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

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[North Eastern Region-
Assam, Meghalaya, Mizoram, Tripura, Manipur, Nagaland, Arunachal Pradesh, Sikkim]

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Preface

The main objective of this project is to assess the impact of gender mainstreaming programmes/schemes of Government of India and to prepare a framework for effective decision making. It is a collection, compilation and analysis from the sources of various women scientists of north eastern India region in order to study the impact of gender mainstreaming project of DST, DBT, UGC, etc. In the present study, it was attempted to study the Women Scientists' professional and social impact after undertaking the project WOS of north eastern India from the period of 2003-2018 with the corporation of National Principle investigator. Each and every suggestion and / or criticism for this effort is welcome and give us an opportunity to remove the short-comings.

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Executive Summary

The present study/work was carried out during 2019-20 to assessment of Government of India's gender mainstreaming programme women in science. National Programme Project Investigator has provided 146 lists of WOS for different schemes from entire north eastern region of India and 86 WOS of different schemes have responded accounting for 59.58 per cent which is very low as compared to national level. 71 WOS from different schemes were married in status. General category has the highest response in respect of various schemes with 45 in numbers. Among WOS from different institution/ organisation, Manipur University have highest numbers of WOS followed by KVK. PhD is the highest level of educational qualification held by maximum number of WOS from the north eastern region. 79 women scientists availed one time project on different schemes and had break career by 66 women scientists of different schemes. Maximum of more than 5 years break in career of WOS was found in 9 WOS. Most of the scientists carried out the programme in general science. Till date 55 WOS from north east state have completed the project while 20 WOS of different schemes are currently continuing and 8 WOS discontinued the project. Currently, 28 WOS remained unemployed. Out of the total WOS about 48 per cent got employment in different organisation.11WOS of different schemes of north eastern region received the award/honour from different organisations. Different research papers were published by 58 WOS of north eastern region. It is also observed that about 74 per cent of the women Scientist of north east state received motivation family support and shown positive attitude towards science for women. Finally, 36 WOS faced problems during the grant of the funds and 13 WOS faced problems in spending the funds granted. The most common problems faced during the analysis of data was quantification of attributes of data permitting only poor statistical tools for analysis based on qualitative nature of data.

"Keywords: WOS; category; break in carrier; support; science; award; problems."

Table of Contents

List of figures

List of tables

1 INTRODUCTION

1.1 Overview

Women are an important section of the workforce in India but most of the women face several challenges in moving up the academic and administrative ladder due to systemic barriers and structural factors. Moreover, a large number of well-qualified women get left out of their dreams due to various circumstances which are usually typical to the gender. The challenges faced by the women are also very several. Well- qualified women are not perceived as being incapable of doing science and technology (S&T), their representation in these fields is small: the generic scientist is still perceived to be male. There are efforts to change this perception, but the change is slow, and there are few women scientists in positions of administrative power.

Universally, women are underrepresented in science and technology and it is difficult for the women to assess and evaluate the merit of existing process/procedures from the lens of gender. Gender equality in scientific laboratories and institutions of higher education is not only about numbers but also about various micro and macro level factors operating at institutional level. There exist various policies and enabling environment in different institutions in India but a common approach or guiding principles to bridge the gender gap is still lacking. This clearly demonstrates a need for multi stakeholder interventions. While gender equality in science is an important consideration, it is also in the larger interest of scientific progress and society.

Considering the need of gender advancement in STEM area at institutional level, the Department of Science and Technology through its various schemes specially targeting the women, has contributed to improve gender ratio and the improvement is evident today specially at the lower level in scientific establishments. However, the percentage in high profile institutions still remains low as does women's participation at leadership positions in science and technology. This may often be due to "break in career" arises out of motherhood and family responsibilities. To address such issues, Department of Science and Technology (DST) launched "Women Scientists Scheme (WOS)" during 2002-03. This initiative primarily aimed at providing opportunities to women scientists and technologists between the age group of 27-57 years who had a break in their career but desired to return to mainstream.

KIRAN (Knowledge Involvement in Research Advancement through Nurturing) embraces women-exclusive schemes of DST with the mandate to bring gender parity in S&T through gender mainstreaming. Different programs and components of KIRAN deal with various crucial issues (break in career primarily due to family responsibilities, self employment, part time career, relocation, etc.) faced by women scientists in their career path.

Women Scientist Scheme-A (WOS-A): WOS-A is aimed to provide opportunities to women scientists and technologists for pursuing research in basic or applied sciences in frontier areas of science and engineering.

Women Scientists Scheme-B (WOS-B): WOS-B is focused on S&T solutions of challenges/issues at the grassroots level for social benefit. Under this segment, women scientists are required to work in the domain of lab-to-land technology development, its adaptation; transfer and scaling up and are primarily location specific interventions.

Women Scientists Scheme-C (WOS-C): WOS-C aims to create opportunity of self employment and/or also sustainable career for the women scientists. The scheme provides one year internship in the domain of Intellectual Property Rights (IPRs) which includes theory as well as hands-on training in law firms. Three days of hands-on training on patent search using various tools were also imparted.

Indo-U.S. Fellowship for Women in STEM: The program provides opportunities to Indian Women Scientists, Engineers & Technologists to undertake international collaborative research in premier institutions in U.S.A, to enhance their research capacities and capabilities.

Women Entrepreneur Quest (WEQ): WEQ is a comprehensive platform that provides mentoring, learning and networking opportunities for real business growth. The objective of this competition is to encourage, promote and showcase technology start-ups, founded by women entrepreneurs. Top 10 winners of WEQ received an all-expenses-paid experiential learning visit to Silicon Valley, US and meetings with key stakeholders in the Silicon Valley ecosystem such as leading technology companies, start-ups, investors, officials, incubators, accelerators, universities and so on.

S&T for Women: The program "Science and Technology for Women", under KIRAN mandates to promote gender equality and empower women at grassroots level with inputs of S&T through development, adaptation, adoption, transfer, demonstration

and replication of appropriate and successful technologies. Since inception, more than 2000 projects have been sponsored and more than 500 technologies developed.

Women Technology Parks: These WTPs act as a single window hub for convergence of diversified technologies, leading to socio economic development of women through capacity building and adoption of location-specific technologies. Diverse technology areas like agriculture (including fisheries, animal husbandry, horticulture technologies), aromatic and medicinal plants, forestry, alternate livelihoods, Post harvest technologies, natural resource management, health & sanitation, occupational hazards, construction, energy, management of natural resources, rural development, rural industry, rural engineering, micro enterprise, sustainable agricultural practices etc. form the core areas of interventions for WTP.

Consolidation of University Research For Innovation And Excellence in Women (CURIE): CURIE was launched in 2009 to strengthen R&D infrastructure of women-only Universities. This unique model of support has led to significant increase in number of quality publications including papers in journals of repute by the faculty and researchers of beneficiary universities.

Vigyan Jyoti: A dedicated program for girl students to pursue their careers in Science, Engineering and Technology. The programme aims to encourage and inspire girl students to pursue higher education and become self-reliant and also offers exposure for girl students coming from rural background to help understand how to plan their journey from school to college and thereafter from research to a job of their choice in the field of science.

1.2 Aim

To assess the impact of gender mainstreaming programmes/schemes of Government of India and suggest indicative framework for effective policy planning.

1.3 Objectives

1. To assess the impacts of the various government schemes on the Women Beneficiaries (W-PIs) in S&T using appropriate statistical methods during 2003 to 2018.
2. To suggest an indicative framework including identification of best practices for strengthening of the gender mainstreaming programmes of various departments.

1.4 Methodology

Initially, all the North Eastern state women Scientists who have implemented the project during 2002 to 2018, were listed and tabulated state-wise. Thereafter, well pretested questionnaires were mailed electronically to all the women scientists of North Eastern states of India. In some cases, home and institutions visit were also made to collect data through personal interview besides use of different social media to collect the data.

In order to study the impact of the project, ex-post facto study design was adopted. After the receipt of the duly filled I questionnaires, the data so received were categorized and tabulated according ordinal and normative attribute of the data. Finally, the arranged data sheets were put to statistical analysis. Statistical tools and measures like mean, percentage, frequency, Spearman rank Co- relational measure of association etc were employed for statistical analysis.

2 Study Region

2.1 Introduction

North Eastern Region, NER is the easternmost region of India representing both a geographic and political administrative division of the country. It comprises of eight states namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The region shares an international border of 5,182 kilometres (3,220 mi) (about 99 percent of its total geographical boundary) with several neighbouring countries. The region share its boundaries of 1,395 kilometres (867 mi) with Tibet Autonomous Region, China in the north, 1,640 kilometres (1,020 mi) with Myanmar in the east, 1,596 kilometres (992 mi) with Bangladesh in the south-west, 97 kilometres (60 mi) with Nepal in the west, and 455 kilometres (283 mi) with Bhutan in the north-west (Gogoi J.K. et. al., 2009).. It comprises an area of 262,230 square kilometres (101,250 sq mi), almost 8 percent of that of India, and is one of the largest salient's (panhandles) in the world.

The states of North Eastern Region are officially recognised under the North Eastern Council (NEC), constituted in 1971 as the acting agency for the development of the north eastern states (NEC,2012). Long after induction of NEC, Sikkim formed part of the North Eastern Region as the eighth state in 2002 (*ISNEC* 2012.& "ENEC FPS 2017). India's Look-East connectivity projects connect Northeast India to East Asia and ASEAN. Guwahati city in Assam is called the Gateway to the North East and is the largest metropolis in North East India.

The north eastern region is covered by the mighty Brahmaputra-Barak river systems and their tributaries. Geographically, apart from the Brahmaputra, Barak and Imphal valleys and some flatlands in between the hills of Meghalaya and Tripura, the remaining two-thirds of the area is hilly terrain interspersed with valleys and plains; the altitude varies from almost sea-level to over 7,000 metres (23,000 ft) above MSL. The region's high rainfall, averaging around 10,000 millimetres (390 in) and above creates problems of the ecosystem, high seismic activity, and floods. The states of Arunachal Pradesh and Sikkim have a montane climate with cold, snowy winters and mild summers.

Northeast India has a subtropical climate that is influenced by its relief and influences from the southwest and northeast monsoons (Dikshit 2014a,b). The Himalayas to the north, the Meghalaya plateau to the south and the hills of Nagaland, Mizoram and Manipur to the east influences the climate (Dikshit 2014c). Since monsoon winds originating from the Bay of Bengal move northeast, these mountains force the moist winds upwards, causing them to cool adiabatically and condense into clouds, releasing heavy precipitation on these slopes (Dikshit 2014c). It is the rainiest region in the country, with many places receiving an average annual precipitation of 2,000 mm (79 in), which is mostly concentrated in summer during the monsoon season (Dikshit 2014c). Cherrapunji, located on the Meghalaya plateau is one of the rainiest places in the world with an annual precipitation of 11,777 mm (463.7 in) (Dikshit 2014c). Temperatures are moderate in the Brahmaputra and Barak valley river plain which decreases with altitude in the hilly areas (Dikshit 2014c). At the highest altitudes, there is permanent snow cover (Dikshit 2014c).

2.2 Comparison of state wise literacy of 2001 and 2011 census:

The total population of northeast India is 46 million with 68 percent of that living in Assam alone. Assam also has a higher population density of 397 persons per km² than the national average of 382 persons per km². The literacy rates in the states of the North-eastern region, except those in Arunachal Pradesh and Assam, are higher than the national average of 74 percent. As per 2011 census, Meghalaya recorded the highest population growth of 27.8 percent among all the states of the region, higher than the national average at 17.64 percent; while Nagaland recorded the lowest in the entire country with a negative 0.5 percent.

During 2001 census, it was found that Mizoram rank top in the North East India states for literacy rates with 661445 of which 350105 male and 311340 female. The literacy rate of the state, Mizoram was 88.8 percent of which 90.7% male and 86.7% female. The Arunachal Pradesh has the lowest literacy rate of 54.3%, of which 63.8% male and 43.5% female. The number of literate persons along with its percentage of North East India according to 2001 census was shown in **Table1.**

The table also reflects that Manipur rank third among the North Eastern states of India according to 2001 census. The number of literate persons according to 2001 census

was 1310534 of which 753466 were males and 557068 were females. The percentage of literacy of the state was 70.5 as per 2011 census. The percentage of male literacy was 80.3 and female literacy was 60.5.

Table1:State-wise literacy of North East India according to 2001.

State	**Literate**			**Percentage of Literacy**		
	Total	Male	Female	Total	Male	Female
Arunachal Pradesh	484785	303281	181504	54.3	63.8	43.5
Assam	14015354	8188697	5826657	63.3	71.3	54.6
Manipur*	1310534	753466	557068	70.5	80.3	60.5
Meghalaya	1157875	614272	543603	62.6	65.4	59.6
Mizoram	661445	350105	311340	88.8	90.7	86.7
Nagaland	112323	640201	492122	66.6	71.2	61.5
Sikkim	318335	189060	129275	68.8	76	64.4
Tripura	2022099	1150707	871392	73.2	81	64.9

*Excluding Paomata, Purul, Mao-Maram sub-divisions of Senapati district.

Note: Literacy rate in the percentage of literates to population aged 7 years and above. Source: Statistical Abstract Manipur 2009, Directorate of Economics and Statistics, Government of Manipur.

Table2: State-wise literacy of North East India according to 2011

State	Literate			Percentage of Literacy		
	Total	Male	Female	Total	Male	Female
Arunachal Pradesh	766005	439868	326137	65.40	72.60	57.70
Assam	19177977	10568639	8609338	72.20	77.80	66.30
Manipur	1908476	1039858	868618	76.94	83.58	70.26
Meghalaya	1785005	913879	871126	74.40	76	72.90
Mizoram	848175	438529	409646	91.30	93.30	89.30
Nagaland	1342434	723957	618477	79.60	82.80	76.10
Sikkim	444952	251269	193683	81.40	86.60	75.60
Tripura	2804783	1501369	1303414	87.20	91.50	82.70

Note: Literacy rate in the percentage of literates to population aged 7 years and above. Source: Statistical Year Book of Manipur 2016, Directorate of Economics and Statistics, Government of Manipur.

From **table 2**, it is clear that the highest literacy rate of 91.30 percent, of which 93.30 percent male and 89.30 percent female is recorded in Mizoram while Arunachal Pradesh was the least literacy rate with 65.40 percent, of which 72.60 percent male and 57.70 percent female in 2011 census. In term of literacy, Manipur rank fifth among the North Eastern states of India according to 2011 census. The number of literate persons was 1908476 of which 1039858 were males and 868618 were females. The percentage of literacy of the state was 76.94 as per 2011 census. The percentage of male literacy was 83.58 and female literacy was 70.26.

Table 3: Comparison of state-wise literacy of North East India according to 2001 and 2011 Census

State	Literacy rate of 2001			Literacy rate of 2011		
	Total	Male	Female	Total	Male	Female
Arunachal Pradesh	54.3	63.8	43.5	65.40	72.60	57.70
Assam	63.3	71.3	54.6	72.20	77.80	66.30
Manipur	70.5	80.3	60.5	76.94	83.58	70.26
Meghalaya	62.6	65.4	59.6	74.40	76	72.90
Mizoram	888.8	90.7	86.7	91.30	93.30	89.30
Nagaland	66.6	71.2	61.5	79.60	82.80	76.10
Sikkim	68.8	76	64.4	81.40	86.60	75.60
Tripura	73.2	81	64.9	87.20	91.50	82.70

Note: Literacy rate in the percentage of literates to population aged 7 years and above. Source: Statistical Year Book of Manipur 2016, Directorate of Economics and Statistics, Government of Manipur.

Table 3 depicts that the overall literacy rate, male and female literacy rate for 8 states of North East India under 2001 and 2011 census. The comparison of 2001 and 2011 census shows an improvement in overall literacy rate in all the states. The highest overall literacy rate was Mizoram (88.8% in 2001 & 91.30% in 2011) while the lowest literacy rate was Arunachal Pradesh (54.3% in 2001 & 65.40% in 2011) census. In 2001 census,

the states of Mizoram, Tripura and Manipur registered more than 70% literacy rate while all the states (except Arunachal Pradesh) registered more than 70% literacy rate in 2011 census. Gender gap of state-wise literacy in 2011 census: There has always been a wide gap between the rates of literacy among male and female in Manipur. Historically, a variety of factors have been found to be responsible for poor female literacy rate which included gender based inequality, social discrimination and economic exploitation, social superstition, engagement of girls child in household duties, low enrolment of girls child in educational institutions etc. the gender gap in different censuses was shown in **Table 4.**

Table 4: Gender gap of state-wise literacy in 2011 census

State	Percentage of Literacy			Differential
	Total	Male	Female	Total
Arunachal Pradesh	65.40	72.60	57.70	14.9
Assam	72.20	77.80	66.30	11.5
Manipur	76.94	83.58	70.26	13.32
Meghalaya	74.40	76	72.90	3.1
Mizoram	91.30	93.30	89.30	4
Nagaland	79.60	82.80	76.10	6.7
Sikkim	81.40	86.60	75.60	11
Tripura	87.20	91.50	82.70	8.8

Table 4 shows that the Gender gap of state wise literacy has come down by 14.9 percent in Arunachal Pradesh during 2011 censuses and clearly indicates the high priority was given to female literacy during the decade in the state. The lowest is in the Meghalaya state with 3.1 percent.

2.1.2. State-wise Disparity in Literacy rates in 2011 census:

Literacy rates among states of North East (NE) vary widely from 91.35 in Mizoram to 65.4% in Arunachal Pradesh. It also depicts that the highest male literacy rate comes to 93.3% in Mizoram and the lowest was Arunachal Pradesh i.e. 72.6%. In case of female

literacy, 89.3% in Mizoram which is the highest while the lowest was Arunachal Pradesh with 57.7% was shown in **table 5**.

Table 5: State-Wise Disparity in Literacy rates in 2011 census.

Sl. No.	State	Literacy rate of 2001		
		Total	Male	Female
1	Mizoram	91.35	93.30	89.30
2	Tripura	87.20	91.50	82.70
3	Sikkim	81.40	86.60	75.60
4	Nagaland	79.60	82.80	76.10
5	Manipur	76.94	83.58	70.26
6	Meghalaya	74.40	76.00	72.90
7	Assam	72.20	77.80	66.30
8	Arunachal Pradesh	65.40	72.60	57.70

2.2. About the States (in brief):

2.2.1. Assam:

Assam state is situated south of the eastern Himalayas along the Brahmaputra and Barak River valleys. Assam covers an area of 78,438 km2 (30,285 sq m). The state is bordered by Bhutan and Arunachal Pradesh to the north; Nagaland and Manipur to the east; Meghalaya, Tripura, Mizoram and Bangladesh to the south; and West Bengal to the west via the Siliguri Corridor, a 22 kilometres (14 mi) wide strip of land that connects the state to the rest of India. Assamese is the official and most commonly spoken language of the state, followed by Bengali, which is official in the Barak Valley and Bodo which is official in Bodoland Territorial Region. Assam is known for Assam tea and Assam silk. The state was the first site for oil drilling in Asia. Assam is home to the one-horned Indian rhinoceros, along with the wild water buffalo, pygmy hog, tiger and various species of Asiatic birds, and provides one of the last wild habitats for the Asian elephant. The Assamese economy is aided by wildlife tourism to Kaziranga National Park and Manas National Park, which are World Heritage Sites. Dibru-Saikhowa National Park is famed for its feral horses. Sal tree forests are found in the state which, as a result of abundant rainfall, looks green all year round.

The total population of Assam was 26.66 million with 4.91 million households in 2001. Higher population concentration was recorded in the districts of Kamrup, Nagaon, Sonitpur, Barpeta, Dhubri, Darrang, and Cachar. Assam's population was estimated at 28.67 million in 2006 and at 30.57 million in 2011 and is expected to reach 34.18 million by 2021 and 35.60 million by 2026. Of the 33 districts, eight districts registered a rise in the decadal population growth rate. Religious minority-dominated districts like Dhubri, Goalpara, Barpeta, Morigaon, Nagaon, and Hailakandi, recorded growth rates ranging from 20 per cent to 24 per cent during the last decade. Eastern Assamese districts, including Sivasagar and Jorhat, registered around 9 per cent population growth. These districts do not have any international border. As per the 2011 census, the total population of Assam was 31,169,272. The total population of the state has increased from 26,638,407

to 31,169,272 in the last ten years with a growth rate of 16.93%. Out of 33 districts of Assam, 9 are Muslim majority according to the 2011 census of India. The districts are Dhubri, Goalpara, Barpeta, Morigaon, Nagaon, Karimganj, Hailakandi, Darrang and Bongaigaon.

Assamese is the official language of the state. Additional official languages include Bengali and Bodo languages. Bodo in Bodoland Territorial Council and Bengali in the three districts of Barak Valley where Sylheti is most commonly spoken. According to the language census of 2011 in Assam, out of a total population of around 31 million, Assamese is spoken by around half that number: 15 million. Although the number of speakers is growing, the percentage of Assam's population who have it as a mother tongue has fallen slightly. The various Bengali dialects and closely related languages are spoken by around 9 million people in Assam, and the portion of the population that speaks these languages has grown slightly. Hindi is the third most-spoken language.

According to the 2011 census, 61.47% were Hindus, 34.22% were Muslims. Christian minorities (3.7%) are found among the Scheduled Tribe and Castes population. The Scheduled Tribe population in Assam is around 13%, of which Bodos account for 40% (Deka, Kaustubh (2014). Other religions followed include Jainism (0.1%), Buddhism (0.2%), Sikhism (0.1%) and Animism (amongst Khamti, Phake, Aiton etc. communities). Many Hindus in Assam are followers of the Ekasarana Dharma sect of Hinduism, which gave rise to Namghar, designed to be simpler places of worship than traditional Hindu temples.

2.2.2. Manipur:

Manipur is a state in north-eastern India, with the city of Imphal as its capital. It is bounded by the Indian states of Nagaland to the north, Mizoram to the south and Assam to the west. It also borders two regions of Myanmar, Sagaing Region to the east and Chin State to the south. The state covers an area of 22,327 square kilometres (8,621 sq mi) and lies at a latitude of 23°83'N – 25°68'N and a longitude of 93°03'E – 94°78'E and has a population of almost 3 million, including the Meitei, who are the majority group in the

state, the Meitei Pangals (Manipuri Muslims), Naga tribes, Kuki/Zo tribes and other communities, who speak a variety of Sino-Tibetan languages. The Nagas in Manipur are further sub-divided into sub-tribes like Anāl, Liangmai, Mao, Maram, Maring, Poumai, Rongmei, Tangkhul, Zeme, etc. The Meitei ethnic group represents around 53% of the population of Manipur state, followed by various Naga tribes at 24% and various Kuki-Chin-Mizo-Zou tribes at 16%. The main language of the state is Meiteilon (also known as Manipuri). Tribals constitute about 41% of the state population (according to 2011 census) and are distinguished by dialects and cultures that are often village-based. Manipur's ethnic groups practice a variety of religions. According to 2011 census, Hinduism is the major religion in the state, closely followed by Christianity. Other religions include Islam, Sanamahism, Buddhism, Judaism etc.

Table 6 shows that Manipur has a population of 2,855,794 as per 2011 census. Of this total, 57.2% live in the valley districts and the remaining 42.8% in the hill districts. The hills are inhabited mainly by the Nagas, and Kukis, and smaller tribal communities and the valley (plains) mainly by the Meiteis, Manipuri Brahmins (Bamons) and Pangal (Manipuri Muslims). Bishnupriya Manipuri, Naga and Kuki settlements are also found in the valley region, though less in numbers.

Table 6: The distribution of area, population, density and literacy rate of Manipur as per 2011 Census.

Demographics of Manipur	
Total Population	2,855,794
Male Population	1,438,586
Female Population	1,417,208
Rural Population	1,736,236
Urban Population	834,154
Child Sex Ratio	936 female to 1000 male
Density (per km^2)	115
Literacy	1,768,181 (85.4%)
Towns	33

Source: Statistical book of Manipur, 2011.

2.2.3. Meghalaya:

Meghalaya (meaning "abode of clouds"; from Sanskrit megha, "cloud" + ā-laya, "abode") is a state in northeastern India and was formed by carving out two districts from the state of Assam: the United Khasi Hills and Jaintia Hills, and the Garo Hills on 21 January 1972. It is located between the altitudes 20. 1" N and 26. 5"N and longitudes 85. 49" E and 92. 52" E. The total Geographical area of the state is 22,429 sq. K ms. The population of Meghalaya as of 2016 is estimated to be 3,211,474. As per 2001 census, the total population of the state was 2,318,822 with a population density of 103.4 per Sq, Km. As per 2011 census, the total population of the state was 2,964,007 with population density of 132 per Sq, km.

Meghalaya covers an area of approximately 22,430 square kilometres, with a length to breadth ratio of about 3:1. The state is bound to the south by the Bangladeshi divisions of Mymensingh and Sylhet, to the west by the Bangladeshi division of Rangpur, and to the north and east by India's State of Assam. The capital of Meghalaya is Shillong. During the British rule of India, the British imperial authorities nicknamed it the "Scotland of the East". Meghalaya was previously part of Assam, but on 21 January 1972, the districts of Khasi, Garo and Jaintia hills became the new state of Meghalaya. English is the official language of Meghalaya. Unlike many Indian states, Meghalaya has historically followed a matrilineal system where the lineage and inheritance are traced through women; the youngest daughter inherits all wealth and she also takes care of her parents.

The state is the wettest region of India, with the wettest areas in the southern Khasi Hills recording an average of 12,000 mm (470 in) of rain a year. About 70 percent of the state is forested. The Meghalaya subtropical forests ecoregion encompasses the state; its mountain forests are distinct from the lowland tropical forests to the north and south. The forests are notable for their biodiversity of mammals, birds, and plants.

Tribal people make up the majority of Meghalaya's population. The Khasis are the largest group, followed by the Garos then the Jaintias. These were among those known to the British as "hill tribes." Other groups include the Hajongs, the Biates, the Koches and

related Rajbongshis, the Boros, Dimasa, Kuki, Lakhar, Tiwa (Lalung), Karbi, Rabha and Nepali and shown in **table 7**.

Table 7: Ethnic tribal groups of Meghalaya (as per 2011 census).

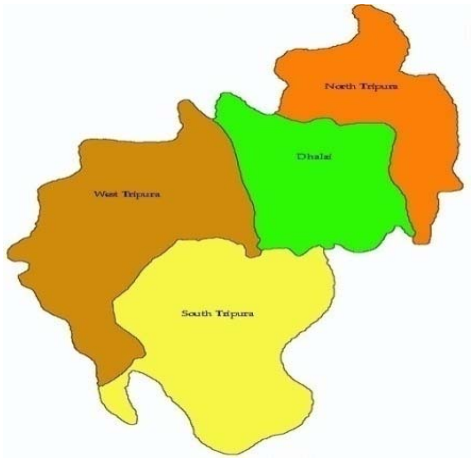
Ethnic groups (2011)	Population Percentage
Khasi	34%
Garo	30.5%
Jaintia	18.5%
Bengali	8.5%
Nepali	2.5%
Hajong	1.2%
Biate	1.1%
Koch	1.0%
Tiwa (Lalung)	0.9%
Rabha	0.8%
Kuki:	0.5%
Shaikh:	0.3%
Other:	0.2%

Meghalaya recorded the highest decennial population growth of 27.82% among all the seven north-eastern states, as per the provisional report of census 2011. The population of Meghalaya as of 2011 has been estimated at 2,964,007 of which females comprise 1,492,668 and males 1,471,339. As per the census of India 2011, the sex ratio in the state was 986 females per 1,000 males which were far higher than the national average of 940. The urban female sex ratio of 985 was higher than the rural sex ratio of 972.

2.2.4. Tripura:

Tripura is the third-smallest state in the country and is bordered by Bangladesh to the north, south, and west, and the Indian states of Assam and Mizoram to the east. Tripura state covers 10,491 km2 (4,051 sq mi). In 2011 the state had 3,671,032 residents, constituting 0.3% of the country's population.

