SRI KRISHNA INSTITUTIONS COIMBATORE

SRI KRISHNA
COLLEGE OF ENGINEERING AND TECHNOLOGY
An Autonomous Institution,
Accredited by NAAC with 'A' Grade & NBA

ASSESSMENT OF GOVERNMENT OF INDIA'S GENDER MAINSTREAMING PROGRAMS FOR WOMEN IN SCIENCE

REF NO: DST/NSTMIS/05/211/2016-17

CATALYSED and Supported by CHORD (NSTMIS)
Department of Science & Technology,
Ministry of Science & Technology
Government of India

SOUTH EAST REGION
TAMILNADU & PUDUCHERRY

SUBMITTED BY:
Dr.S.Sophia
Regional Principal Investigator

सत्यमेव जयते
Department of Science & Technology
Govt. of India

PROJECT COMPLETION REPORT

Project Title
Assessment of Government of India's Gender Mainstreaming Programs for Women in Science

[South East Region- Tamilnadu & Puducherry]

DST File no. DST/NSTMIS/05/211/2016-17

Submitted by:

Dr.S.Sophia, *Ph D*

Regional Principal Investigator

Professor and Head,

Sri Krishna College of Engineering and Technology,

Coimbatore, Tamilnadu.

National Science and Technology Management Information System (NSTMIS) Department of Science & Technology Government of India

March, 2021

NSTMIS Division
Department of Science and Technology
Ministry of Science and Technology
Technology Bhawan, New Mehrauli Road, New Delhi-110016
Phone:91-011-26567373

Website: www.nstmis-dst.org/

About NSTMIS:
The National Science and Technology Management Information System (NSTMIS), a division of Department of Science and Technology (DST) has been entrusted with the task of building the information base on a continuous basis on resources devoted to scientific and technological activities for policy planning in the country.

Citation:

The report may be cited as DST (2019-2021): Report on 'Assessment of Government of India's Gender Mainstreaming Programmes for Women in Science'; Dr.S.Sophia, Ph.D., Regional Principal Investigator, Professor and Head, Sri Krishna College of Engineering and Technology, Coimbatore, Tamilnadu, catalysed and supported by CHORD (NSTMIS) Division, Department of Science and Technology, New Delhi, Govt. of India.

Disclaimer:

Every care has been taken to provide the authenticated information. However, the onus of authenticity of data rests with the National Coordinator and Regional Principal Investigators of this Network Mode Project.

Preface

This exercise was jointly conceived by the Department of Science &Technology, Ministry of Science &Technology of the Government of India. The basic objective of this documentation is to demonstrate that several commendable initiatives towards gender equity and mainstreaming have been effectively undertaken in India. The document seeks to share information on an ongoing basis, both within government mechanisms and with external audiences. It aims to create an online database on various schemes for the women exhausted by DST, DBT and UGC and impact of these schemes, good practices on gender equity, participation and mainstreaming initiatives.

The collection of the questionnaire based database from various parts of the country was an elaborate and long process. The team began by contacting the women scientist from various streams, serving in government sector, academics, perusing research and other carrier paths. There was an encouraging response from all quarters. Due to the wide variety of responses received from different groups spread over the country, the project team was exposed to different interpretations of the concept of gender mainstreaming. It was also felt that sustainability should be looked at in terms other than that of financial sustainability, alone. The project should be sustainable in terms of being able to create a space for negotiations, enable women to ask questions and bring about change, thus facilitating a continuity of the effort. Hence, sustainability shall not only mean a financial back up or support for the project but also a paradigm shift, which promises to enable continuity of the effort itself and more efforts in similar directions. The issue of the initiative's sustainability at present was also proposed as a parameter in documenting the 'good practice'. The quantifiable impact of the initiative was another aspect that was probed. It was decided that the case studies should also be considered in their independent contexts and thus the impact would be measured with reference to factors particular to that region.

Acknowledgments

The investigator gratefully acknowledges and places on record her deep sense of gratitude to the National Science and Technology Management Information System (NSTMIS) Division of the Department of Science and Technology (DST), Government of India for providing an opportunity to undertake this study**.** Gratefully acknowledge the guidance, inputs and cooperation provided by the Local Project Advisory Committee Members, viz. Dr Parveen Arora, Head (CHORD-NSTMIS), Dr. HB Singh , Dr. PK Arya is gratefully acknowledged.

The investigator is indeed privileged to pursue the research project at Sri Krishna College of Engineering and Technology, Coimbatore and acknowledges the assistance and support extended to her by the authorities of the institute.

The investigator is grateful to all the esteemed faculty members of Department of Electronics and Communication Engineering for their constant encouragement and active involvement during the conduct of the project.

The investigator would like to extend her gratitude to all the principals, mentors and faculty members of the institution chosen for the study for their wholehearted support and co-operation during the fieldwork and data collection. Sincere thanks are also conveyed to all those who have participated in this task.

Last but not the least, the investigator is deeply indebted to project team members for their indulgence, commitment and hard work of surveying, collecting, compiling and authenticating data from a plethora of women scientist across the country, administrative support for completing this Project.

(Dr. S. Sophia)

Abstract

Researchers say that the number of women climbing the career ladder in science and research is disappointingly low. The main reason behind this is retaining and promoting of women in the influential positions which is drastically low. In short No room at the top for women scientists. Other factors include low pay and funding, work-family balance, lack of recognition, opportunities and awareness of various schemes etc. Closing the gender gap in science and research leads to the promotion of women at institutional and organizational level and it is essential to launch acts and policies to reduce the gender bias for women's progress and retention as well as encourage more girl students to opt education in science assuring standard working life. Fortunately Government of India has launched various schemes and policies for the development of women scientists. The objective of this study is to know the impact of Gender mainstreaming policy of GOI on improvement of women scientists in the state of Tamilnadu and Puducherry. Amidst the challenges and issues the team has successfully coordinated in conducting the survey and gathered the data of women scientists from corresponding institutions, universities and research centers of various zones of the state. Further the collected data is also incorporated with the National database to have a clear picture of total women scientists present in Tamilnadu. This study strives for supporting and empowering the women scientists as well as the government to promote new policies and schemes encouraging more number of women scientists to take part and contribute in science and research.

Keywords: Gender Mainstreaming. Women scientist schemes, Questionnaire design

TABLE OF CONTENTS

List of figures

List of tables

Executive summary

Project Name: "Assessment of Gender Mainstreaming Program for Women in Science"

Objective:

A project was launched by DST, GOI to assess gender mainstreaming programs for women in science. This study aims to examine the role of gender as a variable in determining science careers in India. The initial segment analyzes the data regarding the enrolment of women into science and research in Indian context. Through a basic assessment it addresses how many of them made active participation in science research and education. The later part concentrates on issues and challenges faced by women as well as impact of gender mainstreaming policy of GOI regarding the progress of women in science and research in Tamilnadu and Puducherry.

Sampling Design:

The proposer and national coordinator have specified a systematic methodology for assessment of the impact of various funding programs. The method includes planning, data collection, and analysis, recommendation and submission phases. The planning phase included developing familiarity with various gender mainstreaming programs of DST that will be covered in the project. The present study is mainly based on responses collected from women in science. The respondent group comprises of female science experts of various categories, positions and experience and aspiring female researchers.

The survey has been conducted across Tamilnadu and Puducherry covering

premier institutes and autonomous departments under the affiliation of standard universities. A purposive sampling approach was adopted for the survey. Based on this sampling approach the respondents were chosen to guarantee adequate number of women in science representing from various appropriate zones and category of institutes. Participation is made voluntary based on institutional and individual consent. By conducting personal interview with a structured questionnaire the data is being gathered.

Institutions from the following categories have been covered: DST, DBT, CSIR, Central, State and Deemed Universities, IIT, IISC, IISER, NIT, IIIT, NITTTR, Other Central Institutes, ICAR, ICMR, ISI, DRDO, DAE and ISRO. Sample of 20 respondents per institute have been targeted initially; while final numbers covered vary depending on their presence, availability and willingness to participate in the survey.

Methodology:

For the evaluation of the effect of dual role on performance and career fulfilment of women in science a questionnaire has been designed taking into consideration both objective and subjective parameters. The data collection includes socio-economic and demographic profile of women in science, educational qualifications, occupation and career track details, specifics of breaks in education and employment, work place academic and non-academic infrastructure and facilities, work environment and peer group interaction, and achievement indicators such as publications, projects completed, awards etc. The subjective parameters include career objective, professional accomplishment,

career continuity and advancement for women scientists.The survey initially was carried by the zone wise selection of states across India and then the list of respondents is gathered from categorized institutes who involved in DST or any government funded projects. To carry this survey an online form was finalized by the national coordinator in April 2019 which is to be filled by the women scientists. Some of the other practices included personal interviews with women scientists through phone calls, some by visiting institutes, conducting meetings, contacting heads of institutes etc, only some of the women scientists responded through it was possible to gather above 30% of data .This procedure couldn't be adopted because of

a) Various professional and personal commitments the meetings have to be rescheduled several times and some have rejected after few scheduling.

b) Some couldn't be traced at their contact details while some declined to participate.

c) Even if some of them are willing to participate, could not participate as they are not approved by the institutional heads.

d) Unwillingness to participate in the study is also a factor as observed.

Observations:

As expected, nearly 56% of WOS in Tamilnadu and Puducherry are successful in both scientific research and their family responsibilities to strengthening the society in Tamilnadu and Puducherry. Scientific research is not so dearer to SC&ST communities and occupied only 4% in participation of this program.

1. INTRODUCTION

1.1. Overview

The value of educating women was described by Mahatma Gandhi as "***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. Dogmas of gender over different periods of time have resulted in women's exclusion from science and technology and hence need to make their presence felt in science and technology.

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.

Science education not only enhances knowledge and empowers women through learning but also, crosses cultural and geographical barriers, bringing women to the forefront of development. It provides a scientific approach to thinking and helps people in understanding the foundation and building blocks behind the phenomena they can see.

It enables the girls, particularly of rural background to think critically and analyze their surrounding related to their socio-economic and health status.

It is also important to support and stimulate young girls to involve in the professional and scientific activities. They should be made aware of the developments in science; and opportunities for their respectful living. Efforts to develop appropriate technologies suited to women's needs as well as to reduce their drudgery' be given special attention. This is possible by stimulating their interest in S&T-related practical skills and providing them with access to science education.

Women scientists can provide an opportunity to make an important contribution in bridging the gender gap, remove the barrier of negative attitudes; thus, paving the way for fruitful participation of women in science. The women scientists and also the teachers can be the role models; and become instrumental in providing the women with greater science literacy and competence for their daily lives as well as future activities, with the skillful application of science and technology. It is really encouraging for them, if the Academy and other such bodies take interest in technologically empowering the women.

Women scientists can bridge the gender gap, remove the barrier of negative attitudes; thus, paving the way for fruitful participation of women in science and technology. The women scientists and also the teachers can be the role models; and become instrumental in providing the women with greater science literacy and competence for their daily lives, with the skillful application of science and technology. It will be really encouraging for them, if the national agencies, Academy, NGO and other such bodies take interest in technologically empowering the women.

'Empowerment' may be described as a process which helps people to assert their control over the factors which affect their lives. Empowerment of women means developing them as more aware individuals, who are politically active, economically productive and independent and are able to make intelligent discussion in matters that affect them.

1.1.1. Definition

Gender mainstreaming, as a new concept, appeared for the first time in international texts after the United Nations Third World Conference on Women (Nairobi, 1985), in relation to the debate within the UN Commission on the Status of Women (CSW) on the role of women in development. It was seen as a means of promoting the role of women in the field of development and of integrating women's values into development work.

'Gender mainstreaming is the (re)organization, improvement, development and evaluation of policy processes, so that a gender equality perspective is incorporated in all policies at all levels and at all stages, by the actors normally involved in policy-making

The definition of gender mainstreaming highlights the goal of mainstreaming, the process, the objects and active subjects of mainstreaming. The objects of mainstreaming are all policies at all levels and at all stages, while the active subjects of mainstreaming are the ordinary actors.

1. Gender mainstreaming can mean that the policy process is reorganised so that ordinary actors know how to incorporate a gender perspective.

2. Gender mainstreaming can also mean that gender expertise is organised into the policy process by including gender expertise as a normal requirement for policy-makers.

1.1.2. Need

Gender mainstreaming is an important strategy that incorporates a number of specific benefits18:

• It places individuals of both genders at the heart of policy making.

• Gender mainstreaming leads to better governance.

• It involves women and men, boy and girls and makes full use of human resources.

• It makes gender equality issues visible in the mainstream of society.

• It takes into account the diversity among women and men, girls and boys.

1.2. Aim &Objective

Over the past decade, a number of national policies and programmes have been implemented to promote and increase the participation of women in the fields of science and technology in India. The present study focuses on the Women Scientist Scheme (WoS), a fellowship scheme of the Government of India, which was designed to promote re-entry of women in the field of science, who had taken a break in their careers and other schemes like Biotechnology Career Advancement and Re-orientation Program (Bio-CARe) launched by Department of Biotechnology (DBT) in 2010 to facilitate participation of women scientists in biotechnology research that aimed to provide research grants to women scientists - including employed and unemployed women.

- This exploratory study examines the outreach and impact of the fellowship schemes.

- An analysis on various Women Scientist Schemes is presented that explores various aspects of the projects currently supported by the scheme.
- This is followed by a focused study of a group of women scientists who are part of the Women Scientist Scheme and took part in the Societal Research Fellowship (SoRF) component of Schemes.
- The study explores respondents' social situations and the significance of this fellowship in pursuing a career in science and research, providing a gender perspective to the SoRF programme to understand the empowerment process for women in science in India.
- The results indicate that the fellowship scheme was vital to building self-confidence and identity among women and in enabling them to get back into professional roles in science and research.
- The study discusses policy implications relating to institutionalization of a parallel career in science, as well as recommendations for mentoring and orientation for retaining women in science.

1.3 About the Schemes

DST restructured the women specific programmes under one umbrella called "KIRAN (Knowledge Involvement in Research Advancement through Nurturing)". Through KIRAN, DST is not only addressing various issues related to women scientists (unemployment, break-in career, relocation, etc.) but is also aimed at providing opportunities in research, entrepreneurship, science communication, technology development/demonstration and self-employment. Hence, the significant focus of *KIRAN* is to bring women scientists back into S&T employment. The scheme has three components under the WoS: (i) Basic Research Fellowship (BRF); (ii) Societal

International Journal of Gender, Research Fellowship (SoRF); and (iii) Intellectual Property Rights (IPR). These three components of WoS are also known as WoS-A, WoS-B & WoS-C.

In ou//r attempt to study and reflect upon the schemes that deals with the question of 'access to careers in science and research' by women in India, this paper primarily focuses on the evaluation of the fellowship schemes for women scientists who encountered a break in their careers. The focus of this paper is on SoRF (WoS-B). There are about 2500 projects that have been awarded under the basic research fellowship component (WoS-A). Under the area of Patent and Intellectual Property rights, 405 women scientists have been trained. This component aims to train women with qualifications in science, engineering, medicine or allied areas in the area of intellectual property rights.

The SoRF component emphasizes establishing interlinkages between science and society and prioritizes research related to lab to land transfer, technology adaptation and scaling of location specific interventions. This part of the scheme has supported approximately 570 projects in diverse areas including: animal and human health, nutrition, validation of traditional knowledge, natural resource management, ecology, sustainable agriculture, engineering and artisanal technology development (DST, 2015).

The SoRF is based on the twin-track approach which facilitates return of women into professions of science after a break and where their research has implications for societal growth. The study presented in this paper explores the lives of women scientists who have participated in the SoRF scheme between 2003 and 2013 and contributes to an

understanding of the empowerment processes adopted for women in science in India whilst also assessing the significance of such schemes for society at large.

1.4 Limitations:

There are three issues surrounding women in STEM

- **Entry of women in science**

Government agencies and international organisations scholarships for women in STEM and facilitate the mobility of women for wider exposure.

Mechanisms to create and generate awareness among women about the schemes and orient them to the programmes being led by the Government of India

- **Retention, respect and recognition of women in STEM**

Study about the level in which women scientists being nurtured, finding the opportunities for them, how are academies honouring women

There should be representation of women in all delegations, committees and programmes, not because of gender parity but because of their merit.

- **Obstacles faced by women in STEM**

  - Double Competence
  - Misunderstood Motherhood
  - Lack of Mentorship
  - Stereotype Threat and Implicit Bias
  - Income Inequality

2 REVIEW OF LITERATURE

Assessment of Gender Mainstreaming Program for Women in Science sponsored by DST(GOI) has meant to encourage women in Science and Technology. Sri Krishna College of Engineering and Technology , Coimbatore is entrusted to conduct the survey in States, Tamilnadu and Pudhucherry. Primarily information regarding the state is gathered and updated. Further a team is formed for the collection of women scientists' data from the corresponding institutions, universities and research centers from Tamilnadu and Pudhucherry.

2.1 About the States - Tamilnadu and Puduchery

Tamil Nadu is geographically the 11th largest state in India with an area of 130,058 square kilometers accounting for 4% of the national area. It is the southern state of India and it is located in the Indian Peninsula between the Bay of Bengal in the East, bordering States with Kerala in the western side, Andhra Pradesh to the north and Karnataka on the north-west. The Government of Tamil Nadu (Tamilnadu Government 2020) is the governing authority for the Indian state of Tamil Nadu. It is seated at Fort St George, Chennai. The legislature of Tamil Nadu was bicameral until 1986, when it was replaced by a unicameral legislature, like most other states in India. Presently Banwarilal Purohit is the governor and Edappadi K. Palanisamy is the Chief Minister of Tamil Nadu. Chennai is the capital of Tamilnadu. Tamil is the main language is most widely spoken and official language in state. As per census of 2011, the total population

(Census 2011) is about 72.14 million. Rural population is 37.2 million and the urban population is about 4.6 million. Male population is about 36.10 and female population is of 36.00 million. Tamilnadu map is given in the Figure 2.1 Tamilnadu consists of 38 districts, 310 Taluks, 385 Panchayat Unions and 12,618 Village Panchayats.

Figure 2.1 Tamilnadu State Map

Puducherry also known as Pondicherry is one of the 8 union territories of India.The Union Territory of Puducherry (Puducherry 2020) comprises the former French establishments of Puducherry, Karaikal, Mahe and Yanam, which lie scattered in South India. Puducherry, the capital of the Territory was once the original headquarters of the French in India, is situated on the Coromandel Coast of the Bay of Bengal and is about 135 kms. from Chennai Airport. It is bounded on the east by the Bay of Bengal and on the three sides by Tamil Nadu. About 130 kms. south of Puducherry on the East Coast lies Karaikal. Its area is about 483 km(Census 2011). The total population is about 1,247,953. Map of Puducherry is shown in Figure 2.2.Chief Minister of the state is Shri V. Narayanasamy and Governor is Dr Kiran Bedi, I.P.S, (Retd)

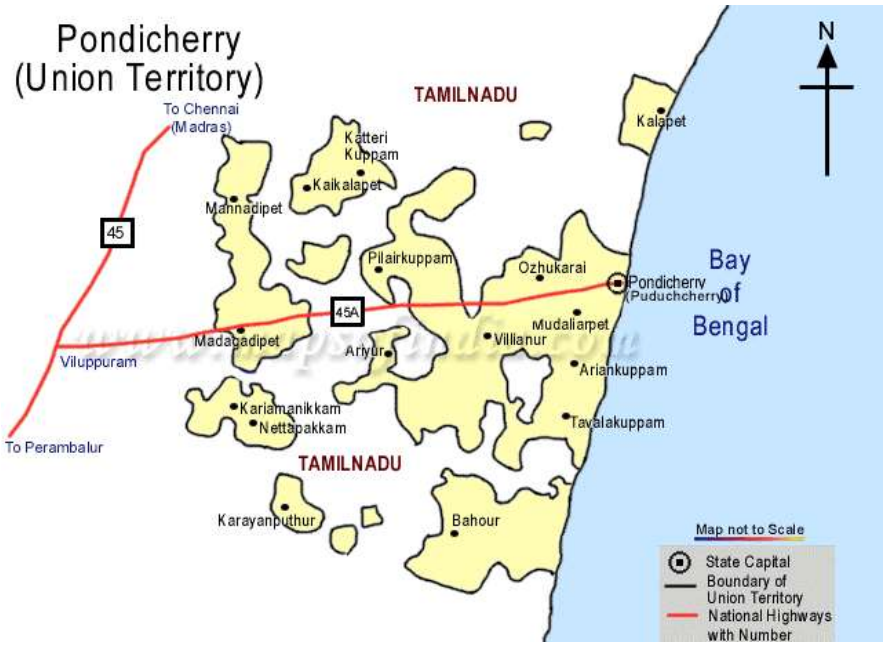


Figure 2.2. Map of Puducherry

2.2 Education & Literacy Scenario of Tamilnadu

2.2.1 Populations in Urban/ Rural:

According to the Census of India(Census 2011), the total population of Tamilnadu state is about 72.14 million. Rural areas of 37.18 millions and 34.94 millions in Urban areas.

