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11. Role of Women in Science and Technology

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Abstract:-

The gender dimension of science and technology has become one of the most important and debated issues worldwide. Over the past 30 years, the United Nations General Assembly and Economic and Social Commission have emphasized issues related to inequalities, insufficiencies and disparities in the access of women to education, training and the labour market. Various major international initiatives have been undertaken on the subject; including the United Nations Decades on Women and Development (1975-1995) and special attention has been directed towards the role of women in science and technology. Gender equality is one of the eight United Nations Millennium Development Goals, which clearly call for action related to science, technology and gender.

Key Words:- Science, UNESCO, Entrepreneurship, technology, STEM

Introduction—

Mahatma Gandhi while appreciating the value of educating women said - „*When a man is educated, an individual is educated; when a woman is educated, a family and a country are educated*“. Women in India constitute fifty percent of the human resource. The role of women in society is vital for its progress, and their contribution to the development of the knowledge base and use of technology is essential if the millennium challenges are to be met. Despite constituting half of the population, women are an underutilized talent; and need to make their presence felt in science and technology. Dogmas of gender over different periods of time have resulted in women's exclusion from science for a long time, all over the world. Their participation is still restricted and limited because of widespread discrimination at the basic education level and lack of opportunities for pursuing science as a career, predominantly in rural areas, where the girls find it difficult to participate in science owing to the formidable barriers that stand in their way such as harsh living conditions, religious traditions, negative attitude arising from the orthodox etc.

Women awareness in science and technology education

The rural women must be sensitized and encouraged to interact with their families and society to question; and discuss on various issues to communicate more effectively. Women



must be encouraged for science education to exterminate traditional beliefs and change their mindsets by developing their thoughts to face the barriers of societal dogmas. The Science education must stress upon the parallel development of chemical and biological sciences and establishing a link between these two. The role of Chemistry in health care sectors like vaccine development and personalized medicine must be emphasized. Basic research on adaptation biology, bio prospecting of genes and metabolic engineering to be encouraged among the young researchers.

Awareness to homestead nutri-gardens (farms), back- yard poultry with high egg yielding breeds, dairy and fish ponds be initiated; the relevant emphasis should be on nutrient-dense vegetables like the green leafy vegetables, beans etc. and fruits rich in vitamin C and beta-carotene. To ensure such nutrients-produce with safe & high yield varieties, provisions for good quality seeds be made and planting material (saplings), organic methods like Vermi-compost organic pesticides and water harvesting/ water saving methods need to be introduced.

Higher Education in science and technology-

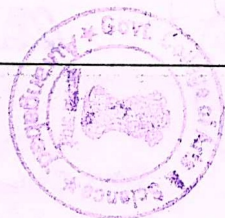
Although the first interaction with science and mathematics occurs in elementary and secondary education, tertiary education is the critical step in which students decide their future careers. The transition from high school to higher education has been identified as the point at which both the largest proportion of students leave the science and technology and the exit rate of women exceed those of men by the largest margin (Xie and Shauman, 2003). At the same time, women seem less inclined than men to choose a science, technology, engineering, and mathematics discipline when completing a nonscientific or technological track in high school. While women's overall in higher education has been growing around the world in the past decades, tertiary enrollment rate increases have been concentrated in fields where women's were already high (UNESCO, 2007). But female representation in science, technology, engineering, and mathematics disciplines remains low, due to several factors which have a negative effect on information access, study field selection, retention, and graduation. The literature indicates that preferences, motives, values, stereotypes, and cultural norms can explain this situation. Nevertheless, "the decision to continue with science and technology at a higher level of education (and to choose this as a career) is strongly influenced by experience at earlier levels of schooling, and indeed in most cases depends on achieving a certain level in mathematics and science in primary and especially secondary school". Moreover, "the percentage of girls who choose science and technology.(OECD, 2008). Science, technology, engineering, and mathematics are notably important for innovation and technological development, which in turn are cross-national drivers



of social and economic growth. The science, technology, engineering, and mathematics disciplines are considered major sources of increased competitiveness due to the potential for technological innovation and job creation, provided that technological inventions and developments are transferred and commercialized. For this, entrepreneurial activity plays a crucial role (Di Gregorio & Shane, 2003; O'Shea et al., 2007). A variety of policy initiatives is put forward to support such activity (Rasmussen et al., 2006). Such efforts have been found to be gender biased (Marlow & Mc Adam, 2012), and women are less seldom than men involved in entrepreneurship related to the science, technology, engineering, and mathematics fields. Ahl et al. (2015) recognize that there has been a political change, influenced by neo-liberal thought, in which politicians have handed over the welfare state's responsibilities to the market and they encourage entrepreneurship, not least among women and, if possible, within science, technology, engineering, and mathematics fields.