Tripura lies in a geographically disadvantageous location in India, as only one major highway, the National Highway 8, connects it with the rest of the country. Five mountain ranges—Boromura, Atharamura, Longtharai, Shakhan and Jampui Hills—run north to south, with intervening valleys; Agartala, the capital, is located on a plain to the west. The state has a tropical savanna climate, and receives seasonal heavy rains from the south west monsoon. Forests cover more than half of the area, in which bamboo and cane tracts are common. Tripura has the highest number of primate species found in any Indian state. Due to its geographical isolation, economic progress in the state is hindered. Poverty and unemployment continue to plague Tripura, which has a limited infrastructure. Most residents are involved in agriculture and allied activities, although the service sector is the largest contributor to the state's gross domestic product.



Tripura ranks second to Assam as the most populous state in North East India. According to the provisional results of 2011 census of India, Tripura has a population of 3,671,032 with 1,871,867 males and 1,799,165 females. It constitutes 0.3 per cent of India's population. The sex ratio of the state is 961 females per thousand males, higher than the national ratio 940. The density of population is 350 persons per square kilometre.

Tripura ranked 6th in Human Development Index (HDI) among 35 states and union territories of India, according to 2006 estimate by India's Ministry of Women and Child Development; the HDI of Tripura was 0.663, better than the all-India HDI 0.605.

In 2011, the police in Tripura recorded 5,803 cognisable offences under the Indian Penal Code, a number second only to Assam (66,714) in North East India. The crime rate in the state was 158.1 per 100,000 people, less than the all-India average of 192.2. However, 2010 reports showed that the state topped all the states for crime against women, with a rate of 46.5 per 100,000 people, significantly more than the national rate of 18.

In the 2001 census of India, Bengalis represented almost 70 per cent of Tripura's population while the Tripuri population amounted to 30 per cent. The state's "scheduled tribes", historically disadvantaged groups of people recognised by the country's constitution, consist of 19 ethnic groups and many sub-groups, with diverse languages and cultures. In 2001, the largest such group was the Kokborok-speaking Tripuris, which had a population of 543,848, representing 17.0 per cent of the state's population and 54.7 per cent of the "scheduled tribe" population. The other major groups, in descending order of population, were the Reang (16.6 per cent of the indigenous population), Jamatia (7.5 per cent), Chakma (6.5 per cent), Halam (4.8 per cent), Mog (3.1 per cent), Munda (1.2 per cent), Kuki (1.2 per cent) and Garo (1.1 per cent).

Bengali is the most widely spoken language. Kokborok is a prominent language among the Tripura tribes. Several other languages such as Mog, Odia, Bishnupriya Manipuri, Halam, Garo and Chakma are also spoken in the state. Thadou, a nearly extinct language, is spoken by only four people in one village, as of 2012.

2.2.5. Mizoram:

Mizoram is derived from "Mizo", the name of the native inhabitants, and "Ram", which means land, and thus Mizoram means "land of the Mizos" with Aizawl as its capital city. It is the southernmost landlocked state, sharing borders with three of the Seven Sister States, namely Tripura, Assam and Manipur. The state also shares a 722-kilometre border with the neighbouring countries of Bangladesh and Myanmar. It is the fifth smallest state of India with 21,087 km2 (8,142 sq mi). It extends from 21°56'N to 24°31'N, and 92°16'E to 93°26'E. (Rintluanga Pachuau) Mizoram covers an area of

approximately 21,087 square kilometres. **(Economic Survey, 2012-13)**. About 91% of the state is forested.

Like several other north eastern states of India, Mizoram was previously part of Assam until 1972, when it was carved out as a Union Territory. It became the 23rd state of India, a step above Union Territory, on 20 February 1987, with the Fifty-Third Amendment of the Indian Constitution, 1986.

Mizoram's population was 1,091,014 with 552,339 males and 538,675 females, according to a 2011 census. It is the 2nd least populous state in the country. The sex ratio of the state is 976 females per thousand males, higher than the national ratio 940. The density of population is 52 persons per square kilometre.

About 95% of the current population is of diverse tribal origins who settled in the state, mostly from Southeast Asia, over waves of migration starting about the 16th century but mainly in the 18th century. This is the highest concentration of tribal people among all states of India, and they are currently protected under Indian constitution as a Scheduled Tribe (Ministry of Tribal Affairs, Govt of India, 2013). Mizoram is one of three states of India with a Christian majority (87%) **(Mizoram", Population by religious communities, 2013)**. Its people belong to various denominations, mostly Presbyterian in the north and Baptists in the south.

Mizo, English and Hindi are the official languages of the state. Mizo is the most widely used language for verbal interactions, but English, being important for education, administration, formalities and governance, is widely used. The Duhlian dialect, also known as the Lusei, was the first language of Mizoram and has come to be known as the Mizo language. The language is mixed with other dialects like the Hmar, Mara, Lai, Thadou-Kuki, Paite, Gangte, etc.

2.2.6. Nagaland:

It is bordered by the state of Arunachal Pradesh to the north, Assam to the west, Manipur to the south and the Sagaing Region of Myanmar to the east. Nagaland's capital city is Kohima and its largest city is Dimapur. It has an area of 16,579 square kilometres (6,401 sq mi) with a

population of 1,980,602 per the 2011 Census of India, making it one of the smallest states of India.

Nagaland became the 16th state of India on 1 December 1963. T he state has experienced insurgency, as well as an inter-ethnic conflict, since the 1950s. The violence and insecurity have limited Nagaland's economic development (Charles Chasie, 2005, 2008).

Agriculture is the most important economic activity, covering over 70% of the state's economy. Other significant economic activity includes forestry, tourism, insurance, real estate, and miscellaneous cottage industries.

The state lies between the parallels of 98 and 96 degrees east longitude and 26.6 and 27.4 degrees latitude north. The state is home to a rich variety of flora and fauna.

The population of Nagaland consists of almost 1.9 million people, of which 1.04 million are males and 0.95 million females. Among its districts, Dimapur has the largest population (379,769), followed by Kohima (270,063). The least populated district is Longleng (50,593). 75% of the population lives in the rural areas. As of 2013, about 10% of rural population is below the poverty line; among the people living in urban areas 4.3% of them are below the poverty line.

The state showed a population drop between 2001 census to 2011 census, the only state to show a population drop in the census. This has been attributed, by scholars, (Agarwal and Kumar, 2012) to incorrect counting in past censuses; the 2011 census in Nagaland is considered most reliable so far. The state is home to 16 major tribes — Angami, Ao, Chakhesang, Chang, Kachari, Khiamniungan, Konyak, Kuki, Lotha, Phom, Pochury, Rengma, Sangtam, Sumi, Yimchunger and Zeme-Liangmai (Zeliang). Some other minor tribes or subtribes are Garo, Mikir, Chirr, Makury, Rongmei and Tikhir. There are also sizable populations of non-tribal communities like Bengalis, Marwaris, Nepalis, and others living mostly around Dimapur City.

Naga people formed the majority of the population. According to the 2011 census there are 2 million people living in Nagaland. The Naga people number around 1.8 million in the state, constituting over 90% of the population. Shafer came up with his own

classification system for languages found in and around Nagaland (Braj Bihari Kumar ,2005). Each tribe has one or more dialects that are unintelligible to others.

In 1967, the Nagaland Assembly proclaimed Indian English as the official language of Nagaland and it is the medium for education in Nagaland (Khubchandani, L. M., 1997). Other than English, Nagamese, a creole language based on Assamese, is widely spoken.

2.2.7. Arunachal Pradesh:

Arunachal Pradesh literally "land of dawn-lit mountains" is a state borders with Assam and Nagaland to the south. It shares international borders with Bhutan in the west, Myanmar in the east, and a disputed border with China in the north at the McMahon Line. Arunachal Pradesh is located between 26.28° N and 29.30° N latitude and 91.20° E and 97.30° E longitude and has an area of 83,743 km2 (32,333 sq mi). Itanagar is the state capital of Arunachal Pradesh. Arunachal Pradesh is the largest of the Seven Sister States of Northeast India by area. The highest peak in the state is Kangto, at 7,060 metres (23,160 ft). Nyegi Kangsang, the main Gorichen peak, and the Eastern Gorichen peak are other tall Himalaya peaks. The state's mountain ranges, in the extreme East of India, are described as "the place where the sun rises" in historical Indian texts and named the Aruna Mountains, which inspired the name of the state.

A major part of the state is claimed by both the People's Republic of China and Republic of China (Taiwan) as part of the region of South Tibet (Mayilvaganan M. et al.,.2020: Maxwell and Neville, 1970; Noorani A.G., 2003, Manoj Joshi,2000). During the 1962 Sino-Indian War, most of Arunachal Pradesh was temporarily captured by the Chinese People's Liberation Army (Maxwell and Neville, 1970; Noorani A.G., 2003; Manoj Joshi, 2000).

As of the 2011 Census of India, Arunachal Pradesh has a population of 1,382,611 and an area of 83,743 square kilometres (32,333 sq mi). It is an ethnically diverse state,

with predominantly Monpa people in the west, Tani people in the center, Tai people in the east, and Naga people in the south of the state.

Arunachal Pradesh can be roughly divided into a set of semi-distinct cultural spheres, on the basis of tribal identity, language, religion and material culture: the Tibetic-speaking Monpa area bordering Bhutan in the west, the Tani area in the centre of the state, the Mishmi area to the east of the Tani area, the Tai/Singpho/Tangsa area bordering Myanmar, and the Naga area to the south, which also borders Myanmar. In between there are transition zones, such as the Aka/Hruso/Miji/Sherdukpen area, between the Tibetan Buddhist tribes and the animist Tani hill tribes. In addition, there are isolated peoples scattered throughout the state, such as the Sulung.

The speakers of major languages of the state according to the 2011 census are Nyishi (28.60%, includes Nyishi, Tagin and Apatani), Adi (17.35%, includes Adi, Galo), Bengali (7.27%, includes Bengali, Chakma and Hajong), Hindi (7.09%), Nepali (6.89%), Bhotia (4.51%), Assamese (3.9%), Mishmi (3.04%), Nocte (2.9%), Tangsa (2.64%), Wancho (2.19%) and Others (13.62%).

2.2.8. Sikkim:

Sikkim is a state in north-eastern India borders with the Tibet Autonomous Region of China in the north and northeast, Bhutan in the east, Nepal in the west, and West Bengal in the south. Sikkim is also close to India's Siliguri Corridor near Bangladesh. Sikkim is the least populous and second smallest among the Indian states. A part of the Eastern Himalaya, Sikkim is notable for its biodiversity, including alpine and subtropical climates, as well as being a host to Kangchenjunga, the highest peak in India and third highest on Earth. Sikkim's capital and largest city is Gangtok. Almost 35% of the state is covered by the Khangchendzonga National Park – a UNESCO World Heritage Site (O'Neill and Alexander, 2017).

The Kingdom of Sikkim was founded by the Namgyal dynasty in the 17th century. It was ruled by Buddhist priest-kings known as the Chogyal. It became a princely state of British India in 1890. Following Indian independence, Sikkim continued its protectorate status with the Union of India after 1947, and the Republic of India after

1950. It enjoyed the highest literacy rate and per capita income among Himalayan states. In 1973, anti-royalist riots took place in front of the Chogyal's palace. In 1975, after the Indian Army took over the city of Gangtok, a referendum was held that led to the deposition of the monarchy and Sikkim joining India as its 22nd state.

Sikkim is one of the few states in India as well as in north eastern India region to receive regular snowfall. The snow line ranges from 6,100 metres (20,000 ft) in the south of the state to 4,900 metres (16,100 ft) in the north (Hooker and Joseph Dalton, 1854). The tundra-type region in the north is snowbound for four months every year, and the temperature drops below 0 °C (32 °F) almost every night. In north-western Sikkim, the peaks are frozen year-round; because of the high altitude, temperatures in the mountains can drop to as low as −40 °C (−40 °F) in winter.

Sikkim accounts for the largest share of cardamom production in India, and is the world's second largest producer of the spice after Guatemala. Sikkim achieved its ambition to convert its agriculture to fully organic between 2003 and 2016, and became the first state in India to achieve this distinction (Paul and John, 2017). It is also among India's most environmentally conscious states, having banned plastic water bottles "in any government functions and meetings" and polystyrene products throughout the state (Sharma et al., 2016).

Sikkim is India's least populous state, with 610,577 inhabitants according to the 2011 census. Sikkim is also one of the least densely populated Indian states, with only 86 persons per square kilometre. However, it has a high population growth rate, averaging 12.36% per cent between 2001 and 2011. The sex ratio is 889 females per 1,000 males, with a total of 321,661 males and 286,027 females recorded in 2011. With around 98,000 inhabitants as of 2011, the capital Gangtok is the most significant urban area in the mostly rural state; in 2005, the urban population in Sikkim constituted around 11.06 per cent of the total.

Modern Sikkim is a multiethnic and multilingual Indian state. The official languages of the state are English, Nepali, Sikkimese and Lepcha. Additional official languages include Gurung, Limbu, Magar, Mukhia, Newari, Rai, Sherpa and Tamang for the purpose of preservation of culture and tradition in the state. English is taught in schools and used in government documents. The predominant religions

are Hinduism and Vajrayana Buddhism. Sikkim's economy is largely dependent on agriculture and tourism. As of 2014, the state had the third-smallest GDP among Indian states, although it is also among the fastest-growing.

2.3. Education & Literacy Scenario of the North Eastern region:

Girl's education plays a very important role in the overall development of the country. It not only helps in the development of half of the human resources, but in improving the quality of life at home and outside. An educated woman not only tends to promote education of her daughter, but also can provide better guidance to all her children. Moreover educated women can also help in the reduction of infant mortality rate and growth of the population.

Gender discrimination still persists in India and lot more needs to be done in the field of women's education in India. The gap in the male-female literacy rate is just a simple indicator. According to the 2001 census, literacy rate was 65.4 percent with male literary rate of 75.8 per the literacy rate of women in India is just 54.2 per cent. While in 2011 census, the literacy rate has increased to 74.04 percent, with male literacy at 82.14 percent and female rate at 65.46 percent. An extremely positive development in the present decade is that the gap of 21.59 percentage points recorded between male and female literacy rates in 2001 census has reduced to 16.68 percentage points in 2011. Prevailing prejudices, low enrolment of girl child in the schools, engagements of girl children in domestic works and high dropout rates are major obstacles in the path of making all Indian women educated (Saza Lucy, 2008).

2.3.1. Assam:

Assam also had gender based education system. No evidence of female education is found in ancient Kamrup. In fifteenth-sixteenth century, after the period of Vaishnavite movement, common women could get spiritual education through satras and namghars, but formal education was still out of reach for them. But few Assamese women of this period who got educated at home with their own efforts. In Vaishnavite period, Gopal Ata's daughter Padmapriya, Harideva's daughter Bhubaneshwari, Sankardeva's granddaughter-in-law Kanaklata are a few examples of them. Women education got a great boost during Ahom rule when American Baptist missionaries came to India in 1836. They were the pioneers of female education in Assam. Only after a few months of their

entry to the state, they set up their first school in Sadia, which had separate classes for boys and girls. Mrs. Brown established a girls' school in Sadia in 1838. In 1839, Mrs. Kattar, wife of O. T. Kattar established another girls' school in Sadia. Although it had a short life, this was a bold step for female education in Assam. Mrs. Warker set up another girls' school in Sivasagar in 1841 "And three school in the station one for boys numbering fifty and one for girls numbering ten. In 1850, day school was established in Guwahati, in which number of girl students was only 13. Girls did not come to school at that time for various reasons. Very few girls were able to go out of their homes. The patriarchal society considered that it was better for the girls to remain at home. Also particular subjects were selected for the girls in the few schools they could study. As the girls' schools established by the missionaries did not grow, their female workers started another set of schools named Zenana School. They went door to door to encourage the girls to study but did not get much success. East India Company took the responsibility of female education only in 1858. Earlier on 19th July 1854, the need for female education was declared officially in Wood's Education Despatch. It came from Charles Wood, which was the first letter sent from the English government about education in India.

Female education was not expanding due to various reasons. Some other factors were –

1. Grant policy of the government.
2. Carelessness of the parents.
3. Poverty.
4. Superstitions.
5. Transportation problems.
6. Child marriage.
7. Lack of enough girls' schools.
8. Lack of female teachers.
9. Making the girls to do most of the household works.

Eight girls' schools were established with government initiative in 1870. Five of them were set up in Kamrup and one each in Darrang, Nagaon and Lakhimpur. The missionaries with their own initiative had already founded a few schools in Sivasagar, Nagaon, Kamrup and Khasi-Jaintia hills. The first girls' primary school in Sivasagar was founded in 1860-61. In 1874-75, the number of girls having primary education was 875.

According to the statistics from 1875-76, the number of girls' schools and educated girls is shown in the **table 8.**

Table 8: Number of girls' schools and educated girls of Assam from 1875-76.

District	No. of Schools	No. of Female Students
Cachar	5	59
Sylhet	2	20
Goalpara	2	31
KG Hills	12	390
Garo Hills	----	10
Kamrup	6	109
Darrang	4	70
Nagaon	6	76
Sivasagar	3	133
Lakhimpur	-----	8
Total	40	906

Source: Niharika Moran (2019)

In 1889, there were 2414 girl students in total 185 schools. In 1897-98 no. of primary schools in Assam including both hills and plains was 185 and no. of girl students was only 3823. There were 3 middle schools for girls in Dhubri, Dibrugarh and Shillong, where no. of girl students was only 235. The Bengali Renaissance started in the nineteenth century. It's one of the main motives was to promote female education. Notable personalities like Raja Rammohan Roy, Ishwar Chandra Vidyasagar etc. lead this renaissance.

In nineteenth century, Assam had almost no impact of female education. Gunabhiram Barua is the one stood for female education and tried hard for expansion of

the same. He believed that – "Boys and girls both should have education, even shastra tells this to us. It is the main responsibility of the parents to look after and educate both boys and girls equally." An ambience of female education was tried to be formed in Assam in the later period of nineteenth century. But the girls were not able to come to learn that easily as they were leered and criticized for doing that. However amidst all this, a few people tried their best to educate the girl children. They understood that a home can progress only if the females progress, and a society can progress only if the homes progress. Deviprava Dutta from Dibrugarh stayed in a rented house to make her girls Durgaprava and Hemaprova study in Bethune School. Durgaprava is known to be the first Assamese woman to pass matriculation examination. Similary Hemaprova is the first Assamese woman to pass FA. Sudhalata Duwarah and Sukhalata Duwarah, daughters of Rotnokanto Borkakati, were the first female MA BT from Assam. Principal of Handique Girls' College Rajbala Das, Puspalata Das etc. were from the first batch of the Assamese women who studied in Calcutta or Kashi University. Female education increased at a slow rate like this until the end of nineteenth century.

With the start of twentieth century, female education started to expand rapidly. A few reasons are –

1. Implementation of Sarada Act. 6
2. Non co-operation movement by Mahatma Gandhi.
3. Awareness of the people.
4. Spread of western education.
5. Government initiative.
6. Demands by the women organizations for female education.

In fact a new sense was developed in India through the Swaraj movement in twentieth century. The impact of the independence movement by Mahatma Gandhi reached Assam also. Gandhi emphasized a lot on female education. Everyone, whether they were literate or not, participated in the movement. Women also came forward to the movement in the strong leadership of Mahatma Gandhi. It changed the scenario of female

education in Assam to a great extent. At the same time Cotton College, the first college in Assam, was established in 1901 in Guwahati. Even after a long wait, the girls were permitted to take admission in Cotton College for the first time in 1929. Only from the twentieth century, the higher education was available for women in Assam (Niharika Moran, 2019).

However, the research studies indicate relative performance of Assam in women's educational attainment. It is mainly due to high drop-out rate among girls. Further enrolment in higher education is relatively low in Assam. But among the various North Eastern Indian states, the incidence of domestic violence is the least in Assam. This observation makes clear that position of women in Assam can be considered to be a mixed bag. In Assam though the increasing rate in female literacy is satisfactory, still it is not equal position with the male counterparts.

Table 9: Literacy Rate in Assam 1951-2011

Year	Person	Male	Female
1951	18.53	28.01	7.58
1961	32.95	44.28	18.62
1971	33.94	43.72	22.76
1981	-	-	-
1991	52.89	61.87	43.03
2001	63.25	71.28	54.61
2011	73.18	78.81	67.27

Source: Nipan Haloi (2015)

Though the **table 9** vividly show that the literacy rate of women in Assam is not equal with men but it is seen that women are now pursing higher education and holding prestigious posts in government offices and private organizations. During the last two decades, there has been a significant rise in the involvement in the field of education. For instance, recently in the UPSC result of 2015 we have seen that the top position is occupied by women. And in case of Assam also we have seen some women are able to occupy rank in UPSC. So, this result will obviously create a positive impact among the new generation.

Presently in Assam, there are 20 universities where the education system was co-education out of which Assam Women's University; Jorhat is the only university reserved for the women categories. But 17 different colleges were established in different parts or district of Assam who was allowed only women for higher education. No reserved for women categories were found in Medical colleges and engineering and technology colleges.

In 2011, the literacy rate in the Assam state was 72.20%. The male literacy rate was 77.80% and the female literacy rate was 66.30 %. In 2001, the census had recorded literacy in Assam at 63.3% with male literacy at 71.3% and female at 54.6%. The urbanisation rate was recorded at 12.9%.

2.3.2. Manipur:

The women of Manipur did not get education in the past though they have a distinct place in the socio-life in the society. In pre-British Manipur, the society assigned women only for domestic duties like cooking, weaving, spinning, nursing the family members and looking after their children. A few rich girls received education in their own houses in the form of non-formal education. There was no girls' school in Manipur till 1898-99. They got lesson in rudimentary form. However, knowledge of reading and writing was not accounted as qualifications to be a good housewife. So the guardians felt no necessity of sending their daughters to any form of educational exposure beyond their homes. Besides, the girls were very much useful in the household activities and so it was considered a great loss for the families to send their daughters away. The need to understand the importance of women's education as a basic human right was perceived gradually by the people of Manipur only by the dawn of nineteenth century. The Government was indifferent to women's education in Manipur up to 1899. The slow progress of women education was due to the limited number of removing the old prejudices towards female education and the advancement of women. The progress of the community depended much upon the general attitude towards the women. Moreover, the orthodox idea implied that the skill of weaving and other household work were more important to a girl than knowledge in the three R's. Hence, the parents did not consider it necessary to educate their daughters formally and the prevailing social customs and superstition acted as a block in their way.

Women education in Manipur started much later as there were no girls' school for formal education in Manipur till 1898. The first girls' lower primary school was established at Moirangkhom on December, 1899. Sir William Pettigrew, Maharaja Sir Churachand Singh, KCSI, CBE Major A. E. Woods, ICS were the pioneers of female education in Manipur. With the establishment of a girls' school, Manipuri girls started receiving western (modern) education. Thus, Manipur entered to the system of formal education at the early part of the 20th century. Before 1947, education of girls and women in Manipur was completely neglected because of ignorance of the people regarding the value of women education as well as the tradition of considering women inferior to men. At that time, the society had deep rooted orthodoxy and women were strictly confined at home. Only few girls of the royal or well to do families received school education. In 1991, literacy percentage among the males was 71.63 percent whereas the women literacy was only 47.60 percent. Though, the percentage of literacy among Manipuri women is above the all India average, yet the situation is not quite satisfactory. The Manipuri society is free from many social evils like purdah and dowry system which are great obstacles in other parts of India. As in 2011 Census, Manipur ranks fifth among the North Eastern States of India in terms of literacy. The literacy rate has increased from 70.53 percent in 2001 to 76.94 percent in 2011. Among the males, it has increased from 80.30 percent in 2001 to 83.58 percent in 2011, whereas among females, it has increased from 60.50 percent in 2001 to 70.26 percent in 2011. Presently, 9 Universities of different streams located at Manipur where the education system was co-education. To this, 7 different women colleges were affiliated in different Universities and allowed only women for higher education. No reserved for women categories were found in Medical colleges and engineering and technology colleges in Manipur.

Even now many people subscribe the time honoured conviction of the illiterate parents that women are the properties of men. They cannot be independent at all stages of life. In early years they were under the care of their father, after marriage under their husband and in old age they are subservient to their sons. The idea of giving higher education to girls is still unacceptable to many guardians as girls cannot be considered as an asset of family. But the University Education Commission 1948 rightly remarked the important of women education that if general education had to be limited to men or to women, that opportunity should be given to women, for then it would most surely be passed on the next generation.

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2.3.3. Meghalaya:

In the beginning girls education was not encouraged the reasons may be that daughters have to look after their younger brothers and sisters when parents have gone to work in the field to earn their livelihood, in spite of that parent were unable to spend for the education of their daughter because of poverty, girls were to share the housekeeping chores like cooking caring of younger sibling along with their mother. Girl's education was considered a taboo later this inhibition was removed due to the efforts of missionaries wives, during that time children were irregular unruly and they use to run mild, in course of time things became better. In order to encourage education, teachers adopted various other measures and techniques such as giving incentives in the form of money or garment to the students.

Advancement of girl's education was mainly due to the missionary agencies. They had done more for women's education than the government itself. During this time, Christian missionaries were the only agencies in the Field of female education. The product of the missionary training schools went out to start establishes more schools. Female education made considerable progress from the year 1947, with the implementation of the different five year plans there was progress in all spheres of education. Previously girls had been found in schools and colleges meant only for general education. But later they took up science subjects and also join professional colleges, such as Medical colleges, Engineering Colleges etc. At that time the Girls School was made a section of the Normal School under the Supervision of Mrs Hugh Roberts. It was transferred to Shillong being still at the elementary stage it gave birth to the Welsh Mission Girls High School in1992.Later on it was change to its present name Khasi Jaintia Presbyterian Girls School in 1992. This School was the pioneer School in women‟s education not only in Meghalaya but in the North East as well. Missionaries started girl's schools with regard to the number of girls attending school, receiving

instruction in different categories. Due to Christianity, the status of women has changed for better making progress in education.

There are separate Girls school in Shillong namely the KJP Girls Higher Secondary School, Synod Higher Secondary School, Pine Mount School and the Lady Kean Higher secondary School. This shows the development of girls education in Meghalaya. In the districts of Meghalaya male literacy are higher than the female literacy except Jaintia hills district were female literacy are higher than the male literacy.

As per 2011 census the population of Meghalaya was 2.97 million, of which the male population was 1.49 million and female population was 1.48 million. The literacy rate of Meghalaya was 74.43%, of which the male literacy is 75.95% and female literacy is 71.88%. The sex ratio of Meghalaya was 989 females per 1000 males, which are much above the national average of 940.

Meghalaya has 3 central universities, 1 state university and 10 private universities. There are 63 degree colleges, 2 engineering colleges, 3 polytechnics and 7 institutions of national importance located in the state but Sankardev College, Dr. H. Gordon Roberts Hospital and Khasi Janintia Presbyterian Hospital and school of Nursing were only colleges for the women.

2.3.4. Tripura:

In 18th century almost all the rulers of Tripura were illiterate and were totally dependent on the educated Bengali officials for running the administration of their state. The Royal members were trained in their palaces by the Bengali private tutors. The rulers of Tripura wanted to make their state a modern one and that initiative was first taken by Maharaja Birchandra Manikya. The process of transferring Tripura into a modern one was instigated by him from the year of 1862, by establishing the first school in Tripura for the common people. Based on the Bengal Administration Report for the year 1874-75, it has been depicted in the "Tripura District Gazetteers", that in the year 1874-75 in Tripura there are about 103 boys undergoing instruction at the two existing schools in Tripura. In the next year, two more schools were opened and in all 173 boys were on the rolls but only one-half were regular in their attendance (Menon, 1975). In the year, 1879 there were about 25 nos. of schools in Tripura and it increased to 31 at the end of 1881. However, due to infrastructural penury and administrative negligence the number of

schools came down to 27 in the next year (Menon, 1975). However, during the year 1890-91 some arrangements for the betterment of educational institutions were made, which ultimately increased the number of schools from 16 to 19 (Menon, 1975).