The population in Urban and Rural areas of Tamilnadu (Census 2011 & Tamilnadu statistics 2018) is given in the Table 2.1.

Table 2.1. Urban and Rural Population as per Census of 2011

Total	Urban		Total	Rural	
	Male	Female		Male	Female
34,949,729	17,495,170	17,454,559	37,189,229	18,663,701	18,525,528

2.2.2 Literacy Rate:

Tamil Nadu is one of the progressive States of India focusing on the quality education for the youth with an impressive Gross Enrolment Ratio(GER) (MHRD Statistics 2018) of 44.3 percent, which is much more than National GER of 24.5 percent. Conventionally, Literacy understood the skill to read and write. Literacy has an important role of socio and economic development at urban and rural levels in India.

The literacy rate (Census 2011) is defined by the percentage of the population of a given age group that can read and write. The adult literacy rate corresponds to ages 15 and above. The total Literacy rate (Census 2011& Ramraj 2015)is 80.33%, male literacy rate is about 86.81% and female literacy rate is about 73.86% and it is shown in the Table2.2

Table 2.2 Literates[2] in Rural and Urban areas as per census 2011

Literacy Rate	Number of Persons			Literacy Rate		
	Total	Rural	Urban	Total	Rural	Urban
Persons	52,413,116	24,752,447	27,660,669	80.33	73.80	87.24
Males	28,314,595	13,771,878	14,542,717	86.81	82.08	91.82
Females	24,098,521	10,980,569	13,117,952	73.86	65.52	82.67

Figure 2.3 shows that the Literacy rates (MHRD Statistics 2018 Gokila et al 2016) of Female in Rural and Urban areas. It shows that high literacy rates in urban areas than rural areas. Literacy rates of Female in rural areas of about 44% and in urban areas of about 47%. It displays that literacy rates of Female in Urban areas are higher than the rural areas.

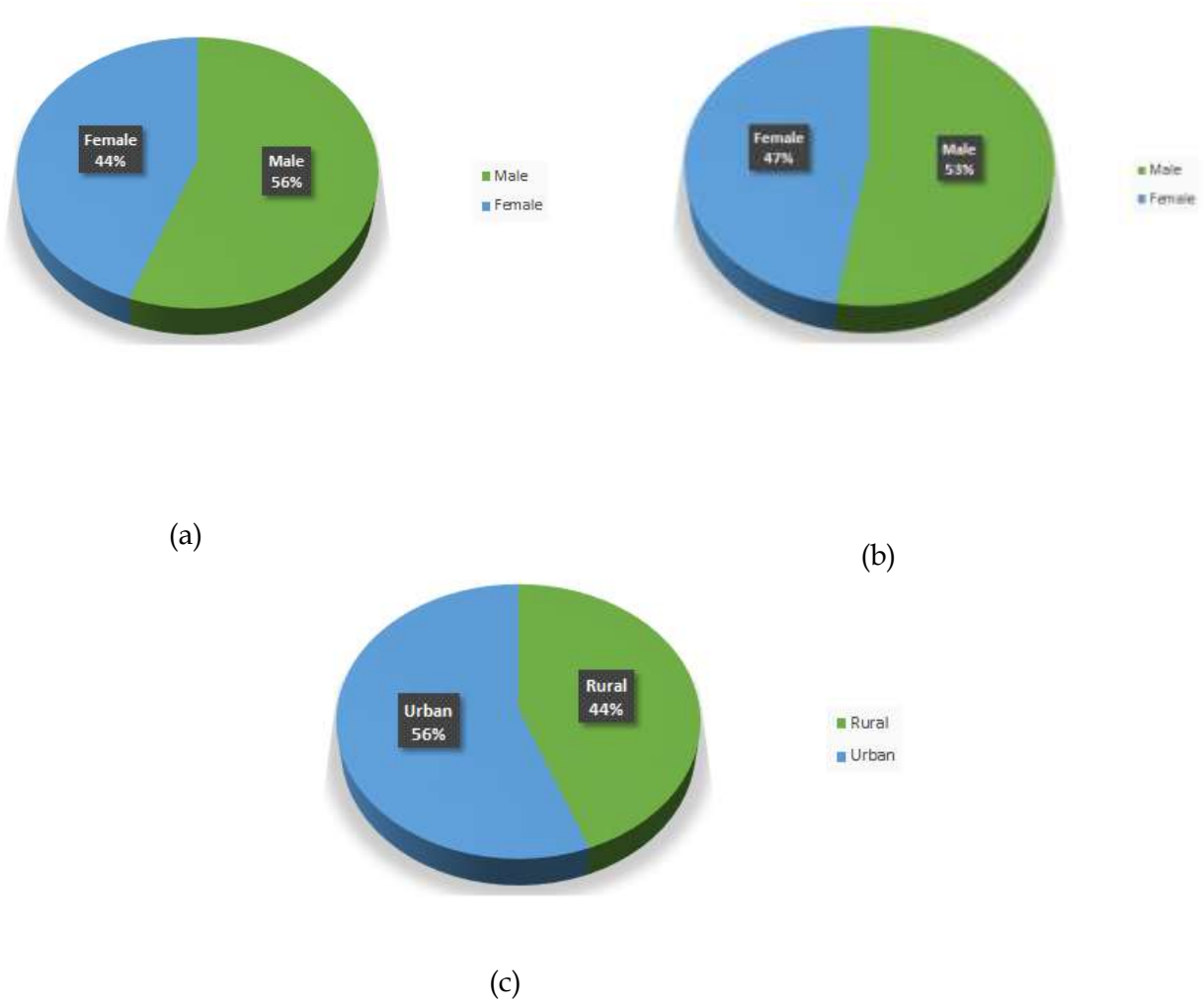


Figure 2.3. Literacy rates of Male and Female in Rural and Urban areas as per Census of India

a) Literacy Rates in Rural areas b) Literacy Rates in Urban areas c) Literacy rates of Female in Rural and Urban areas

Figure 2.4 indicates that the literacy rates from 1901 to 2011 as per Census of India (Census 2011). According to census reports for various years, the literacy rate of Women during 1901 was 1.00 % and grew upto 73.86 % in the year 2011. Education is one of the main barriers among Women. Taking into consideration, the Government of Tamilnadu has introduced many policies, initiatives to afford education to Women and it

achieved the literacy rate of 73.86%.

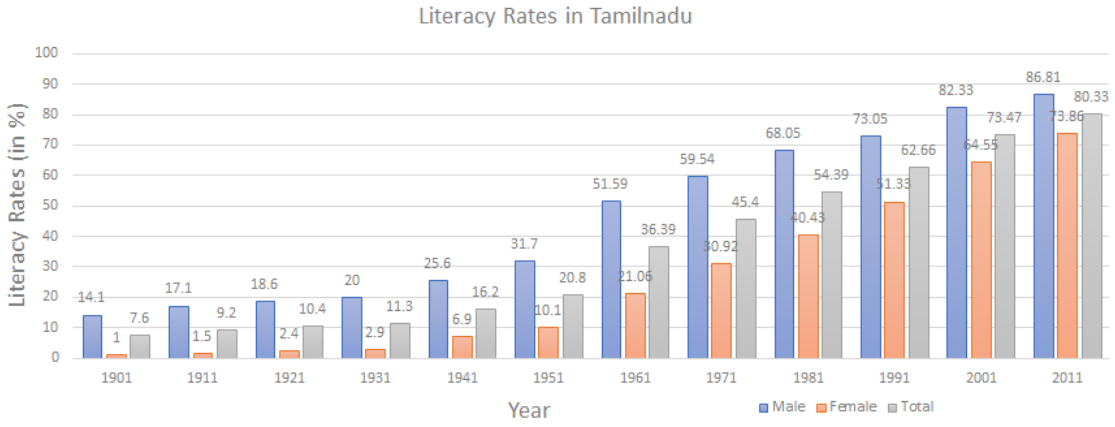


Figure 2.4. Literacy Rates in Tamilnadu

2.2.3 Enrolment:

As per Census of India 2011, Tamil Nadu has India's highest student enrolment rate in primary (up to Grade V) and upper primary level (up to Grade VIII) education. In Tamil Nadu, there is substantial growth in number of schools to address the accessibility of education for the vulnerable poor. Almost all the habitation covered education facilities with the Government frequently monitoring the needs of education facilities in each and every habitation across the state. The Government has been taking lot of initiative to address the issue, leading to positive results in terms accessibility and affordability. The government is the major provider in school education and private management is also contributing substantially to achieve the goal and it is depicted in Figure 2.5.

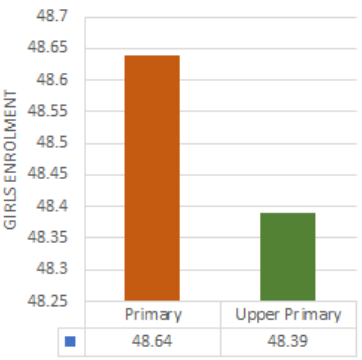
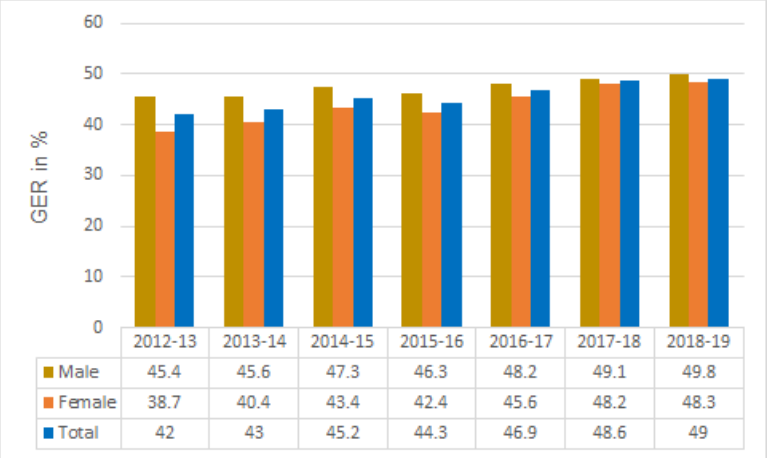


Figure 2.5. Girls Enrolment in Primary and Upper Primary schools in Tamilnadu State

Figure 2.5 shows that the percentage of Girls(MHRD Statistics 2018) enrolment in schools and it shows that approximately 48% in primary and upper primary schools.



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Male	45.4	45.6	47.3	46.3	48.2	49.1	49.8
Female	38.7	40.4	43.4	42.4	45.6	48.2	48.3
Total	42	43	45.2	44.3	46.9	48.6	49

Figure 2.6. Gross Enrolment Rate in Higher Education

Figure 2.6 shows that the Gross Enrolment Ratio (GER) in Higher educationfor Tamilnadu which is calculated for 18-23 years of age group. In the year 2018-19, GER for male population is 49.8% and for female population it is 48.3%. GER for female population (Ghara et al 2016) has increased from 38.7% in 2012-13 to 48.3% in 2018-19.

2.2.4 Female Work Population in Tamilnadu:

Female Work population(Census 2011, NHFS 2015) for various division is depicted in Table 2.3. It shows that the all division contains the female workers and also impacts that high female employment rate (Senthilkumar et al. 2019) in the division of Education, Human Health Division and extraterritorial bodies.

Table 2.3. Employment Count and Ratio by Industry Division

Division	Public Sectors				Private Sectors			
	Male	Female	Male (in%)	Female (in%)	Male	Female	Male (in%)	Female (in%)
Agriculture, Forestry and Fishing	16237	4303	79.05	20.95	7048	5273	57.20	42.80
Mining and Quarrying	18642	1666	91.80	8.20	3898	561	87.42	12.58
Manufacturing	68123	9113	88.20	11.80	421019	195967	68.24	31.76
Electricity, Gas, Steam and Air conditioning Supply	42330	8918	82.60	17.40	2957	185	94.11	5.89
Water supply, sewerage, waste management and remediation activities	7744	1012	88.44	11.56	741	110	87.07	12.93
Construction	22644	5931	79.24	20.76	2391	395	85.82	14.18

Wholesale and Retail trade, repair of motor vehicles and motorcycles	16726	2781	85.74	14.26	39359	13456	74.52	25.48
Transportation and storage	248842	21646	92.00	8.00	8383	1251	87.01	12.99
Accommodation and Food service activities	2514	451	84.79	15.21	23586	7712	75.36	24.64
Information and communication	34567	11302	75.36	24.64	347439	176151	66.36	33.64
Financial and insurance activities	66795	22793	74.56	25.44	24777	7970	75.66	24.34
Real Estate Activities	1741	145	92.31	7.69	3429	1550	68.87	31.13
Professional scientific andtechnical activities	14121	5408	72.31	27.69	9375	2393	79.67	20.33
Administrative and supportservice activities	36156	20295	64.05	35.95	23718	10255	69.81	30.19

Public Administration and Defence, Compulsory Social Security etc	180686	80071	69.29	30.71	370	183	66.91	33.09
Education	63036	66063	48.83	51.17	101760	114385	47.08	52.92
Human Health and Social Work activities	53123	135255	28.20	71.80	20928	25010	45.56	54.44
Arts entertainment and recreation	2400	1101	68.55	31.45	1245	350	78.06	21.94
Other service activities	6487	3253	66.60	33.40	12085	6271	65.84	34.16
Activities of households asemployers undifferentiated goods-and services producingactivities of households for own use	27	4	87.10	12.90	1887	625	75.12	24.88

Activities of extraterritorial organization and bodies	70	49	58.82	41.18	49	28	63.64	36.36

Usual Principal Status (UPS) (Ministry of Labour and Employment 2011) is relating to the activity of a person during the 365 days preceding the date of survey. The activity status on which a person has spent relatively longer time (183 days or more) during the period is considered the usual principal activity status of the person. Usual Principal Status and Subsidiary Status[7] (UPSS) approach is an extension to the principal status approach. If a person has engaged in any economic activity for a period of 30 days or more during the preceding 365 days a person is considered as employed under this approach. Rate[4] of UPS and UPSS are given in the Table 2.4.

Table 2.4. Working Ratios for different approaches in Tamilnadu state

Sector	UPS		UPSS	
	Male	Female	Male	Female
Rural	77.5	44.1	78.1	51.3
Urban	74.9	27.2	75.1	27.6

Workers were mainly classified as main and marginal workers on the basis of

their work. Those workers who had worked for the major part of the year were termed as main workers. Major part of the year meant six months (183 days) or more. Those who had not worked for the major part of the year (i.e. those who had worked for less than 6 months or less than 183 days in a year) were termed as marginal workers.

Rates (Census 2011 & Ministry of Labour and Employment 2011) of Main Workers, Marginal workers are mentioned in Table 2.5. It shows that the 48.29% and 31.19% of female population as main workers in urban areas and rural areas respectively.

Table 2.5. Categories of Workers Ratio

Sector	Main Workers (in %)		Marginal Workers (in %)			
			Less than 3 Months		3-6 months	
	Male	Female	Male	Female	Male	Female
Rural	51.14	31.19	1.1	1.5	7.7	8.4
Urban	53.89	48.29	0.6	0.5	3.9	2.9

2.2.5 Nutritional Status:

Nutrition plays a crucial role in human health and well being. At the national level, despite higher economic growth, improvements in human development indicators like nutrition levels of the population have been unacceptably slow. The Government of Tamil Nadu's policy for "A Malnutrition Free Tamil Nadu" guides the State's long-term multi-sectoral strategy for eliminating malnutrition. The goal is "reducing human

malnutrition of all types to the levels of best performing countries". Nutritional status of Women by background characteristics (Raja Shareef et al 2018& NFHS 2015)is depicted in Table 2.6. It depicts that the greater number of females suffered from iron deficiency.

Table 2.6. Nutritional status of Women

Nutritional status of Women by background characteristics	Percentage (in %)
Women with anaemia	33
Chronic energy deficiency	28.4
Obesity (>BMI=30)	30.9
Women with underweight(<BMI=18.5)	14.6
Women with under nutrition	24
Asthma	3.6
Diabetes	7.33
Thyroid Disorder	5.4
Heart Disease	2.97
Cancer	0.7

Prevalence of Iron Deficiency Anaemia (Rahman et al 2019)and it is shown in Figure 2.7. From the total affects of anaemia in female population, 72% of mild effects, 24% of moderate and 4% of severe cases.

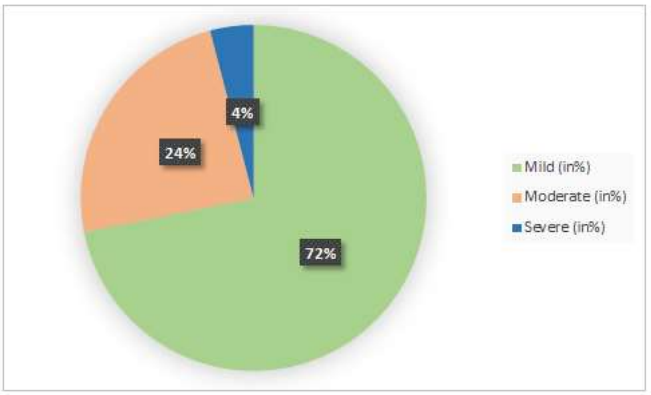


Figure 2.7. Anaemia Statistics (in %)

Factors affecting the PCOS in population:

Poly Cystic Ovarian Syndrome (PCOS) is one of the commonly reported systemic endocrine disorder associated with acne. The factors (Raja Shareef 2018) in Figure 2.8 which have shown statistically for various age groups. Age group between 21 to 25 years having higher percentage of 46.66% in PCOS statistics.

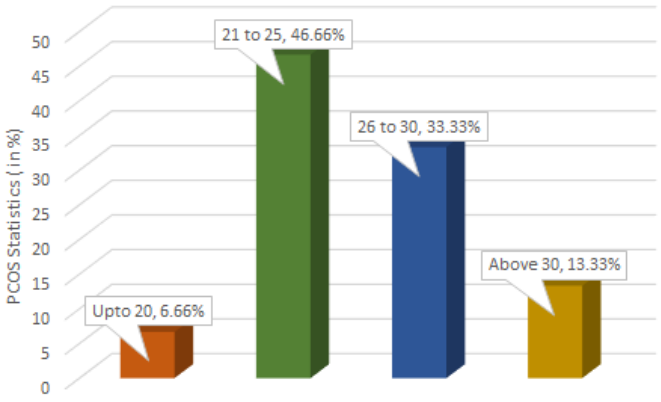


Figure 2.8. PCOS Statistics for all age groups

Nutritional Indicators:

The National Family Health Survey(NFHS) (NFHS 2015) is a large-scale, multi-round survey conducted in a representative sample of households throughout India and it is given in Table 2.7. It shows that indicators in % for rural and urban areas.

Table 2.7. Nutritional Data in Rural and Urban areas

Nutritional Status	Key Indicators (%)		
	Urban	Rural	Total
Women who are underweight (BMI<18.5)	10.9	18.5	14.6
Women who are overweight (BMI>28)	36.2	25.4	30.9
Non-pregnant women age 15-49 years who are anaemic	53.9	56.9	55.4
Pregnant women age 15-49 years who are anaemic	37.2	52.1	44.4
All women age 15-49 years who are anaemic	53.4	56.8	55.0
Blood sugar level >140mg/dl	8.0	6.3	7.1
Blood sugar level >160mg/dl	4.5	3.4	3.9
Slightly above normal (Systolic 140-159 mm of Hg and/or Diastolic 90-99 mm of Hg)	6.9	5.5	6.2
Moderately high (Systolic 160-179 mm of Hg and/or Diastolic 100-109 mm of Hg	1.9	1.2	1.6
Very high (Systolic ≥180 mm of Hg and/or Diastolic ≥110 mm of Hg)	0.6	0.5	0.5

2.2.6 Scholarship:

Scholarship (Tamilnadu Government 2020) for girls in India are meant to provide better education and career opportunities for females. Many government and private organisations in different fields like science and research, management, aviation,

hospitality and defense have been offering women scholarships and grants towards encouraging the better half of the population to take academic opportunities. Scholarships in Tamilnadu are available in Table 2.8.

