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## CONTRIBUTION OF WOMEN AS SCIENTISTS IN INDIA

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**Abstract:** Women excel in all fields today. But they have long been fighting to be recognised as equal to men. In the last few decades, women have reached an awesome progress in education. It helped them to grow in their family and social development. Though they have attained a fast development in literacy and education, what is the progress of young girls and women in the field of science and technology? Every year, girls do far better than boys in the Board exams. In most of the institutions, majority of the toppers are girls. What happens to them after their schooling? What is their choice of study? Are they forced by their parents to make choices? Do they fail to get through the competitive entrance examinations? Are they pressurised to make choices about the future? Do marriage and family are given preference?. Though many attempts have been made to improve the under-representation of women in science, technology, engineering and mathematics, many bright young girls summarily reject the option of selecting a career in science. In India, many Research institutes offer scholarships and schemes to improve the basic science researches. But the percentage of girls choosing this career is almost very low. The number of women acquiring a Ph.D degree has increased larger in number, but choosing the career as scientist is very low. This paper reviews about the role and progress of women as scientists in India and the reasons and barriers for the women scientific careers.

**Key words:** Education, women, science, career, barriers

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**Introduction:** Women excel in all fields today. But they have long been fighting to be recognised as equal to men. In the last few decades, women have reached an awesome progress in education. It helped them to grow in their family and social development. Though they have attained a fast development in literacy and education, the progress of young girls and women in the field of science and technology is not high. Every year, girls do far better than boys, in the Board exams and in most of the institutions, majority of the toppers are girls. What is their choice of study after schooling? They are forced to make pragmatic choices about the future because they are conditioned to believe that marriage and family come first. Though many attempts have been made to improve the under-representation of women in science, technology, engineering and mathematics, many bright young girls summarily reject the option of selecting a

career in science. In India, many Research institutes offer scholarships and schemes to improve the basic science researches. But the percentage of girls choosing this career is almost very low.

The number of women acquiring a Ph.D degree has increased larger in number in recent years, but choosing the career as scientist is very low. This paper reviews about the role and progress of women as scientists in India and the reasons and barriers for the women scientific careers.

### WHO ARE SCIENTISTS?

Science- which is the combination of Physics, Chemistry, Biology and Mathematics all have been part of the creation of our world. Here we define that Women who receive Ph.D degree and working in the technical field are considered as a scientist. They are well trained and are specialised in the particular field. They confine their creativity and methodology to their specialised areas. Men and women

together made many researches for the development in science and technology. Their contributions mainly depend on the development of technical advancements to humanity.

**Progress Of Women In Science:**In India women have reached to greater heights in the field of science and their contributions are remarkable. The good news is that there are an increasing number of women receiving an education in the sciences in India. The literacy rates of girls have increased. But the rate drops when they enter the college study from schooling. Girl toppers in the board exams usually choose Engineering or medicine as their first choice. The average marks scorers choose basic sciences and that too to become a teacher. The percentage of girls pursuing science degrees are high compared to Engineering, Medicine and Agriculture, but only few girls are interested to become as a scientist from their schooling or in college education. The good news is that the women receiving education in sciences are increasing but choosing the career as scientists is decreasing.

**Contribution Of Women In Science And Technology:**There are definitely challenges to being a woman in a male dominated field. In India, women have had to fight to be accepted as capable of being equal partners with men in science and technology. Although there is no difference existing in the salary of male and female scientists, an imbalance does exist in the decision making policies which is solely dominated by men. In most of the situations, men are the decision makers for women policies. Women do not get scientific recognition easily and are rarely recommended and nominated for awards. Many scientific institutes have awards and recognitions for women alone. Many women with high qualifications and experience have reached the top. Recently, the Ministry of Human Resource Development attempted to correct

the imbalance, by nominating Tessy Thomas and Vijayalakshmi Ravindranath to the Indian Institute of Technology (IIT) Council, the governing body for all 16 IITs. These are the first women scientists to have been nominated to the council [3]. Women scientists are being encouraged to pursue research in frontier areas of science, on problems of societal relevance and to take up S&T based internship followed by self-employment. The statistics shows that the percentage of women representation in S&T institutions is very low, but the percentage is slowly increasing in recent years[5]. The pattern occupying positions of authority has changed progressively during the past years and the trend appears to be encouraging.

**Barriers –To Become A Women Scientist:**

Mostly, women are considered as the home makers, child bearer, family care-takers. For any woman, family commitments and children are their first priorities irrespective of their education and designation. This make to comment that women are less dedicated in their profession. Literature on women's studies often mentions breaks in the career during the child bearing and rearing age. During this time women don't want any promotion. It is one of the main reasons for slower career growth of women professionals. But the actual problem is that they do not get support from their fellow men and family members. Women have to balance between family and profession[2]. This is a big challenge for every women especially, scientists.

A survey was done with the students from the rural colleges and found the following reasons are the barriers for

**Under Graduate Students:**The reasons given by the undergraduate students were, they have lack of skill, innovation, creativity, communication, self-confidence and awareness. It takes more years, nearly 8-9 years to become a scientist and there is uncertainty about the profession even after

completing their course. The main reason pointed out by all was that they are not confident enough to face the challenges.

**Post Graduate Students:**The main reason given by the post graduate students was that they have the fear to appear for competitive examinations and interview. Because of the medium of instruction of study in the regional language till schooling, they find it difficult to have depth in subject knowledge. They don't have proper training in skill oriented papers and role models. All the students have pointed out that they prefer teaching because it is comfortable for them to balance the family and profession. Some of them have the idea to switch over to other disciplines like MBA.

**Scholars (M.Phil/Ph.D):**The main purpose of doing research is that it has become the minimum qualification to become a lecturer. It is easy for them to complete research than to pass NET exam. They have the interest to undertake projects in the scientific institutes but not to work as a scientist. They are not willing to work throughout the day as it is not a time bound job. The time duration is high and waits for more years to become a scientist. They want to settle down in their

life at the earliest. They don't get support from their parents also.

But this attitude differs from the rural students to the city students. The statistics show that 84% of scientists working in India in S&T institutes are from cities[5]. Students from cities are more resourceful, have positive attitude, high assertiveness, good communication skill, family background and great support from the parents. Certainly, there are social-class differences between women scientists.

**Conclusion:**In India, women have entered into all disciplines of science & technology. Women are still working in an environment dominated by men and fighting to get equal status. When men achieve, they are appreciated. When women achieve, they are appreciated but as exception. For the women who choose their careers in science, the path was never easy. They have to struggle day and night to achieve it. Women should overcome the psychological weaknesses and barriers. By giving the necessary qualifications, opportunities, safety and security, the women in science and technology in India can be emerged as achievers and thereby heighten the growth of science and technology of our nation.

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