For the first time one girls' school was opened within the campus of Imperial palace by the Queen Maharani Tulshibati. In 9th April, 1894 the school with the name 'Agartala Balika Vidyalaya started her journey. The school was completely aided by the Queen's personal treasury. At first, only the girls from royal families got their education from the school but later, girls from various places took admission.

According to the Imperial Gazetteers of India, Vol. XIII, only 2.3 percent of the population could read and write and the number of pupils increased to 3125 (3008 boys and 117 girls) in the year 1903-04. The number of educational institution was 103 in Tripura (The Imperial Gazetter of India Vol. XIII, 1908). Accordingly, it became necessary for the rulers of Tripura to invite those educated immigrants to strengthen the weak educational institutions. As the educated Bengali immigrants began to immigrate into Tripura, the number of literacy increased but the census report 1901 reveals that though the number of male literacy increased significantly, the female literacy growth rate was quite insignificant

In the year 1914-15, the numbers of schools increased to 154 and among them only 12 nos. of schools were made for the girls. Hence, though the number of male literacy increased in Tripura during the period the female literacy did not increase in the same proportion.

On 15th October, 1949 Tripura joined the Indian Union and from that time onwards Tripura made a remarkable improvement in the field of education for both male and female. The female literacy is also better in Tripura especially between the age 5-9 year old during 1951. But as the age increased the female literacy growth decreased in comparison to other states of north east India. It was probably due to the unwillingness and unenthusiastic attitude of the parents towards the higher education of the girls.

But it is also true that after her amalgamation until 1965, 3nos. of multipurpose Higher Secondary Schools, 7nos. of class X High Schools and 3nos. of Junior High Schools only for girl student along with a considerable numbers of co-educational schools

were established. In the year, 1963-64 full-fledged Women's College was also established. Due to the growth of women literacy rate, women's participation in the Government and semi-Government institution increased.

According to the Economic Review of Tripura 2010–11, Tripura has a total of 4,455 schools, of which 2,298 are primary schools. The total enrolment in all schools of the state is 767,672. Tripura has one Central University (Tripura University), one State University (M. B. B. University) and one private university (a branch of the Institute of Chartered Financial Analysts of India). There are 15 general colleges, three engineering colleges (Tripura Institute of Technology, National Institute of Technology, Agartala and NIEILT, Agartala), two medical colleges (Agartala Government Medical College and Tripura Medical College), three nursing or paramedical colleges, three polytechnic colleges, one law college, one Government Music College, one College of Fisheries, Institute of Advance Studies in Education, one Regional College of Physical Education at Panisagar and one art college. Tripura University also houses the IGNOU Agartala Regional Center. Three Women College namely Belonia College, Women's College and Women's Polytechnic College were also housed under Tripura University.

As Per 2011 census, the literacy rate of Tripura was 87.75 percent, the fourth-highest in India (which had a national literacy rate of 74.04 percent). A state government survey in 2013 announced that Tripura has the highest literacy rate in India at 94.65 percent. Schools in Tripura are run by the state government, TTAADC (Tripura Tribal Areas Autonomous District Council) or private organisations, which include religious institutions. Instruction in schools is mainly in Bengali or English, though Kokborok and other regional languages are also used. Under the 10+2+3 plan, after completing secondary school, students typically enrol for two years in a junior college or in a higher secondary school affiliated either to the Tripura Board of Secondary Education or to other central boards. Students choose from one of the three streams—liberal arts, commerce or science. As in the rest of India, (Singh, Y.K et al., 2013) after passing the Higher Secondary Examination (the grade 12 examination), students may enrol in general degree programs such as bachelor's degree in arts, commerce or science, or professional degree programs such as engineering, law or medicine.

2.3.5. Mizoram:

The worst feature in the life of Mizoram was the treatment of the women. A woman had no rights at all. Body, mind and spirit, she belonged from her birth to death to her father, her brother, her husband. Her men folk could treat her as they like and a man who did not beat his wife was scorned by his friends as a coward. A woman possessed nothing-not even the few clothes she wore. She was not allowed to wear anything new. Her clothes had first to be worn by her men folk. The women did most of the work of the village.

When the foreign missionaries introduced the education system in Mizoram, female education was considered inconsequential because women were considered incapable of learning anything of consequence. Moreover education was considered a waste of time for girls who could do much more useful works at home. The fear that no men would marry a girl who goes to school at the cost of leaning household skills deter parents from sending their daughters to school.

The missionaries realised that female education system had to be planned in such a way as to teach girls skills that will make them useful in the family and the society. The first primary school was set up in 1898 at Aizawl by Christian missionaries. Mrs. K.E. Jones the wife of D.E. Jones, the first missionary sent by the Welsh Calvinistic Mission, maybe considered to be a pioneer in paving way for the development female education in Mizoram. She started her work among the Mizo women in 1903 and opened the first Girls' School with 12 girls at Aizawl in 1904 (Lalhmuaka 27). Later, Miss Chapman in 1919 and Miss Clark in 1923 and Miss Miss Alice Catherine Mastyn Lewis (Kitty Lewis) 1922, who was the only daughter of Sir J. Herbert Lewis contributed women education system in South Mizo and North Mizo. Their vision for the Mizo women was to give them an education that would not only give them book knowledge but also equipped them with skills like knitting, sewing, embroidery, hygiene and childcare that would make them enlightened and intelligent mothers and wives. They also taught to make going to school beneficial to the girls and their families. As these skills were taught to the village girls, the mindset of the young man also underwent a change and educated girls became more popular (V.Lalengkimi, 2010).

The state has long enjoyed higher literacy rates than average literacy rates for India. In 1961, the literacy was 51% (C. Nunthara, 2002). By 2011 census, it had reached 92%, compared to 74% average for India. Mizoram is second only to Kerala.

There were 3,894 schools in Mizoram as of 2012 which are run by the state and central government or by private organisation.. Of these, 42% are publicly owned and managed by Central/State governments, 28% are private without government subsidies, 21% are private with government subsidies, and the rest are primary and middle schools that are government financed by run by three Autonomous District Councils of Mizoram. Instruction is mainly in English and Mizo. The teacher-pupil ratio is about 1:20 for primary, 1:9 for middle School, 1:13 for high, and 1:15 for higher secondary schools.

Mizoram has one Central University (Mizoram University), one engineering college (National Institute of Technology Mizoram) and one private university (a branch of the Institute of Chartered Financial Analysts of India). A medical college, Mizoram Institute of Medical Education and Research (MIMER) was also inaugurated on 2018 and offer 100 seats for MBBS course. But not a single women college is established till now.

Mizoram is the second most literate state in India (91.58 percent), with Serchhip and Aizawl districts being the two most literate districts in India (literacy rate is 98.76% and 98.50%), both in Mizoram. Mizoram's literacy rate rose rapidly after independence: from 31.14% in 1951 to 88.80% in 2001. Mizoram has a social structure that is relatively free of hierarchy and strong official intent to produce total literacy. The government identified illiterates and organized an administrative structure that engaged officials and community leaders and manned by "animators" who were responsible for teaching five illiterates each. Mizoram established 360 continuing education centres to handle continued education beyond the initial literacy teaching and to provide an educational safety net for school drop-outs.

2.3.6. Nagaland:

Nagaland is the smallest state in the country yet reflects a quality education system. It is progressing towards educational development. The government has been constantly moving towards providing education for all. Nagaland Education Mission Society regulates the schemes and policies developed by the government to promote education in the state. Women, in Nagaland, definitely have surged past men in academia, particularly

in research work. Besides, more women are attending colleges in pursuit of higher education and graduating with bachelor and master degrees under regular mode than their male counterparts. The All India Survey on Higher Education (AISHE) 2016-17 report, released by the Human Resource Development (HRD), affirmed the contention that in the echelons of higher education, women are decisively ahead of men in the state. In Doctor of Philosophy (PhD), considered the highest academic degree awarded by universities in most countries, out of a total current enrolment of 232 scholars in Nagaland, 138 are women and 94 men. Under Master of Philosophy, the female-male ratio is 9:1 in Nagaland. The all India data for PhD scholars is 81795 males and 59242 females respectively, out of total 141037 current enrolments. In Post Graduate (PG/MA) degree, it was evenly poised with 2968 male and 2824 out of current total enrolment of 5792 students. However, in regular mode, women again outshine men with 1403 and 951 enrolment respectively. Overall, there are currently 40762 registered students for various courses in higher education with 20192 men and 20570 women. In regular mode, out of 35120 persons, 18317 are women while 16803 are men, according to the AISHE data (Morung express news, 2018).

As per the data shared by the state education board in 2019, there are up to 730 recognized schools in the state. Out of the total schools, 200 schools are private. According to AISHE Report 2019, the state has up to 67 colleges and 16 stand-alone institutions across the state to impart higher education in various regular and specialized disciplines. St. Joseph College, Jakhama is the only women college set up in the state. As per the data shared by University Grant Commission, there are 4 universities in Nagaland out of which, one is a central university and three are private universities.

With an impressive literacy rate of 79.55% Nagaland stands at 15th place in India. As per Census 2011, the literacy rate among male population is 82.75%, while 76.11% of the female population is literate. Mokokchung district in Nagaland recorded the highest literacy rate of 92.68% in the state. The overall literacy rate in urban area of Nagaland is 89.62 per cent and the rural area is 79.35 per cent.

2.3.7. Arunachal Pradesh:

Till very recent times, the people of Arunachal Pradesh were unfamiliar with the written form of language. Except Buddhist tribes of Kameng District and Lower Lohit valley, other tribes did not have their own scripts. Monasteries provided religious

instructions in Tibetan language in Kameng region and Khamtis got these traditions from its Tai ancestors in Burma. Since there is no formal educational institution, knowledge was passed from generation to generation, through oral histories and learning by doing from the elders. A girl child follow and learns from her mother and other women folks of the family in various household activities such as weaving, cooking, brewing wine (opong) etc. Moreover, community institutions for instances like Musup and Raseng among the Adis etc played an important role in teaching both young men and women the responsibilities that were relevant to their needs. The institutions like Kebang of the Adis, Buliang of the Apatanis, Nyelley of the Nyishis, etc help in imparting knowledge to the youths.

During the Post Independence period the Government of India introduce an integrated and wide spread nature of policy and programmes in Arunachal Pradesh. In 1947, Indira Miri is appointed as the education officer with headquarters at Sadiya Frontier Tract (Dutta Choudhury S., 1981). The main aim of the integrated policy includes that apart from the teachers the political officers and their educated staff will teach the tribesmen to develop love and loyalty to the Indian nation. At the same time they also teach to build up and manage their village council for judicial and developmental work, to inspire them with the ideas of equality, justice, cleanliness, cultivations, construction of house and road, safeguard the environment etc were introduced to create a familiar surroundings (Karabi Bharali, 2010).

Though many educational policies came into existence, Arunachal Pradesh followed the goals and objectives of National Policies of Education of 1968 and 1986 because of certain issues like affiliation, political and administrative growth etc. The formation of the Government of Arunachal Pradesh, in 1972, it created different committees and Commissions and appointed officials to execute above mentioned programmes to check educational developmental in the state. However Arunachal government had launched an innovative scheme under which an amount of Rs 5,000 will be kept in fixed deposits for 50 girls each studying in class VI in every district (The Assam Tribune, 2007). The scheme was launched by CM Dorjee Khandu at a function for Sarva Shiksha Aviyan [SSA] programme to make Arunachal Pradesh a 100 percent literate State by 2010..

Arunachal Pradesh has 25 colleges which are affiliated to different university like Rajiv Gandhi University (RGU), Itanagar; Central Agricultural University, Imphal; North Eastern Hill University, Shillong; All India Council for Technical Education (AICTE), New Delhi; Annamalai University, Annamalai Nagar and Venkateshwara Open University (VOU), Itanagar. Out of 25 colleges, Dera Natung Government College, Itanagar affiliated to RGU is the only women college in Arunachal Pradesh.

Female literacy rate for Arunachal Pradesh, according to census 2001, was only 44.24 per cent, much lower than the national average of 54.03 per cent. However the state has made rapid progress in raising the female literacy from only 14.02 per cent in 1981 to 44.24 per cent in 2001. However, female literacy rate in rural areas is as low as 37.56 per cent, and the rural-urban gap in female literacy continues to be very high. Among the ST population female literacy has gone up from 7.31 per cent in 1981 to 24.94 per cent in 1991. Adult literacy rate for females went up from 20.18 per cent in 1981 to 26.43 per cent in 1991, but in rural Arunachal Pradesh female literacy was only 19.13 per cent, which was much below other than north-eastern states.

2.3.8. Sikkim:

Education in Sikkim for most of the nineteenth century was of the monastic type. Buddhist literature was read both at home and in the monastic schools. Monastries and temples have made a significant contribution to the education in Sikkim. The fundamental Buddhist teaching and chanting of some important prayers included in religious books formed the curriculum of monastic education. The curriculum also included the study of diversified subjects such as painting, sculpture, astrology, mathematics, medicine, philosophy, literature, tantra and so on (Vimal Khawas,2006).

By the late nineteenth century, there was the gradual advent of the Christian Missionary Education in Sikkim with some support from the landlords/Kazis. In 1924, Mary Scott was for the first time allowed to open a school for girls in Gangtok, the first matriculation class of which passed out the examination (with four candidates) in 1945. The school continued to grow and became a recognized higher secondary school in 1961. One of the main features of the Missionary schools for girls was the industrial teaching mainly sewing and knitting. Besides, vocational training was also a part of the curriculum.

In present era, there are a total of 1,157 schools in the state of Sikkim, including 765 schools run by the state government, seven central government schools and 385 private schools (Balmiki Prasad Singh 2010). There is one Institute of National Importance, one central university and four private universities in Sikkim offering higher education.

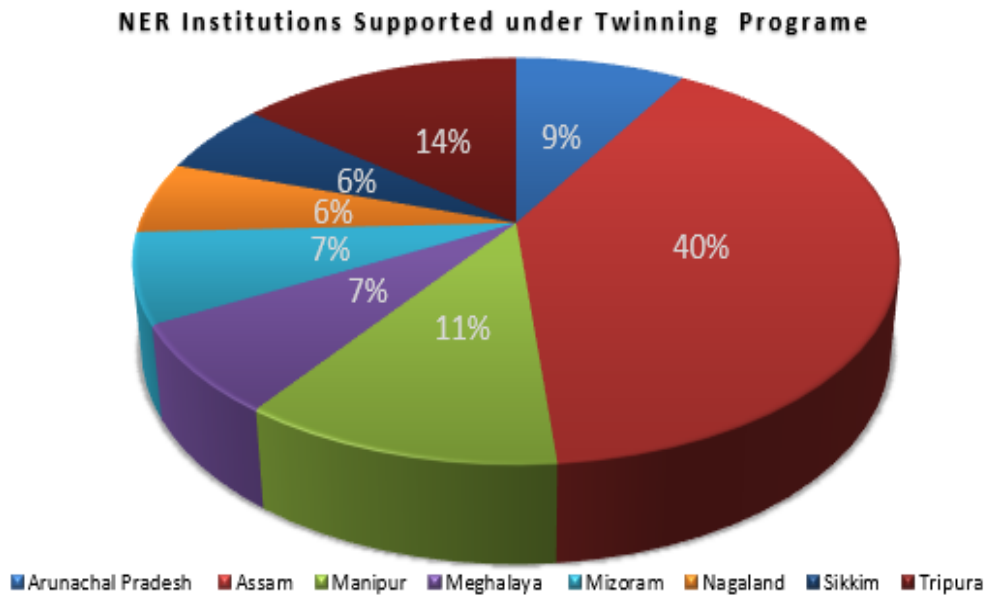
The NIT Sikkim has state of art supercomputing facility named PARAM Kanchenjunga which is said to be fastest among all 31 NITs. Sikkim University is the only central university in Sikkim. The public-private funded institution is the Sikkim Manipal University of Technological Sciences, which offers higher education in engineering, medicine and management. It also runs a host of distance education programs in diverse fields.

Literacy and enrolment rates have continued to rise, and Sikkim now has one of the highest rates in the country. In 1951, Sikkim's literacy rate was less than 7%–barely 11% of men and 1% of women could read and write. In the ten-year period from 2001 to 2011, Sikkim had one of the fastest advancing literacy rates in India, improving from 68.81% to 82.2%, and ranking 13th of India's states. The gap in literacy between males (at 87.29%) and females (at 76.43%) was 10.86% in 2011, a significant improvement over the 15.64% gap ten years before. More girls than boys are enrolled at every level of education. Even though the state performs well on its Gender Development Index (GDI) the enrolment of girls is lower than that of boys at all levels except in the middle School. The girls' dropout rate is higher because of relatively early age of marriage. Over 60% of rural women and 70% of urban women get married before they are 20 years old.

2.4. Situation on STEM in the north eastern region:

The Twinning DST sponsored scheme/ programme for NER was initiated in 2010-2011 towards developing core competence and core capacity in various areas of biotechnology through collaboration of Institutes from North East India with other National Institutes. This Programme has made a huge impact by catalysing vibrant collaborations between institutions from NER and those from the rest of India, evolving NER-specific projects and their implementation across all eight states of the region.

Figure 1: DST scheme/programme for NER.



About 670 Twinning projects have been supported since inception of the scheme in 2010, addressing issues in all areas of Biotechnology with specific relevance to developmental needs of the region; nearly 250 research papers have been published in peer-reviewed journals and more than 2000 young researchers/students of NER have been trained in advanced biotechnology. These projects have been supported in 70 Institutes across NER.

The programme aims to identify and nurture outstanding mid-career scientists with excellent track record in research, who possess innovative ideas and are desirous of pursuing research in frontier areas of biological sciences.

Since inception, 34 outstanding scientists from the North East Region have been supported under the programme through funding of their innovative projects across 12 Institutes in NER. Under the programme 3 patents have been filed and 45 research papers have been published.

2.5. Benefits for STEM to the north eastern region:

North East states are cladded with mountains and forests. Due to the harsh geopolitical location, these states do not have access to education tools as compared to

other central Indian states. But this perception is changing rapidly. Due to involvement of government and many CSR organizations the states are also evolving according to the modern education stand.

STEM Learning already has 2000 science centres all over India. The first north eastern state to receive STEM Centre is Assam. 4 STEM Centres were established in cooperation with ONGC and 2 others. The schools are utilizing the MSC very well. In fact one of the schools won prizes at the Stem National Stem Competition.

But apart from Assam there are many new schools coming up in other states. In Nagaland, there is an MSC being implemented in Kohima district which is a pride in the hill city. In Tripura, many MSCs are also being set up. Due to the rapid modernization in education and other sectors Tripura is also slowing evolving. STEM is establishing MSCs in Manipur, the state better known for its hills and home of Mary Kom, the Olympic medalist from India in boxing.

But still many north eastern states were awaited for stem centre to develop more emphasis on creativity, inquiry skill, S&T, ED thinking and problem based learning for lunative carrier for years to come. So from above one can imagine that the STEM centre are helping education field in many ways in north eastern India.

3. Survey and Data Collection:

3.1. Introduction

Initially state-wise WOS were categories and group for collecting information and different tools were used to collect information like mailed questionnaire, interview schedule, telephonic conversation and mobile message, social media platform like WhatsApp. and associate and mentor wherever and whenever possible. In some case, home and institution visit were also made to hand over the questionnaire (hard copy) whenever necessary. Contact number and others were collected from WOS for further conversation in future. Distributions of the survey format were started from the month of July, 2019 and in return the filled in data were started receiving from September, 2019. Overall, 87 WOS from entire north eastern India submitted the data till November, 2020 and the analysis for the compilation were done from the received data.

3.2. Survey Questionnaire and Methodology for Getting Responses:

WOS-A, WOS-B, WOS-Biocare and WOS-PDF_UGC were surveyed with the survey questionnaire format A and WOS-C with format B. This format was sent through email ID, WhatsApp, and sometimes in few cases, directs handing over of hard copies to WOS.

For collecting the data following tools were used –

I. Mailed questionnaire

II. Interview schedule

III. Telephonic conversation and mobile message

IV. Social media platform like WhatsApp.

V. Associate and mentor

3.3. Methodology for collecting other (secondary) Data:

In case of secondary data, following sources were used-

1. Statistical hand book of North East states.
2. Mentor's statement.
3. Organization/institute bulletins
4. Search engine (google)

3.4. Problems and Challenges:

Different strategies were performed to collect the database individually from WOS. Few problems were also faced while trying to collect the database. The problems are as follows:

I. No proper address and telephonic numbers.

II. Shifting of places or home address.

III. Reluctant behaviour of WOS in providing information due to non-received of project fund in full.

IV. Some WOS personally not willing to submit for the reason best known to them.

V. Received only project title without both the name of the beneficiary and mentor.

VI. Wrong email address.

VII. Confidential of WOS or mentor details from Institution or University level.

VIII. Poor response of mentor in regards to providing details of WOS who are untraceable

The overall challenge faced was mainly created due to the gap in communication amongst WOS, Mentor and enumerators.

4. Analysis:

4.1. Introduction:

Initially, all the North Eastern state women Scientists who have implemented the project during 2002 to 2018 were listed and tabulated state-wise. Thereafter, well pretested questionnaires were mailed electronically to all the women scientists of North Eastern states of India. In some cases, home and institutions visit were also made to collect data through personal interview besides use of different social media to collect the data.

In order to study the impact of the project, ex-post facto study design was adopted. After the receipt of the duly filled questionnaires, the data so received were categorized and tabulated according ordinal and normative attribute of the data. Finally, the arranged data sheets were put to statistical analysis. Statistical tools and measures like mean, percentage, frequency, Spearman rank Co- relational measure of association etc were employed for statistical analysis. Help were also taken from statisticians (expert) belonging to different institute or organisation.

4.2. Women Scientists Responses:

1. WOS-A:

No of responses w.r.to total no of beneficiaries:

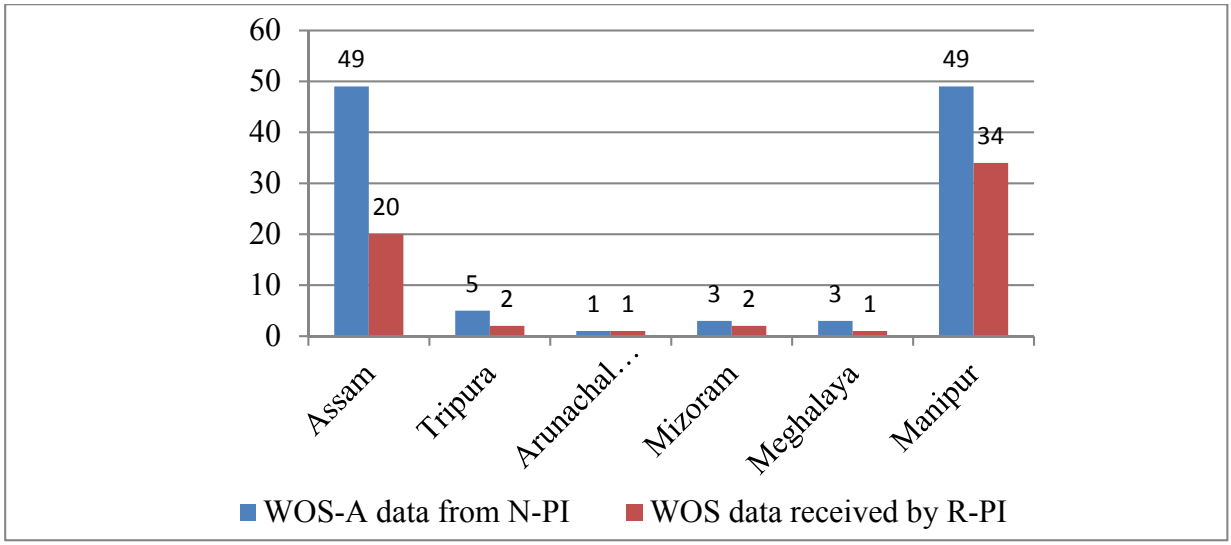
Figure 2 and **table 10** show that the total number of WOS-A data received from N-PI with maximum number of 49 WOS each was received from the state of Assam and Manipur with 80% as against the total number of 110 WOS-A followed by Tripura (5) with 60 %, Mizoram (3) with 20 %, Meghalaya (3) with 20 % and Arunachal Pradesh (1) with 0 %.

Overall responses, Manipur WOS-A ranks first followed by Assam, Tripura and Mizoram and the least responses were received from Arunachal Pradesh and Meghalaya with 0.00 per cent.

Table 10: Total number of WOS-A data received from N-PI and of response to R-PI

State	Data received from N-PI	Rank	Percent (%)	State	Data submitted to R-PI	Rank	Percent (%)
Assam	49	1	80.00	Manipur	34	1	100.00
Manipur	49	1	80.00	Assam	20	2	80.00
Tripura	5	3	60.00	Tripura	2	3	40.00
Mizoram	3	4	20.00	Mizoram	2	3	40.00
Meghalaya	3	4	20.00	Arunachal Pradesh	1	5	0.00
Arunachal Pradesh	1	6	0.00	Meghalaya	1	5	0.00

Figure 2: Total number of WOS data received from N-PI and of response to R-PI.



Geographical Spread:

Out of 60 responded WOS-A, a total of 53 WOS-A were of married WOS and remaining 7 were unmarried. Manipur recorded first rank with 100.00 per cent in both the categories with 28 married and 6 unmarried followed by Assam (80.00 per cent) with 19 married and 1 unmarried. Tripura and Mizoram recorded 2 each of married WOS (40.00 per cent) and Arunachal and Meghalaya (0.00 per cent) were of 1 each married WOS.

There was no record of unmarried WOS (0.00 per cent) from the state of Tripura, Arunachal Pradesh, Mizoram and Meghalaya and shown in **table 11** and **figure 3**.

Table 11: Marital status of responded WOS-A from NER.

State	Married WOS	Rank	Percent	State	Unmarried WOS	Rank	Percent
Manipur	28	1	100.00%	Manipur	6	1	100.00%
Assam	19	2	80.00%	Assam	1	2	80.00%
Tripura	2	3	40.00%	Tripura	0	3	0.00%
Mizoram	2	3	40.00%	Arunachal Pradesh	0	3	0.00%
Arunachal Pradesh	1	5	0.00%	Mizoram	0	3	0.00%
Meghalaya	1	5	0.00%	Meghalaya	0	3	0.00%

Figure 3: Marital status of responded WOS-A from NER.

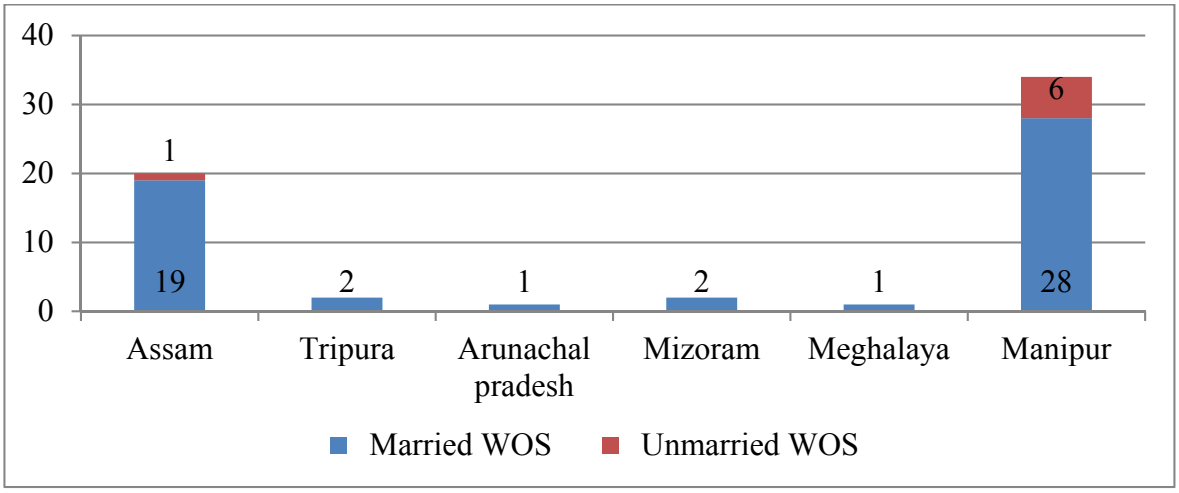


Figure 4 and **table 12** shows the categories of submitted WOS-A status. In general category, Assam responded with 15 WOS which was followed by Manipur (13), Tripura (2), Arunachal Pradesh and Meghalaya (1) each and Mizoram zero respondence with the category. In OBC category, Only Manipur and Assam responded with 18 WOS and 4 WOS and others NE State are of zero respondence. Mizoram and Manipur responded with 2 each WOS and 1 in Assam in ST category and Manipur responded with

1 WOS in SC category. In overall, general category is significantly and positive correlated with SC and ST but moderately correlated with OBC category **(table 13)**.