Table 2.8. List of Scholarships in Tamilnadu

S.No	Name of the Scholarship	Description
1	Incentive Scheme for Rural MBC/DNC Girl Students, Tamil Nadu	Student has been paid as incentive for the students who were studying in the govt and aided schools in Rural areas
2	AICTE Pragati Scholarship for Girls	The aim of the scholarship is to empower young girls with skills, self-confidence and knowledge thereby enabling them to contribute to the development process.
3	Begum Hazrat Mahal National Scholarship, Maulana Azad Education Foundation (MAEF), Ministry of Minority Affairs, Government of India	The deserving girl students will receive tuition fees assistance along with other benefits

4	Post-Graduate Indira Gandhi Scholarship for Single Girl Child, UGC	UGC has initiated this scholarship for girl students who are the only girl child in their families. This scholarship is meant to support postgraduate studies of the students.
5	CBSE Merit Scholarship Scheme for Single Girl Child	The scholarship aims to support meritorious girl students who are the only girl child of their parents.
6	DST Women Scientist Fellowship (WOS-A)	This scheme provides fellowship to those candidates who are having a career break and looking for an opportunity to re-enter the profession in S&T domain are preferred.
7	Women Scientist Scheme-B (WOS-B), DST	This scheme is meant to encourage women scientists and technologists who are taking a break in their career. It will enable them to utilize their zeal and knowledge for the benefit of the society.
8	SOF Girl Child Scholarship Scheme	This scholarship is meant for girl students who are studying in Class 1 to 10. The key objective of this scholarship is to financially support the girl students coming from economically weaker families to enable them to continue their school education
9	L'Oréal India For Young Women in Science Scholarship	This scholarship aims to support young women to pursue higher education in the Science stream.

10	Glow and Lovely Scholarship, Fair and Lovely Career Foundation	This scholarship programme aims to empower underprivileged female students to pursue their higher education
11	Rolls-Royce Unnati Scholarships for Women Engineering Students, Rolls-Royce India Private Limited	This scholarship supports those meritorious girl students who are studying an engineering degree programme at an institution recognised by AICTE.
12	Dr. Reddy's Foundation Sashakt Scholarship	This scholarship is meant to support girl students coming from rural and low socio-economic backgrounds to help them get access to quality education in some of India's best science institutions for their undergraduate studies. The key objective is to prepare them for a career in Science stream.
13	Tata Housing Scholarships	This scholarship for girls is a merit-cum-means scholarship which provides a financial assistance of up to INR 60,000 to meritorious girl students who belong to economically weaker class. This Tata Housing Scholarship is given to students in the fields of MBA (Construction Project Management), B.Arch. and Civil Engineering.

14	Prabha Dutt Fellowship	Prabha Dutt Fellowship, started by Sanskriti Pratishthan, offers a grant of INR 1,00,000 to mid-career women journalists to help them pursue meaningful projects on the topics of contemporary relevance
15	Internshala Scholarship: Career Scholarship	Internshala Scholarship offers a one-time scholarship to a girl who has fought against odds to pursue a career of her dreams in any fields
16	Abhilasha Scholarship	Abhilasha Scholarship, started by EROS Group, offers a scholarship to girl students of class 9 to 12. Under this scholarship scheme, 100 scholarships are disbursed among female candidates
17	SOF Girl Child Scholarship Scheme	SOF Girl Child Scholarship Scheme, started by Science Olympiad Foundation, offers a scholarship annually to girl students of class 1 to 10. Under this scholarship scheme, 300 scholarships are disbursed among female candidates who belong to financially deprived sections of the society.
18	UGAM – Legrand Scholarship Program	UGAM – Legrand Scholarship Program, started by Legrand India, offers a scholarship to class 12 passed girl students to pursue B.Tech, B.E. or B.Arch from a recognised college or university of India.

19	Scholarship to Son and Daughter of Differently Abled Persons, Tamil Nadu	The scholarship is applicable for studies from class 11th to Postgraduate level
20	EVR Nagammai Scholarship, Tamil Nadu	This scholarship is applicable only for girl students who are pursuing postgraduate degree courses in Arts and Science from a recognised college in Tamil Nadu
21	Incentive Scheme for Rural MBC/DNC Girl Students, Tamil Nadu	The scheme is applicable for rural girl students belonging to MBC/DNC category
22	Technip India Limited Scholarship Program	Technip India Limited, as part of its CSR initiative offers Technip India Limited Scholarship Program to support the education of underprivileged female candidates in the field of Science, Technology, Engineering, and Maths (STEM). A total of 150 scholars will receive the scholarship award towards their tuition fee expenses.
23	Lady Meherbai D Tata Education Scholarship	This scholarship for girls provides funds to graduate Indian women who have applied or secured admission into reputed educational institutions of the US, the UK or Europe

2.3 Education & Literacy Scenario of Puducherry

2.3.1 Populations in Urban/ Rural:

According to the Census of India (Census 2011), the total population of Puducherry is about 1,247,953. Males constitute 49.08% of the population and females 50.91%. Population of Puducherry Government[2] is given in Table 2.9. Puducherry population of about 395200 in urban areas and 852753 in rural areas. As per Census of India[2], 68.33% people lived in urban regions while 31.67% in rural areas.

Table 2.9. Population in Rural/Urban Area

Total	Urban		Total	Rural	
	Male	Female		Male	Female
395200	417604	435149	852753	194907	200293

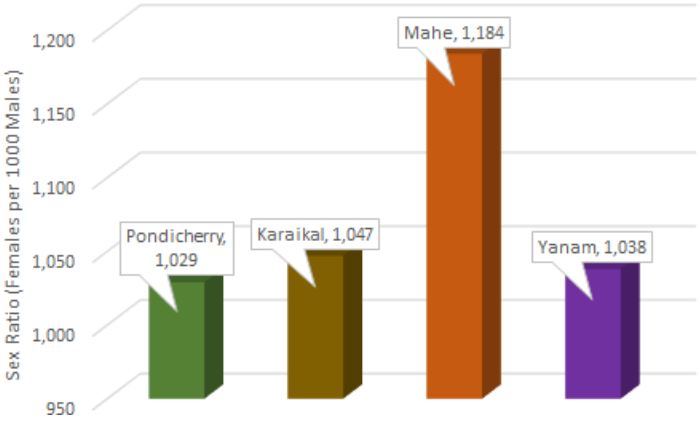


Figure 2.9. Sex Ratio of Female Population

Figure 2.9 shows that the Sex Ratio of Females per 1000 males and it depicts that having higher ratio in Mahe District in Puducherry UT.

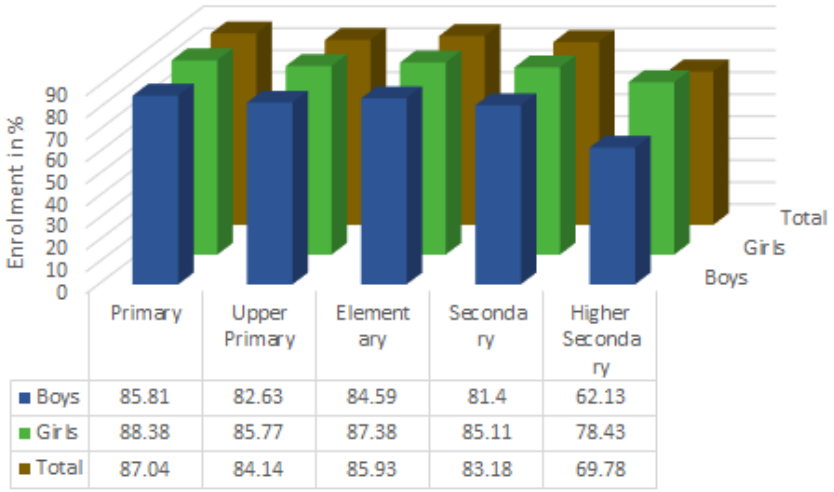
2.3.2 Literacy Rate:

The literacy rate is defined by the percentage of the population of a given age group that can read and write. The total Literacy rate (Census 2011) is 85.85%, male literacy rate is about 91.26% and female literacy rate is about 80.67% and it is shown in the Table2.10. Pondicherry has a literacy rate of 85.85%, higher than the national

average of 59.5%. The UT of Puducherry stands 7th rank in female literacy among all States/UTs.

Table 2.10. Literates in Rural and Urban areas

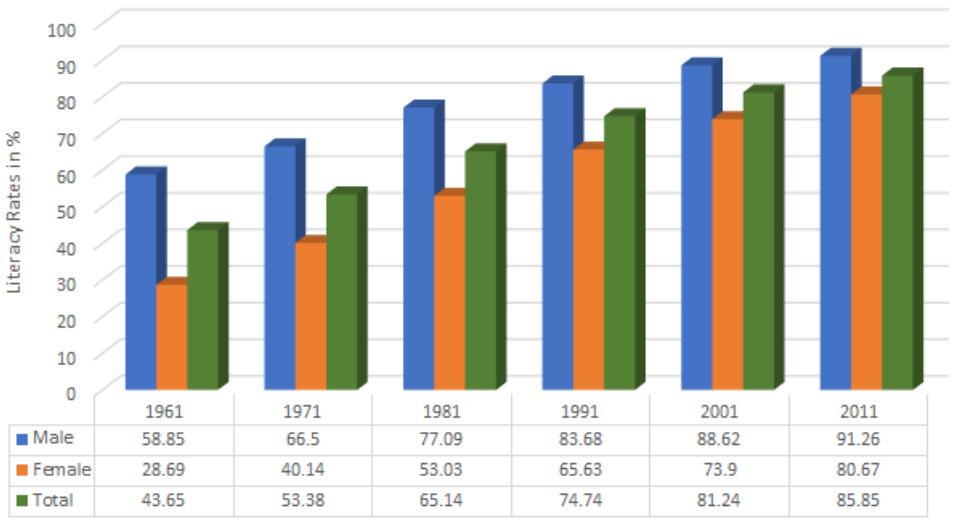
Literacy Rate	Number of Persons			Literacy Rate		
	Total	Rural	Urban	Total	Rural	Urban
Persons	957309	280882	676427	85.85	80.1	88.49
Males	497378	150490	346888	91.26	87.44	93.03
Females	459931	130392	329539	80.67	73.02	84.17



	Primary	Upper Primary	Elementary	Secondary	Higher Secondary
Boys	85.81	82.63	84.59	81.4	62.13
Girls	88.38	85.77	87.38	85.11	78.43
Total	87.04	84.14	85.93	83.18	69.78

Figure 2.10. School Enrolment in all categories

Figure 2.10 shows that the enrolment of girls population in all categories such as Primary, Upper primary, Elementary, Secondary and Higher Secondary. It implies that the high ratio of enrolment[4] of female population than male population.



	1961	1971	1981	1991	2001	2011
Male	58.85	66.5	77.09	83.68	88.62	91.26
Female	28.69	40.14	53.03	65.63	73.9	80.67
Total	43.65	53.38	65.14	74.74	81.24	85.85

Figure 2.11. Literacy rates as per Census of India

Figure 2.11 shows that Literacy rates of total population from the year 1961 as per Census of India (School Education report 2011). It illustrates that the Literacy rate of Female population grew from 28.69% in 1961 to 80.67% in 2011.

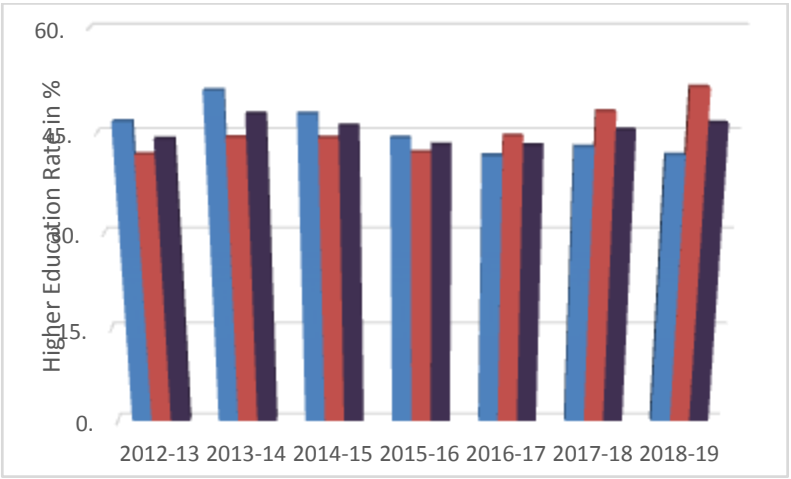


Figure 2.12. Higher Education Rates

Figure 2.12 explains that the higher rates (MHRD 2019) of male and female populated in higher education in Puducherry UT. In India, total enrolment in higher education has been estimated to be 37.4 million with 19.2 million male and 18.2 million female. Female constitute 48.6% of the total enrolment. Puducherry produced 51.6% of female enrolment in higher education level in the year 2018-19.

2.3.3 Female Work Population:

Workers were mainly classified as main and marginal workers on the basis of their work. Those workers who had worked for the major part of the year were termed as main workers. Major part of the year meant six months (183 days) or more. Those who had not worked for the major part of the year (i.e. those who had worked for less than 6 months or less than 183 days in a year) were termed as marginal workers. Rates of workers (Ministry of Labour and Employment 2011) are depicted in Table 2.11. 89.8% of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 10.2% were involved in Marginal activity providing livelihood for less than 6 months.

Table 2.11. Total Workers

Categories	Main Workers		Marginal Workers	
	Number	Rate	Number	Rate
Total	399689	32.03	45279	3.63
Male	306409	52.03	26522	4.63
Female	93280	14.68	18757	2.95

Categories of Workers:

Figure 2.13 shows that the workers Ratio (Department of Economics and Statistics 2018) for all categories and it is evident that female workers are available in all categories. It shows that more female workers are in the category of Agricultural

category.

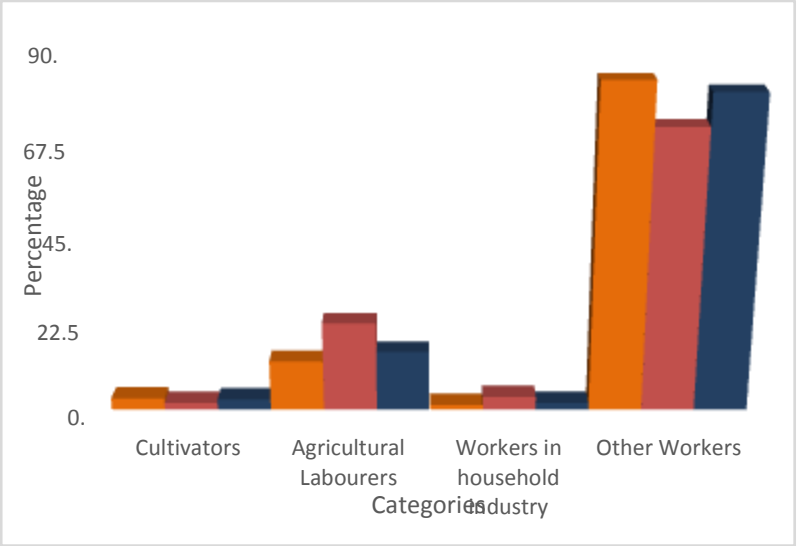


Figure 2.13. Percentage of Workers Ratio for all categories

Table 2.12. Categories of Workers Count

Sector	Main Workers			Marginal Workers (in %)					
				Less than 3 Months			3-6 months		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Rural	122188	91068	31120	5722	2931	2791	19966	11706	8260
Urban	277501	215341	62160	3730	2180	1550	15861	9705	6156

Table 2.12 depicts that the workers count of male and female in rural and urban areas (Department of Economics and Statistics 2018). In all areas, female working rate is approximately or more than 50% as main workers and marginal workers. Figure 2.14

shows that the workers rates for main and marginal workers in rural and urban areas.

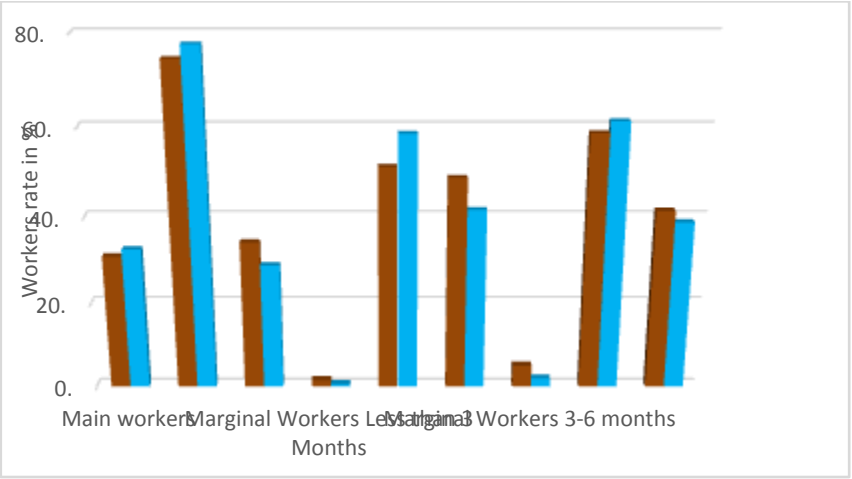


Figure 2.14. Categoriesof Workers Rates

Usual Principal Status (UPS) is relating to the activity of a person during the 365 days preceding the date of survey. The activity status on which a person has spent relatively longer time (183 days or more) during the period is considered the usual principal activity status of the person. Usual Principal Status and Subsidiary Status approach is an extension to the principal status approach. If a person has engaged in any economic activity for a period of 30 days or more during the preceding 365 days a person is considered as employed under this approach. Rate of UPS and UPSS (Department of Economics and Statistics 2018) are given in the Table 2.13.

Table 2.13. Working Ratiosfor different approaches in Puducherry state

Sector	UPS		UPSS	
	Male	Female	Male	Female
Rural	66.1	20.7	66.1	22.2
Urban	66.3	24.9	66.6	25.6

Regular employees count of Government of Puducherry (Department of

Economics and Statistics 2018) are listed in Table 2.14. It shows that populations of female workers are involved in all bodies. State government providing an equal opportunity for male and female in all fields.

Table 2.14. Number of Posts in Government of Puducherry[6]

Category	Gazetted (Number of Persons)		Non-Gazetted (Number of Persons)	
	Male	Female	Male	Female
Central Government	313	120	2894	1920
State Government	1283	725	17308	7642
Autonomous Bodies	459	233	3024	2364
Local Bodies	24	3	1646	352

2.3.4 Nutrition Status:

Nutrition plays a crucial role in human health and well being. Improved nutritional status is key to sustainable development, affecting how other investments in education, health and child protection impact on Indian society.

Nutritional Indicators:

As per the Census of India(Census 2011 & NFHS 2015), nutritional status for Women shown in Table 2.15.

Table 2.15. Nutritional Status for Women in Rural and Urban areas

Nutritional Status[5]	Key Indicators (%)		
	Urban	Rural	Total
Women who are underweight (BMI<18.5)	10.2	13.3	11.2

Women who are overweight (BMI>28)	38.4	33.7	36.9
Non-pregnant women age 15-49 years who are anaemic	52.1	55.7	53.2
Pregnant women age 15-49 years who are anaemic	25.6	32.2	27.8
All women age 15-49 years who are anaemic	51.2	54.9	52.4
Blood sugar level >140mg/dl	7.1	8.6	7.5
Blood sugar level >160mg/dl	4.2	5.2	4.5
Slightly above normal (Systolic 140-159 mm of Hg and/or Diastolic 90-99 mm of Hg)	7.3	5.8	6.9
Moderately high (Systolic 160-179 mm of Hg and/or Diastolic 100-109 mm of Hg	2.1	0.5	1.6
Very high (Systolic ≥180 mm of Hg and/or Diastolic ≥110 mm of Hg)	0.9	0.4	0.7

Figure 2.15 shows that the Prevalence of Iron Deficiency Anaemia (Rahman et al. 2019& Gupta 2019). From the Table 9, 52.9 % percentage of female populated are affected with iron deficiency. From the prevalence of iron deficiency, 76% among 52.9% anaemic persons having mild deficiency of iron, 22% having moderate and 2% of severe prevalence of iron deficiency.

