

Swami Rama Himalayan University Research and Development Cell

NASI Meeting Report

The NASI Uttarakhand Chapter sponsored National Workshop on 'Women Empowerment in Uttarakhand through Science and Technology Interventions' was held at Swami Rama Himalayan University, Uttarakhand on 29-30th March 2024. The workshop was chaired by Dr Manju Sharma, Former Secretary, Department of Biotechnology; Former Chairperson, NASI and co-chaired by Dr Rajendra Dobhal. Through presentation of research outcome, case studies and clinical trials, it recommended actionable strategies for integrating innovative S & T tools to enhance women's participation in STEM, improving women's health, fostering entrepreneurship, and enhancing socio-economic conditions. The workshop, attended by over 160 women participants, including researchers, scientists, clinicians, social scientists, and entrepreneurs, has set the stage for significant advancements in these areas, with each participant playing a crucial role in this collective endeavour.



In her inaugural address, Dr Manju Sharma called for action, highlighting the transformative potential of Science & Technology in improving women's lives. She stressed on the importance of providing women with quality education and access to technological resources. She believed that a stronger collaboration between the government, academia, and industries would create a robust support system for women of the region. Along with policy reforms to ensure equal opportunities and representation in scientific fields, she advocated for mentorship programs, and S & T training initiatives to build confidence and skills among women, empowering them towards self-sustainability and fostering a sense of optimism for the future.

The *Technical Session 1 on the Priority Areas, Agriculture, Health, AI & IT* started with a talk by Dr Paramjit Khurana, DUSC. She addressed the involvement of women in agri-research and business. She presented novel & valuable perspectives built on integrating traditional agricultural

practices and modern agri-technologies with women taking the lead. She described programs like the National Research Centre for Women in Agriculture (NRCWA), which aims to promote gender-sensitive agricultural decision-making, empowering women to customise farm technologies to address their requirements and improve production and sustainability. Prof. Renu Dhasmana, HIMS SRHU, gave an insightful talk on empowering women through holistic health by focussing on a wholesome diet, exercise, regular health check-ups, and balance of three Gunas, i.e. Satv, Rajas & Tamas, thus creating a fusion between traditional system of medicine with modern technologies. As a promoter of health equality, she underscored the significance of gender equality in tackling maternal and child health, including nutrition, thus encouraging women towards self-care. Prof. Meenu Gupta, CRI, SRHU, discussed strategies for the early detection of women's cancers with a particular focus on cervical (CaCx) and breast cancers (BrCa). She informed about the WHO's declaration of eliminating CaCx by 2030 through preventive vaccination, regular screening, and timely medical intervention. She sensitised the audience about the large number of deaths in CaCx in India despite the availability of preventive vaccines, including an indigenous one released by the Pune-based Serum Institute of India. She signified public awareness campaigns and universal access to healthcare services. The last speaker of the session, Dr Durga Toshniwal, IIT, Roorkee, discussed the utilisation of Artificial Intelligence (AI) and the Internet of Things (IoT) in women's healthcare. Her presentation focused on how technology advancements may meet healthcare requirements and enhance the capabilities of women. The intersections of AI and IoT with health research, specifically disease diagnostics, imaging analysis, fertility & reproductive health and pregnancy and maternal health were thoroughly discussed.

The ***Technical session 2 covered Skilled manpower and Infrastructure.*** Dr Garima Gupta, DBT, provided insights into initiatives to transform undergraduate and postgraduate Biotechnology education in India, particularly through the Star Colleges program. She outlined the support provided by DBT to researchers in India, including funding opportunities, training programs, and career development initiatives. The Star College Program, Builder Program, and the recent launch of the Sahaj and Common Fellowship Portal were highlighted as key initiatives to enhance the quality of education and research opportunities. Dr Purnima Sharma, MD, BCIL, New Delhi mentioned the significance of translational science in academia. She gave examples of successful transfer of technologies from academia to industry. Emphasis was laid on the crucial role of technology-enabled centres (TECs) in promoting collaboration among stakeholders in biodesign and global innovation ecosystems. She discussed the difficulties encountered by academia in developing strong scientific and technological infrastructure and stressed the importance of working together to overcome obstacles. An MoU between BCIL and SRHU was also signed to transfer prototype technologies. The session ended with Dr Pratibha Jolly discussing the importance of enabling women in STEM disciplines and promoting gender diversity in the workplace. Utilising her experiences in GATI, she provided valuable perspectives on the difficulties and opportunities women face in STEM fields. She stressed the significance of establishing gender-sensitive and adaptable work environments to promote women's progress in STEM professions. She emphasised the significant impact of both formal and non-formal education on empowering women worldwide.