Table 12: Category wise of the WOS-A.

*State	General	Rank	*State	OBC	Rank	*Point	ST	Rank	*Point	SC	Rank
1	15	1	6	18	1	4	2	1	6	1	1
6	13	2	1	4	2	6	2	1	1	0	2
2	2	3	2	0	3	1	1	3	2	0	2
3	1	4	3	0	3	2	0	4	3	0	2
5	1	4	4	0	3	3	0	4	4	0	2
4	0	6	5	0	3	5	0	4	5	0	2

*1=Assam; 2=Tripura; 4=Mizoram; 3= Arunachal Pradesh; 5=Meghalaya; 6=Manipur

Table: 13: Correlation among the category wise of WOS-A

	General	OBC	ST	SC
General	1			
OBC	0.72	1		
ST	0.43	0.61	1	
SC	0.55	0.97	0.58	1

Figure 4: Demographic representation of category wise of WOS-A.

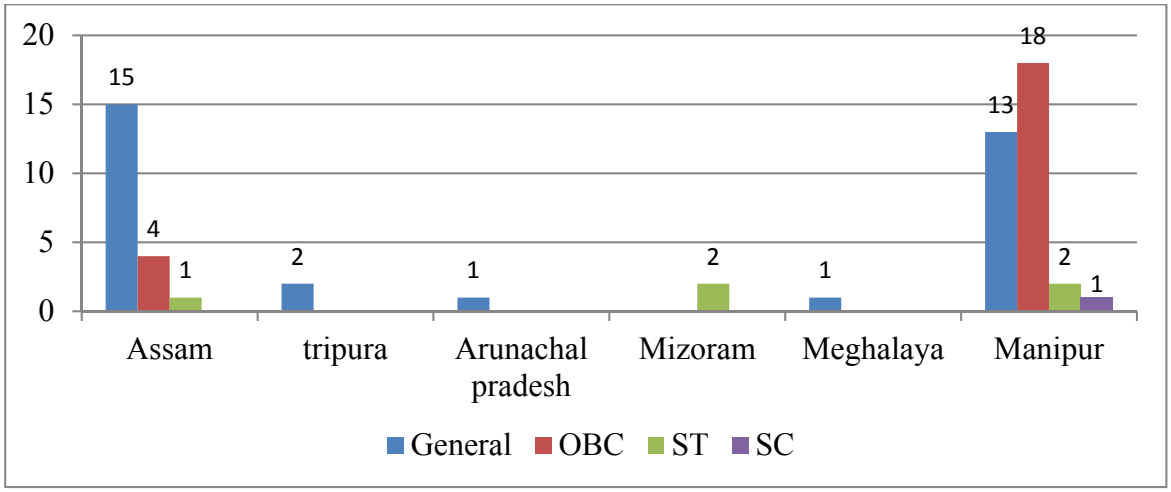


Table 14 and **Figure 5** shows the educational qualification status of WOS-A. The responded WOS-A completed PhD is high in the state of Manipur with 30 WOS which

was followed by Assam (18 WOS), Mizoram (2 WOS) and Meghalaya (1 WOS) whereas those completed M. Phill is only in the state of Tripura and Arunachal with 1 WOS each. But M,Sc completed WOS was also high in Manipur with 4 WOS and followed by Assam (2 WOS) and Tripura (1 WOS). Educational qualification of WOS-A is significantly negatively correlated with M.Phill and strongly and positively correlated with M.Sc. **(table 15)**.

Table 14: Status of WOS-A with their educational qualification.

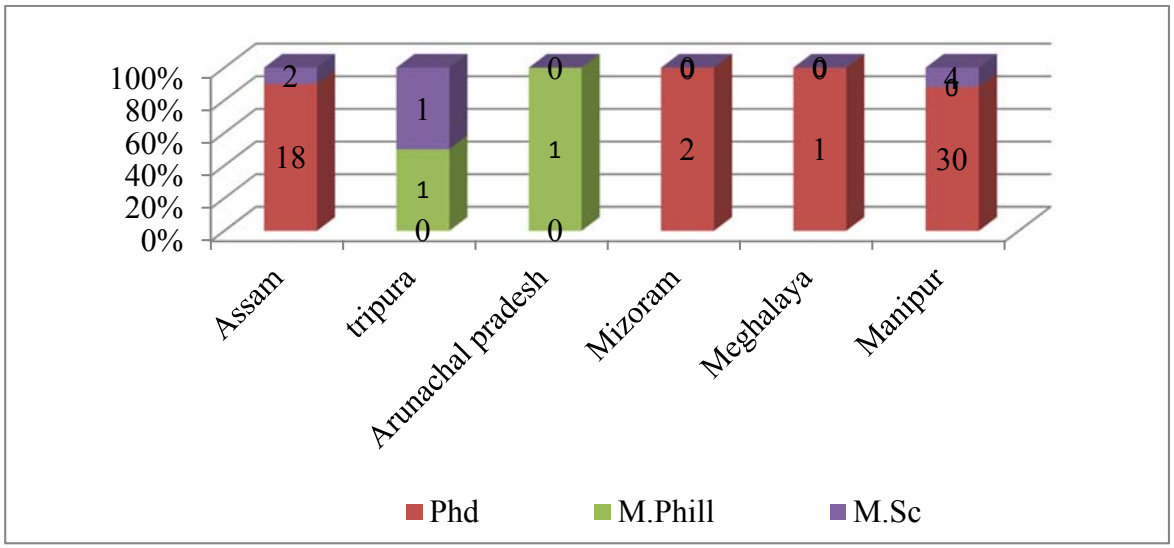
**Point*	*PhD*	*Rank*	**Point*	*M.Phill*	*Rank*	*Point*	*M.Sc*	*Rank*
6	30	1	2	1	1	6	4	1
1	18	2	3	1	1	1	2	2
4	2	3	1	0	3	2	1	3
5	1	4	4	0	3	3	0	4
2	0	5	5	0	3	4	0	4
3	0	5	6	0	3	5	0	4

*1=Assam; 2=Tripura; 3= Arunachal Pradesh; 4=Mizoram; 5=Meghalaya; 6=Manipur

Table 15: Showing of correlation coefficient with educational qualification

	PhD	**M.Phill**	**M.Sc.**
PhD	1		
M.Phill	-0.45	1	
M.Sc.	0.95	-0.26	1

Figure 5: Status of WOS-A with their educational qualification.



Negative correlation of the institute to WOS was observed with Tripura University, Rajib Gandhi University, Punghunga University, and NEHU and this indicate the lesser number of women scientist were conducted the project with these institute. Strong positive correlation was observed with KVK, ICAR, MU, Guwahati University, NIT, and Cotton University and also indicates the highest number of women scientist involvement in conducting the project with these institutes. Slightly positive correlation was also observed with CSIR, Dibrugarh University, IIT-Guwahati, Assam Agricultural University, Assam University, Tezpur University, North East Institute of Science and Technology, Institute of Advance Study in Science and Technology, ICMR-Regional Medical Research Centre and National Institute of Pharmaceutical Education & Research (**table 16**).

Table 16: Showing of correlation Institution and University conducted the women Scientist programme

	IBSD	CSIR	DU	CU	IIT	AAU	ICMR	AU	TZU	NIPE	NEIST	IASST	GU	ICAR	MU	KVK	TU	RGU	PU	NEHU	NIT
IBSD	1																				
CSIR	0.05	1																			
DU	0.05	1	1																		
CU	0.80	0.63	0.63	1																	
IIT	0.05	1	1	0.63	1																
AAU	0.05	1	1	0.63	1	1															
ICMR	0.05	1	1	0.63	1	1	1														
AU	0.05	1	1	0.63	1	1	1	1													
TZU	0.05	1	1	0.63	1	1	1	1	1												
NIPE	0.05	1	1	0.63	1	1	1	1	1	1											
NEIST	0.05	1	1	0.63	1	1	1	1	1	1	1										
IASST	0.05	1	1	0.63	1	1	1	1	1	1	1	1									
GU	0.80	0.63	0.63	1	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	1								
ICAR	0.96	-0.2	-0.2	0.63	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.63	1							
MU	0.96	-0.2	-0.2	0.63	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.63	1	1						
KVK	0.96	-0.2	-0.2	0.63	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.63	1	1	1					
TU	-0.25	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	1				
RGU	-0.25	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	1			
PU	-0.25	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	-0.2	1		
NEHU	-0.25	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.31	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	1	
NIT	0.96	-0.2	-0.2	0.63	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.63	1	1	1	-0.2	-0.2	-0.2	-0.2	1

Age Group of WOS-A:

Graphs in **figure 6 (a) and (b),** shows the age-wise distribution of WOS-A. About 58.33 % are from the age group of 40-50 years whereas 31.67% are from the age group between 30-40 years; another 10% is from the age group of 50 and above.

Figure 6(a): Age –wise distribution of WOS-A

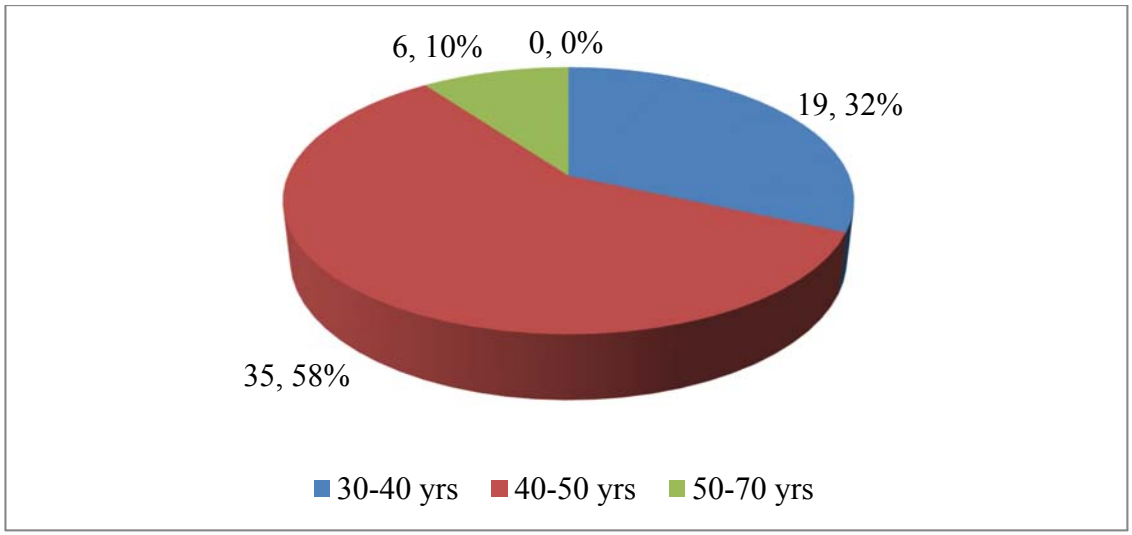
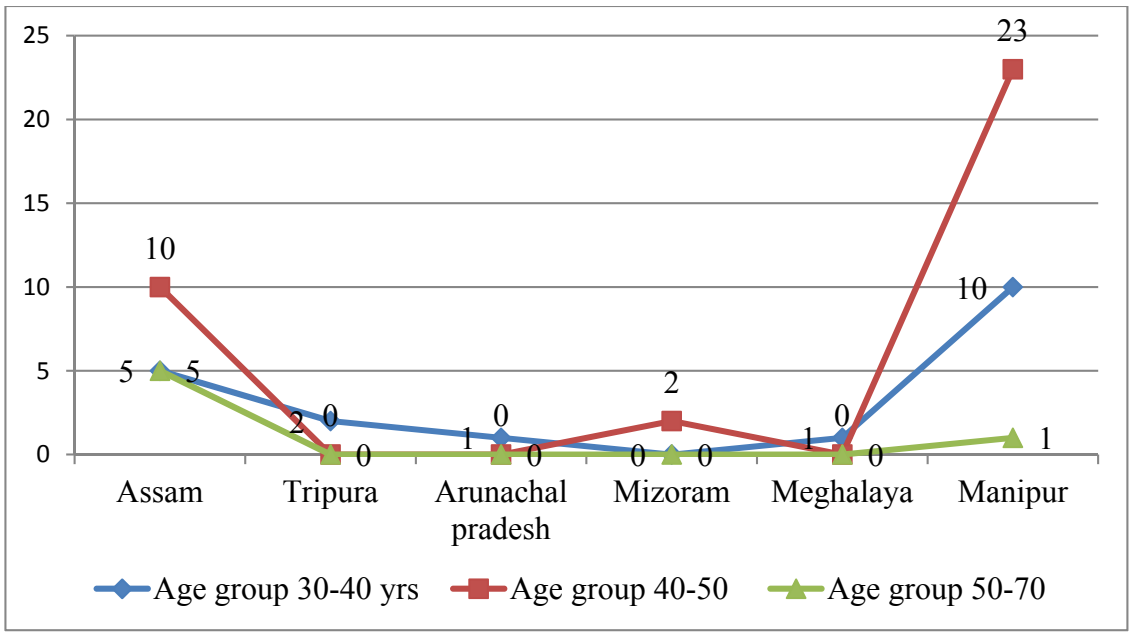


Figure 6(b): Age –wise distribution of WOS-A



Subjects-wise of WOS-A:

Figure 7 illustrates the subject division wise against the states. Assam state has one WOS of agriculture and allied subject, atmospheric science and Physical science, 4 WOS of mathematical science and chemical science and 8 WOS in the life science. Manipur has 2 WOS each at the subject division of agriculture and allied subject and earth science whereas 4 in the chemical science but 26 WOS in life science division. Tripura also has 1 each in the division of life science and chemical science. Arunachal Pradesh, and Meghalaya has 1 WOS in the division of life science and Physical science but Mizoram has 2 WOS in life science. The **table 17** shows significantly positive correlation with life science and chemical science but shows negative correlation with physical science.

Figure 7: Showing of subject wise division of WOS-A

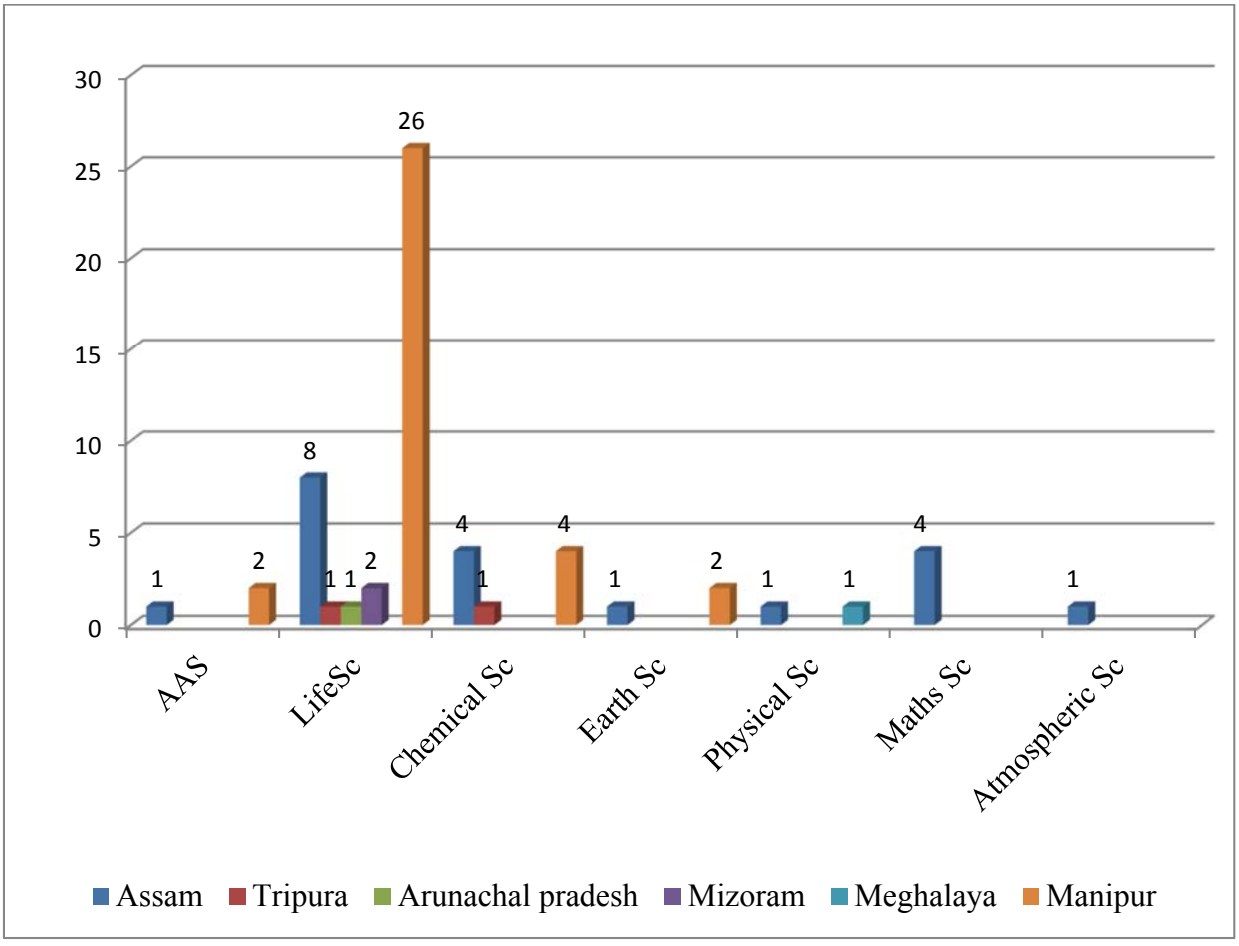


Table 17: Correlation between the subject wise division and WOS-A

Division	AAS	Life Sc	Chemical Sc	Earth Sc	Physical Sc	Maths Sc	Atmospheric Sc
AAS	1						
Life Sc	0.97	1					
Chemical Sc	0.90	0.80	1				
Earth Sc	1	0.97	0.90	1			
Physical Sc	-5.14	-0.17	0.19	-5.14	1		
Maths Sc	0.29	0.08	0.62	0.29	0.63	1	
Atmospheric Sc	0.29	0.08	0.62	0.29	0.63	1	1

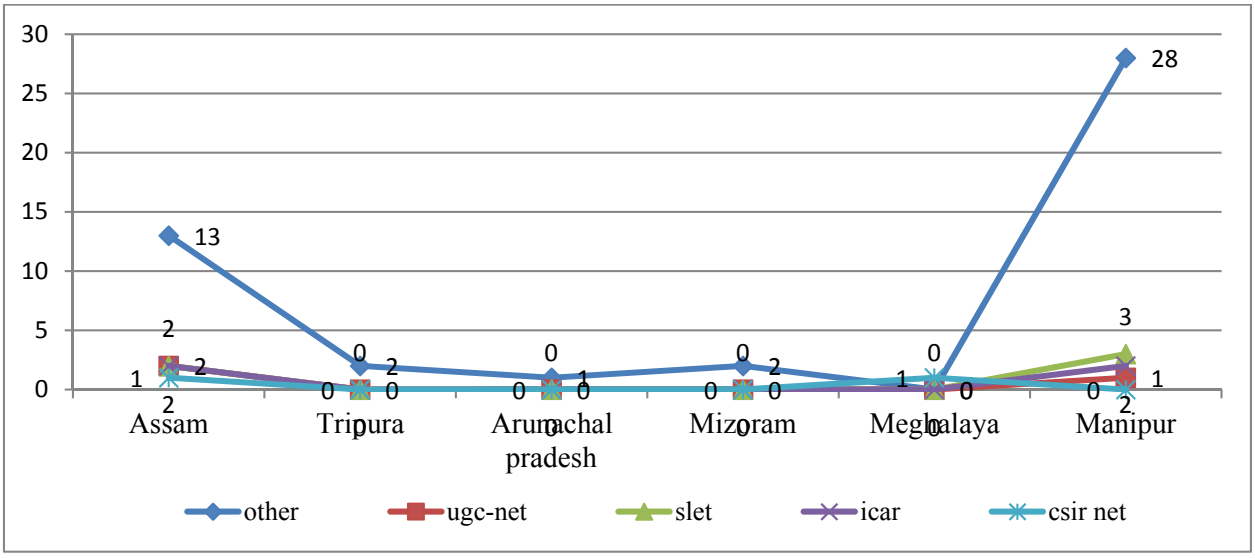
Table 18 and **figure 8** shows the eligible test cleared by the WOS-A. CSIR-NET cleared is observed in the state of Meghalaya and Assam with 1 each WOS whereas Manipur observed 2 WOS in UGC-NET cleared but Assam remained 1 WOS cleared. 3 WOS and 2 WOS cleared SLET from the state of Manipur and Assam. 2 each WOS of Assam and Manipur cleared ICAR test. But 28 WOS from Manipur, 13 WOS from Assam and 2 WOS each from Tripura and Arunachal Pradesh and 1 WOS from Mizoram cleared other category.

Table 18: Eligibility test cleared by WOS-A

* *Point*	*CSIR-NET*	*Rank*	* *Point*	*UGC-NET*	*Rank*	* *Point*	*SLET*	*Rank*	* *Point*	*ICAR*	*Rank*	* *Point*	*Other*	*Rank*
1	1	1	1	2	1	6	3	1	1	2	1	6	28	1
5	1	1	6	1	2	1	2	2	6	2	1	1	13	2
2	0	3	2	0	3	2	0	3	2	0	3	2	2	3
3	0	3	3	0	3	3	0	3	3	0	3	3	2	3
4	0	3	4	0	3	4	0	3	4	0	3	4	1	5
6	0	3	5	0	3	5	0	3	5	0	3	5	0	6

*1=Assam; 2=Tripura; 4=Mizoram; 3= Arunachal Pradesh; 5=Meghalaya; 6=Manipur

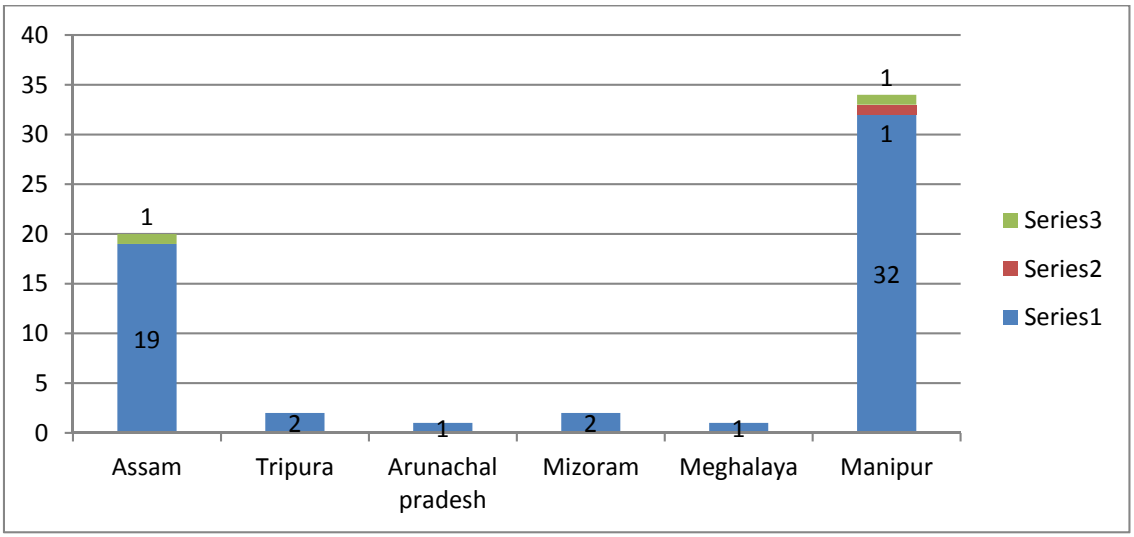
Figure 8: Graphical representation of eligibility test cleared by WOS-A



No. of projects, no of schemes availed by WOS-A:

Figure 9 shows the number of project availed from the Government of India's Gender Mainstreaming programme by WOS-A. 57 WOS-A from north eastern states availed only one project from the Government of India's Gender Mainstreaming programme but 1 WOS availed 2 project and 2 WOS availed 3 project from Government of India's Gender Mainstreaming programme.

Figure 9: Demographic representation of Gender mainstreaming project availed by WOS-A



From **Figure 10** it is evident that break in career while conducting the project was maximum in Manipur by 29 WOS followed by 16 WOS in Assam 2 each in Tripura and Mizoram and 1 each in Meghalaya and Arunachal Pradesh but WOS conducting the project without break is 5 in Manipur and 4 in Assam.

Figure 11 shows that the incidence of break less than one year is the highest in Manipur with 7 WOS. Incidence at 48 months break decreases in 6 WOS and less decreased is observed at 60 months with 2 WOS in Manipur. Assam slightly increase at 24 months from 12 months was observed and decreases from 36 months to 2 WOS. Others states shows markly different in duration of break.

Figure 12 shows the distribution of breaks by type of break. Irrespective of the number of break, the most common type of break reported is from the family responsibility followed by marriage and maternity leaves.. Others and not suitable job stood next reason of break and shifting of place shows least reason of breaks.