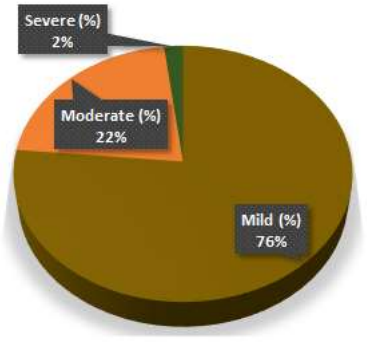


Figure 2.15. Prevalence of Iron Deficiency Anaemia

The prevalence of under nutrition (BMI<18.5 kg/m^2) was 19%, severe under-nutrition (BMI<16.5 kg/m^2) was 7% among all adult female. The proportion of overweight or obesity (BMI<25 kg/m^2) was 34%. More than half of the elderly (58.7%) perceived their nutritional status as poor; of them 28.9% were under-nourished based on BMI and it is shown in Figure 2.16.

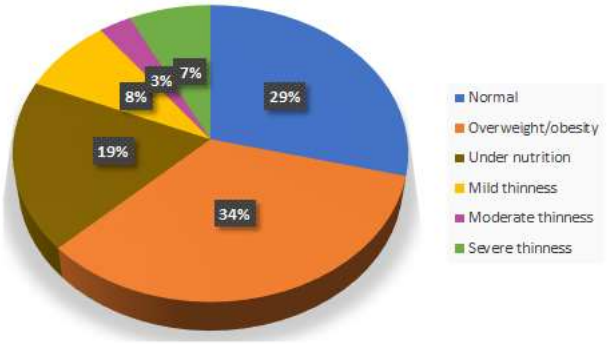


Figure 2.16. Prevalence of Nutrition Status among adult female

2.3.5 Scholarship:

Scholarship (Directorate of School Education 2020, National Government Portal)for girls in India are meant to provide better education and career opportunities for females. Many government and private organisations in different fields like science and research, management, aviation, hospitality and defence have been offering women scholarships and grants towards encouraging the better half of the population to take academic opportunities. Scholarships in Puducherry are available in Table 8.

Table 2.16. List of Scholarships in Puducherry

S.No	Name of the Scholarship	Description

1	Payment of Examination Fees by the Government to the Students appearing Public Examination	To encourage the students and to raise the pass percentage in the public examination of the students who are studying in the Govt. Schools and Govt. aided schools in the Union Territory of Puducherry
2	Award of Attendance Scholarship to Girl Students in the Middle Stage of Education	Girl Students in the age group of 11 to 14 years other than Scheduled Caste and studying in recognized institutions situated within the U.T. of Pondicherry
3	Incentive to Girls for Secondary Education	National Scheme of Incentive to Girls for Secondary Education
4	Retention Scholarship for SC Girl Students - Puducherry	Under this scheme, the selected girls shall be granted educational concession for an academic year
5	AICTE Pragati Scholarship for Girls	The aim of the scholarship is to empower young girls with skills, self-confidence and knowledge thereby enabling them to contribute to the development process.
6	Begum Hazrat Mahal National Scholarship, Maulana Azad Education Foundation (MAEF), Ministry of Minority Affairs, Government of India	The deserving girl students will receive tuition fees assistance along with other benefits

7	Post-Graduate Indira Gandhi Scholarship for Single Girl Child, UGC	UGC has initiated this scholarship for girl students who are the only girl child in their families. This scholarship is meant to support postgraduate studies of the students.
8	CBSE Merit Scholarship Scheme for Single Girl Child	The scholarship aims to support meritorious girl students who are the only girl child of their parents.
9	DST Women Scientist Fellowship (WOS-A)	This scheme provides fellowship to those candidates who are having a career break and looking for an opportunity to re-enter the profession in S&T domain are preferred.
10	Women Scientist Scheme-B (WOS-B), DST	This scheme is meant to encourage women scientists and technologists who are taking a break in their career. It will enable them to utilize their zeal and knowledge for the benefit of the society.
11	SOF Girl Child Scholarship Scheme	This scholarship is meant for girl students who are studying in Class 1 to 10. The key objective of this scholarship is to financially support the girl students coming from economically weaker families to enable them to continue their school education

12	L'Oréal India For Young Women in Science Scholarship	This scholarship aims to support young women to pursue higher education in the Science stream.
13	Glow and Lovely Scholarship, Fair and Lovely Career Foundation	This scholarship programme aims to empower underprivileged female students to pursue their higher education
14	Rolls-Royce Unnati Scholarships for Women Engineering Students, Rolls-Royce India Private Limited	This scholarship supports those meritorious girl students who are studying an engineering degree programme at an institution recognised by AICTE.
15	Dr. Reddy's Foundation Sashakt Scholarship	This scholarship is meant to support girl students coming from rural and low socio-economic backgrounds to help them get access to quality education in some of India's best science institutions for their undergraduate studies. The key objective is to prepare them for a career in Science stream.

16	Tata Housing Scholarships	This scholarship for girls is a merit-cum-means scholarship which provides a financial assistance of up to INR 60,000 to meritorious girl students who belong to economically weaker class. This Tata Housing Scholarship is given to students in the fields of MBA (Construction Project Management), B.Arch. and Civil Engineering.
17	Prabha Dutt Fellowship	Prabha Dutt Fellowship, started by Sanskriti Pratishthan, offers a grant of INR 1,00,000 to mid-career women journalists to help them pursue meaningful projects on the topics of contemporary relevance
18	Internshala Scholarship: Career Scholarship	Internshala Scholarship offers a one-time scholarship to a girl who has fought against odds to pursue a career of her dreams in any fields
19	Abhilasha Scholarship	Abhilasha Scholarship, started by EROS Group, offers a scholarship to girl students of class 9 to 12. Under this scholarship scheme, 100 scholarships are disbursed among female candidates

20	SOF Girl Child Scholarship Scheme	SOF Girl Child Scholarship Scheme, started by Science Olympiad Foundation, offers a scholarship annually to girl students of class 1 to 10. Under this scholarship scheme, 300 scholarships are disbursed among female candidates who belong to financially deprived sections of the society.
21	UGAM – Legrand Scholarship Program	UGAM – Legrand Scholarship Program, started by Legrand India, offers a scholarship to class 12 passed girl students to pursue B.Tech, B.E. or B.Arch from a recognised college or university of India.
22	Scholarship to Son and Daughter of Differently Abled Persons, Tamil Nadu	The scholarship is applicable for studies from class 11th to Postgraduate level
23	EVR Nagammai Scholarship, Tamil Nadu	This scholarship is applicable only for girl students who are pursuing postgraduate degree courses in Arts and Science from a recognised college in Tamil Nadu
24	Incentive Scheme for Rural MBC/DNC Girl Students, Tamil Nadu	The scheme is applicable for rural girl students belonging to MBC/DNC category

25	Technip India Limited Scholarship Program	Technip India Limited, as part of its CSR initiative offers Technip India Limited Scholarship Program to support the education of underprivileged female candidates in the field of Science, Technology, Engineering, and Maths (STEM). A total of 150 scholars will receive the scholarship award towards their tuition fee expenses.
26	Lady Meherbai D Tata Education Scholarship	This scholarship for girls provides funds to graduate Indian women who have applied or secured admission into reputed educational institutions of the US, the UK or Europe

2.4 Situation on STEM in the studyregion

Government of Tamilnadu:

Science, Technology, Engineering and Mathematics (STEM) was implemented as a pilotproject across 320 schools in the State over the last two years, under the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) scheme. It aimed at strengthening science and technology-based learning. STEM Learning has been working since 2011 (STEM Learning 2020) with government schools, with a focus on the children in remote & rural areas. The rural child population accounts for 74.05% as per the Census 2011; this number highlights the importance of providing a quality education to the students. Besides introducing learning aids and relentlessly working with the under-served

children, STEM has also organized a national event for these children to showcase their talent.

Historically, it hasn't been uncommon for research labs and medical institutes to be male-dominated power structures, as most girls grow up in a climate of reinforced stereotypes and self-doubt. Yet, despite these odds, year 2018 has witnessed the rise of incredible women in STEM who've used intelligence and revolutionary thinking to touch communities all around.

According to an evaluation report on the pilot project, around 86 per cent of teachers felt students could understand concepts better with this model. Students trained under the STEM model also won the State Science Exhibition awards in all 32 revenue districts. Mission of STEM is given in Figure.

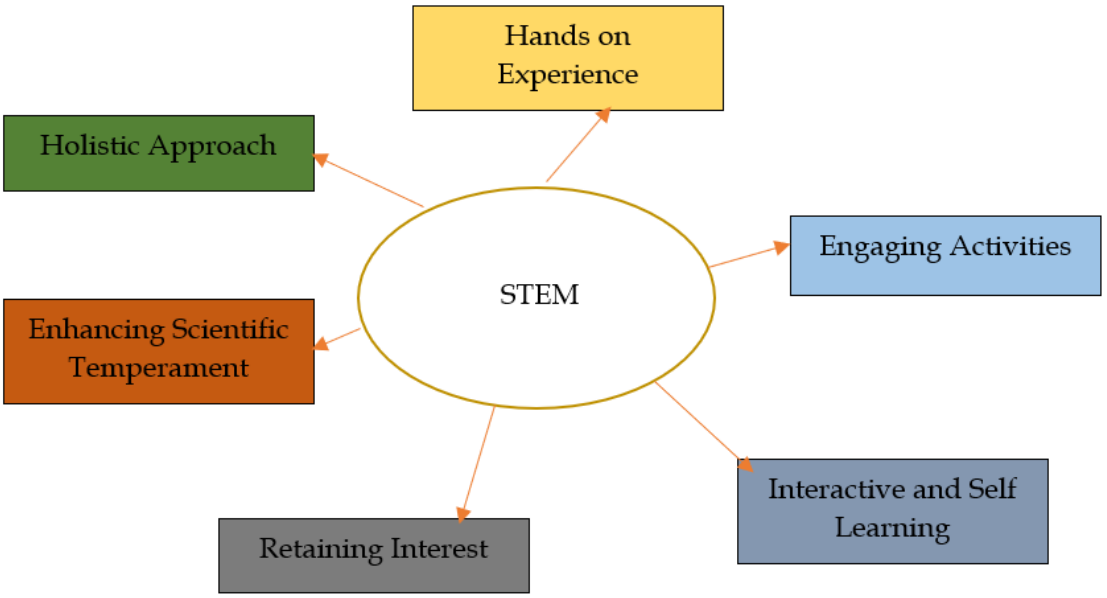


Figure2.17. STEM Mission

STEM labs are funded in following Schools: Adhyapana School (Madurai), Swami Dayananda School (Manjakudi), Chinmaya Vidyalaya Matriculation (Trichy), Government Model Girls Higher Secondary School (Manachanallur), Sri Matha Matriculation Higher Secondary School (Kumbakonam), PSBB (Chennai), Akshaya Academy (Coimbatore) PS Senior Secondary School (Chennai), Gurukulam

Matriculation(Chengalpet) and Sitadevi Garodia Hindu Vidyalaya, (Chengalpet).

Larsen & Toubro has launched its flagship program for imparting STEM (Science, Technology, Engineering and Mathematics) education in 20 Tamil Nadu government-run schools in Chennai. Titled as 'Engineering Futures,' the program will be extended to 83 government schools across five states of Tamil Nadu, Gujarat, Maharashtra, Haryana, Rajasthan and a Union Territory of Pondicherry in the current financial year. STEM Practices are depicted in Figure 2.18.

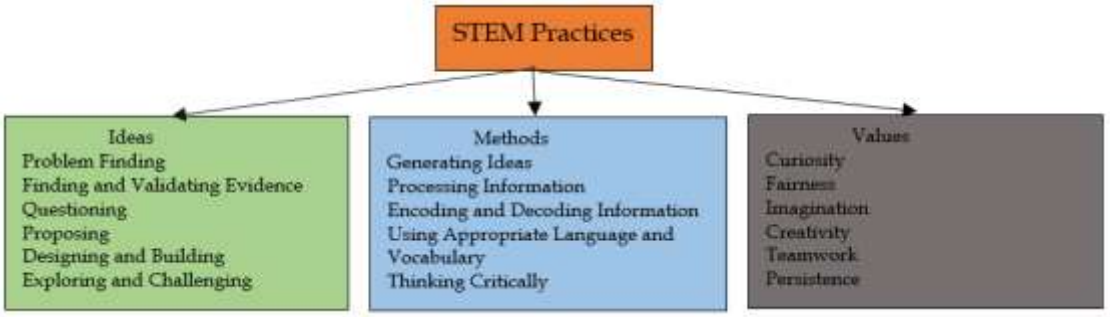


Figure 2.18. STEM Practices

Puducherry:

According to the National Science Foundation, it is predicted that 80% of the jobs created in the next decade will require some form of math and science skills. Despite having the top quality talent, the exam-focused education model of the past has limited these students when it comes to innovation, problem-solving and creativity. This is where the STEM come in to fill this gap.

Exor Robotics empowering the Young minds of Puducherry to become a Young Scientist, STEM Practice for the first time in pondicherry at International standard Training and Kits. Udavi school providing the STEM skills where a few youth and a bunch of children come together to co-learn programming in ALICE (a 3D programming language), electronics, strategy games and much more.

Table. 2.17. Number of Projects

Scheme	Number of projects sanctioned in Tamilnadu	Number of projects sanctioned in puducherry
WoS -A	212	7
WoS-B	24	2
WoS-C	41	0
Biocare	27	0
Total	**347**	**9**

2.5 Benefits for this study to the study region

National and state level fellowships are said to be one of the ways of responding to the under-representation of women in science.

- The findings of this study present important reminders that government initiatives can act as change enablers to bring about gender inclusion in science. Such initiatives and schemes are undoubtedly making an impact on women scientists' lives!
- These schemes have been criticized for having a limited bearing with regard to providing stability to women who return to research after a break in career.
- This exploratory study will enable policy-makers to understand the basic issues and problems of women in science.
- The findings of the study underscore the need to formulate more comprehensive policies for women scientists which can plausibly provide them the scope to move in the direction of 'cumulative career progression'.

- One of the major constraints that women scientists face is losing the opportunity to acquire permanent positions due to the age bar restriction for permanent positions and break in carrier is addressed
- Possibility of interlinking these scheme with scope for advanced research or undertaking a PhD, and placing them as mentors or trainers, could help stabilize their careers. Hence, it is imperative that there is a collection and availability of data at micro-institutional levels and that inter-connections are established and consolidated with existing policies, programmes and schemes of the government to have a deeper understanding of this subject.
- Scenarios of under-representation of women in STEM, occupational segregation by gender and women's concentration in various sub-fields is analyzed
- Importance to reflect on women who are not in mainstream science careers: need to address various forms of structural barriers that exist both in scientific disciplines and societies.
- Improving the institutional climate for women scientists to bring gender parity, however it is all the more significant to critically engage with the issue of social climate which restricts women's access to science education and professions
- The experiences of those women scientists involved in the scheme unfold the reality of their lives and their interventions at the community level can be explored.

- Impact of this type of women-specific fellowship scheme instrumental in creating a 'domestic talent pool' of women scientists as mentors or role models and can lead to diversification of occupations for women scientists as entrepreneurs and community level researchers is studied.
- This study recommends building an organic link between policy, mentors and women scientists since they are part of the system helping women scientists to emerge as leaders in their fields.
- It also gives the need to hold intermittent workshops on 'Leadership, Mentoring and Networking' for young and mid-level women that would help them to inspire and motivate to move forward and take leadership positions.

3 METHODOLOGY: SURVEY AND DATA COLLECTION

This study is a national network research project to understand the position of women scientists enrolled under the SoRF and pursuing a career in science. The study is limited to a subset of women-oriented government schemes and the interpretation of data and implications of this research are context specific in nature. For this study, both qualitative and quantitative data were obtained to comprehend the situation of women scientists and the role of gender-positive policies for promoting women in science careers. Quantitative data was collected from secondary sources, including on-line resources and the DST website. The data analysis reflects on the broader trends pertaining to access and continuation of women in science careers through the government programmes. Subsequently, 425 women scientists were contacted who had completed or were undertaking projects supported by the scheme. The qualitative data revealed the nature and process of empowerment from women scientists' perspective

with particular emphasis on the aspects of re-entry and retention in science research and careers.

ü Regional PIs are allotted with various regions to cover. The zones assigned for the impact assessment was for South West Zones of India, particularly Tamilnadu and Pondicherry.

ü Formation of the questionnaire for the gender mainstreaming study was done through the brainstorming session conducted in the first LPAC. The various schemes targeted for the women scientist in the STEM like DST, DBT and UGC.

ü Questionnaire of the Wos C was revised

ü Centralized data collection is initiated. The Database of the UGC PDF is being assigned and data collection has started.

ü Success story capturing from successful beneficiary in the form of word file and video.

ü Bringing out the SWOT analysis of the region and bridging the gap in the national level

3.1. Survey Questionnaire and Methodology for Getting Responses

Parameters considered:

1. Age of scientist and technocrats considered at all levels should be collected with gender mainstreaming strategy information and training.

1. Analytical Tools

Statistics

All statistics that are produced at all levels in policymaking, i.e. planning,

implementing and monitoring must be collected.

Gender Analysis

A gender analysis , study of the different conditions that women of different age group and different cadre face as well as the different effects that policies, programmes and activities may have on them.

It is a process that differentiates the way of how the allocation of resources, activities, authority, representation and decision-making.

Gender analysis need to be done with the use of sex disaggregated statistics i.e. statistics about women and men as an analytical category by which the actual facts and differences between the genders is illustrated.

Subsequently, the results and findings from a gender analysis are then compared with the gender equality goals.

2. Educational Tools

Educational tools can include awareness-raising, training courses, follow-up action, manuals and educational material.

a. Awareness-Raising and training courses

General as well as detailed and specialised awareness must be provided. This can be set up in different forms, such as training courses, activities and promotion to enable individuals to implement gender mainstreaming in their everyday work.

In such cases, gender expertise is required and specialists can help:

- Individuals who have already undergone training, put their knowledge into practice;
- Identify areas where gender mainstreaming should be definitely implemented;
- In ensuring that the policy is mainstreamed as a whole.

b. Follow-up Action

On the awareness-raising and training provided to the public must be carried out to ensure that gender mainstreaming is being implemented successfully.

Post-training must be provided in the form of meetings, activities, tasks and deadlines.

c. Manuals and Educational Material

Manuals and handbooks include practical and day-today information on how to apply under various schemes available and their criteria, area of research available etc . This information in the form of booklets or leaflets can be made available as e- content and can be access through internet and mobile apps amongst the general public of all ages or at lower levels in administration.

3. Consultative and Participatory Techniques

Consultative and participatory techniques may include steering groups, think tanks, databases, conferences, seminars and equal participation of both genders in decision-making.

a. Steering Groups and Think Tanks

Exchange of information, expertise and knowledge plays a crucial role in promoting the schemes and policies. A steering group or a think tank, consisting of individuals from both genders and from different walks of life can provide members of the group to plan, discuss opportunities and also collaborate together. Steering committees could also form part of a national or political agenda. These are most likely to have the opportunity

to consult the society's key decision makers with ideas and plans.

b. Databases

It may be useful to establish and compile a database of individuals and entities dealing with gender equality issues, to be able to consult with them. The right contacts involved in a variety of policy-making, in different institutions should be accessible so as to ensure that the relevant consultation is carried out.

For this reason, information on who to involve in discussions and consultations must be easily available. Databases may be already available in different institutions and therefore this should be verified prior to collecting new information.

c. Conferences and Seminars

These tools can assist in promoting gender equality amongst the general public, stakeholders as well as gender mainstreaming amongst the policy-makers.

d. Participation of both genders in decision-making

An equal participation of both genders is important not only in decision-making but also for gender mainstreaming, in general. It would not be a democratic society if, for example, women are excluded from participating in the society's decision-making process.

