. of Pharmacology, CDRI, Lucknow (Title of presentation-“**Strategies to write research proposals for funding**”) and Dr. Renu Swarup, Advisor, DBT, New Delhi (Title of presentation- “**Effective Grant Writing Opportunities in Biotechnology Sector**”). Dr. Roli Mishra, Research Associate, IIT, New Delhi was the Rapporteur of this session.
After the lectures there were several queries from the audience on the various opportunities for getting projects and funding available from such sponsoring agencies.

The Scientific Session on **How to write scientific papers and give presentation** was chaired by Prof. Krishna Misra, General Secretary, NASI with Dr. Nitya Singh, IIIT, Allahabad as Rapporteur and Prof. Madhulika Agarwal, Dept. of Botany, BHU, Varanasi (Title of presentation-"Writing Scientific paper: A procedural approach") and Prof. Paramjit Khurana, Department of Plant Molecular Biology, South Campus, University of Delhi (Title of presentation-“The Art of Writing and Presenting your Science”) as speakers.

The participants put forth their problems faced by them while writing research papers, which were resolved by the scientists. A discussion was also held why it is essential to have one’s own way of writing and how they can make it.

The Scientific Session on **Malnutrition** was chaired by Prof. Manju Sharma. The speakers were Dr. Mahtab Bamji, National Nutritionist, INSA Honorary Scientist, Dangoria Charitable Trust, Hyderabad (Director Grade Scientist, (Retd.)National Institute of Nutrition, Hyderabad) (Title of presentation -“Development of adolescent girls through scientific and social engineering and skill development”), Dr. Shubhra Chakraborty, Staff Scientist-VI, National Institute of Plant Genome Research (NIPGR), New Delhi (Title of presentation-“Nutritional Genomics: Challenges & Prospects”), Prof. Indira Chakravarty, Chief Advisor, PHED, GOWB, Former Addl DGHS, Director and Dean, AIHHP, GOI & Director, Ch National Cancer Inst, GOI (Title of presentation-“Malnutrition- The most major public health problem which needs intersectoral interventions”) and Prof. Jaya Tyagi, Dept. of Biotechnology, AIIMS, New Delhi (Title of presentation-“Possibility of a link between vitamin C and M. tuberculosis dormancy development”). Dr. Vibha Tandon, Associate Professor, Department of Chemistry, University of Delhi was the Rapporteur of this session.

A discussion was held on how the children can be at risk for malnutrition even before birth, as their nutrition levels are directly tied to the nutrition of their mothers. There were interesting questions regarding the role of micro-nutrients in nutrition. Queries were also made as how vitamin C could act in making tuberculosis dormant. It was also proposed that the concept of malnutrition must be taught in the school level
and must be included in the curriculum to enhance the level of awareness of the students.

The session on **Agriculture, Horticulture, Animal Husbandry and Value Addition** was chaired by Dr. Vinita Sharma, Advisor, Department of Science & Technology (DST), New Delhi. Dr. Rupali Sethi, Guest Faculty, Dept of Chemistry, Univ of Allahabad was the Rapporteur. There were four speakers in the session viz. (1) Dr. Sudha Nair, former Senior Director, MSSRF, Vice Chairperson, Golden Jubilee Biotechnology Park for Women, Society, Chennai (Title of presentation-“**Institutional Mechanisms for Promotion of Livelihoods / Entrepreneurship for Women**”), (2) Dr. Krishna Srinath, Director, DRWA, Bhubaneswar (Title of presentation-“**Technology Development for Farm Women**”), (3) Dr. Sindhu Sareen, Senior Scientist (Gen. & Cytogenetics), Directorate of Wheat Research (DWR), Karnal (Title of presentation-“**Role of Women in Agricultural Sciences and Technology**”) and (4) Dr. Suchitra Banerjee, Scientist, CIMAP, Lucknow (Title of presentation- “**Hairy Root Research: an updated biotechnological approach towards predictive biofactories**”) delivered their talks.

In the end of this session an exciting discussion was held regarding opportunities for women in agriculture and ways to promote gender sensitive research in this area. The participants also explained how the research could be aimed to address different models with the concept of bio villages and bio parks.