Figure 10: Responses of break in career by WOS-A

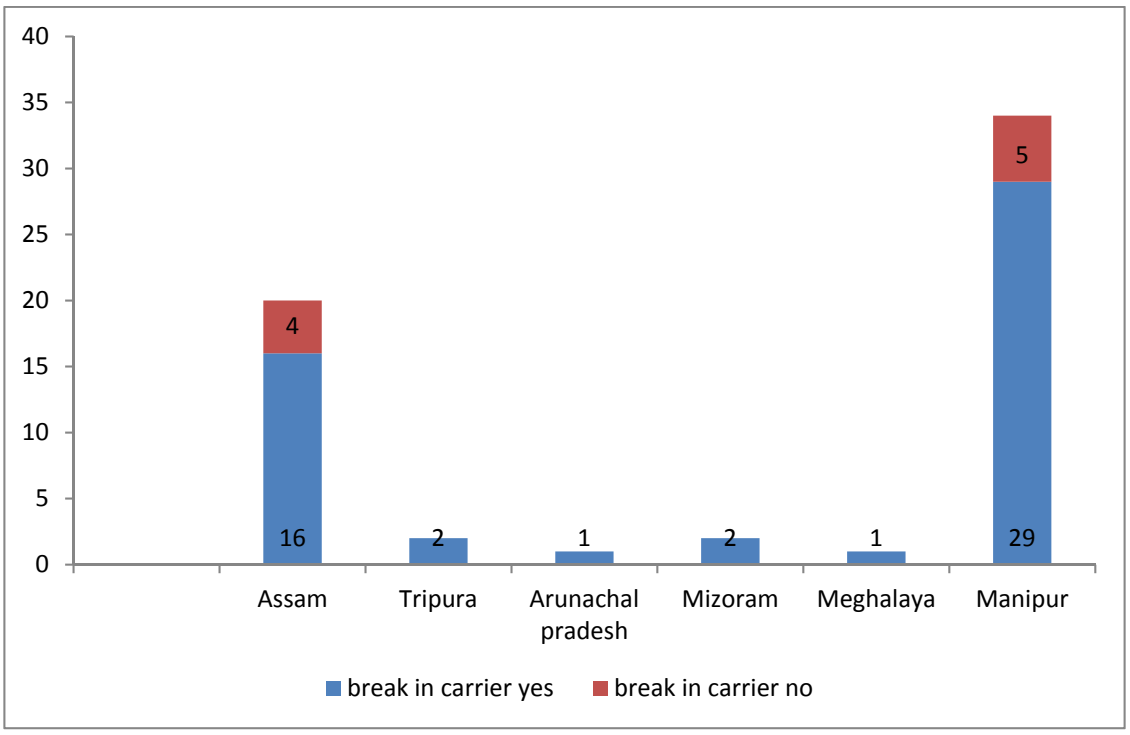


Figure 11: Duration of break from WOS-A of NER

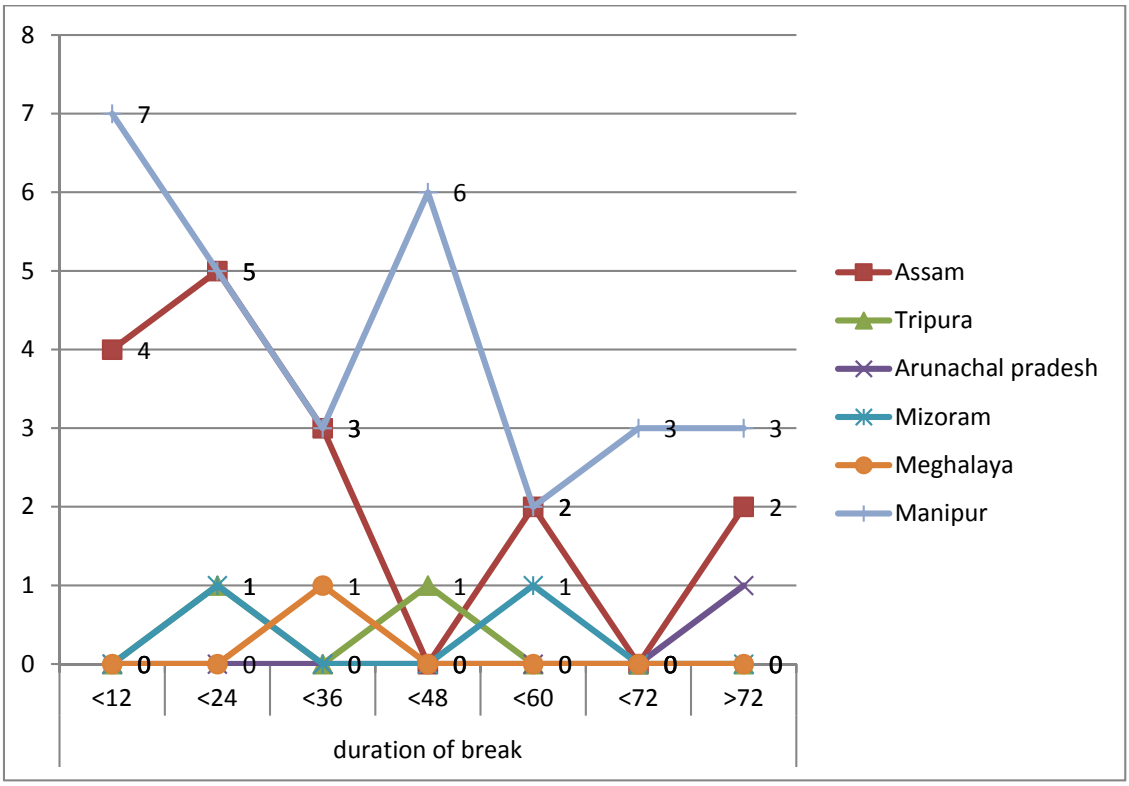
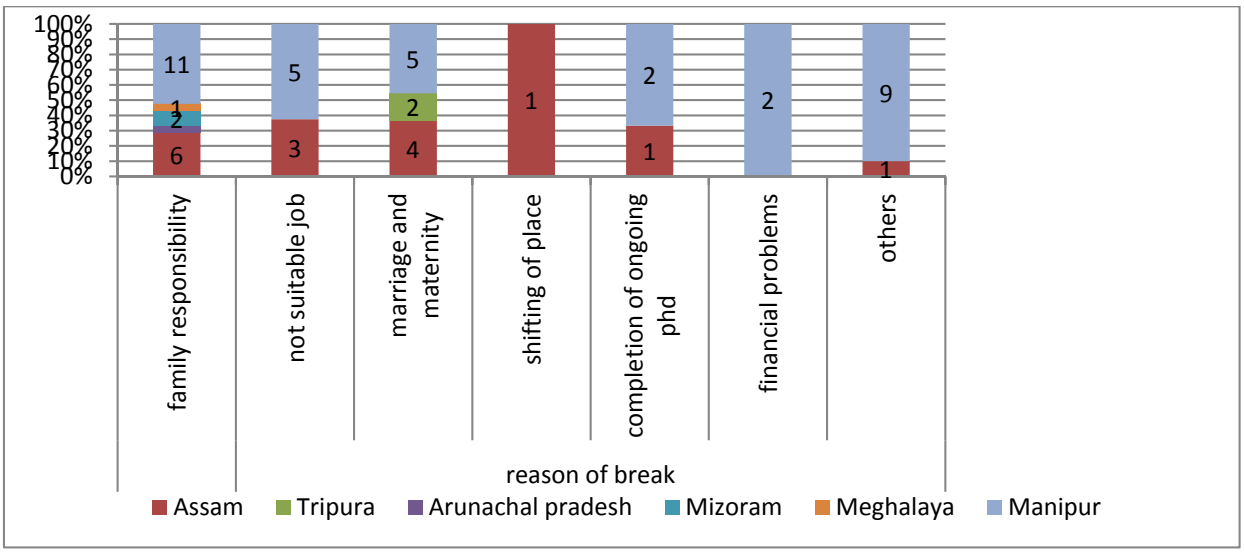


Figure 12: Demographic representation of reason of break in career by WOS-A of NER



Achievements of WOS-A:

Figure 13 shows the duration of the project as per sanctioned order in months. Every WOS from the state of north eastern region received the project with 36 months but

one WOS from Assam left the project at just 20 months. But two WOS from Manipur availed the project for 48 months and 60 months respectively.

Figure 13: Demographic representation of duration of the project awarded

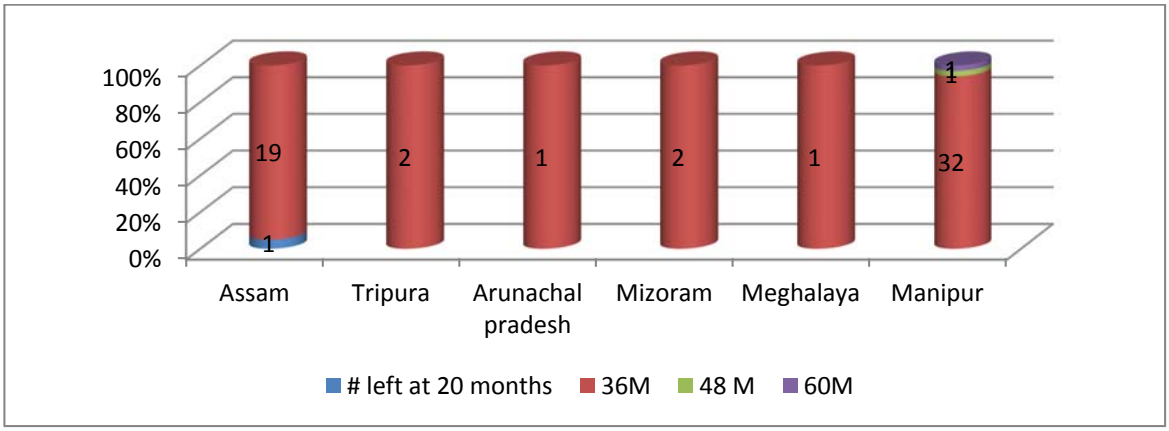


Figure 14 and **table 19** shows the status of the availed project for WOS of the north eastern region. 4 WOS from Manipur and 2 WOS from Assam left the project in between. 22 WOS from Manipur, 18 WOS from Assam, 2 WOS from Mizoram and 1 WOS from Tripura completed the project but 8 WOS from Manipur, one each from Tripura, Arunachal Pradesh and Meghalaya still on continuation of the project.

Figure 14: Status of the project for WOS of NER

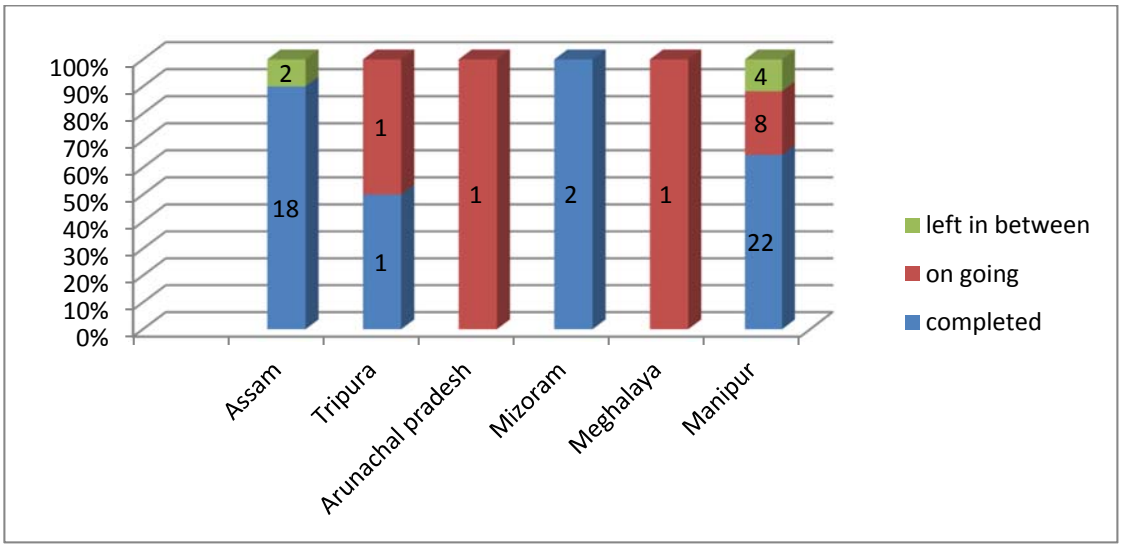


Table 19: Showing of status of the project for WOS-A

*Point	Column1	Rank	*Point	Column2	Rank	*Point	Column3	Rank
6	22	1	6	8	1	6	4	1
1	18	2	2	1	2	1	2	2
4	2	3	3	1	2	2	0	3
2	1	4	5	1	2	3	0	3
3	0	5	1	0	5	4	0	3
5	0	5	4	0	5	5	0	3

*6=Manipur; 1= Assam; 23=Tripura; 4=Mizoram; 3 = Arunachal Pradesh; 5=Meghalaya

Figure 15 shows the request for the extension of the project by WOS of the north eastern region. The request for the extension of the project was proposed only by Assam and Manipur WOS.

Figure 15: Demographic representation of the request of the extension of the project

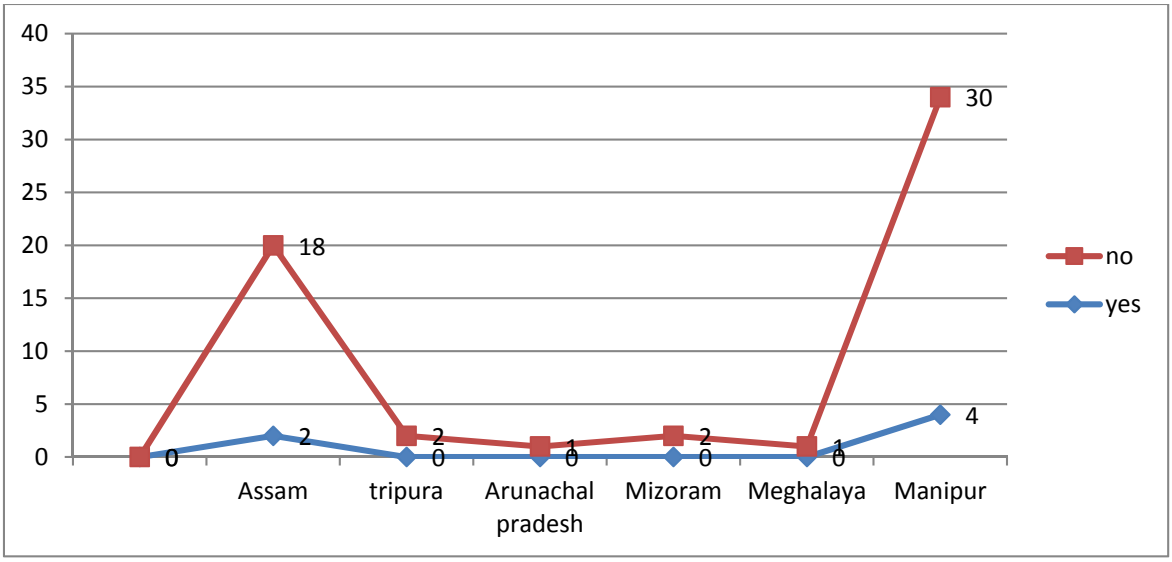


Figure 16(a) & (b) and table shows the transfer of the project to another institute. Seven WOS from Assam state and one WOS from Manipur state transfer the project from former institute to another institute. The reasons for the transfer of the project to another institute in case of Assam WOS were shifting of family/ change of resident, non

satisfaction of laboratory, permanent job and personal reason and not satisfaction of laboratory was observed in Manipur WOS as one of the reason for transfer of project.

Figure 16 (a): Demographic representation for transfer of the project to another institute

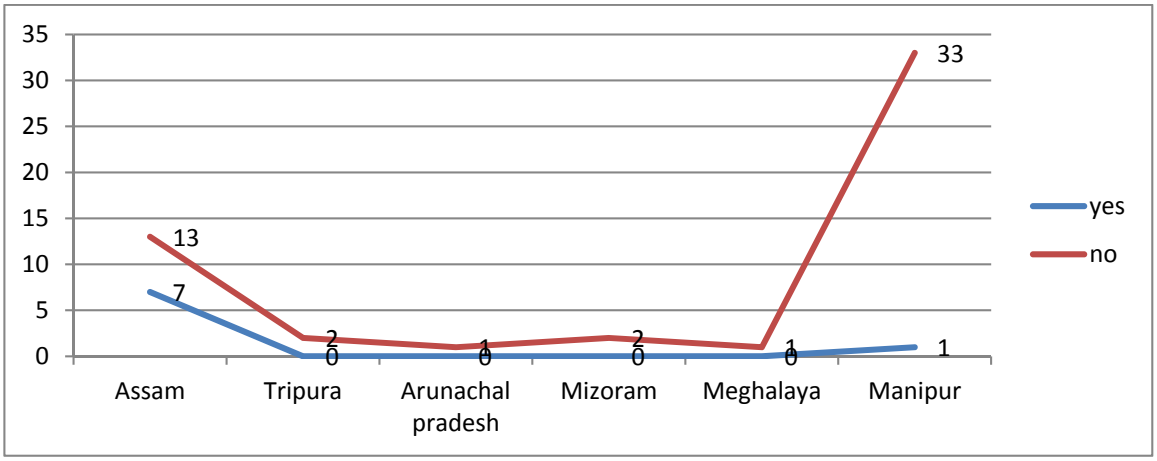


Figure 16 (b): Demographic representation for the transfer of project to another institution

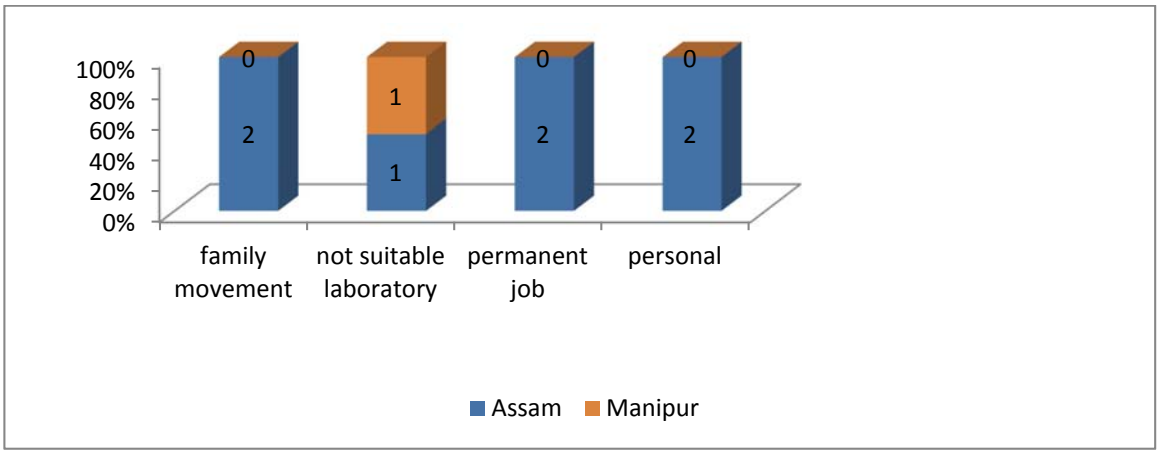


Figure 17 (a) & (b) shows the employment status of the WOS before and after the project awarded and WOS before and after completion of the awarded project remained unemployed is maximum in Manipur WOS and followed by Assam WOS and one each of the WOS from Tripura, Arunachal Pradesh and Mizoram remained unemployed before the award of the project but Tripura WOS remained unemployed after the completion of project. WOS from Manipur and Assam works before as a RA/RS/SRF but after completion of the project Tripura, Mizoram WOS also worked as RA/RS/SRF. Before the

award of project, one WOS each from Assam and Meghalaya worked as assistant professor and WOS from Manipur also works as assistant Professor but Meghalaya WOS quite the job. Two WOS from Manipur worked as lecture and one each from Assam, Tripura and Mizoram worked as lecturer before the project awarded but after completion of the project two WOS's from Assam and one WOS from Manipur worked as lecturer. Before the project was awarded, out of three WOS from Manipur, one WOS worked as Scientist and two WOS received PhD scholarship and Post doctorate fellowship at the end of the project. After the completion of the project, one WOS from Manipur was further awarded on project of WOS at IBSD, Imphal.

Figure 18 shows the current position of the WOS's. PhD scholar was observed in Tripura State but unemployment status of the WOS was observed maximum in Manipur and followed by Assam. Currently, WOS working as a lecturer was observed maximum in Manipur and followed by Assam and vice versa at the post of assistant professor. Mizoram WOS still working as a Research Associate is maximum and minimum WOS working as RA was observed in the state of Assam and Tripura.WOS working as scientist and other post was maximum in Manipur and followed by Assam. Manipur observed maximum with the WOS still ongoing as a WOS and followed by Meghalaya and Arunachal Pradesh. In **table 20** shows significant positive correlation with the RA post whereas remaining posts show negative correlation.

Figure 17(a): Demographic representation of the employment status of WOS-A before awarded of the project

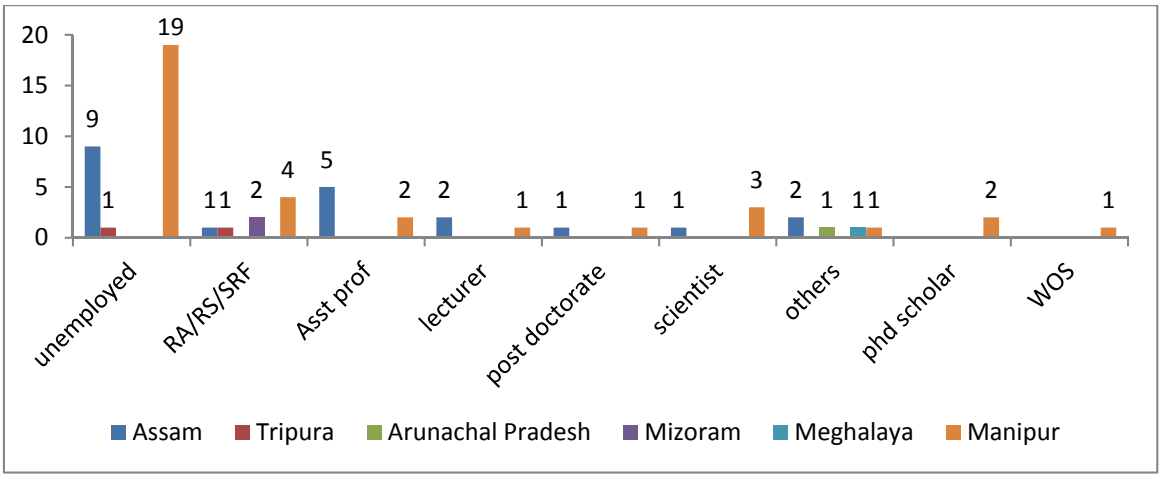


Figure 17(b): Demographic representation of the employment status of WOS-A after completion of the awarded project

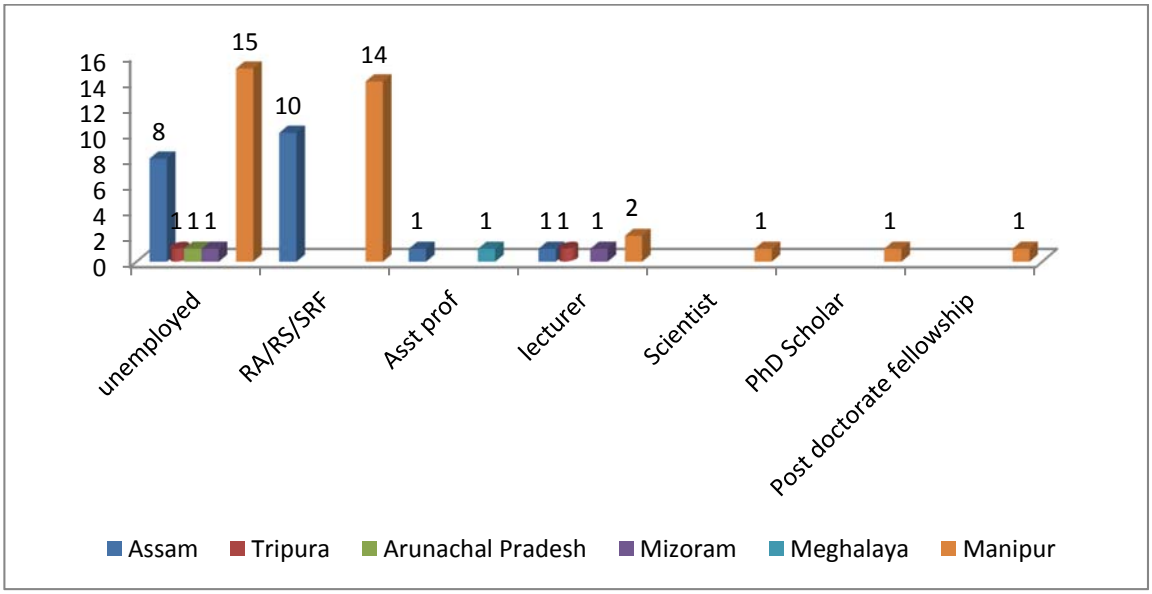


Table 20: Showing of current position of WOS-A

	PhD Scholar	Unemployed	Lecture	Asst Prof	RA	Scientist	Others	WOS
PhD Scholar	1							
Unemployed	-0.25	1						
Lecture	-0.25	0.94	1					
Asst Prof	-0.25	0.95	0.80	1				
RA	0.131	0.16	0.144	0.173	1			
Scientist	-0.25	0.98	0.986	0.88	0.15	1		
Others	-0.25	0.98	0.98	0.88	0.15	1	1	
WOS	-0.35	0.71	0.89	0.47	-0.07	0.81	0.81	1

Figure 18: Demographic representation of the current position of WOS-A.

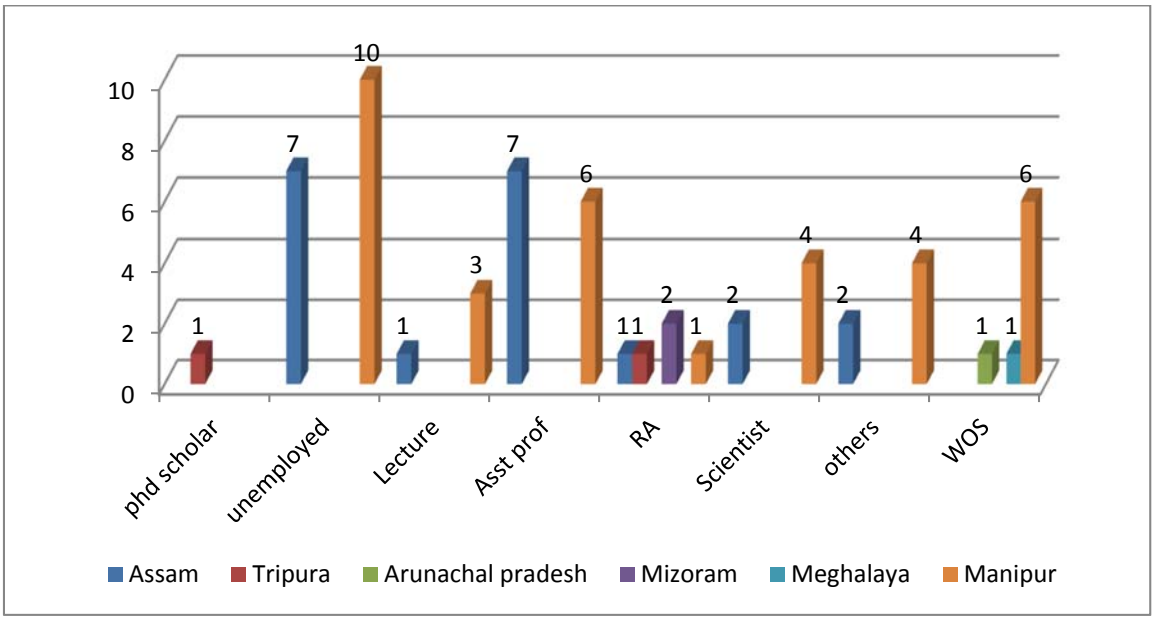


Figure 19 shows the satisfaction level of the current job and Assam WOS's observed maximum with the excellent rating followed by not satisfy, good, very good and average. Tripura and Arunachal Pradesh WOS are rated with the excellent and Mizoram and Meghalaya WOS are rated as very good. Not satisfy is the highest observed in Manipur WOS's followed by very good, excellent and lowest by average rating.

Figure 19: Demographic representation of satisfaction level with current job.

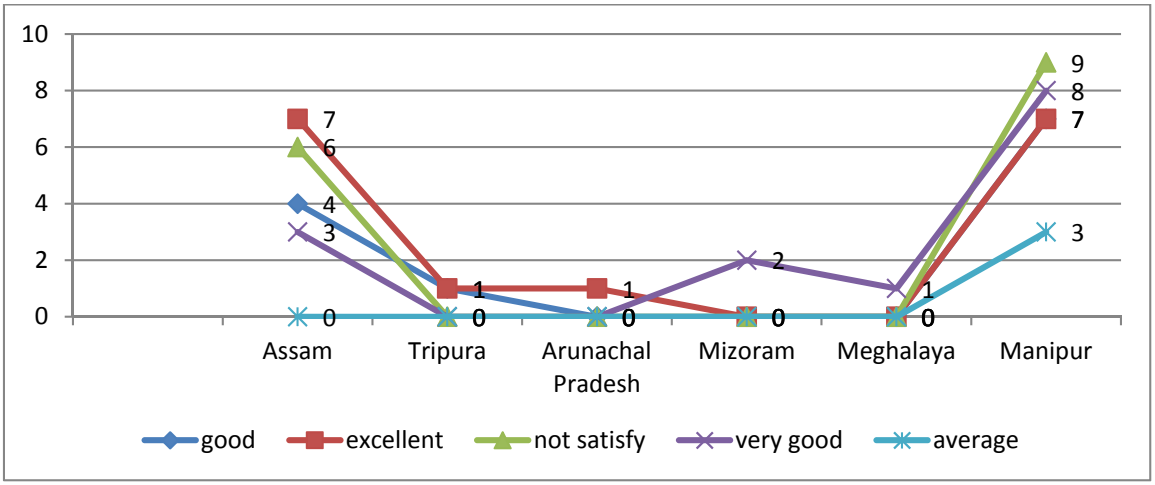


Figure 20 shows the educational qualification of WOS-A at the grant of the project. A total of 19 WOS from Manipur (12), Assam (6) and Tripura (1) WOS posses' educational qualification of Master degree. 4 WOS from Assam (2), Tripura (1) and Arunachal Pradesh (1) posses M. Phil degree at the grant of the project. 22 WOS from Manipur, 10 WOS from Assam, 2 WOS from Mizoram and 1 WOS from Meghalaya posses PhD and two from Assam pursuing PhD and Post doctorate degree at the grant of the project respectively.