Most GIA frameworks include three assessment stages:

- Gender Relevance Assessment
- General Impact Assessment
- Monitor and Evaluate

Gender Relevance Assessment

Gender Relevance Assessment could be based on **four criteria** listed below:

1. Background Information

• Description of the proposed policy objectives;

• The target group of the proposed policy;

• Who it might potentially impact.

2. Direct Beneficiaries

These include the individuals who the policy is targeted at. This analysis can be further broken down by gender into:

• Participation;

• Resources;

• Norms and Values;

• Rights.

3. Indirect Beneficiaries

These include individuals who, even though the policy is not directly targeted at them, they can also be benefited by its implementation. These could include individuals co- PI, student community, institution, neighboring area of implementation and others such as family and relatives of the direct beneficiaries .

4. Evaluation

This stage includes an evaluation of the above to assess whether a full GIA is required. This stage requires a judgement which is based on the potential impact, be it extensive or minimal.

3.2. Methodology for collecting other (secondary) Data

- Database from various funding agencies are being received by the regional PIs. The data was collected from past beneficiaries, current beneficiaries and potential beneficiaries involved at various levels of STEM during 2003 to 2018.

- The primary data were obtained from the list of woman scientists provided by DST, GOI.
- Secondary Data were collected from various sources ranging from different institutions/organizations, published work, other women scientists who participated in the survey as well as by snow ball method.
- Pilot testing of Online questionnaire forms circulated and then tested with selected women scientist's and university professors
- Communicating with scientist using the LoI, Authorization given by DST. Signing Non-disclosure agreement to maintain the privacy and confidentiality of all data collected and the structured questionnaire from the women scientists.
- Using the structured questionnaire: Data collected from woman scientist was in the form of filled questionnaire, forms and interview notes for assessment.
- Contacting the beneficiaries through various means like
    - e-mail id got from database (official and personal)
    - telephonic conversation through Mobile and landline telephone (official and personal)
    - Contacting through mentors
    - Contacting through the institution in which the research has been carried
    - Social networks like peermate watsupp groups , linkedn

profiles etc.

- ➢ Making clear what is the need for the study, how their feedback would impact the young budding scientists and aspirants, giving them confidence that the data collected is secure.
- ➢ Those who are not able to fill the online questionnaire were mailed (hard and soft copy). The filled in forms are further converted into digital and the database updating was done by the project coordinators

SAMPLE

The RPI team contacted 425 women scientists for in-depth interviews, who participated in the fellowship between 2003 and 2013. The sample of 452 projects is primarily taken from the SoRF data base and typically covers projects that part of the scheme during that decade. Purposive and snowball sampling methods were employed to select the respondents for interviews. Women scientists aged between 30 and 55 years who fulfilled the criteria of "completed projects" and "project in continuation" were selected for the study were contacted informally through the above said modes to get their feedback and study the impact of the schemes taken-up in their personal and technical growth .

3.3 Problems and Challenges

Though the online survey has advantages the limitations and hurdles in reaching them is listed below. The challenges relate to the sampling, response rate, non respondent characteristics, maintenance of confidentiality, and ethical issues.

1. **Inability to Reach Challenging Population**

The challenging population of study include:

- ✓ Non- Respondent characteristics among the scientists
- ✓ Not able to reach since the contact of the respondent is non traceable through almost all the sources friends , peer mate, mentors and institutions
- ✓ Not able to respond due to physical and medical reasons
- ✓ Not wishing to respond due to problems in the institutions as well as not able to receive their financial support from the agencies
- ✓ Repeated requests to complete the survey can be perceived by respondents as annoying, and therefore backfire against data collection
- ✓ Difficulty reaching certain types of participants, such as those who do not have internet access and gadgets. Many are older and minority household heads or those with modest incomes and in reside in remote locations
- ✓ Respondents doesnot have the required data since decades before all the transactions and communications are in hardcopy. Hence they donot have copy of data or reluctant to convert into digital data and respond without

2. Accessing the responses

- ✓ Unanswered questions- some questions will be ignored or left unanswered.
- ✓ Differences in understanding and interpretation:

  Without someone to explain the questionnaire fully and ensure each individual has the same understanding, results can be subjective.

Respondents may have trouble grasping the meaning of some questions that may seem clear to the creator.

This miscommunication can lead to skewed results. The best way to combat this situation is to create simple questions that are easy to answer.

- ✓ Unconscientious responses

3. Accessibility issues

The database was collected online. The accessing of database by the women scientist has some issues like browser difference (in case if they fill the forms using Mobile Phone). Accessibility problems during server maintenance period. The problem in data saving where successful submission was reported for the scientist but database was updated with the data. This lead to need for multiple time entry by the scientist for which they are not happy.

4 QUESTIONNAIRE STATISTICS

4.1 Introduction:

This chapter presents the insights of the analysis done about the data collected from the study regarding the women scientists. The analysis is focused at state level using simple descriptive statistics from the data gathered along with their distributions are presented

Women scientist responses

Major variables of interest such as respondent profile in terms of age, marital

status, number of children, highest degree held, nature of employment (job contract), nature of primary and additional work responsibilities, incidence and reasons for dropout or break in education, incidence and reasons for continuation and completion of education after break, incidence and reasons for break in employment, various achievement indicators with regard to professional recognition are all analyzed along with respondent's perception regarding effect of dual role on career attainment and on fulfillment of family and household responsibilities and perceptions regarding work environment.

Non Responses:

Most of the respondents who contributed in the study have faithfully responded to all the questions, while there are few who returned partially filled questionnaire. Additionally many of the respondents didn't even fill the questionnaire despite multiple reminders. This has ended up being a limitation.

Marital Status

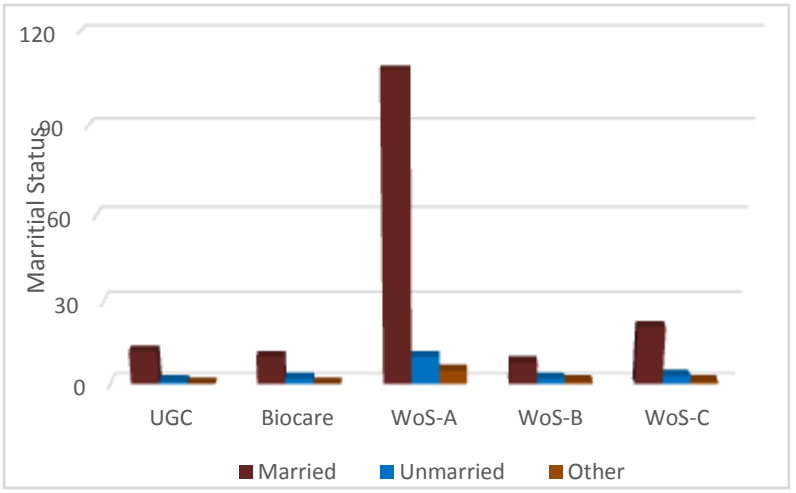


Figure 4.1 Marital Status

Women Marriage has also been shown to have an adverse impact on the careers of female. Figure 4.1 shows that the marital status of women in all schemes. It depicts that marital status of women availing the benefits of the above schemes are married.

4.2 Statistics of schemes

Category:

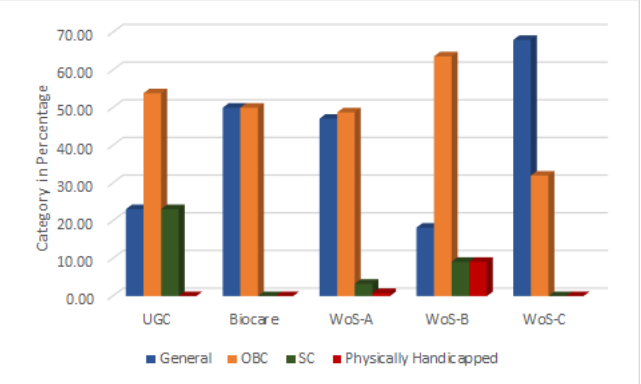


Figure 4.2 Categories

Table 4.1 Categories of WoS and UGC PDF

Scheme	Count			
	General	OBC	SC	Physically Handicapped
UGC PDF	3	7	3	-
Biocare	6	6	-	-

WoS A	58	60	4	1
WoS B	2	7	1	1
WoS C	17	8	-	-

Category of WoS and UGC PDF are shown in Figure 4.2.It shows that the all categories gets benefitted by using the schemes. Schemes have to change the criteria to get benefits for the SC/ST candidates.

Educational Qualification:

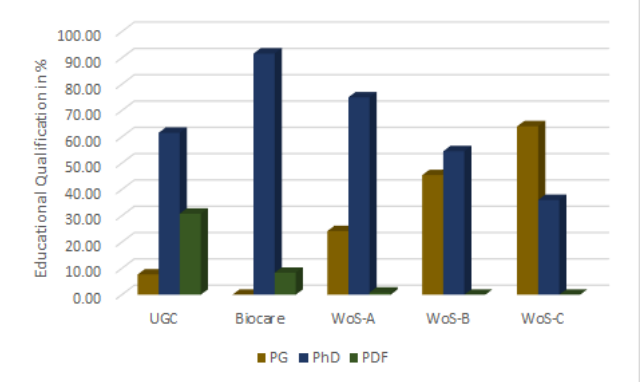


Figure 4.3 Educational Qualifications

Table 4.2 Educational Qualifications (Count)

Scheme	**Count**		
	PDF	**PhD**	**PG**
UGC PDF	3	8	1

Biocare	1	11	-
WoS A	-	106	17
WoS B	-	7	4
WoS C	-	9	16

Figure 4.3 Shows that the Educational qualifications of women. It shows that the 80% of women had completed the Doctoral degree in various specialisations

City of College:

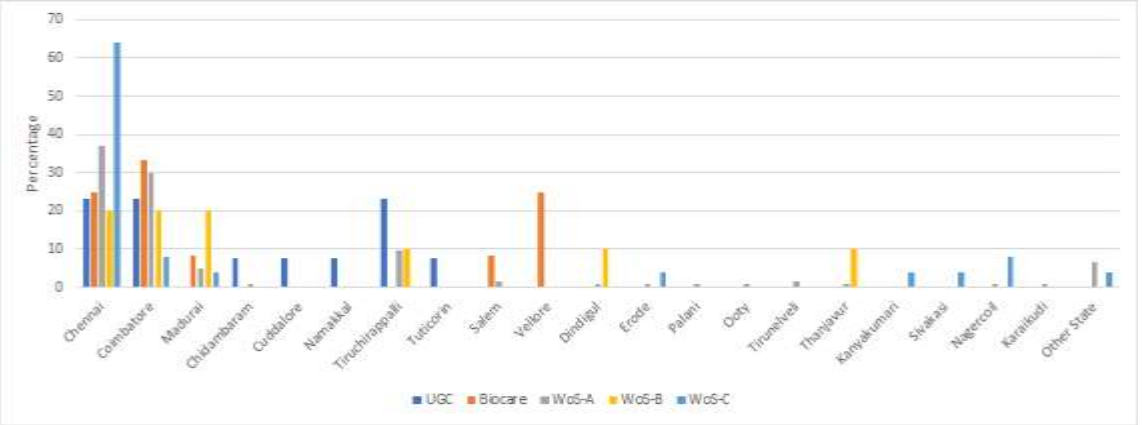


Figure 4.4 City of Working Institution

Figure 4.4 depicts the city of Women working institution. 67% of women are availing from City area not from rural areas. Further, Schemes to expand the reach of Women who are working in institution in rural areas

Table 4.3 List of Institutions where WOS are working in Tamilnadu

Institutions	Women Scientist
K.S. Rangasamy College Of Technology	1
Alagappa University,	1

Agurchand Manmull Jain College	1
Alagappa University	1
Amrita Vishwa Vidyapeetham, Ettimadai.	1
Anna University	12
Annamalai University	1
Annamalai University	1
Avinashilingam Institute For Home Science And Higher Education For Women	3
Avinashilingm Institute For Homescience And Higher Education For Women	1
B.S.Abdur Rahman Crescent Institute Of Science And Technology	2
Bharathiar University	6
Bharathidasan University, Palkalaiperur,	3
Biocatalysts Lab	1
Bioline Laboratory	1
Bishop Heber College	1
Bon Seciurs College For Women	2
Catalyze Center For Learning	1
Central Manufacturing Technology Institute (CMTI)	1
CLRI-Central Leather Research Institute	3
Dhirajlal Gandhi College Of Technology, Salem	1
Dr NGP Arts And Science College	1
Dr. Rela Institute And Medical Ccentre	1
Fatima College(Autonomous)	1
Government College Of Technology, Coimbatore	1
Govrenment College Of Engineering, Salem-11	1
Icar-Sugarcane Breeding Institute, Coimbatore	1
Indian Institute Of Technology Palakkad	2
Indian Institute Of Technology, Madras	9
International Advanced Research Centre For Powder Metallurgy And New Materials (ARCI)	1
JSS College Of Pharmacy	2
Justice Basheer Ahmed Sayeed College For Women, Chennai, Tamil Nadu	1
Karpagam Academy Of Higher Education	1
Kerala State Electricity Board Limited	1
KTN College Of Pharmacy	1

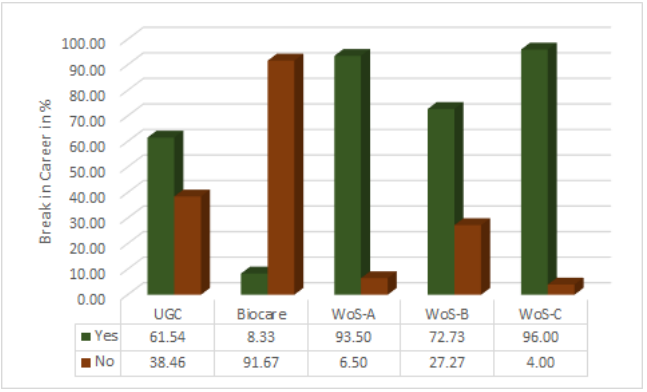
Kumaraguru College Of Technology	1
L.R.G. Government Arts College For Women	1
Lucknow Montessori Inter College,	1
Madras Diabetes Research Foundation	1
Madras Veterinary College	1
Madurai Kamaraj University	4
Maize Research Station,	1
M.S. Swaminathan Research Foundation	1
National Centre For Ultrafast Processes,University Of Madras(Taramani Campus),Chennai-600113	1
National Institute Of Technology, Tiruchirappalli	2
Periyar University	2
Pondicherry University,	1
Ponjesly College Of Engineering	2
Prescouter Inc.,	1
PSG College Of Arts &Science	1
PSG College Of Technology	7
PSG Institute Of Advanced Studies	2
PSGR Krishnammal College For Women	3
Saintgits College Of Engineering	1
Saranathan College Of Engineering	1
SASTRA Deemed To Be University	1
Sathyabama Institute Of Science And Technology	1
Saveetha Engineering College	1
Sri Ramachandra Institute Of Higher Education And Research	2
Sri Venkateswara College Of Engineering	1
SRM Institute Of Science And Technology	1
SSM Institute Of Engineering And Technology	1
SSN College Of Engineering	5
St. Joseph's College (Autonomous)	1
Stella Maris College (Autonomous)	1
Tamil Nadu Agricultural University	6
The Gandhigram Rural Insitiute - Deemed To Be University	3
The Samhita Academy,	1

Thiruvalluvar University	1
University College Of Engineering	1
University Of Madras	4
Vellalar College For Women	1
Vellore Institute Of Technology	6
Vinayaka Mission's Kirupananda Variyar Engineering College, Salem	1
Vision Research Foundation	1

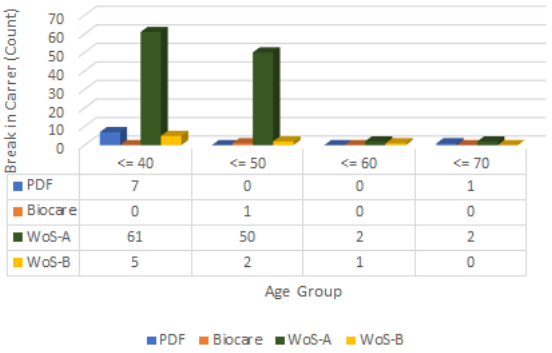
Break in Career If Yes and Its duration:

Figure 4.5 depicts that the Career break when they are availing the benefits of Schemes.

The reasons for Career break are maternal period, relocation and health issues.



(a)



(b)

Figure 4.5 a) Break in career for Various schemes b) Break in Career vs Age Group

Family support received for Research:

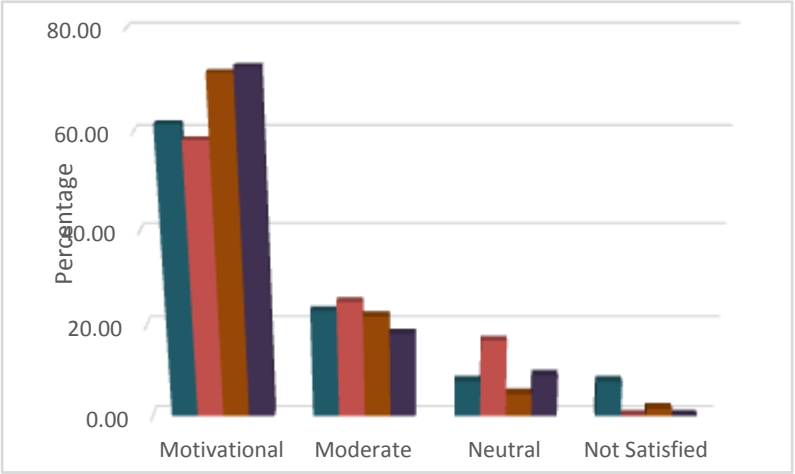


Figure 4.6 Family Support for Research

Figure 4.6 depicts that the rate of family is supporting during research. It shows that 70% of family are highly motivational for all schemes. 7% family are not satisfied in UGC PDF schemes.

Table 4.4 Family Support for Research (count)

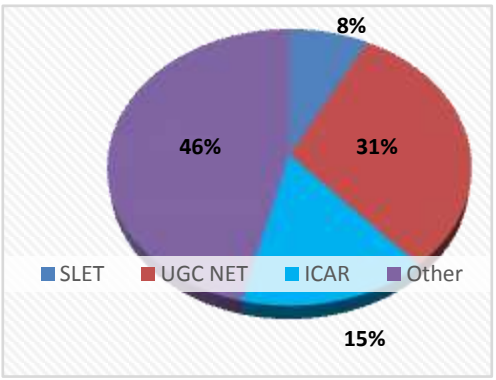
Scheme	Count			
	Motivational	**Moderate**	**Neutral**	**Not Satisfied**
UGC PDF	8	3	1	1
Biocare	7	3	2	-
WoS A	88	27	6	2

WoS B	8	2	1	-

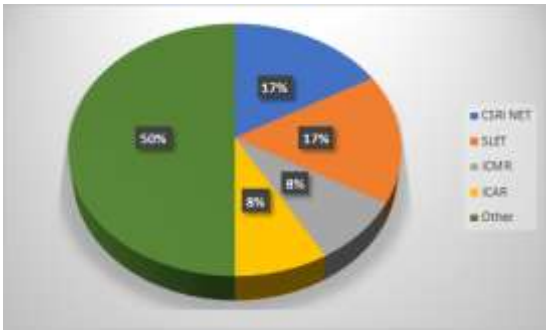
Eligibility Test:

Figure 4.7shows that the eligibility test for all schemes. Scientist who are availing the benefits they are cleared atleast one eligibility test. This schemes used to improve their career,

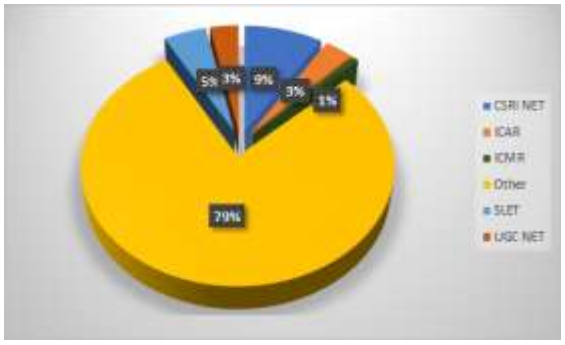
UGC



Biocare



WoS-A



WoS-B

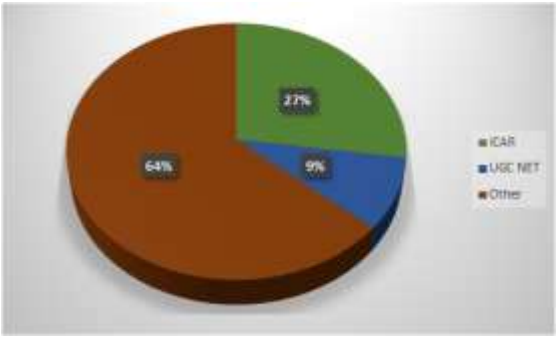


Figure 4.7 Eligibility Test

Table 4.5 Eligibility Test(count)

Scheme	Count					
	UGC NET	CSRI NET	SLET	ICAR	ICMR	Other
UGC PDF	4	-	1	2	-	6
Biocare	-	2	3	1	1	7
WoS A	4	11	6	4	1	97
WoS B	1	-	-	3	-	7

Status of the Project:

Figure 4.8 depicts that the status of the project for all schemes. Completion status is very high for all projects.