The session on **Health Care and Environmental Hygiene** was addressed by the distinguished Speakers Prof. Shelly Bhattacharya, Department of Zoology, Vishwa Bharti Central University, Shantiniketan (Title of presentation-“**Environmental Toxicology: Emerging Paradigms**”), Dr. Vibha Tandon, Associate Professor, Department of Chemistry, University of Delhi (Title of presentation- “**Effect of Toxic metals on human health**”), Dr. Neeru Singh, Director, Regional Medical Research Centre For Tribals, Jabalpur (Title of presentation-“**Forest Malaria in Balaghat, Madhya Pradesh. A case study in a tribal community**”). Prof. Sneh Bhargava, Former Director, AIIMS, New Delhi was the Chairperson and Dr. Archana Pandey, Associate Professor, Dept.of Chemistry, C.M. P. Degree College, Allahabad was the Rapporteur of this session.

In the end queries were made and adequately responded; about general hygiene tips and the diet to ensure better health especially for women.
The session on **Availability of Research Funding** was chaired by Dr. Mahtab Bamji, INSA Honorary Scientist, Dangoria Charitable Trust, Hyderabad (Director Grade Scientist,(Retd.) National Institute of Nutrition, Hyderabad) with Dr. Sharda Sundaram Sanjay, Associate Professor, Dept. of Chemistry, E. C. C, Allahabad as Rapporteur. Dr. Vinita Sharma, Advisor, Department of Science & Technology (DST), New Delhi (Talk on **career/ research opportunities, diverse fellowship/funding schemes of DST, Govt of India, for women and young girl students and the ways to avail them**) and Dr. V. P. Gupta, Advisor, DBT, New Delhi (Title of presentation- **“DBT Women Biotech Programme – opportunities for Women Scientists”**) addressed on research avenues for women, even at much later stage in life.

The queries were made as under what conditions the proposal for the grant could be rejected. The ways to look at diverse systems for allocating research funds were suggested by the scientists.

The session on **S and T Education, Training and Awareness Building** was chaired by Dr. Shasi Rana, Senior Scientific Officer, Patent Information Centre, Council of Science & Technology (CST), U. P.Vigyan Bhawan, Lucknow. Dr. Richa Tandon, Assistant Professor, Dept. of Botany, Ishwar Sharan Degree College, Allahabad was the Rapporteur and the speakers included Dr. Pratibha Jolly, Principal, Miranda House, New Delhi (Title of presentation-**“Research, Innovation and Outreach in Science Education: Building Collaborative Networks for Change”**)), Dr. Shashi Tyagi, Associate Professor & Vice-Principal, Gargi College, University of Delhi (Title of presentation- **“S and T education beyond classroom for building awareness at undergraduate level”**) and Dr. Archana Pandey, Associate Professor, Dept. of Chemistry, CMP Degree College, Allahabad (Title of presentation-**“Science and Technology for rural women”**).

To conclude the session there was an informative discussion on the techniques for the women scientists and teachers to be acquainted with and the pragmatic approach to train the rural women in various aspects such as horticulture, floriculture, mushroom cultivation, vermiculture, sericulture, brick-making, bio-gas technology the scientific way. Such training programmes can be held in different Women’s Colleges.
The last session of the concluding day of the workshop was on *Interaction & Conclusion and recommendations* with Prof. Manju Sharma as the Chair and Prof. Kasturi Datta as the Co-Chair. The Interactive Panel comprised Prof. Krishna Misra, General Secretary, NASI, Prof. Laxmikantam M, Scienist ‘G’, Head, Inorganic and Physical Chemistry, Indian Institute of Chemical Technology, Hyderabad Dr. Sayani Das, Gender Resource Consultant, Guest Faculty, PSG Institute of Management, R&D Director, LEAD Learning Pvt. Ltd. Dr. Mamta Kapila, Editor, Springer India Pvt.Ltd, New Delhi. Dr. Shonali Chaturvedi, Associate Professor, Dept. of Botany, E. C. C. Allahabad was the Session Rapporteur.

The participants interacted with the eminent scientists with numerous queries which were answered satisfactorily. This session provided an interactive atmosphere for knowledge-sharing and problem-solving.

The entire programme was coordinated and conducted by Dr. Pavitra Tandon and Ms. Archana Pant. Dr. Pant also proposed a vote-of-thanks in the end of the valedictory session of the workshop.

![Ms. Archana Pant proposing vote-of-thanks during the valedictory session](image)

It was decided that all the lectures delivered in this workshop will be published in the form of a news letter and also be put on the website of the academy.

The salient recommendations formulated for each session will be sent to the Department of Science & Technology (DST) as well as the Department of Biotechnology (DBT), Govt. of India, New Delhi, and other governmental and non-governmental agencies for necessary follow-up / implementation.