Figure 21 shows that 7 WOS from Manipur, 2 WOS from Assam upgrade from Master degree to PhD during the project period and 2 WOS from Assam doing M. Phil at the grant of the project can also complete their PhD during the project period. 1 WOS of Assam pursuing PhD at the grant of the project also received post doctorate degree after the completion of the project.

Figure 20: Graphical representation of the WOS-A educational qualification at the grant of the project

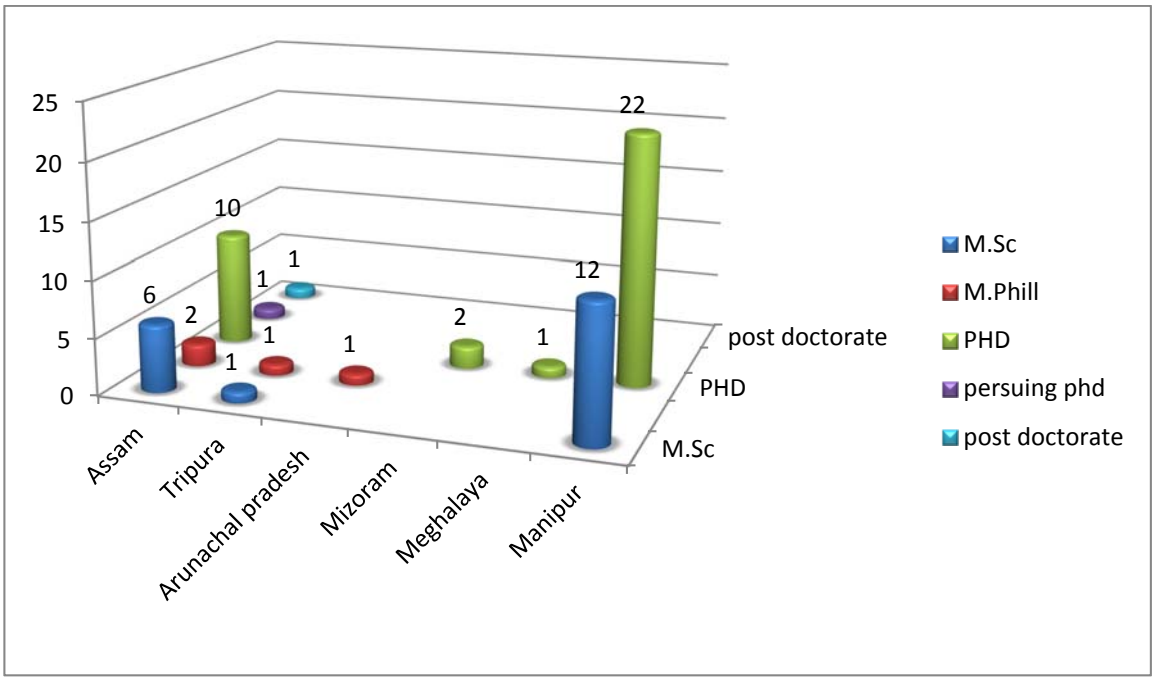


Figure 21: Graphical representation of educational qualification of WOS-A at the completion of the project

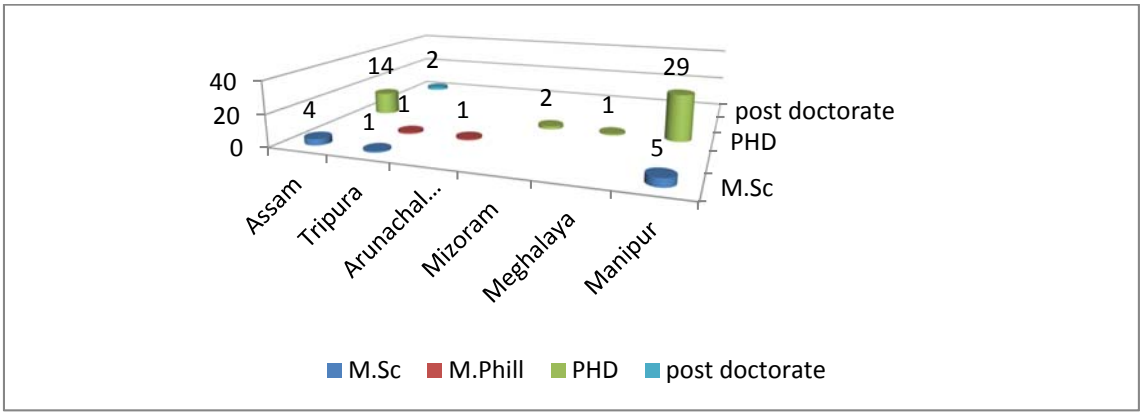


Figure 22 shows the WOS receiving award during the project period. A total of 8 WOS-A from NER received award during the project period. Assam WOS got maximum followed by Manipur and minimum at Tripura.

Figure 22: Demographic representation of the WOS receiving award during the project period

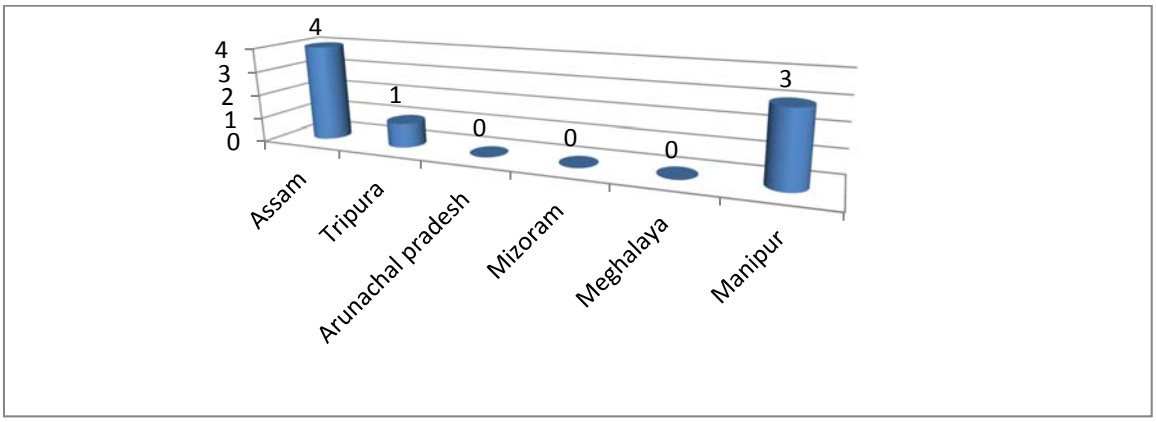


Figure 23 (a), (b) & (c) show the publication of one paper with high index of 1 and citation index more than 10 is maximum from Manipur WOS. 2 publications with high index of 5 and citation index more than 10 is maximum from Assam WOS.

Figure 23 (a): Demographic representation of WOS-A with the number of publication from the project awarded

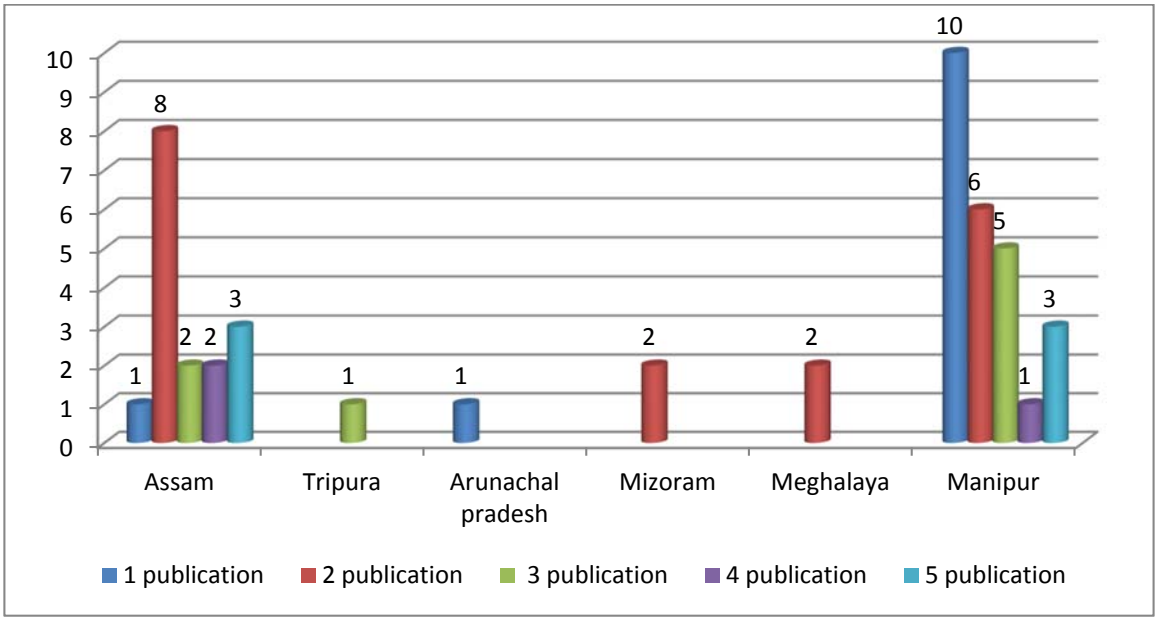


Figure 23 (b): Demographic representation of WOS-A with the publication citation index from the project awarded

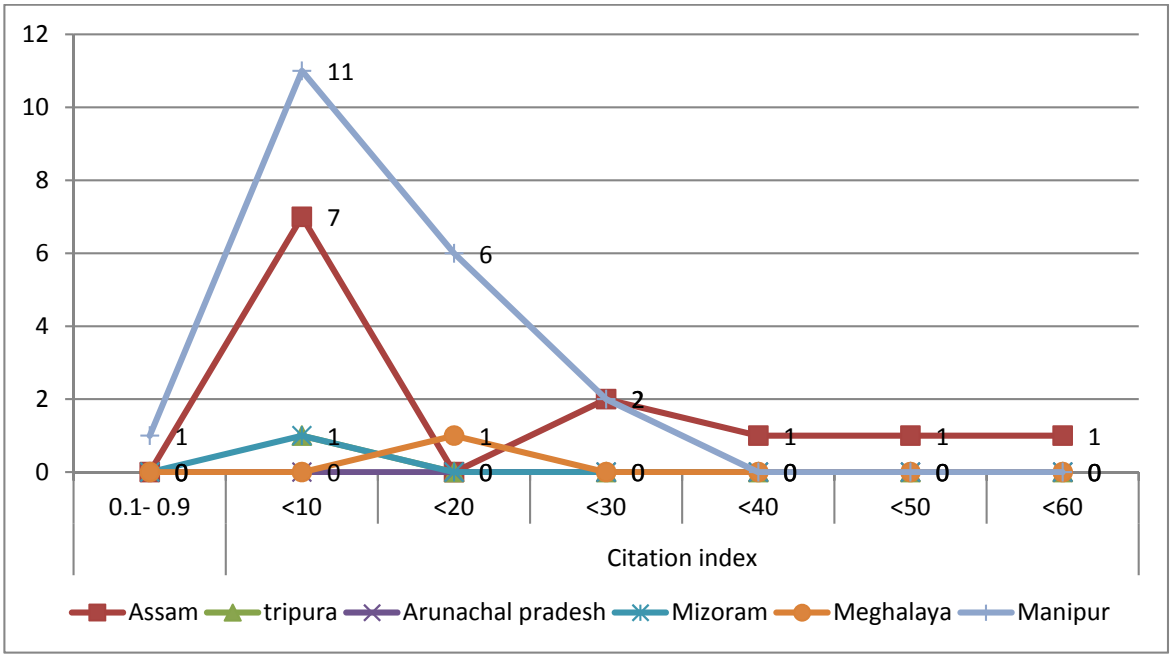


Figure 23 (c): Demographic representation of WOS-A with the publication H.Index from the project awarded

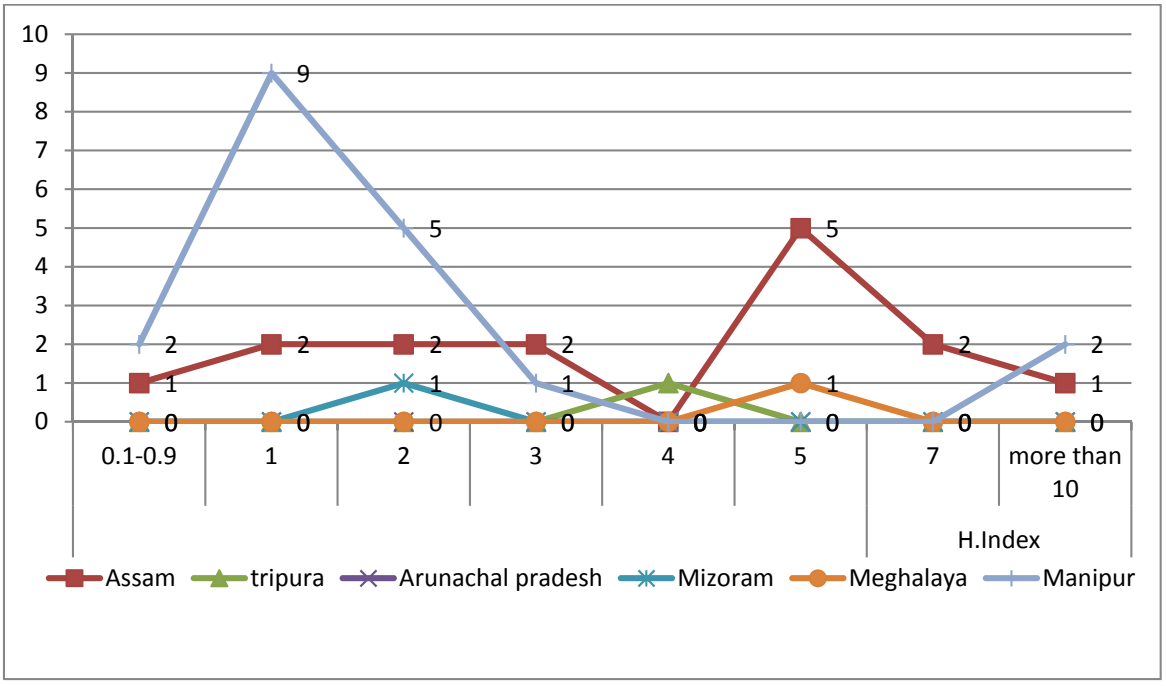


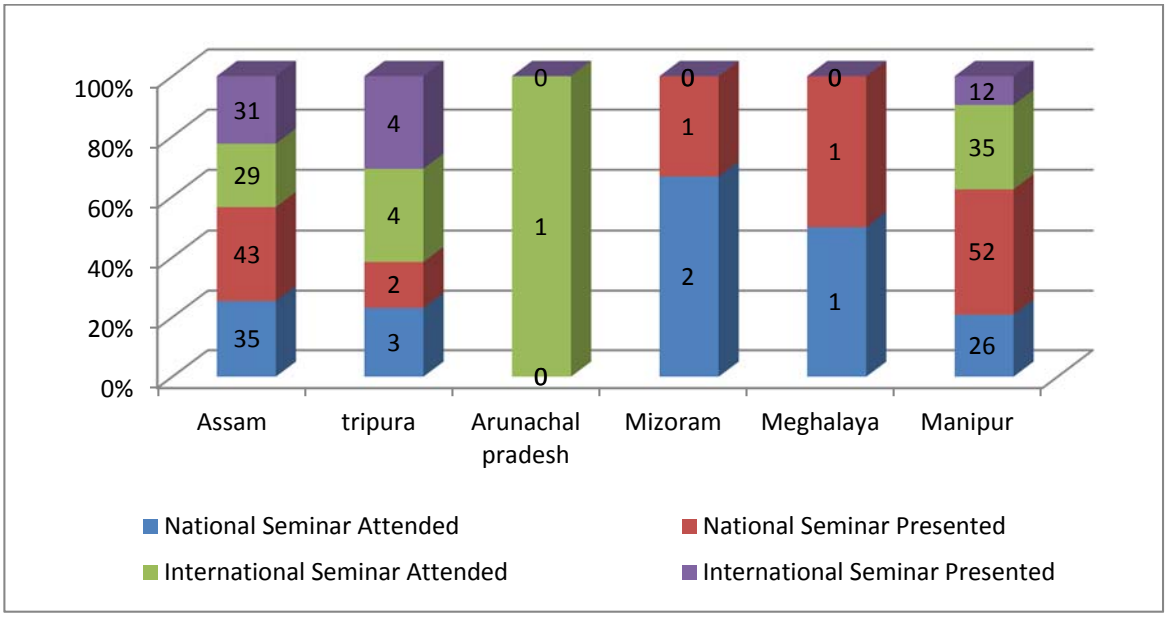
Table 21 and **figure 24** show that 141 numbers of national and international seminars were attended by the WOS of NER during the project period of which Manipur WOS attended 66 number of seminar followed by Assam with 64 seminars. Manipur WOS presented maximum national seminar paper followed by Assam and vice versa in international seminar paper presentation.

Table 21: WOS-A participation and presented at National and International seminar

*Point	National seminar attended	*Point	National seminar presented	*Point	Inter national seminar attended	*Point	Inter national seminar presented
1	35	6	52	6	35	1	31
6	26	1	43	1	29	6	12
2	3	2	2	2	4	2	4
4	2	4	1	3	1	3	0
5	1	5	1	4	0	4	0
3	0	3	0	5	0	5	0

*1=Assam; 2=Tripura; 4=Mizoram; 3=Arunachal Pradesh; 5=Meghalaya; 6=Manipur;

Figure 24: Graphical representation of WOS-A attention and presentation of National and International seminar



72 number of national and international workshop were attended by the WOS of NER during the project period of which Assam WOS attended 42 number of national and international workshop followed by Manipur with 21 national and international workshop. Manipur WOS presented maximum national and international workshop paper followed by Assam. No records of workshop presentation and attended were record from Arunachal and Meghalaya WOS (**table 22 & figure 25**).

Table 22: WOS-A participation and presented at National and International workshop

Point	*National workshop attended*	*Point*	*National workshop presented*	*Point*	*Inter national workshop attended*	*Point*	*Inter national workshop presented*
1	35	6	17	1	7	6	4
6	18	1	8	6	3	1	2
2	6	4	2	2	1	2	0
4	2	2	0	3	0	3	0
3	0	3	0	4	0	4	0
5	0	5	0	5	0	5	0

*1= Assam; 2=Tripura; 4=Mizoram; 3 = Arunachal Pradesh; 5=Meghalaya, 6=Manipur

Figure 25: Graphical representation of WOS-A attended and presented at National and International workshop

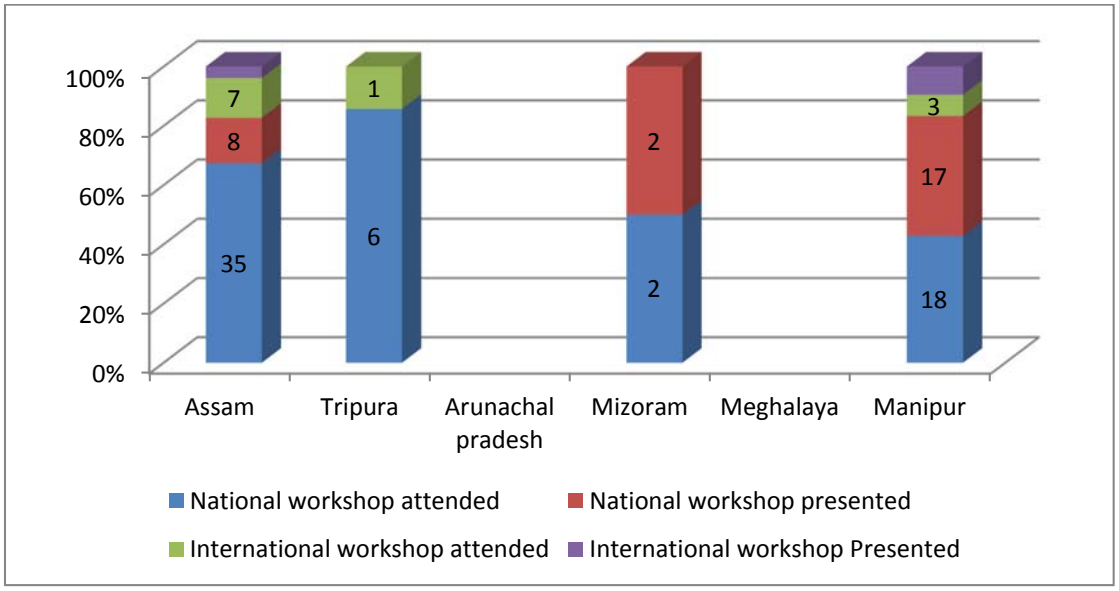


Figure 26 shows the extension involvement conducted by the WOS of the NER in which Manipur WOS conducted delivered talk, organised workshop followed by Assam WOS.

Figure 26: Graphical representation of extension involvement

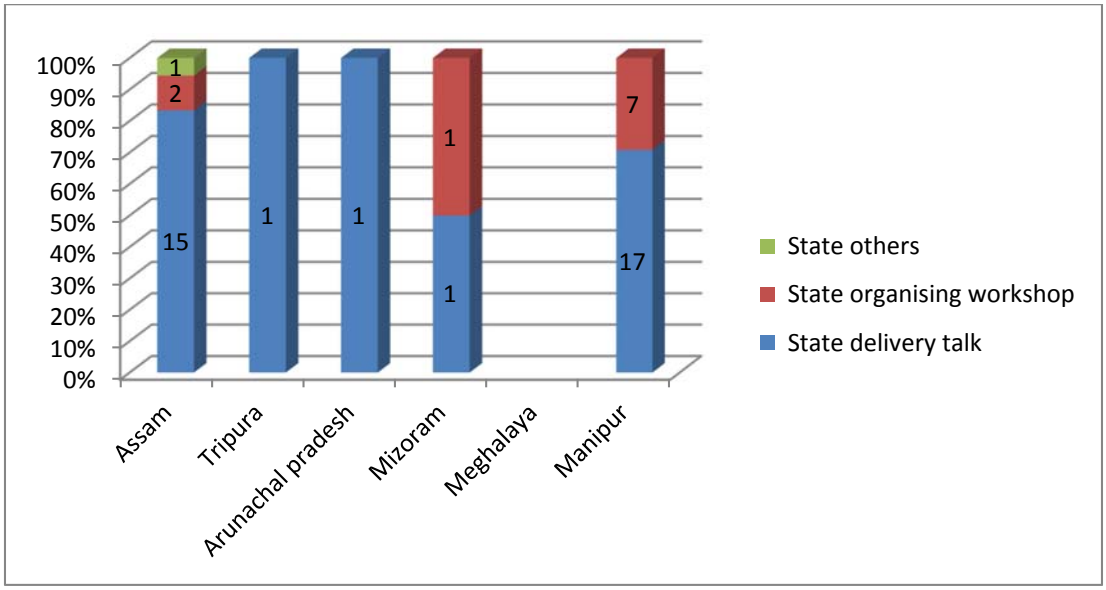


Figure 27 shows that maximum WOS from Manipur have rated the programme/ project excellent followed by WOS from Assam. WOS from Tripura, Arunachal Pradesh and Meghalaya have rated the programme as very good and good. And two WOS one each from Assam and Manipur did not expressed about rating.

Figure 28 illustrated the satisfaction level of the programme. Manipur WOS have expressed satisfaction as excellent followed by very good. Meghalaya rated the programme level with 100 % as good and Arunachal Pradesh WOS with 100% as excellent.

Figure 27: Rating of the programme

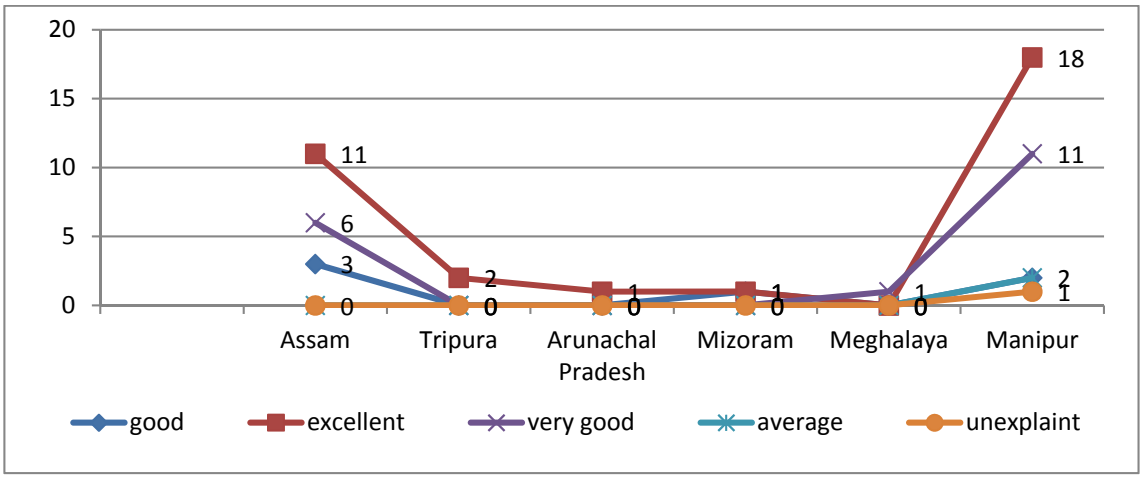
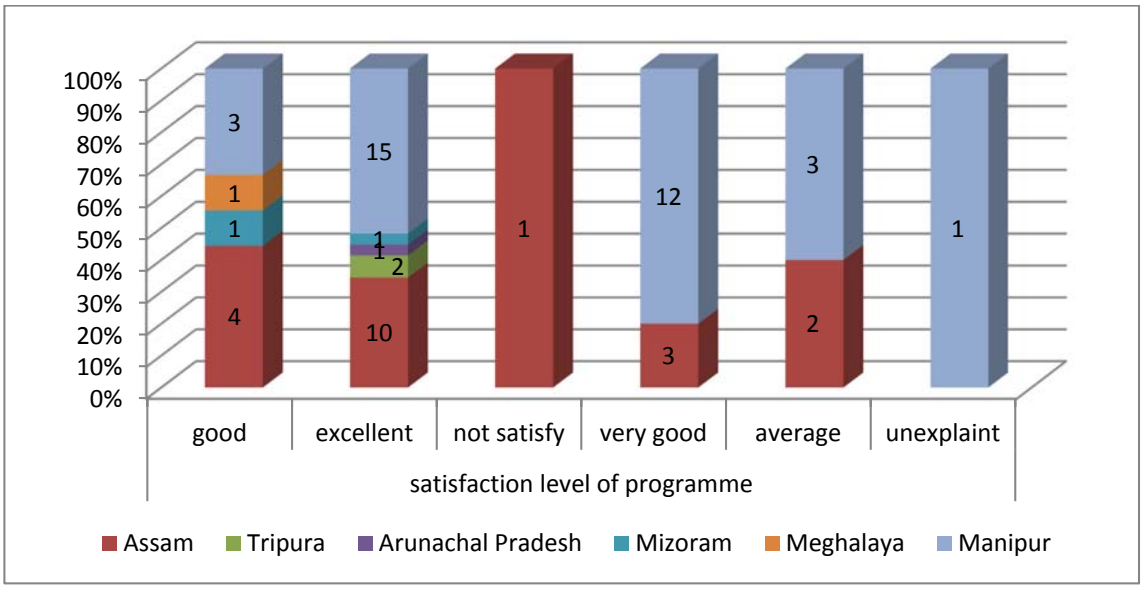


Figure 28: Demographic representation of satisfaction level of the programme



Related to support of WOS-A:

Figure 29 shows the family support received for research or professional activities of the project availed. Manipur WOS received more motivational family support followed by Assam WOS but least support is received by Tripura and Meghalaya WOS. Assam and Manipur WOS received moderate family support and Tripura and Arunachal Pradesh WOS received less moderately support. Neutral support is maximum in Assam WOS as compared to Manipur WOS.