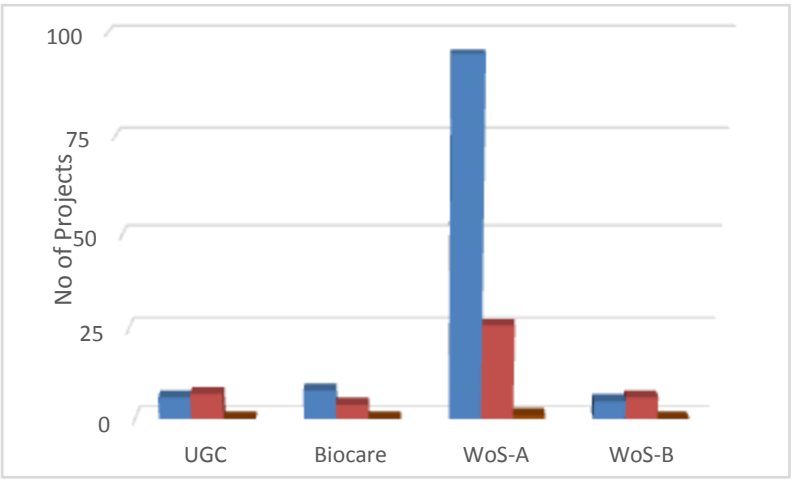


Figure 4.8 Status of the Project

Requested for the Extension

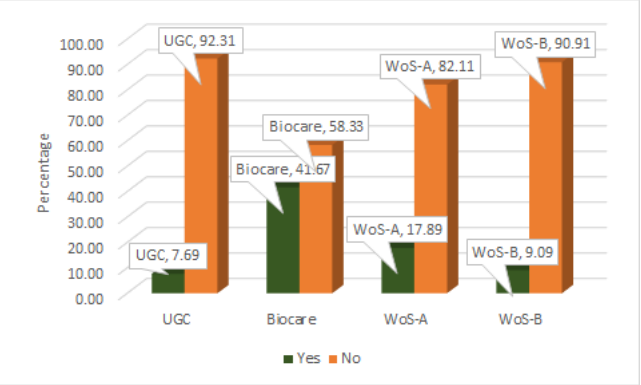


Figure 4.9 Request for Extension

Table 4.6 Request for Extension(count)

Scheme	Count
UGC PDF	1
Biocare	5
WoS A	22
WoS B	1

Figure 4.9shows that the request for extension and provided an information that 92% in UGC, 58.83% in Biocare, 82.11% in WoS-A and 90.91% in WoS-B women didn't apply for extension. Women applied for extension due to various reasons such as Maternal period, relocation and health isssues.

Mentor's Support:

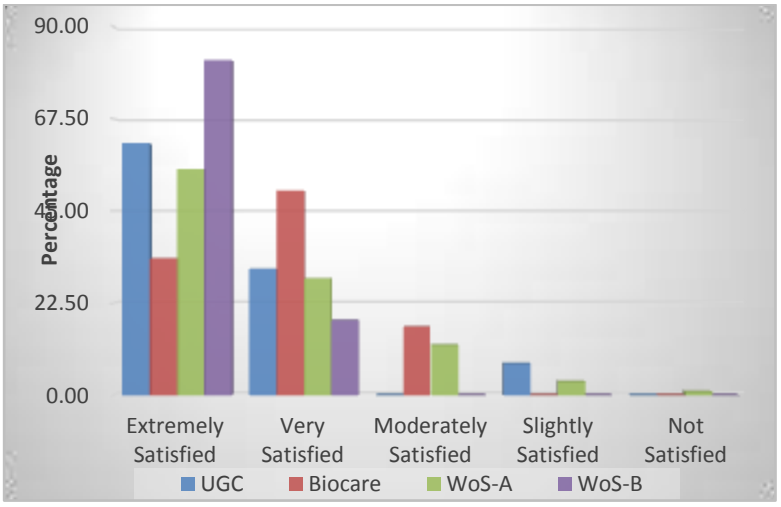


Figure 4.10 Status of Mentor Support

Figure 4.10 shows that the status of mentor support for schemes. It shows that the scientists was extremely satisfied in spite of mentor's support.

Table 4.7 Status of Mentor Support(count)

Scheme	Count				
	Extremely Satisfied	Very Satisfied	Moderately Satisfied	Slightly Satisfied	Not Satisfied
UGC PDF	8	4	-	1	--
Biocare	2	4	1	-	-

WoS A	68	35	15	4	1
WoS B	9	2	-	-	-

Institutional Support

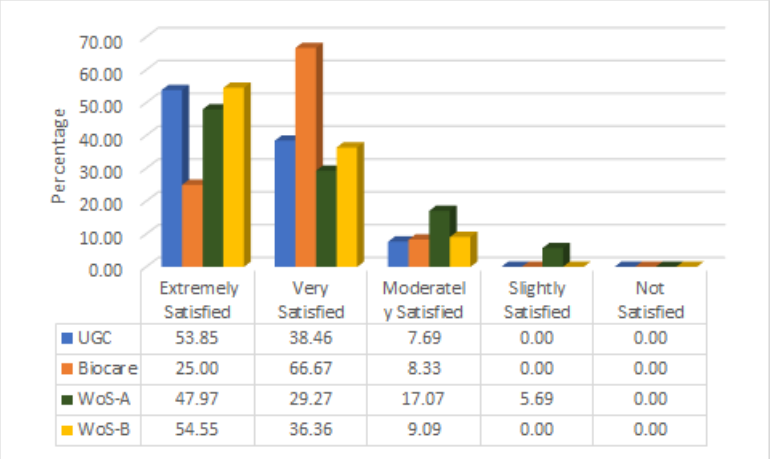


Figure 4.11 Institutional Support

Figure 4.11shows that the Institution support for all schemes. It shows that 0% percentage of Not Satisfied condition and average of 65% of very satisfied status and 60% of extremely satisfied status in institution support.

Table 4.8 Status of Institutional Support (count)

Scheme	**Count**				
	Extremely Satisfied	**Very Satisfied**	**Moderately Satisfied**	**Slightly Satisfied**	**Not Satisfied**

UGC PDF	7	5	1	-	--
Biocare	3	8	1	-	-
WoS A	59	21	36	7	-
WoS B	6	4	1	-	-

Whether the project was transferred

UGC **WoS-A**

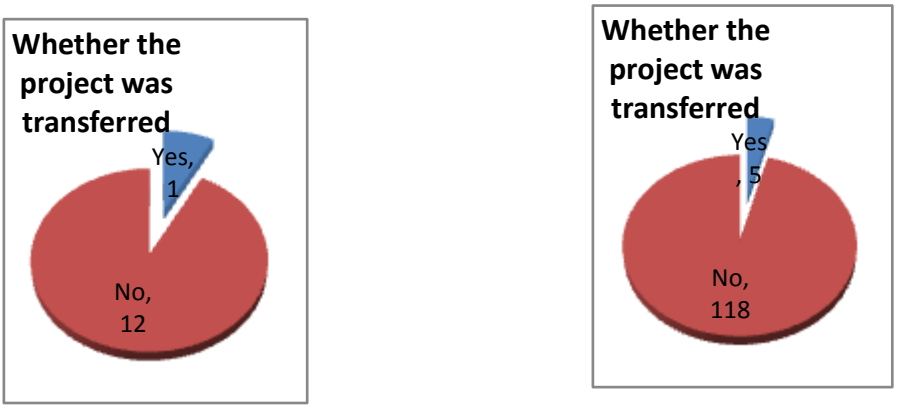
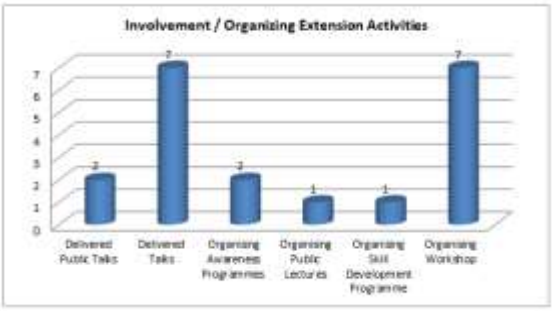


Figure 4.12 Transfer of Project

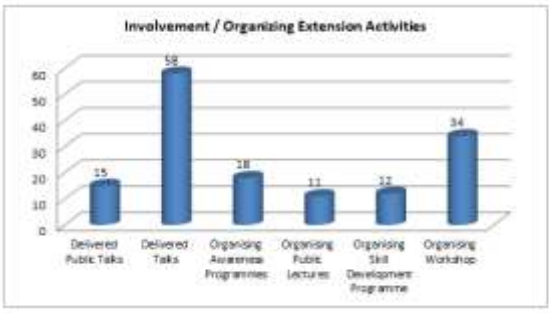
Figure 4.12 shows that the transfer of project for UGC and WoS-A. It shows that the rate of project was transferred about 8.33% of UGC and 4.23% of WoS-A.

Involvement / Organizing Extension Activities

UGC Biocare



WoS-A WoS-B



`Figure 4.13 Involvement / Organizing Activities

Figure 4.13 shows that the schematic representation of activities involvement for all schemes. The activities are delivering the public talk, organizing the awareness programmes, guest lecture, skill development programme and workshop. They gained knowledge and improvement in their career due to the various activities.

Any Skill Developed

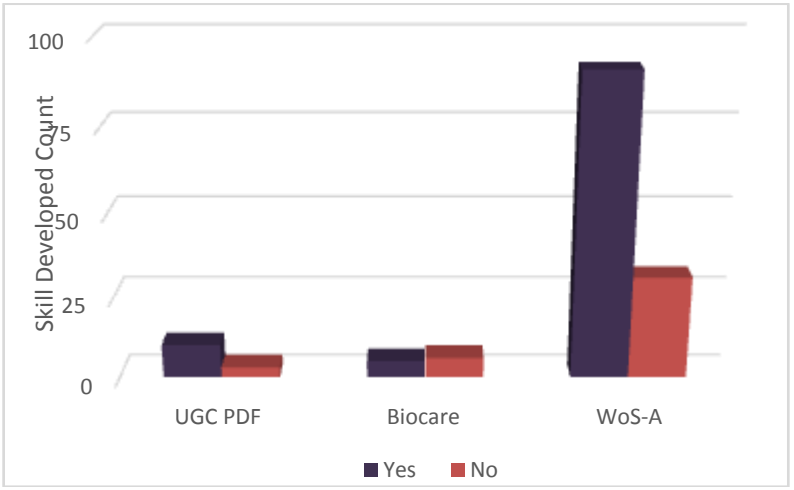


Figure 4.14 Skill Development

Figure 4.14 shows that status of skill developed for all schemes. In above scheme, 76% of UGC PDF, 45.45% of Biocare and 74.5% of WoS-A developed the skills because of various schemes.

Satisfaction Level with current job:

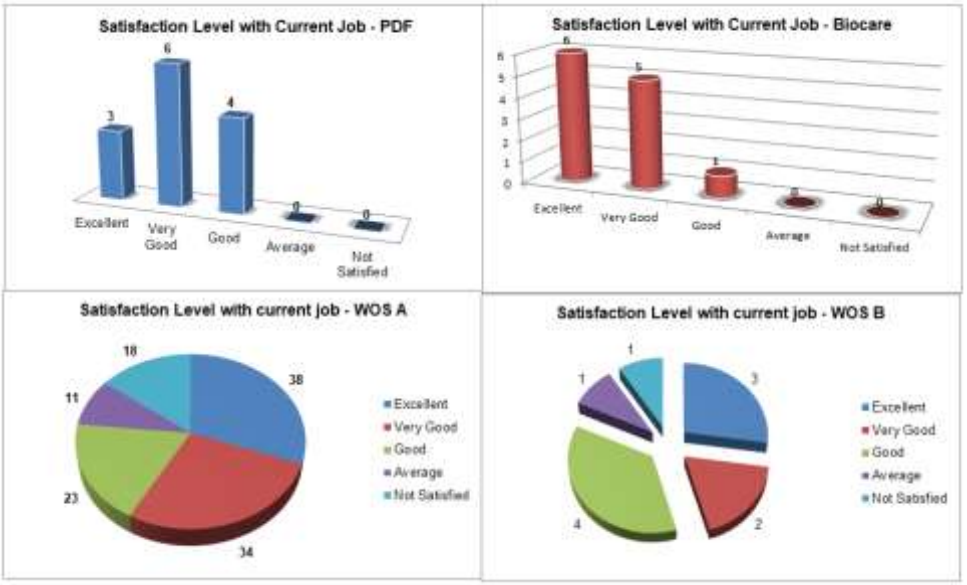


Figure 4.15 Current Job Satisfaction

Figure 4.15 depicts the satisfaction level of current job. In all schemes, women scientists are satisfied with their current job. In figure, 46% of UGC PDF shows the very good satisfaction level in current job. 50% in Biocare, 30.6% in WoS A and 27.27% in WoS-B shows that excellent satisfaction in current job.

Your Rating on the Programme/ Scheme

Figure 4.16 Rating on Scheme

Figure 4.16 shows that the programme rating. It depicts that the 38.46% of UGC PDF, 54.54% of Biocare, 62.2% of WoS-A, 63.63% of WoS-B and 48% of WoS-C having excellent rating on scheme.

Satisfaction Level of Programme/ Scheme :

Figure 4.17 shows that the Scheme satisfaction level. It shows that satisfaction percentage about 38.6% of UGC PDF, 41.66% of Biocare, 48.7% of WoS-A, 54.54% of WoS-B and 36% of WoS-C

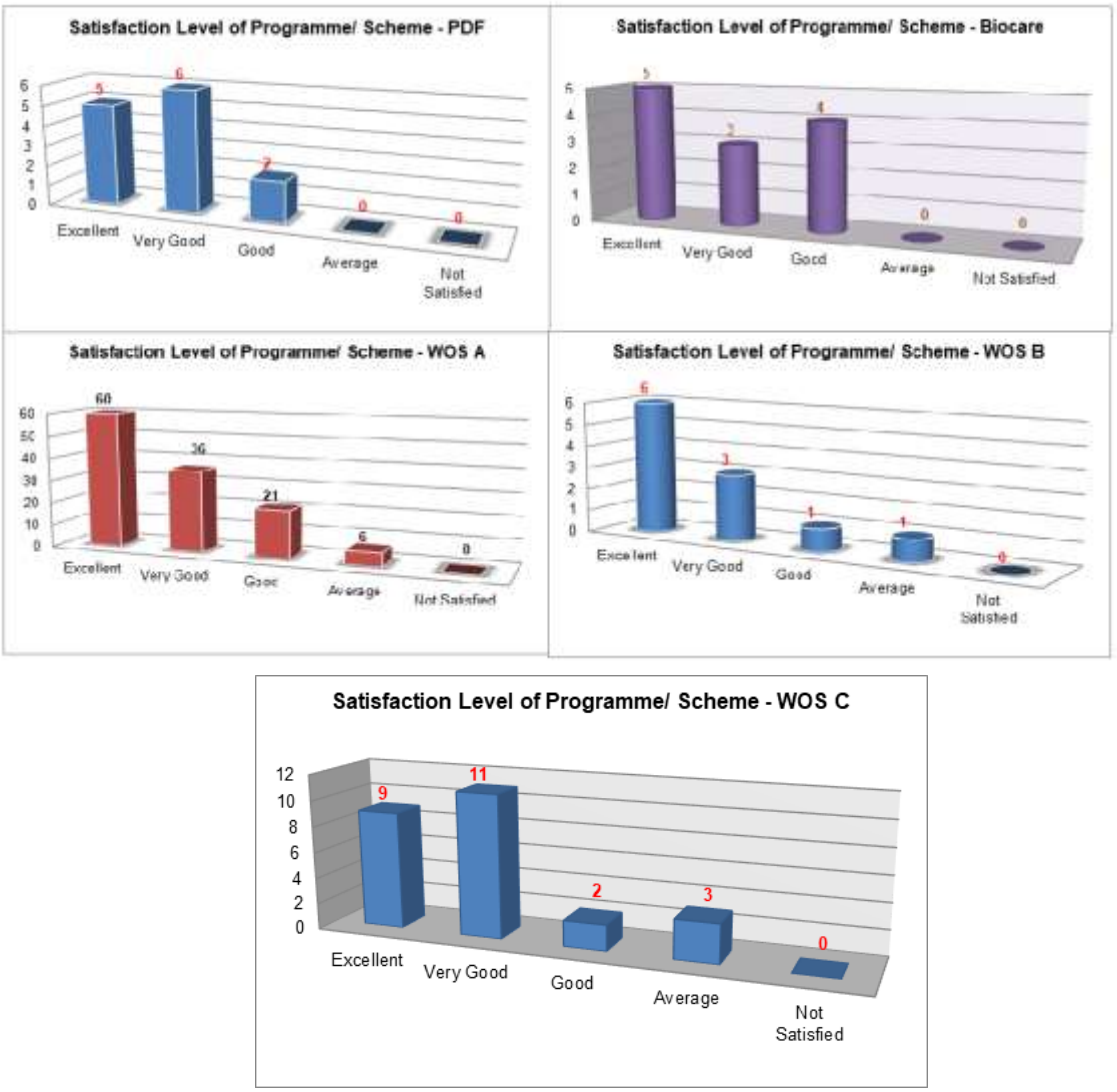


Figure 4.17 Satisfaction Level of Programme/Scheme

Problems related to receiving Grants :

Figure 4.18 shows the schematic representation of Problems related to Grants. It shows that percentage have no problems about 53.84% in UGC PDF, 41.66% in Biocare, 47.15% in WoS-A and 45.45% in WoS-B.