The Technical session 3 covered Health Interventions through High Tech R & D. Prof. Ranjana Pathania, IIT Roorkee, presented research outcomes of antimicrobial resistance (AMR), emphasising the alarming rise of antibiotic resistance and its potential implications. She expressed concern about drug-resistant ESKAPE pathogens against the limited discovery of new antibiotics. Specific attention was given to the rampant use of antibiotics in the poultry industry, highlighting its contribution to the spread of antibiotic resistance. Dr Suphiya Khan, Deputy Director, Shriram Institute for Industrial Research, Gurugram, then focused on developing and implementing cost-effective defluorination techniques tailored exclusively for rural and urban areas. She highlighted the importance of connecting scientific research with societal problems and real-world situations, giving examples of dental and skeletal fluorosis in many communities in Rajasthan. She presented a novel technique involving nanorods outfitted with nanosensors to improve the effectiveness of fluoride removal.

On day 2, Technical Session 4 highlighted integrating S & T tools into the Community. Professor Dr Ruchi Juyal, HIMS SRHU, emphasised the critical need to prioritise women's health within the community, particularly in the Indian context. She highlighted the tendency of women to overlook their own well-being while fulfilling family obligations. Establishing trust and offering accessible mental and physical health solutions would help women. She addressed the impact of educating women, which leads to increased life expectancy and improved gender ratios. She discussed a range of socio-economic variables impacting women's health, including cultural norms, societal stigmas, and gender bias. Dr. Shweta Sethi, HSMS SRHU, highlighted the obstacles encountered by women in the business industry, such as societal and gender prejudices, insufficient financial resources and limited market expertise. She emphasised the significance of fostering a supportive work atmosphere by conducting training sessions, workshops, and seminars on time management. She spoke on the significance of diversity and inclusion initiatives, such as the Diversity, Equity, Inclusion, and Equality (DEIE) programs implemented by firms like KPMG. She recognised the importance of networking and mentoring platforms to support women's entrepreneurship. A talk by Prof Manjari Tripathi, AIIMS, New Delhi, discussed frequently ignored matters of mental health, highlighting the impact of negative emotions on mental health, especially amongst women. She correlated the accumulation of unpleasant emotions with the development of acute and chronic mental disorders, which are accentuated by society and familial constraints. Dr Tripathi emphasised the importance of yoga as a therapeutic approach to mental health. She recognised post-partum negative feelings, workplace negligence, and mental harassment as major factors that contribute to anxiety, despair, and suicidal tendencies in women.

The Technical Session 5 featured a dynamic panel discussion on Women's Empowerment in Uttarakhand through Science and Technology, where experts explored strategies to enhance women's participation in STEM fields, discussed successful initiatives, shared best practices, and highlighted the importance of mentorship and support networks. The session concluded with actionable recommendations to foster an inclusive environment encouraging women's innovation and leadership in science and technology. In the valedictory session, Dr Manju Sharma presented a brief report and recommendations for the Workshop that included: 1. Embarking on targeted initiatives tailored to the distinctiveness of women of Uttarakhand region; 2. Organizing workshops, meetings, festivals, conferences and contests to foster brand recognition and community engagement with women in the centerstage; 3. Setting forth a definitive S & T

trajectory for enhancing University's mission towards women empowerment; 4. Stimulating faculty engagement in community endeavours integrating S & T in social sectors, specially to uplift rural women; 5. Advocating awareness about women health issues including CaCx and BrCa to overcome societal taboos.

Dr. Rajendra Dobhal, VC, SRHU, congratulated everyone for a successful workshop and highlighted valuable networking opportunities for women in Uttarakhand. The workshop aimed to support women in various fields, including empowering women in rural areas with effective healthcare solutions. Dr. Santosh Kumar, Executive Secretary of NASI, commended the organisers for bringing-in women from different walks of life; addressing women-oriented issues and proposing solutions. Dr. Bindu Dey, Director Research, SRHU thanked all dignitaries, speakers, and participants. The event emphasised the critical role of women in driving research, innovation, and economic growth, and the next step is to take the recommendations to discussions in a rural area in Uttarakhand with women's groups.

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