Figure 29: Demographic representation of family support for WOS-A:

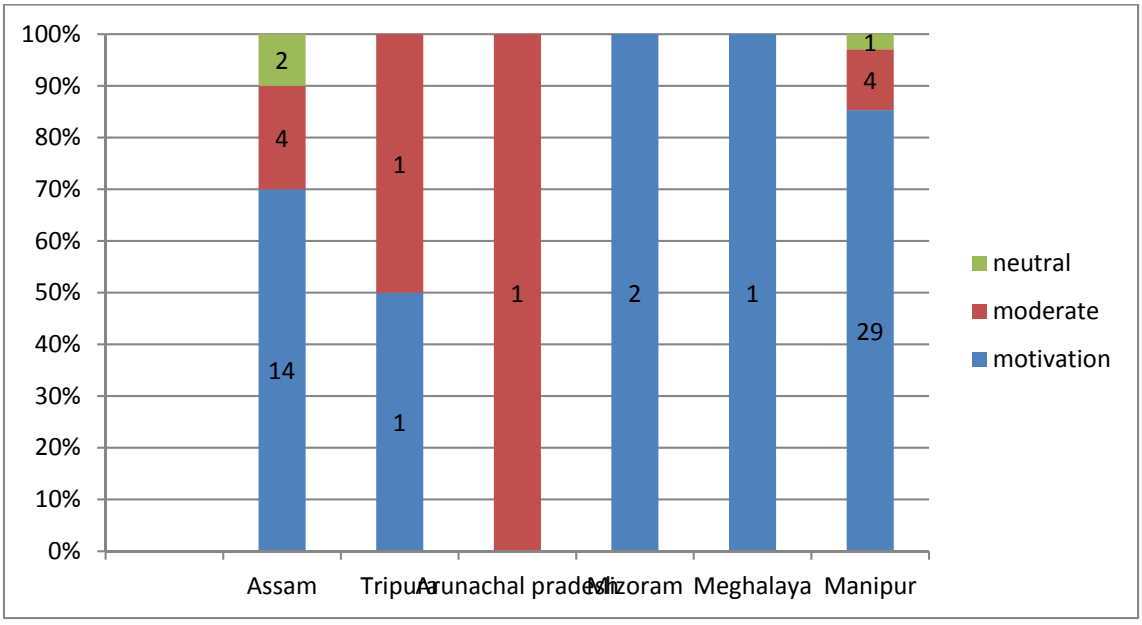


Figure 30 shows the mentor's support of the project and maximum number of the WOS expressed extreme satisfaction. Extreme satisfaction of the mentor's support was observed in the state of Manipur, Assam and Tripura. Moderate satisfaction of the mentor's support was also observed in the state of Manipur and Assam but one WOS from Assam did not mention anything about the satisfaction level of the mentor's support.

Figure 30: Graphical representation of the mentor's support

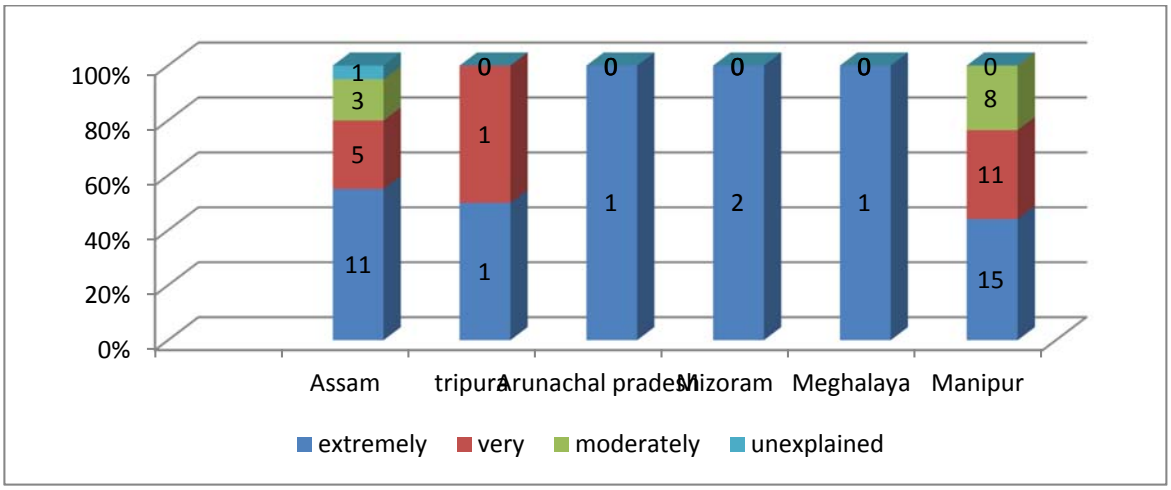
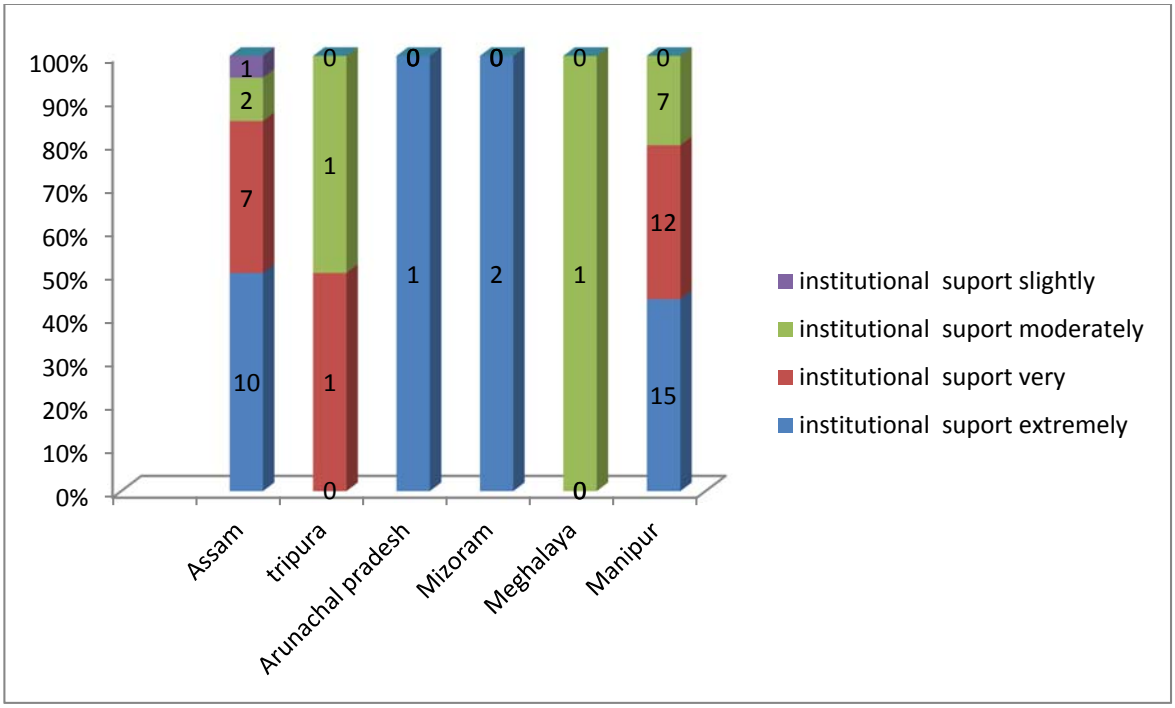


Figure 31 shows the institutional support satisfaction level. Maximum number of extreme satisfaction was observed from the WOS of Manipur followed by Assam, Mizoram and Arunachal Pradesh. Very satisfied was also observed in Manipur, Assam and Tripura. Moderate satisfaction was also observed maximum number in Manipur followed by Assam and Tripura but slight satisfaction with the institute was observed in Assam.

Figure 31: Graphical representation of the institutional support of WOS-A



Problems faced by WOS-A :

While receiving the grants of the programme 100 % WOS from Mizoram and Meghalaya, 50 % from Assam and 38 % of Manipur faced the problems but 100% of the WOS from Tripura and Arunachal Pradesh , 50 % from Assam and 61% form Manipur did not faced any problems **(figure 32)**. But while spending the grants, Arunachal Pradesh and Mizoram WOS's did not face any problems. 50 % of the WOS from Tripura faced problems in spending the grants but WOS from Meghalaya faced 100 % in spending the grants **(figure 33)**. There was significantly positive correlation while receiving and spending the grants **(table 23)**.

Table 23: Showing of the correlation of the problems of receiving and spending the grants of the programme

		problems related to received of the grant		problems related to spending the grant	
		yes	No	yes	no
problems related to received of the grant	yes	1			
	no	0.94	1		
problems related to spending the grant	yes	0.88	0.96	1	
	no	0.98	0.98	0.92	1

Figure 32: Graphical representation of the problems receiving the grants of the programme

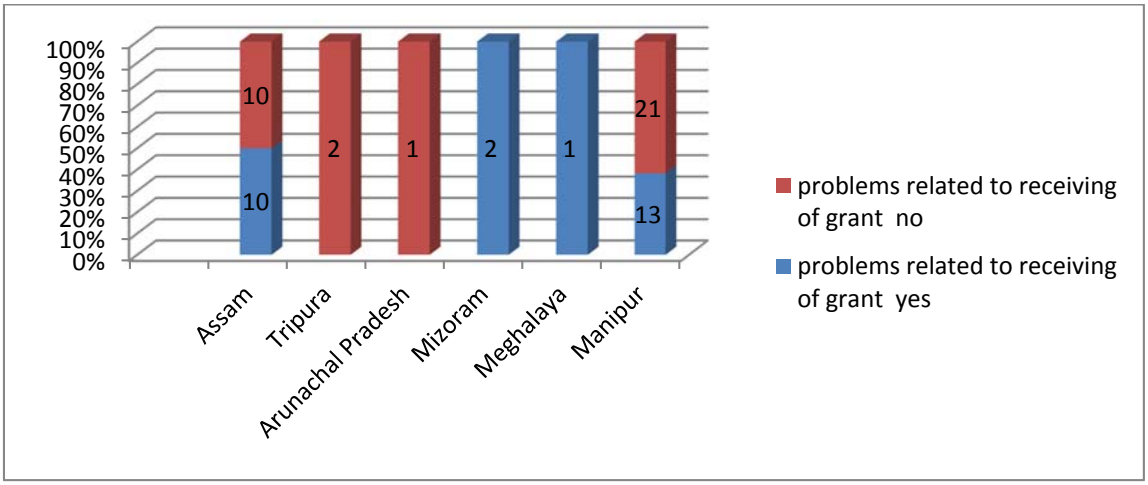
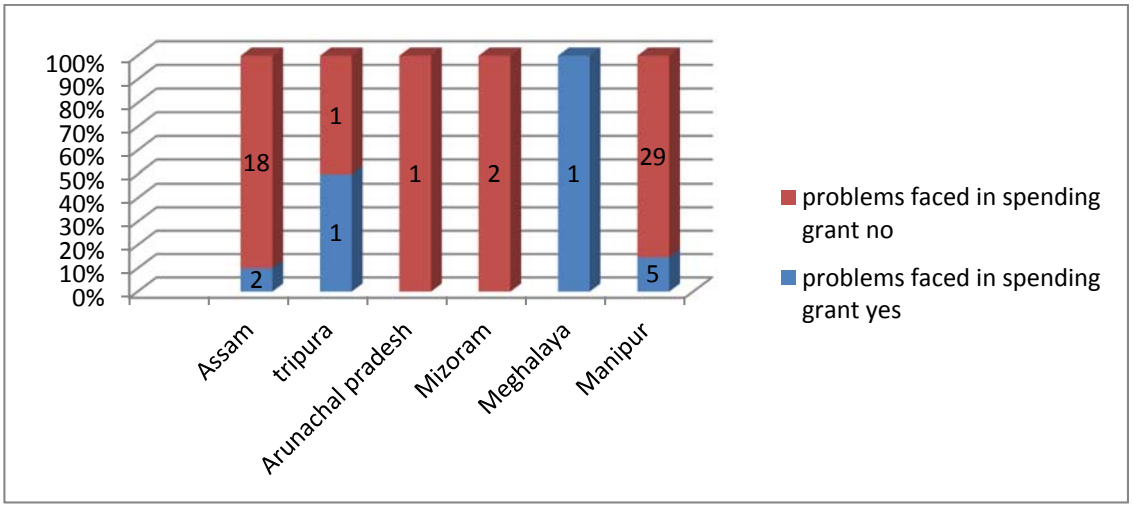


Figure 33: Graphical representation of the problems spending the grants of the programme

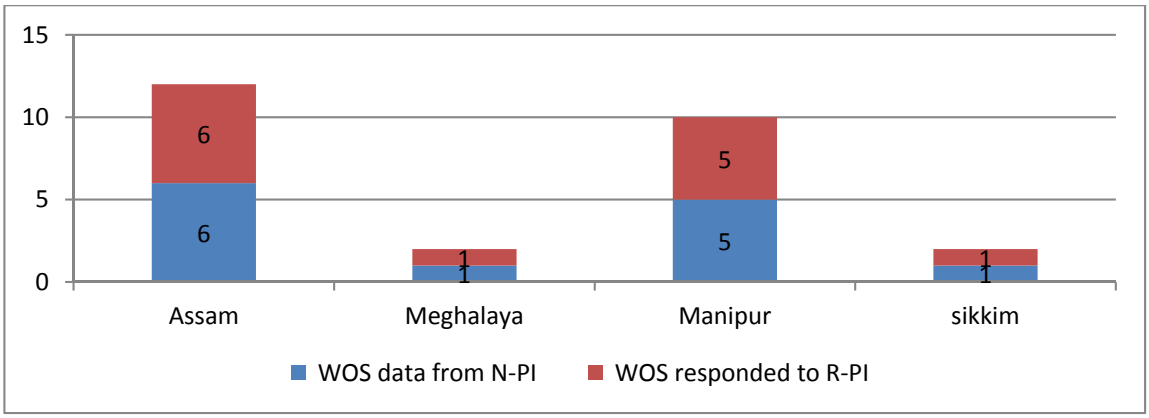


2. WOS-B:

No of responses w.r.to total no of beneficiaries:

Figure 34 shows that the total number of WOS-B data received from N-PI were responded with 100 %. Those submitted from N-PI and responded to R-PI were of 6 WOS from Assam, 5 WOS from Manipur and one each from Meghalaya and Sikkim respectively.

Figure 34: WOS-B data received from N-PI and of response to R-PI.



Geographical Spread:

Figure 35 shows that almost all the WOS-B were married except one WOS from Assam who is unmarried. But considering the categories of the WOS-B, Assam and Manipur observed maximum in general category and minimum general categories was observed in Sikkim. Assam has maximum responded WOS from OBC category. Meghalaya WOS is from ST and is shown in **figure 36. The table 24** shows that the general category and OBC have positive correlation with the number of WOS-B whereas ST category has negative correlation.

Figure 35: Marital status of responded WOS-B from NER.

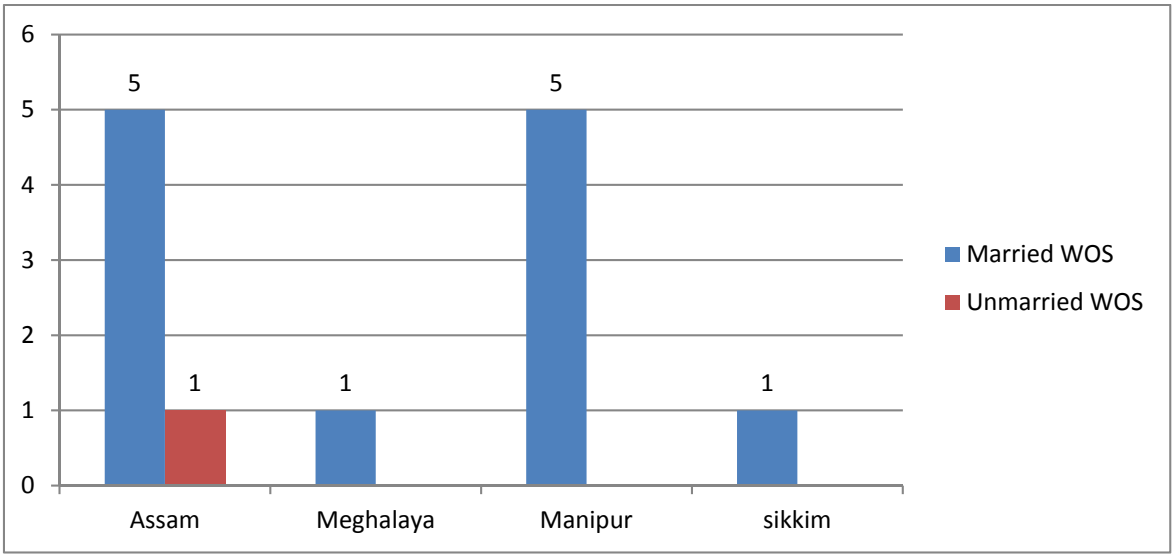


Table: 24: Correlation among the category wise of WOS-B

	General	OBC	ST
General	1		
OBC	0.88	1	
ST	-0.72	-0.52	1

Figure 36: Demographic representation of category wise of WOS-B

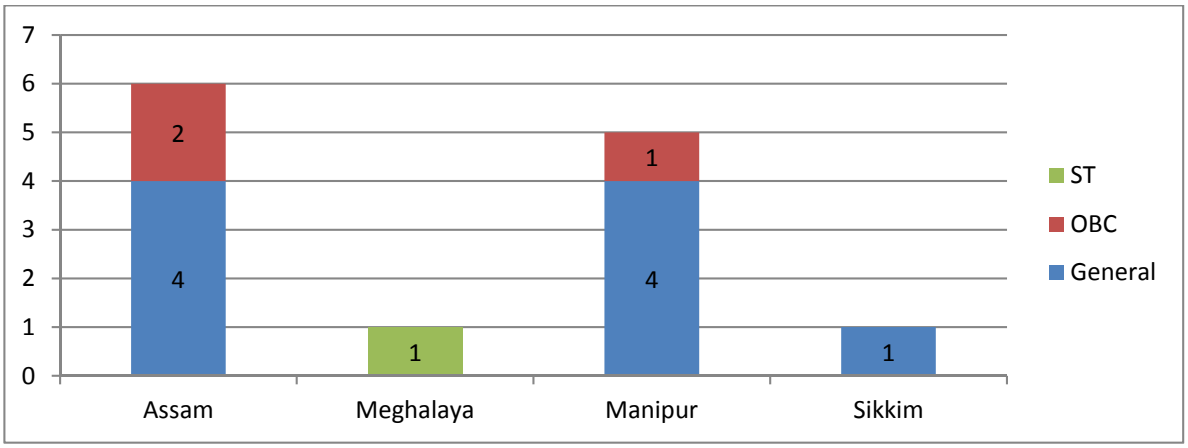


Figure 37 shows the educational qualification of WOS-B. The WOS-B who have completed PhD is maximum in the state of Manipur. Among 6 WOS from Assam, 3 WOS-B are PhD and 3 WOS-B are M.Sc. degree holder. One each of Meghalaya and Sikkim WOS-B were of M.Sc. degree holder.

Figure 37: Status of WOS-B with their educational qualification.

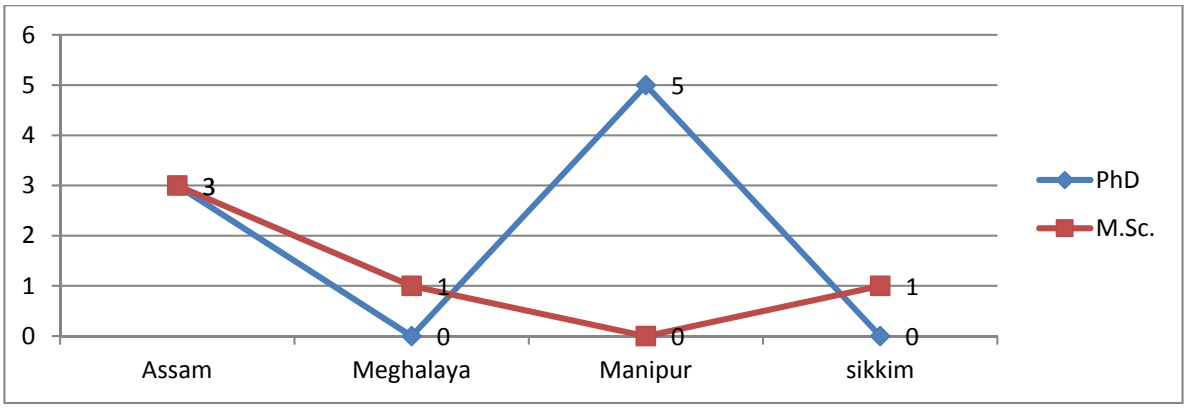


Figure 38 shows that WOS-B of Manipur implemented the project at MU, CAU and IBSD but number of project implemented the project were highest in MU. Darrang College, Cotton University, Central Silk Board, ICMR, Tezpur University were the institute that Assam WOS implementing the project but project implemented at Darrang is maximum. CAU and NEHU University implemented the project by the WOS of Sikkim and Meghalaya. Negative correlation of the institute was observed with Darrang College,

Cotton University, Central Silk Board, ICMR, Tezpur University and NEHU. Significantly strong positive correlation was observed with CAU and MU (**table 25**).

Figure 38: Institutional status of the WOS-B conducted the project.

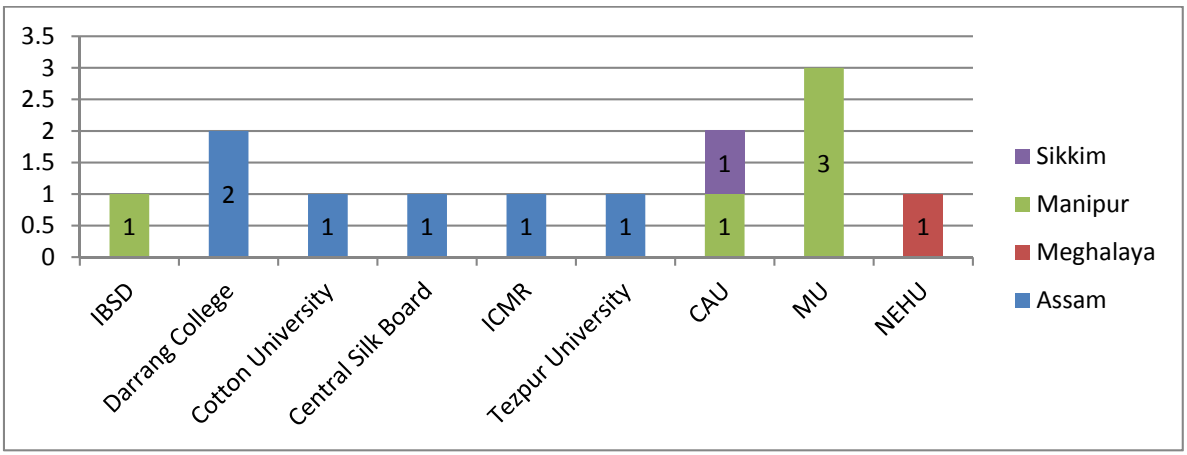


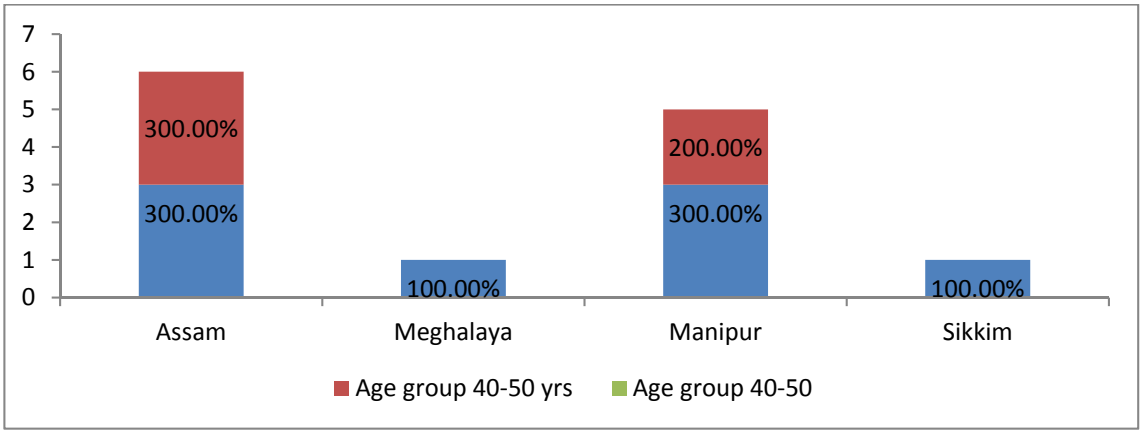
Table 25: Institutional status of the WOS-B conducted the project

	IBSD	Darrang College	Cotton University	Central Silk Board	ICMR	Tezpur University	CAU	MU	NEHU
IBSD	1								
Darrang College	-0.33	1							
Cotton University	-0.33	1	1						
Central Silk Board	-0.33	1	1	1					
ICMR	-0.33	1	1	1	1				
Tezpur University	-0.33	1	1	1	1	1			
CAU	0.57	-0.57	-0.57	-0.57	-0.57	-0.57	1		
MU	1	-0.33	-0.33	-0.33	-0.33	-0.33	0.57	1	
NEHU	-0.33	-0.33	-0.33	-0.33	-0.33	-0.33	-0.57	-0.33	1

Age Group:

Figure 39 shows the age-wise distribution of WOS-B. Age group of between 30-40 years and 40-50 years have the same percentage in the WOS-B of Assam. Maximum percentage in age group between 30-40 years was observed in Manipur and same proportion of percentage in the age group between 30-40 years was observed in Meghalaya and Sikkim.

Figure 39: Age –wise distribution of WOS-B



Subjects-wise:

Figure 40 illustrates the subject wise division of WOS-B. The division of Agriculture and allied subject was with the WOS of Assam, Meghalaya and Manipur. Life Sc and HFN were from the WOS of Assam and Manipur. Chemical Sc and Engineering and Technology Development were only from the WOS of Assam and Sikkim.