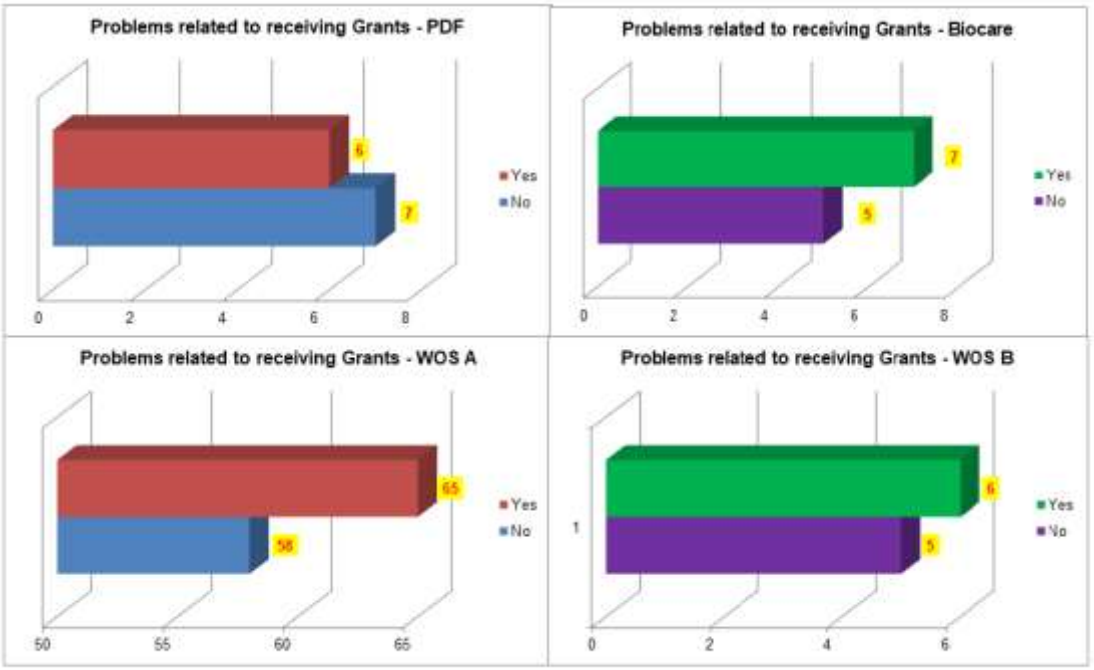


Figure 4.18 Problems related to Grants

Problems faced in Spending Grants:

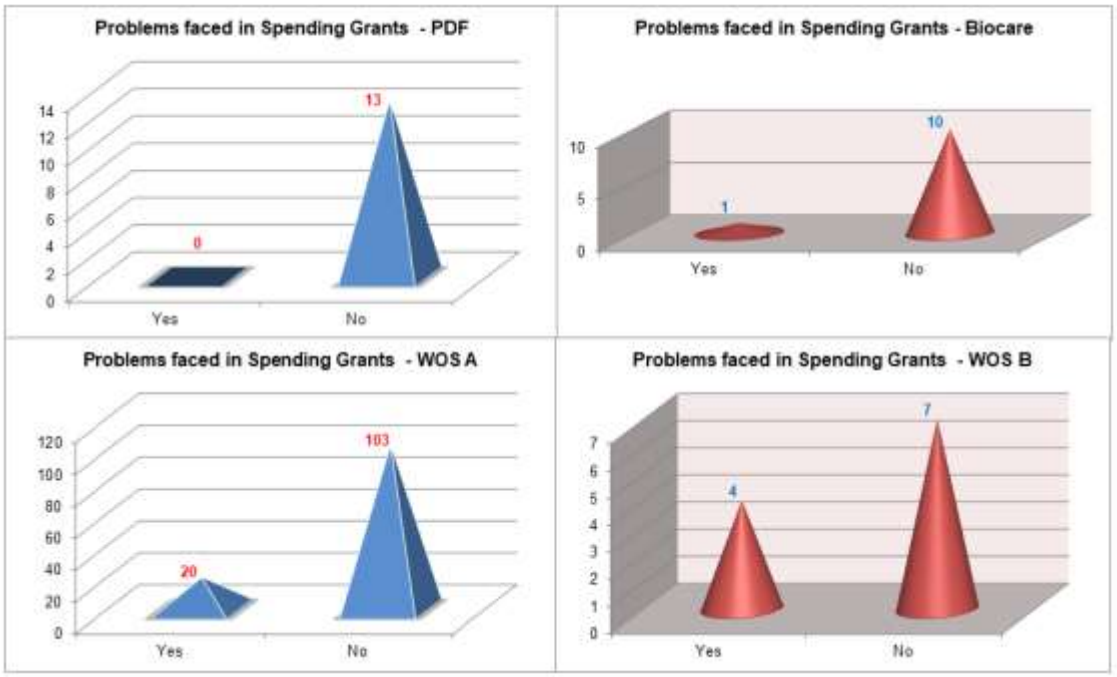


Figure 4.19 Problems related to spending Grants

Figure 4.19 shows that the problems faced in spending the grants. The percentage value of problems faced in spending the grants about 0% in UGC PDF, 10% in Biocare, 16.26% in WoS-A and 36.36% in WoS-C. It shows that minimum percentage value of problems faced in spending the grants.

Field of Specialization

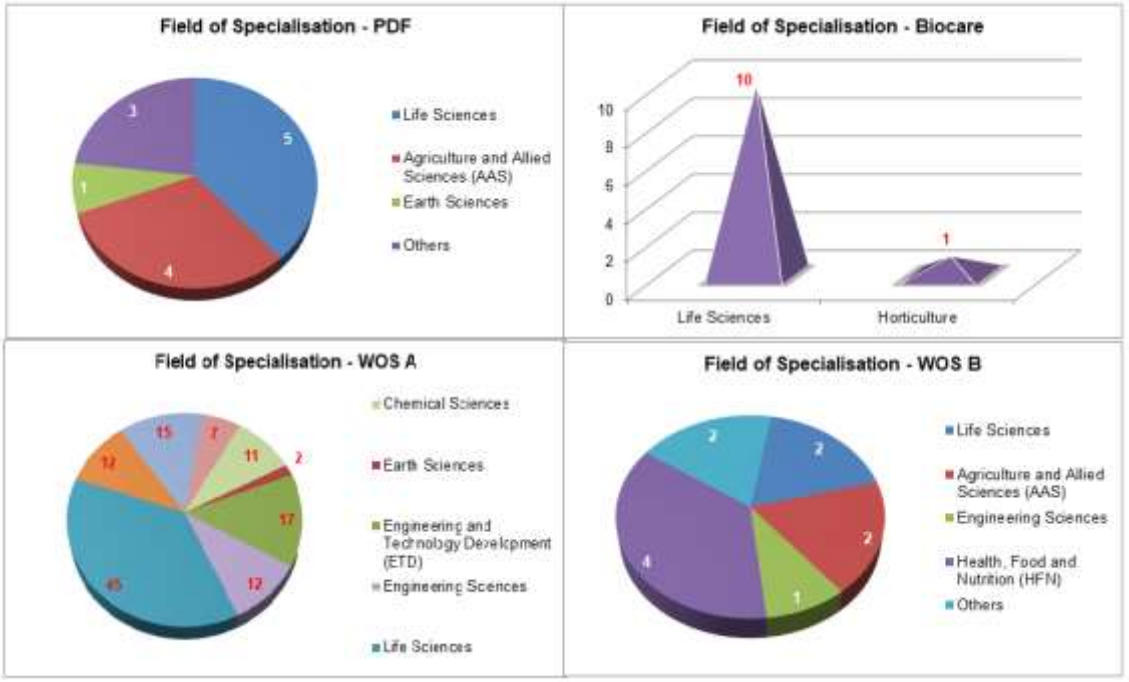


Figure 4.20 Field of Specialization

Figure 4.20 shows the specialization of women scientist for various schemes. It shows that mostly scientist belongs to Life science domain in all schemes.

5. RESULT, FINDINGS AND DISCUSSION

Women play vital role in workforce. Since earlier days women were playing dual role in managing profession, family and household work. However this has been inherently carried by women since ages and leading them to the crossroads despite the fact that they were able to manage even under pressure. Maximum of the well-qualified women scientists have left the S&T activities due to various reasons, where break in career is the significant fact with competing demands of time, effort and responsibilities. This way commitment to their career is likewise declining by seizing the opportunity of their career development. Thus this explains the gender gap at top-level management. Even if they want to revive their positions, it is not that easy due to restriction in age, qualification and experience criterion in the current system.

The vision report of women in science created by National Academy Sciences says that women are underrepresented all around the world in science and technology and features the requirement for schemes to promote the participation and contribution of women in science.

Department of Science and Technology (DST) launched "Women Scientists Scheme (WOS)" during 2002-03. The primary goal behind this initiative is to provide opportunities to women scientists and technologists between the age group of 27-57 who had break in their career and want to revive their profession. Through this undertaking of the Department, endeavors have been made to provide women constant support in scientific profession and help them rejoin in the mainstream along with additional benefits and facilities into the field of science and technology. However, those who are availing any temporary positions in research or academics may apply in the scheme but they have to leave their earlier assignment if WOS project approved.

To interact with women scientists apart from gathering details Department of Science and Technology in collaboration with Sri Krishna College of Engineering and Technology, Coimbatore have Contacted them personally over phone, travelled to the Universities where a handful of scientist are available, conducted symposium for identifying the problems behind carrying the projects, gathering their feedback and suggestions for the further improvement of beneficiary policies and promotion of women scientists in the state as well as in the nation.

5.1 General Discussions and Recommendations based SWOT:

- ➢ All the women scientists expressed gratitude towards being funded and helping them in completion of their PhDs and Post Docs.
- ➢ They are very happy to know about this assessment project and the initiative from DST of assessing the schemes and helping them.
- ➢ Women scientist schemes have helped many people in fulfilling their dreams and to achieve a good position.
- ➢ Many women felt that they are being denied from having opportunity to attend conferences, receive travel alliances etc that would give them visibility. Conscious or unconscious gender blindness is a problem which is rarely realized. Special efforts need to be made to guarantee that capable and competent women scientists must be encouraged to take part in conferences, must be given visibility and appoint them in decision making committees.

- ➢ Opportunities must be given to science teachers from universities/colleges in doing short term research projects by facilitating special leave with pay if they are planning for PhD.

- ➢ A website must be designed having women scientists' directory with their professional profiles attached. This helps in identifying the speakers for conferences, arrangement of advisory groups, meetings etc.

- ➢ Transparency should be maintained while process of selection. Reasons for rejection should be recorded. Performance evaluation should be done on considering experience in profession rather than biological age.

- ➢ Career oriented sensitization and awareness must be created by conducting workshops, seminars and meetings in every region of the state and country, specially concentrating on schemes, scholarships, fellowships, funds etc provided in field of science and research.

- ➢ Conscious decision has to be taken in nominating more and more women by the scientific community in for fellowships, various positions in research organizations, institutions etc.

- ➢ S&T interventions and special drive on entrepreneurship are necessary to be conducted along with the government programs of health, education, nutrition, employment etc to promote livelihood, security of women.

- ➢ Flexible timings keeping in mind the dual role of women scientists while their contribution in the project would surely result in participation of maximum number of women in science, research and technology.

- ➢ Recruit gender-conscious peer review committees and speaker selection committees which help in increasing the promotion of female participation

- Few women scientists deliberated about the challenges in receiving grants on time. Some faced troubles within the institute; some had problems with the amount released. Most complaints were from few women scientists who didn't receive grants in their final year of the projects and expressed how they managed to complete the project. This seems to be demotivating the women scientist which needs attention.

- Most of the WoS-C scientists have expressed that they were having a hope of comeback in carrier after the break and taking up of the WoS-C Scheme. Most of them are employed as consultants which is giving a confidence that they are still able to contribute to family and society.

- One WoS–B scientist was from a family set up which has denied the women being educated. But this scheme has helped her to fetch a Ph.D degree and a government job. She became the role model and five more women scientist have been produced from the same village.

6. SUGGESTIONS AND STRATEGIES

Suggestions and problems Report from a women scientist personal interview:

1. Since the current day research is based on interdisciplinary approach, it is becoming very common for a woman scientist to go to other departments in the University to perform few experiments. To do this, a University requires a specific protocol to follow which is taking more than expected time and resulting in delaying of project. Also, some departments might not allow outer departments to work at their departments. To skip this process of getting approvals from hierarchies, A "DST Cell" inside a university should be established. This can be helpful in many ways:

   - A DST cell inside university can actually manage release of funds in better way.
   - A DST cell can track the activities of the scientists every now and then
   - A thorough simple protocol can be developed to use other department resources or going for outsourcing can be sent through DST Cell. This will help many women scientists not limiting themselves due to lack of equipment or resources.
   - A DST cell can help in outsourcing required works and will monitor about the equipments available in laboratories. The cell will also know whether any equipment needs to be repaired and shall suggest other sources.
   - A DST cell can also help as a guide towards patenting and publishing their works.
   - Feasible to apply for projects from the University itself. This will encourage more women advertising about this opportunity.

2. An orientation program in any of the central funded institutes like CSIRs for few months after starting the project can be very helpful to women scientists who are

resuming their works after a gap. This can help in both training and as well as provides enough exposure to advanced research and technology.

3. It should be necessary to give a paper writing workshop to women scientists who are sanctioned since most of them are struggling to publish in quality or reputed journals.

4. Few women scientists are being demanded to teach subjects to students at University. That is very good opportunity to develop teaching skills and will also encourage young students into research. But, women scientists without prior professorship qualifications weren't eligible to get professorship. For example, a Masters Degree holder in biotechnology department who did her women scientist project in Marine living resources department who taught two papers in that department in three years was not given eligibility for professorship after completion of project. She was asked to apply in Biotechnology department since she is graduated from Biotech department. A woman expressed her grief of leaving research in that field because she was not given professorship.

5. A woman scientist should have the access to visit CSIR institutes and take guidance from required scientists to work. This will help to make collaborative research and encourage to not limiting themselves for any constraint.

6. If any equipment is not available or any experiment which cannot be performed in University should be given to CSIR laboratories through DST cell and the woman scientist should go to learn the outline of that project.

After woman scientist project:

After completion of her project, her guide asked her to apply for another project, but couldn't do so because her father is not well and it was a serious situation and had to take care about him. Later, she applied for professorship and prepared for the exam, but the University didn't accept her because her degree is in Biotechnology department. Since, it was more than 10 years that her degree got completed, she couldn't prepare completely for that exam. So, she left research at University and taught in schools, junior colleges and attended several workshops of teaching. Then her son was studying 10^{th} and so wanted to guide him. She expressed about her interest to come back into research again after a year. Overall, she is very happy about the project and how it helped her in fulfilling her dream. But, it would've been more encouraging if given professorship

7.RESEARCH SUMMARY

Contribution of women in any field has been as commendable as men yet some way or other their contributions seem to be very little to be discussed or have been failed to remember with time. Gender equality is the most debated topic even in the 21st century which is true even in science and research. Most of the women scientists' contribution has faded and no one are unaware of their contributions in S&T. India is forward in making as much as efforts in discovering the unrecognized women scientists and those women who are conscious to give their strength and abilities in research by introducing various schemes, funds, awards etc for their development and promotion. A project was launched by DST, GOI to assess gender mainstreaming programs for women in science.

This study goes past the subject of presence and access of women in science and details on perceptions of women scientists regarding their career, education and research along with their perspectives on science and its value. Through keen observation from conducting interviews and respondent's participation, a collective report of the women scientists has been developed. The study was able to analyze the issues and concerns in the workplace environment as well as the institutional effect and causes. The analysis is focused at state level using simple descriptive statistics from the data gathered along with their distributions are presented. The following are the main aspects from analysis:

· Career orientation, priorities

· Research interests and projects undertaken

· Dual role in profession and family life

· Gender gap at workplace and research

· Perception of science and its value

· Achievements and awards

· Professional development

· Break in career and reasons behind

Apart from several issues occurred during the collection of data the study was successful and up to the mark in developing a report regarding the women scientists' access into science in the state done.

The study has made a significant contribution in listing the women scientists taking part in science and research in the state with an emphasis on issues in the scientific research. Two methodologies were undertaken for the data collection a) quantitative and qualitative variables b) Perception and attitude towards science and research. During the collection of data the challenges were discussed in regular meetings conducted to carry the study with ease. Since the goal of this study is to bring maximum of the women scientists into the light contributing in the state. As expected, nearly 56% of WOS in Tamilnadu are successful in both scientific research and their family responsibilities to strengthening the society in Tamilnadu. Overall the study successfully portrays those Indian women as scientists and Indian scientists as women.

REFERENCES

Cooper, C. J., Cooper, S. P., Del Junco, D. J., Shipp, E. M., Whitworth, R., & Cooper, S. R. (2006). Web-based data collection: detailed methods of a questionnaire and data gathering tool. Epidemiologic Perspectives & Innovations, 3(1), 1.

Ghara, T. K. (2016). Status of Indian Women in Higher Education. Journal of Education and Practice, 7(34), 58-64.

Gokila. (2015). Education – A Pathway of Women's Empowerment in Tamilnadu. Indian Journal of Applied Research. 5(12).

Gupta, S., Pingali, P., & Pinstrup-Andersen, P. (2019). Women's empowerment and nutrition status: The case of iron deficiency in India. Food Policy, 88, 101763.

https://censusindia.gov.in/2011census/population_enumeration.html

https://labour.gov.in/

http://labourbureaunew.gov.in/

https://schooledn.py.gov.in/ssarmsa/pdf/EDUCATIONAL_INDICATORS_OF_SS.pdf

http://rchiips.org/nfhs/

https://udiseplus.gov.in//

https://www.ias.ac.in/public/Resources/Initiatives/Women_in_Science/Recommendations_NASI.pdf

https://www.interaction.org/blog/gender-audit-handbook/

https://www.mhrd.gov.in/en/statistics-new?shs_term_node_tid_depth=378

https://www.mhrd.gov.in/en/statistics-new?shs_term_node_tid_depth=384

https://www.py.gov.in/

https://www.tn.gov.in/

http://thassim.in/wp-content/uploads/2015/01/scholarship-in-college-web-site.pdf

https://www.tn.gov.in/deptst

https://tnvelaivaaippu.gov.in/scholarships.html

https://www.scholarships.net.in/category/puducherry

https://schooledn.py.gov.in/Welfare/Students.html

https://services.india.gov.in/service/detail/puducherry-social-welfare-online-application-for-fresh-scholarship-for-the-physically-handicapped-students

http://www.spc.tn.gov.in/

https://statistics.py.gov.in/statistical-hand-book

https://stemlearning.in/south/tamil-nadu/

Kalaiselvi S , Yousuf Arjumand , Jayalakshmy R , Ramaswamy Gomathi , Thekkur Pruthua , Palanivel, C(2016), Prevalence of under-nutrition, associated factors and perceive nutritional status among elderly in a rural area of Puducherry, South India, Archives of Gerontology and Geriatrics, 65, 156-160.

Rahman, K. M., Ali, K. M., Vijayalakshmi, S., Ramkumar, S., & Hashmi, G. (2019). Prevalence of Iron Deficiency Anaemia and its Associated Factors among Reproductive Age Women in a Rural Area of Karaikal, Puducherry, India. Journal of Clinical & Diagnostic Research, 13(3).

Raja Shareef, A., Prasad, P. V. S., & Kaviarasan, P. K. (2018). Prevalence and pattern of PCOS in women presenting with acne, a hospital based prospective observational study. International Journal of Research in Medical Sciences, 6(3), 899-903

Ramaraj S. A Statistical Modeling on Women Empowerment of Self Help Groups, 2015.

Ravindran, T. S., & Kelkar-Khambete, A. (2008). Gender mainstreaming in health: looking back, looking forward. Global Public Health, 3(S1), 121-142.

Senthilkumar, C. B., Dharmaraj, A., Indhumathi, B. C., Selvam, C. V., & Kandeepan, E. (2019). A Study On Women Empowerment Through Self-Help Groups With Special Reference To Villupuram District In Tamil Nadu. Journal of Critical Reviews, 7(6), 2020.