Women entrepreneurship in Science and Technology,

In order to enhance women entrepreneurship in Science and Technology, it is necessary not only to understand and indicate statistically how women's roles and situations differ from those of men but to understand how women also may be differentially represented in Science & Technology. Woman as a person and also as an agent of development has as much right to Science and Technology as the man. Promoting women's role in Science and Technology with a view of empowering them and promoting entrepreneurial development for women scientists, engineers, and technologists becomes a big issue. The United Nations Industrial Development Organization (UNIDO), 2001, regional typology studies on the role of women in manufacturing have revealed empirical evidence that women's paid employment and, in particular, their participation in industrial department, improves their quality of life, literacy and life expectancy, while decreasing their fertility rate. Remunerative employment opportunities as well as entrepreneurship also enable women to fight poverty. (United Nations Industrial Development Organization (UNIDO), Women entrepreneurship is a contemporary issue of international concern. This is borne out of the fact that women empowerment is central to human development and national advancement. Ensuring or enhancing women empowerment is the business of everybody in the society. Empowerment of women entails a process of building their resource capability and skills for leadership-rights and meaningful participation in all spheres of the society (Erinosho, 2005). The focus of the paper centers on Awareness, Higher Education and Women Entrepreneurship in Science and Technology. This is borne out of the fact that females could better be encouraged right from the primary through their secondary school education so



that proper monitoring, mentoring, and mainstreaming could be done with a resultant effect of more females being involved in women entrepreneurship in Science and Technology. These factors are discussed in this paper as they relate to societal norms, funding, lack of information, low skill acquisition, lack of mentors, lack of supporting networks, and low level of encouragement from spouses and families.

Factors affect on women entrepreneurship in science and technology .Include these factors-

a) Finance: Poor finances and lack of adequate funds for starting enterprises are serious problems to women entrepreneurs. Women generally are poor for lack of funds and as such, do not have enough financial backing to start a good business or sustain an existing one.

b) Poor Technological Knowledge- Low educational status of most women does not allow them to have the opportunity of being technologically sound. Many technical skills that could hitherto have assisted to ensure successful enterprise and appropriate production techniques and product diversification are not possessed by many women.

c) Poor Access to Market Information: Usually, most of Nigerian women are not educated. The literacy level is still at the low rate in the country. As such, much of the market information that could have been beneficial and also enhance better productivity elude women. Most are ignorant of market trends concerning costing, pricing, etc. and consequently, could not benefit maximally from readings of price movements and fluctuations.

d) Socio-cultural factor: A major point to note here is the fact that in Nigeria, many women during the socialization process, were not given enough opportunity, freedom, and where with to develop adequate and appropriate skills that can enable them to have entrepreneurial competency. This is essentially inherent in the much created gender-related limitations which have the tendency to relegate women to the background. Women Entrepreneurship In Science And Technology. As such, they are usually afraid to invest their hard earned and much needed income into businesses or enterprises for fear of failure.

e) Poor Networking/Linkage: Women are not properly connected. Many as noted earlier are poor, uneducated, and unconnected. As such, good networking or linkage for support services even when available may be beyond the reach of women.

g) Lack of Mentors: It is pertinent to note that women have not gotten many mentors that they could look up to in the area of entrepreneurship. As such, they have constraints venturing into areas that they do not know familiar females that have succeeded along that line independent.



Result and Conclusion--

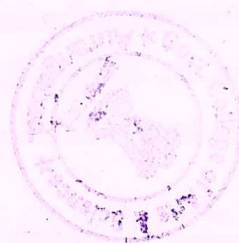
This paper has been made to highlight the need for women awareness in science and technology, Importance of higher education in science and technology and women entrepreneurs in Science and Technology. It has been documented that if women are not marginalized and as such, are actively involved in the main stream of the national economy, it is likely that the economy becomes more stable and buoyant and consequently, reduce much witnessed current problems. However, the factors effecting women entrepreneurship are discussed. These factors include socio-cultural factors, finance, poor access to market information, poor technological knowledge, and poor networking/linkage. Others include fear of losing out, unfavorable conditions, lack of mentors, Against this backdrop, this paper offers some suggestions for encouraging and promoting Women Scientists' entrepreneurship. These include socio-cultural prospects, female awareness campaign and sensitization workshops, improvement in the policy/framework, encouraging female education in Science and Technology, and provision of adequate funds. In addition, networking should be encouraged where in successful Women Scientists' entrepreneurs could share their experiences and counsel on problems. Recommendations in order to overcome the challenges of women scientists' entrepreneurship.

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