Appendix 1 Questionnaire Survey (common for WoS- A, B , Biocare , UGC-PDF)

Assessment of Governmentof India's Gender Mainstreaming Programms for Women in Science

(Department of Science and Technology, Government of India Sponsored Research Project)

QUESTIONNAIRE SURVEY- (common for WoS- A, B , Biocare , UGC-PDF)

PERSONAL INFORMATION:

Last Name:	Name:	Middle Name:
Date of Birth:	DD/MM/YYYY:	
Residential Address:		
Email ID:		
Marital Status: (Tick Mark)	Married:	Unmarried:
	Other (Specify):	
Category: (Tick Mark)	General:	SC:
	ST:	OBC:
	Physically Handicapped:	Any Other, specify):

Education Qualification (At Present)	

INFORMATION ON CURRENTLY AFFILIATED INSTITUTION:

Name and Address of the Institute: (Currently Affiliated)			
	City:	Pin Code:	State:
Current Position:			
Accreditation Status of the Affiliated Institution:	Select from the List Given in an Annexure 1and write appropriate Code No) in space below:	YES/ NO	Not Applicable
		Number	
Source of Information to access the Project and the Institution: (Multiple Ticks are permitted)	Friends/ Relatives:	University Web site:	
	Scientific Journal:	Awareness Programme:	
	News Paper:	DST Web site:	
	Any Other Sources:		

PRE-PROJECT CONDITION OF WOMEN SCIENTIST:

Break in Career: (Tick Mark)	Yes:	No:	Duration of Break:

Reasons for the Break:			
Any Eligibility Test Cleared: (Tick Mark)	ICMR	ICAR	SLET
	CSRI NET	UGC NET	Any Other (Specify):
Family Support received for Research/ Professional Activities: (Tick Mark)	Motivational:	Moderate:	Not Satisfied:
	Neutral:	Any Other (Specify):	

PROJECTS RELATED INFORMATION: (Write the details of all projects you have availed)

Number of Projects availed from the Government of India's Gender Mainstreaming Programme: (Tick Mark on Number):	1	2	3	4	5

Project Availed: (Chronological Order)	Scheme: (Select the Scheme from the List given in Annexure 2 and write appropriate Code No)	Field of Specialisation: (Select from the List given in Annexure3 and write appropriate Code No):
1		
2		
3		
4		
5		

PROJECT-WISE INFORMATION:

BASIC INFORMATION - PROJECT 1:

Project ID:			
Date of Sanction of the Project:			
Duration of the Projects as per Sanctioned Order (In Years):			
Date of Completion:			
Status of the Project (As on Date):	Completed: YES / NO	On-Going: YES / NO	
Requested for the Extension: YES / NO	Extension Granted: YES / NO	Duration of the Extension (in Months):	
Reasons for Extension Request: (Explain)	1 2 3		

INSTITUTIONAL INFORMATION (**PROJECT 1**):

Name and Address of the Institute: (Affiliated during Project 1)			
	City:	Pin Code:	State:
Accreditation Status of the Affiliated Institution:	Select from the list given in an Annexure 1and write appropriate Code No in space below):		YES/ NO/ Not Applicable

MENTOR'S INFORMATION:

Mentor's Name:	
Mentor's Designation at Host Institution:	

SUPPORT RECEIVED FROM:

Mentor's Support:	Extremely Satisfied	Very Satisfied	Moderately Satisfied
	Slightly Satisfied	Not Satisfied	
Institutional Support:	Extremely Satisfied	Very Satisfied	Moderately Satisfied
	Slightly Satisfied	Not Satisfied	

STATUS OF THE PROJECT 1 RELETED:

Whether the Project was transferred to another Institution?	YES	NO
Any Reason for the Transfer? (Specify)		

Name and Address of the Institution where the Project Transferred and Completed:			
In case of a change in the Mentor, (New) Mentor's Name:			
(New) Mentor's Designation at this Institution:			
Mentor's Support: (Tick Mark)	Extremely Satisfied	Very Satisfied	Moderately Satisfied
	Slightly Satisfied	Not Satisfied	
Institutional Support: (Tick Mark)	Extremely Satisfied	Very Satisfied	Moderately Satisfied
	Slightly Satisfied	Not Satisfied	

PROFESSIONAL DEVELOPMENT RELATED:

Educational Qualification (at the time of grant of the Project):	
Educational Qualification (at the completion of the project):	
Awards and Honours Received (During the Project Period): (Write the Details)	1 2 3

<table>
<tr><td colspan="2">Number of the Publications from the Project Awarded:</td><td colspan="5"></td></tr>
<tr><td>Citation Index:</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H Index:</td><td colspan="5"></td></tr>
<tr><td colspan="6">Numbers of Seminars/ Conferences: (Write the Nos)</td></tr>
<tr><td colspan="2">National Level:</td><td colspan="2">Attended:</td><td colspan="2">Papers Presented:</td></tr>
<tr><td colspan="2">International Level:</td><td colspan="2">Attended:</td><td colspan="2">Papers Presented:</td></tr>
<tr><td colspan="6">Numbers of Workshops: (Write the Nos)</td></tr>
<tr><td colspan="2">National Level:</td><td colspan="2">Attended:</td><td colspan="2">Papers Presented:</td></tr>
<tr><td colspan="2">International Level:</td><td colspan="2">Attended:</td><td colspan="2">Papers Presented:</td></tr>
<tr><td colspan="2" rowspan="4">Involvement/ Organising Extension Activities: (Tick Mark)</td><td colspan="2">Organising Awareness Programmes</td><td colspan="2">Organising Skill Development Programme</td></tr>
<tr><td colspan="2">Organising Workshop</td><td colspan="2">Delivered Talks</td></tr>
<tr><td colspan="2">Organising Public Lectures</td><td colspan="2">Delivered Public Talks</td></tr>
<tr><td colspan="4">Any Other (Specify):</td></tr>
<tr><td rowspan="3">Special Contributions/ Achievements: (Give Details)</td><td colspan="5">Achievements:</td></tr>
<tr><td colspan="5">Innovations:</td></tr>
<tr><td colspan="5">Patent:</td></tr>
</table>

Societal Technology Benefits: (Give Details)	
Technology Dissemination: (Give Details)	
Transfer of Technology: (Give Details)	

SKILL DEVELOPMENT:

Any Skill Developed:	YES	NO
Particular Skill Developed: (Write in specific, if relevant)	1 2 3	

EMPLOYMENT STATUS PROJECT 1:

	Year	Details/ Position	Nature of Job
Before an Award of the Project:			

After the Completion of the Project:					
Current Job:					
Satisfaction Level with current job: (Tick Mark)	Excellent	Very Good	Good	Average	Not Satisfied
Reason for your choice of the Level:	1 2 3				

PROGRAMME LEVEL FEEDBACK: (Tick Mark)

Your Rating on the Programme/ Scheme:	Excellent	Very Good	Good	Average	Not Satisfied
Satisfaction Level of Programme/ Scheme:	Excellent	Very Good	Good	Average	Not Satisfied
Problems related to receiving Grants:	YES / NO	Specify:			
Problems faced in Spending grants:	YES / NO	Specify:			

COMMON QUESTION:

WHAT MOTIVATED YOU TO UNDERTAKE PROGRAMME/ PROJECT:

YOUR REMARKS/ OVERALL EXPERIENCE:

Appendix 2: Questionnaires Surevey WoS-C

ASSESSMENT OF GOVERNMENT OF INDIA'S GENDER MAINSTREAMING PROGRAMMES FOR WOMEN IN SCIENCE

(Department of Science and Technology, Government of India Sponsored Research Project)

WOS-C Questionnaires

<table>
<tr><td colspan="8">PERSONAL INFORMATION OF THE BENEFICIARY</td></tr>
<tr><td>*Title: .</td><td>*Last Name:</td><td colspan="3">*Name:</td><td colspan="3">Middle Name:</td></tr>
<tr><td colspan="2">*Age:(Tick Mark)</td><td>Below 30</td><td>31-35</td><td>36-40</td><td>41-45</td><td>46-50</td><td>51-55</td><td>Above 55</td></tr>
<tr><td colspan="2" rowspan="2">*Residential Address:</td><td colspan="6"></td></tr>
<tr><td colspan="2">*Pin Code</td><td colspan="2">*City</td><td colspan="2">*State</td></tr>
<tr><td colspan="2">*Email ID:</td><td colspan="6"></td></tr>
<tr><td colspan="2" rowspan="2">*Marital Status: (Tick Mark)</td><td colspan="3">Married:</td><td colspan="3">Unmarried:</td></tr>
<tr><td colspan="6">Other (Specify):</td></tr>
<tr><td colspan="2">*Category: (Tick Mark)</td><td colspan="3">General:</td><td colspan="3">SC:</td></tr>
<tr><td colspan="2"></td><td colspan="3">ST:</td><td colspan="3">OBC:</td></tr>
<tr><td colspan="2"></td><td colspan="3">Physically Handicapped:</td><td colspan="3">Any Other, specify:</td></tr>
</table>

*Break in Career: Y/N	If Yes How many months?
*Education Qualification (At Present)	
*Specialization Domain	

DETAILS OF THE BENEFICIARY/RECIPIENT AT THE TIME OF JOINING TRAINING PROGRAMME.	
*Domicile State	
*WOS-C Batch	
*WOS-C Enrollment No.	
*Education Qualification	
Specialization Domain	
*Year of Education Qualification	

INTERNSHIP DETAILS	
*Name of the Institute/University/IPR Law Firm: (During the time of training)	

*Address of the Institute/University/ IPR Law Firm: (During the Time of Training)						
	*Pin Code		*City -		*State –	
*Name of the Mentor/Supervisor:	*Title:		*Name:			
*Mentor's Designation:						
*Type of Institute: (Tick Mark)	University	R & D Institutes	IP Law Firm	Company	Gov. Agency	Others
*Area of Internship Specialization: (Tick Mark)	Patent Search	Patent Drafting	Patent Filing	IPR Prosecution	All	Others
*Brief Description of Internship:						
*Skill Developed during the internship:						
*Problem faced during the Internship: Y/N	If Yes *Problem Description:					

Achievements:			
*Before training Employment Status:	Employed	Not Employed	
*In how much time (after training) you got Employed):	Within 1 year	1-2 years	More than 2 years
*Have you cleared patent agent examination: Y/N	No		
If yes, *year of passing:			

CURRENT EMPLOYMENT DETAILS						
*Type of employment	Self Employed		Employed in Institution/ Firm/ Company/Organization		Not Employed	
*Address of the Institute/ IPR law firm						
	*Pin Code		*City		*State	
*Type of Institute: (Tick Mark)	University	R & D Institutes	IP Law Firm	Company	Gov. Agency	Others

*Current Designation:	
*Designation before training:	
*Year of Joining	
Nature of Roles & Responsibility in the organization:	
*Are you satisfied with the current employment/ work profile: Y/N	

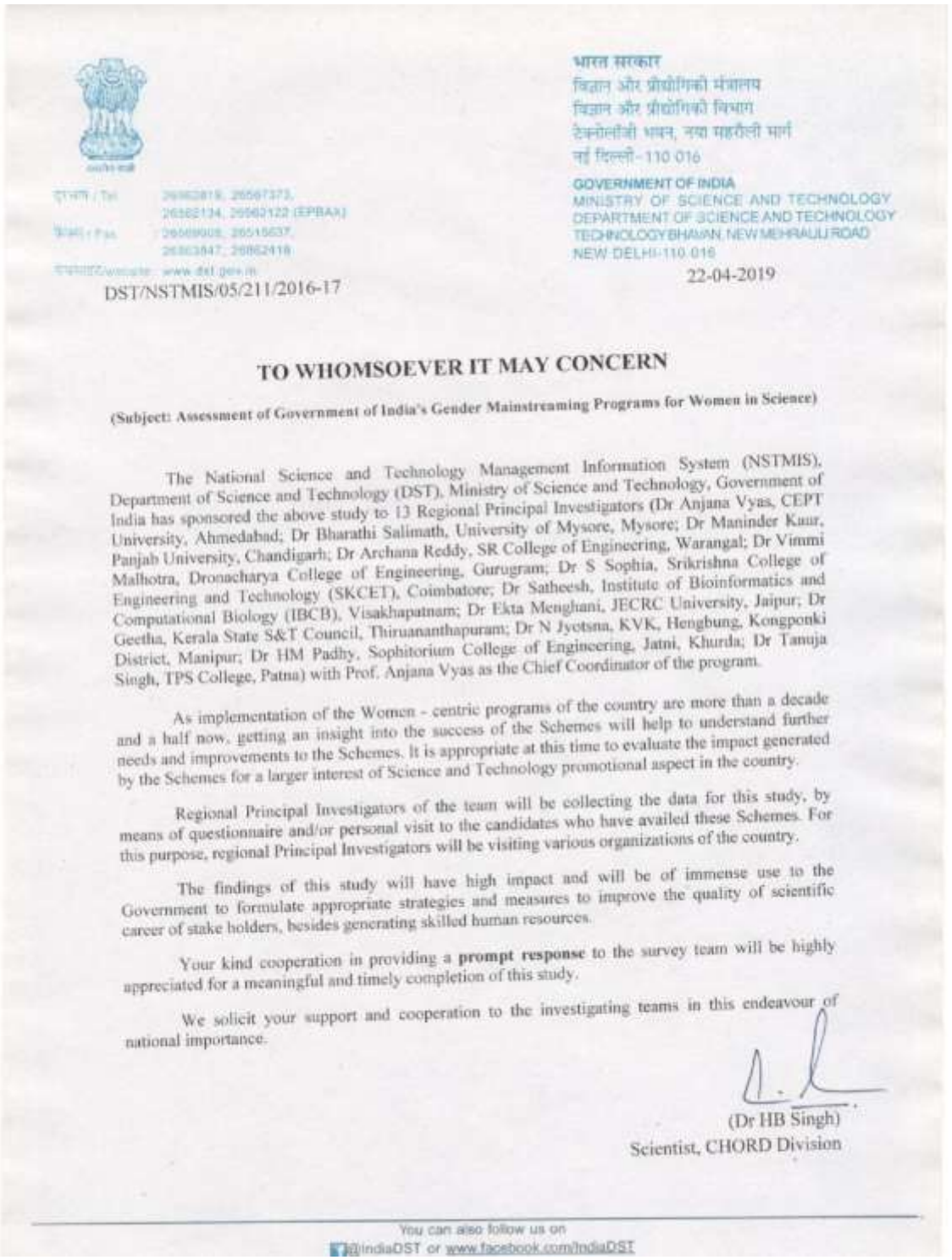
EDUCATION DEVELOPMENT & ACHIEVEMENTS	
Have you achieved any additional/Higher Qualification/Professional Certificates after Training? Y/N	
Award and Honours Received (After the Internship Period)	

Special Contribution: (Achievements/Innovations/Patent)	

FEEDBACK ABOUT WOS-C SCHEME					
*To what extent training was helpful and getting job in IPR Sector?	Very Helpful		Helpful		Not Helpful
*Whether Training and Internship duration was optimum in gaining basic knowledge about IPR Sector? Y/N					
*Did you receive Internship Stipend on time? Y/N					
Your Rating on the Programme/ Scheme	Excellent	Very Good	Good	Average	Not Satisfied
*Satisfaction Level of the Programme/ Scheme :	Excellent	Very Good	Good	Average	Not Satisfied
*Overall/ views suggestions on the Scheme (WOS-C)					

Appendix 3

AUTHORIZATION LETTER



भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया महरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAWAN, NEW MEHRAULI ROAD
NEW DELHI-110 016

दूरभाष / Tel: 26562819, 26567373, 26562134, 26562122 (EPBAX)
टेलेफैक्स / Fax: 26569908, 26515637, 26563847, 26862418
इंटरनेट/website: www.dst.gov.in

DST/NSTMIS/05/211/2016-17

22-04-2019

TO WHOMSOEVER IT MAY CONCERN

(Subject: Assessment of Government of India's Gender Mainstreaming Programs for Women in Science)

The National Science and Technology Management Information System (NSTMIS), Department of Science and Technology (DST), Ministry of Science and Technology, Government of India has sponsored the above study to 13 Regional Principal Investigators (Dr Anjana Vyas, CEPT University, Ahmedabad; Dr Bharathi Salimath, University of Mysore, Mysore; Dr Maninder Kaur, Panjab University, Chandigarh; Dr Archana Reddy, SR College of Engineering, Warangal; Dr Vimmi Malhotra, Dronacharya College of Engineering, Gurugram; Dr S Sophia, Srikrishna College of Engineering and Technology (SKCET), Coimbatore; Dr Satheesh, Institute of Bioinformatics and Computational Biology (IBCB), Visakhapatnam; Dr Ekta Menghani, JECRC University, Jaipur; Dr Geetha, Kerala State S&T Council, Thiruananthapuram; Dr N Jyotsna, KVK, Hengbung, Kongponki District, Manipur; Dr HM Padhy, Sophitorium College of Engineering, Jatni, Khurda; Dr Tanuja Singh, TPS College, Patna) with Prof. Anjana Vyas as the Chief Coordinator of the program.

As implementation of the Women - centric programs of the country are more than a decade and a half now, getting an insight into the success of the Schemes will help to understand further needs and improvements to the Schemes. It is appropriate at this time to evaluate the impact generated by the Schemes for a larger interest of Science and Technology promotional aspect in the country.

Regional Principal Investigators of the team will be collecting the data for this study, by means of questionnaire and/or personal visit to the candidates who have availed these Schemes. For this purpose, regional Principal Investigators will be visiting various organizations of the country.

The findings of this study will have high impact and will be of immense use to the Government to formulate appropriate strategies and measures to improve the quality of scientific career of stake holders, besides generating skilled human resources.

Your kind cooperation in providing a **prompt response** to the survey team will be highly appreciated for a meaningful and timely completion of this study.

We solicit your support and cooperation to the investigating teams in this endeavour of national importance.

(Dr HB Singh)
Scientist, CHORD Division

You can also follow us on
@IndiaDST or www.facebook.com/IndiaDST

Appendix 4

ASSESSMENT OF GOVERNMENT OF INDIA'S GENDER MAINSTREAMING PROGRAMS FOR WOMEN IN SCIENCE (Department of Science and Technology, Government of India Sponsored Research Project)

Dear Woman Scientist,

Having administered large number of funding schemes and programs time-to-time, it is impossible for the Government of India to measure and trace the impact merely based on the data submitted by the individual Women Scientists or respective organizations at the end of the completion of the project and consecutive funding support. Since, the nature of support is targeted toward overall professional development; the resulting impact can only be determined by tracking individual's progress over period of time. Therefore, in order to evaluate impact of these schemes and programmes of the Government of India is conducting a survey and adjudge the core aim of the government is accomplished.

You are requested to participate in this questionnaire survey and fill the Form. The Survey Forms are prepared hard copy as well as on-line. You may spare your time and provide correct information. Please fill the form and give complete information.

We assure you that the information provided by you will be kept with DST, Government of India and will remain confidential.

Anticipating your kind co-operation.

Thanking you,

PROJECT TEAM

ASSESSMENT OF GOVERNMENT OF INDIA'S GENDER MAINSTREAMING PROGRAMMS FOR WOMEN IN SCIENCE (Department of Science and Technology, Government of India Sponsored Research Project)

INSTRUCTIONS to Fill the Form (on-Line/ hard Copy):

1. Before starting to fill the form, you may have a through look to the entire questionnaire.
2. You may keep all the details/documents of the projects you have undertaken, or is currently on-going.
3. Please select the suitable check-box for answering the questions.
4. Certain questions are descriptive. You may answer in the space provided. Please share your own views.
5. You are requested to add extra rows if required.
6. Please do not submit the incomplete form. You may go through the filled form once again before submitting.
7. The correct information and your positive support will bring accurate meaning to the project objectives.
8. On submission of complete information and correct information, the DST will give you a Certificate of 'Women Scientist Volunteer'.

Hoping to have your positive support.

Thanking you in anticipation.

PROJECT TEAM

ANNEXURE -1:

ACCREDITATION INSTITUTES

Institute's Code	Accreditation Institute's
001AICTE	All India Council for Technical Education
002AIMA	All India Management Association
003AIU	Association of India Universities
004AKADOEACC	Department of Electronics and accreditation of Computer Courses
005BCI	Bar Council of India
006DCI	Dental Council of India
007DEC	Distance Education Council
008FTII	National and Television Institute of India
009ICAI	Institute of Chartered Accountants of India
010ICSI	Institute of company Secretaries of India
011INC	Indian Nursing Council
012MCI	Medical Council of India
013NAAC	National Assessment and Accreditation Council
014NBA	National Board of Accreditation
015NCHRH	National Council for Human Resource in Health
016NCTE	National Council for Teacher Education
017NIELIT	National Institute of Electronics & Information Technology
018NIRF	National Institutional Ranking Framework
019PCI	Pharmacy Council of India
020UGC	University Grants Commission
021VCI	Veterinary Council of India

ANNEXURE -2:

ON SCHEMES

Code	Schemes
001BC	Bio-Care
002CU	CURIE
003MO	Mobility
00STW	S&T Women
005UGCPDF	UGC Post-Doctoral Fellow
006WSTEM	Women In STEM
007WOSA	WOS (A)
008WOSB	WOS (B)
009WOSC	WOS (C)
010WTP	WTP

ANNEXURE -3:

FIELD OF SPECIALIZATION

Code	Field of Specialization
001AAS	Agriculture and Allied Sciences (AAS)
002AS	Atmospheric Sciences
003CS	Chemical Sciences
004ES	Earth Sciences
005ETD	Engineering and Technology Development (ETD)
006ES	Engineering Sciences
007HFN	Health, Food and Nutrition (HFN)
008LS	Life Sciences
009MS	Mathematical Sciences
010PS	Physical Sciences
011OT	Other