Figure 40: Showing of subject wise division of WOS-B

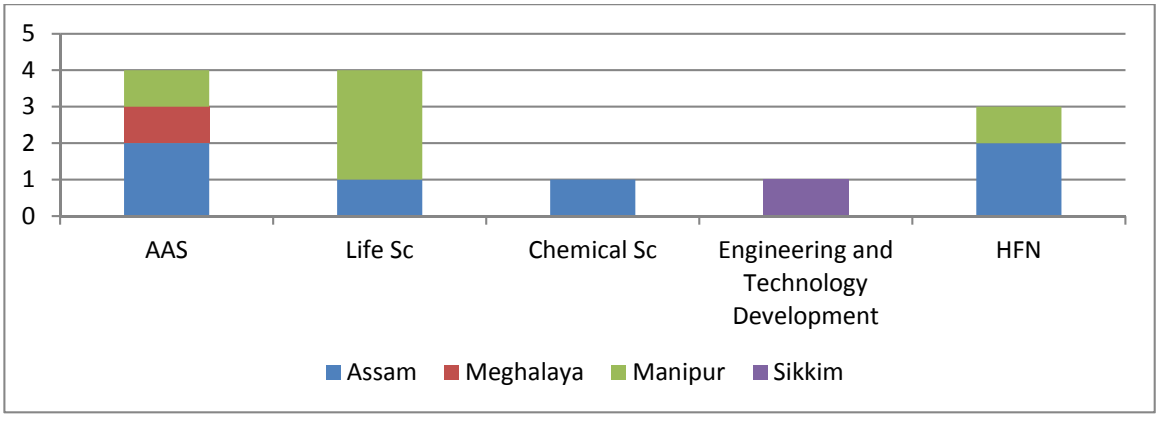
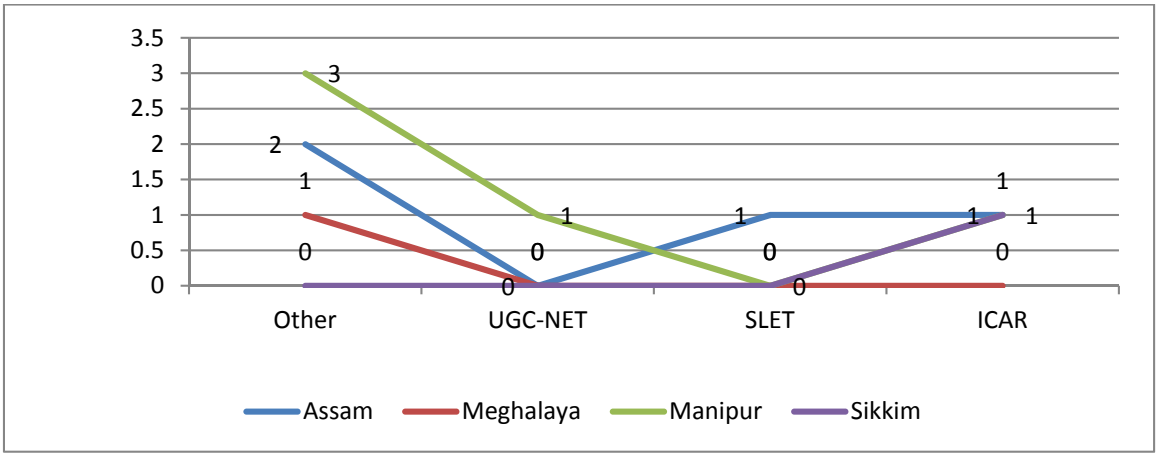


Figure 41 shows the eligible test cleared by the WOS-B and it can be observed that except Meghalaya WOS, one each from others three states WOS cleared test conducted by ICAR. One each from Assam and Manipur cleared SLET and UGC-NET respectively. WOS-B in Assam and Manipur stands equal in term of number of test cleared.

Figure 41: Graphical representation of eligibility test cleared by WOS-B



No. of projects, no of schemes:

Figure 42(a) shows that one project each was availed by all the women scientists-B to build up their own career. During the project period, the response of break is from all the WOS-B except two WOS-B from Manipur who carried out the project without any break was shown in **figure 42 (b)**. Break during the project period is mainly due to family responsibility (3), for not getting the suitable job (1), marriage and maternity leaves (5) and due to completion of PhD work (2) was shown in **figure 42 (c).** The duration of career break is analysed based on data received and is found that 3 of them were on break for more than 6 years, 1(one) of 4 years, 3 (three) of 2 years and 2 (two) of 2 year. 2 (two) women scientist carried out their research without breaking in their career was shown in **figure 42 (d).**

Figure 42 (a) : Demographic representation of number of project availed by WOS-B

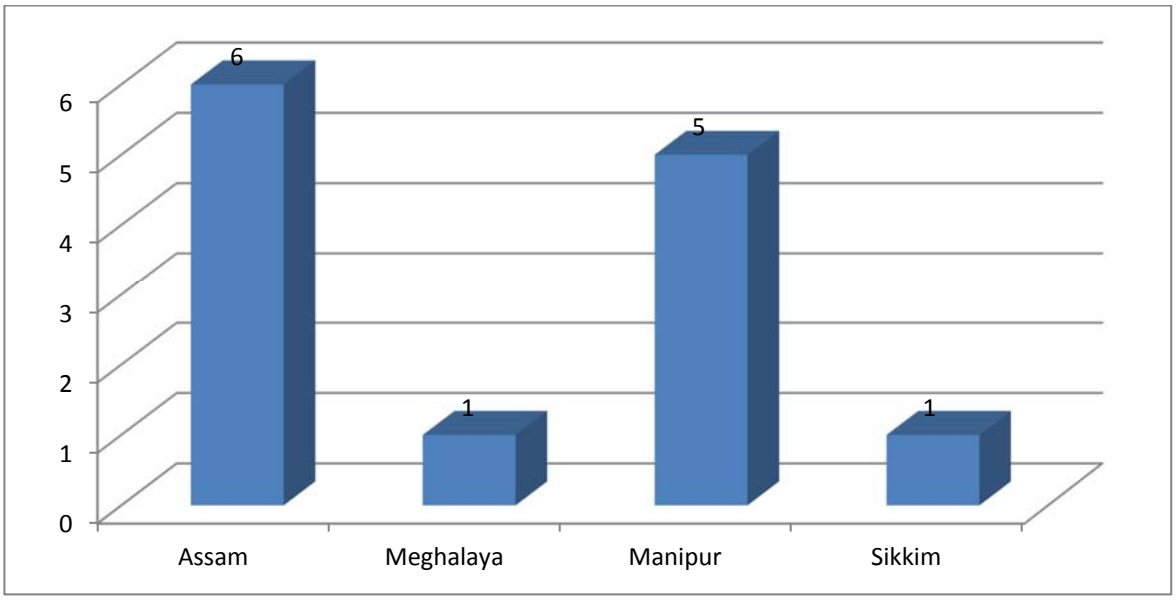


Figure 42(b): Responses of break in career by WOS-B

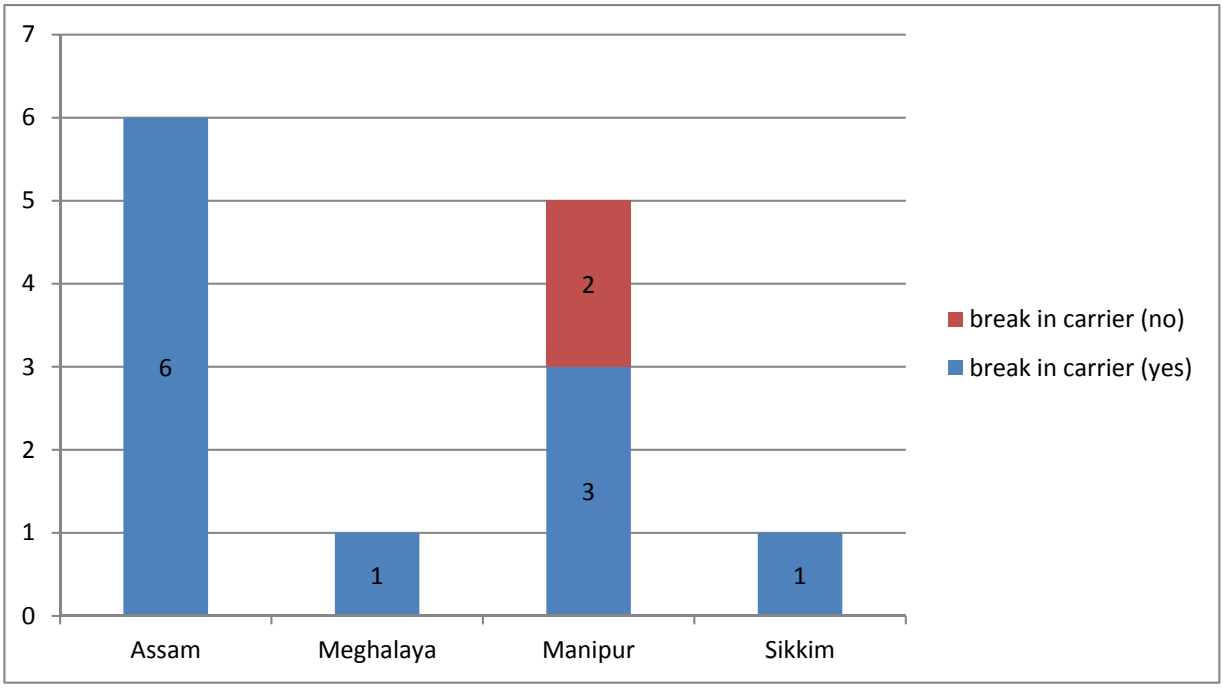


Figure42(c) : Duration of break from WOS-B of NER

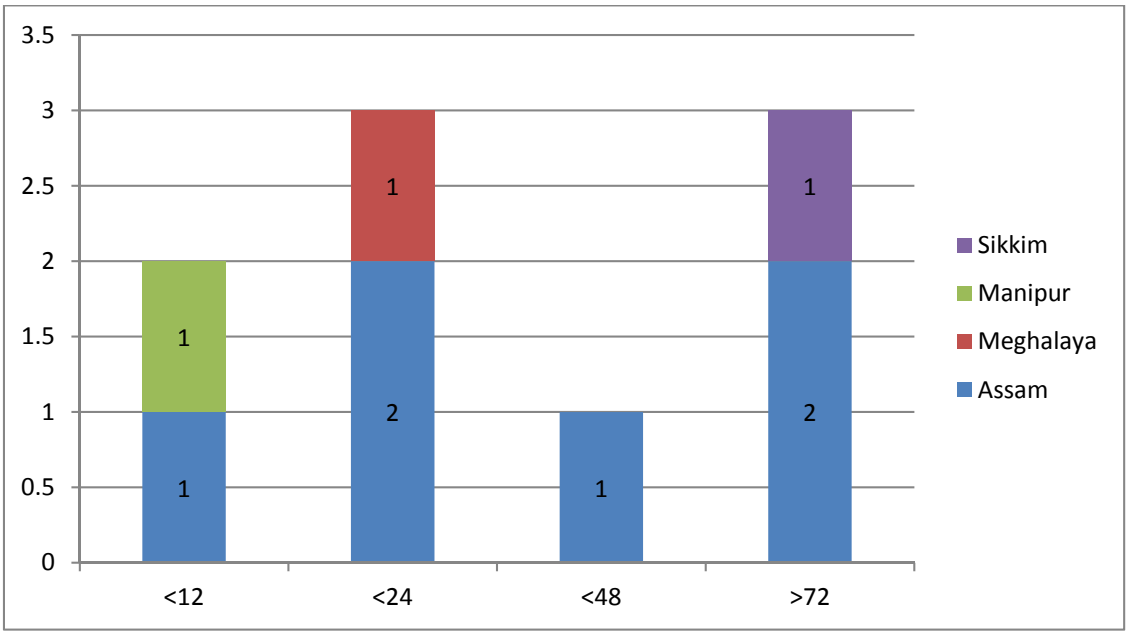
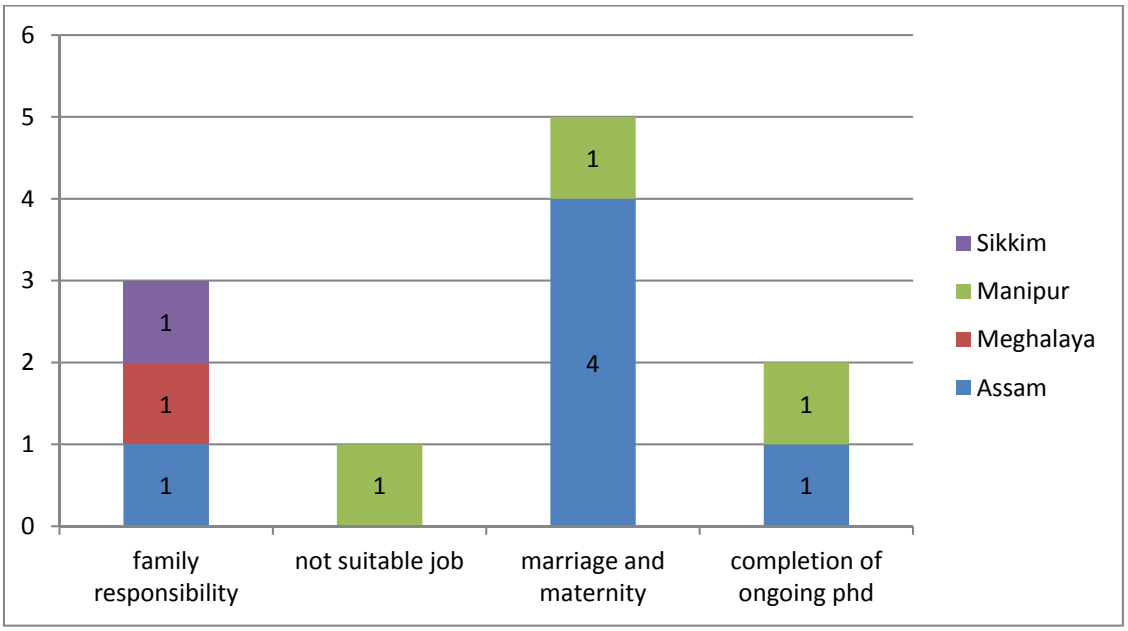


Figure 42(d): Demographic representation of reason of break in career by WOS-B of NER



Achievements:

Figure 43 shows the duration of the project as per sanctioned order in months. 6 WOS implemented the project with 36 months of duration and 4 WOS with 24 months. Exceptionally, one WOS each from Manipur and Assam implemented the project for 48 months and 60 months respectively.

Figure 43: Graphic representation of duration of the project awarded to WOS-B

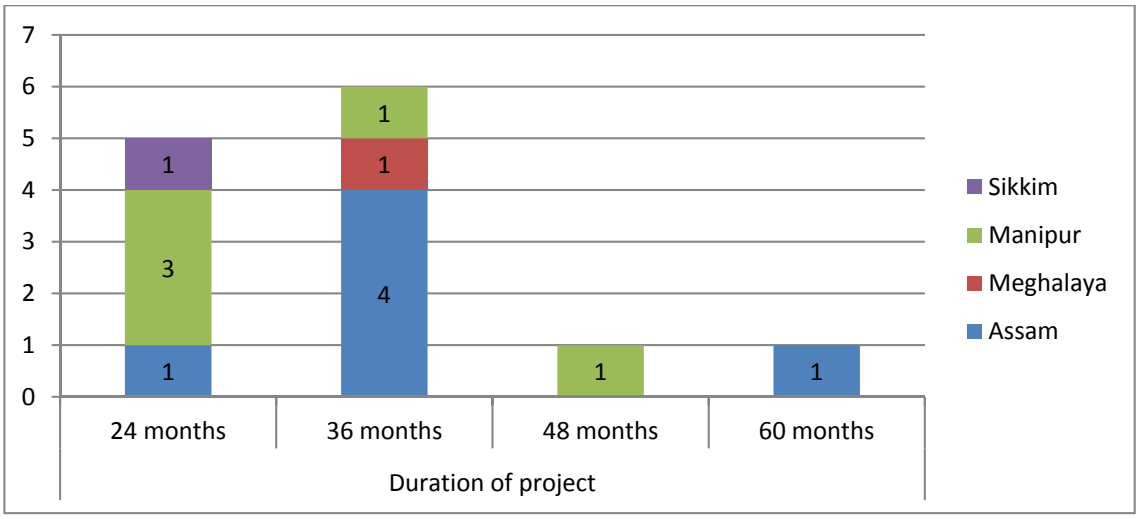


Figure 44 shows the status of the project for WOS-B of the north eastern region. On-going project was observed maximum at Assam WOS followed by Manipur WOS and minimum in Meghalaya WOS. Maximum completion of the project was observed from WOS from Manipur and Assam but one each WOS from Assam and Sikkim discontinued the project.

Figure 44: Status of the project for WOS-B of NER

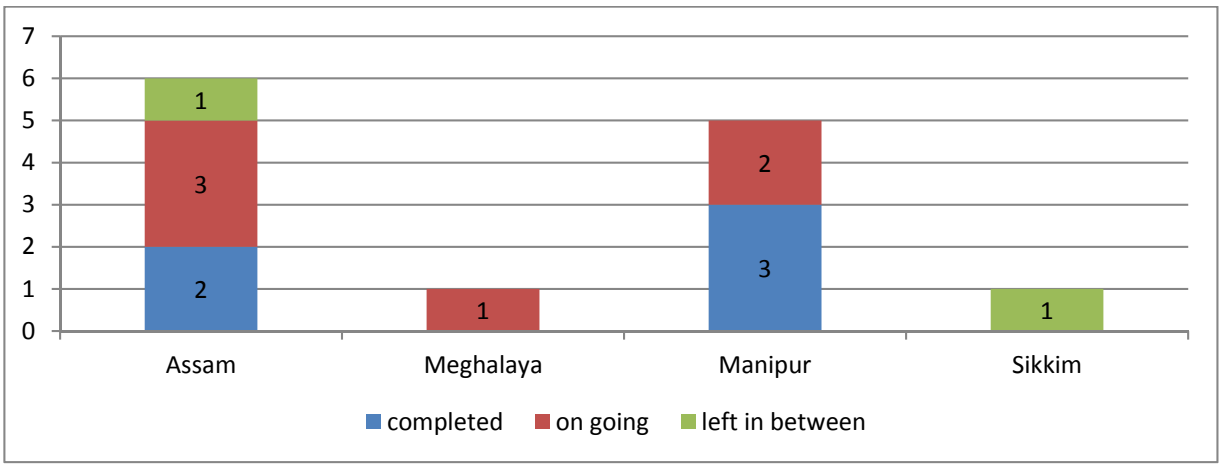


Figure 45 shows the request for the extension of the project by WOS-B of the north eastern region. Three WOS from Assam did not express anything about the extension of the project. Continuation of the project without any request for extension was observed in the WOS-B of Manipur, Assam and Meghalaya. The request for the extension of the project was proposed only by Assam, Sikkim and Manipur WOS. But unfortunately grant of the extension was not approved for any of them. No data on the transfer of the project to another institute was also available.

Figure 45: Demographic representation of the request of the extension of the project

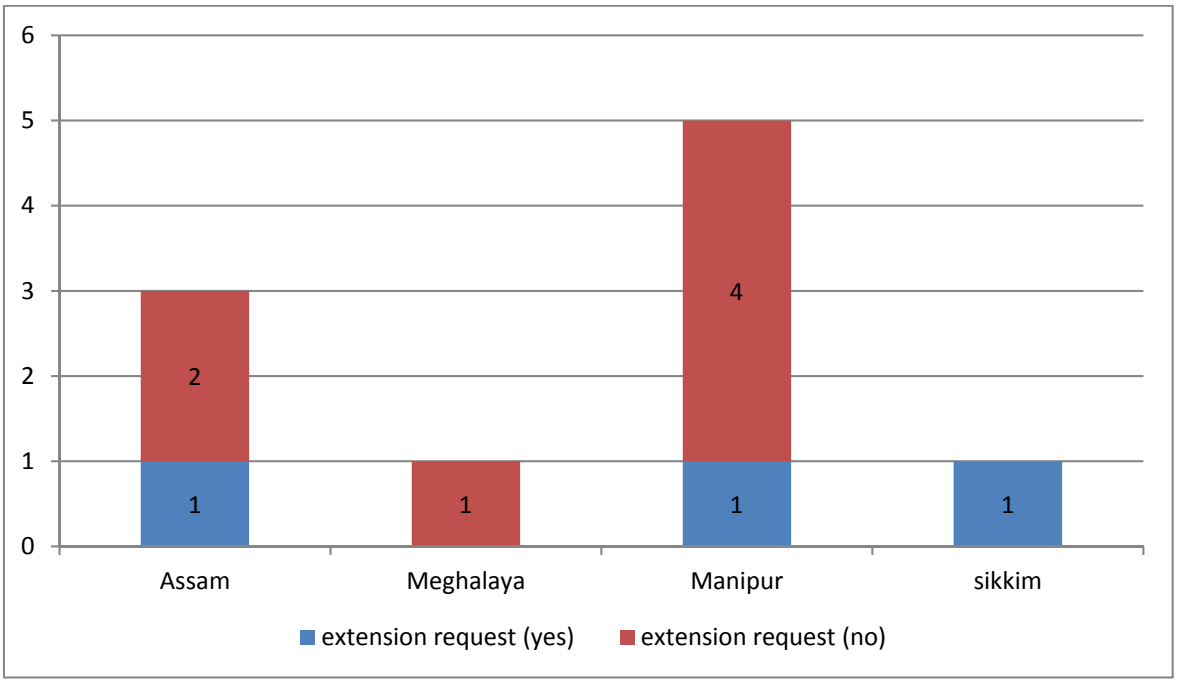


Figure 46 shows the employment status of the WOS-B. Before the project implement, Manipur has the highest rate of unemployment followed by Assam and Meghalaya. Two WOS were working as a research fellow from Assam and one WOS from Manipur was working as research fellow before implementation the project but one each from Sikkim and Assam worked as lecturer. Unfortunately, there was increase in unemployment rate in Assam after the completion of the project and Manipur in decreasing rate and Meghalaya remains the same.

Currently, WOS working as women scientist with the ongoing process of the project is high in Assam WOS and observed no change in the case of Meghalaya and

Manipur WOS. Unemployment status of WOS-B remained same as one WOS each with Assam and Manipur but Sikkim WOS also stands as unemployment in current employment status. There was increase in the post of assistant professor in Manipur and post of lecturer and scientist.

Figure 46: Demographic representation of the employment status of WOS-B

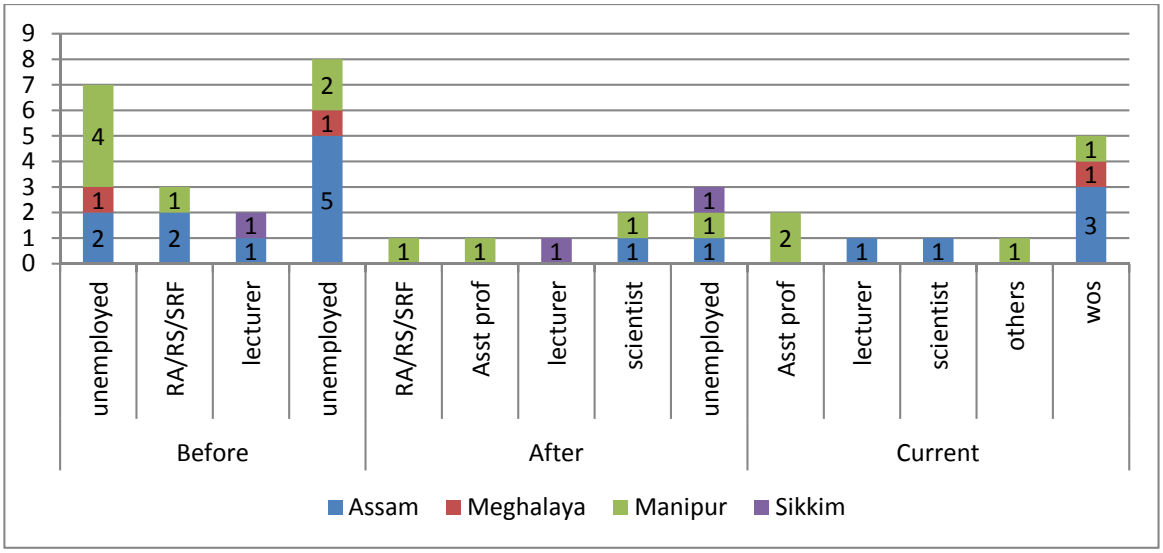


Figure 47 shows the satisfaction level of the current job. Assam WOS observed maximum with the rating of good followed by excellent, very good and average. Manipur WOS are rated one each to good, excellent and very good but two of WOS rated not satisfy with the current job. Meghalaya WOS expressed the rating of very good with the current job and Sikkim WOS rated not satisfy with the current job.

Figure 47: Graphic representation of satisfaction level with current job of WOS-B.

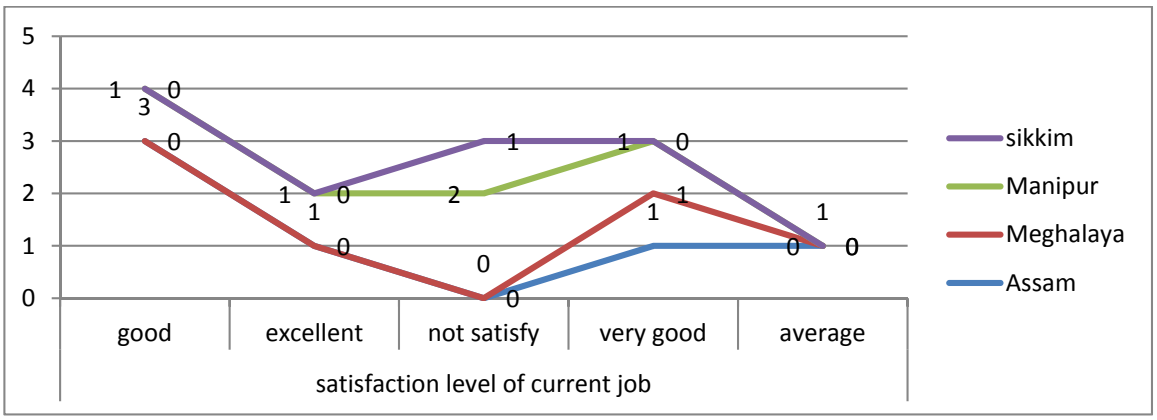


Figure 48 shows the educational qualification of WOS-B at the grant of the project. During the grant of the project, Manipur WOS were with PhD degree and only one WOS held PhD degree from Assam. But majority of WOS from Assam and 100% WOS from Meghalaya and Sikkim posses master degree. After the completion of the project, 50% of WOS from Assam posses PhD and master degree (**figure 49).**

Figure 48: Graphical representation of the WOS-B educational qualification during the grant of the project

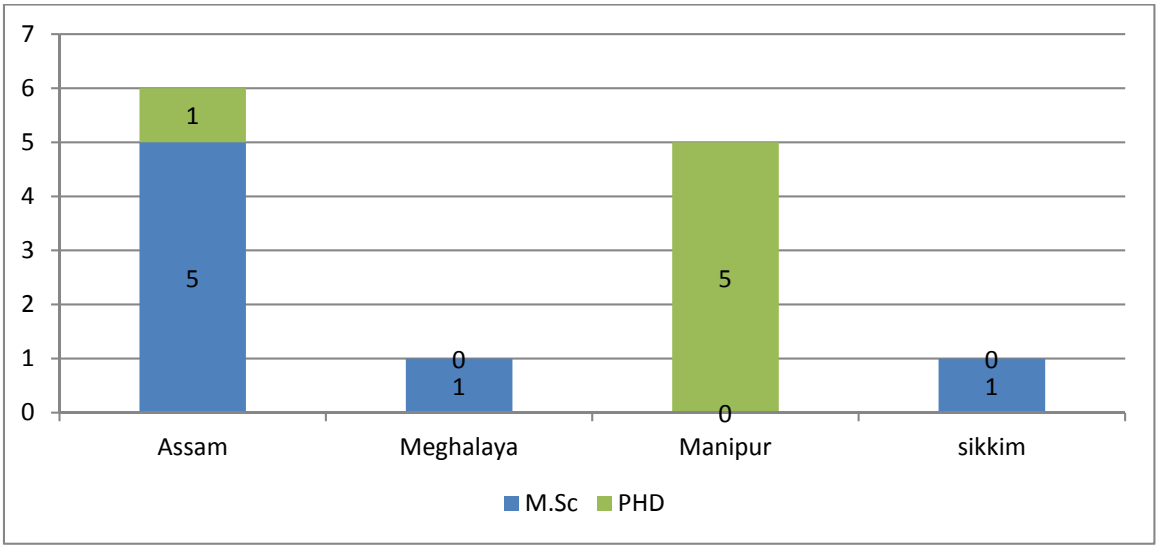


Figure 49: Graphical representation of educational qualification of WOS-B at the completion of the project

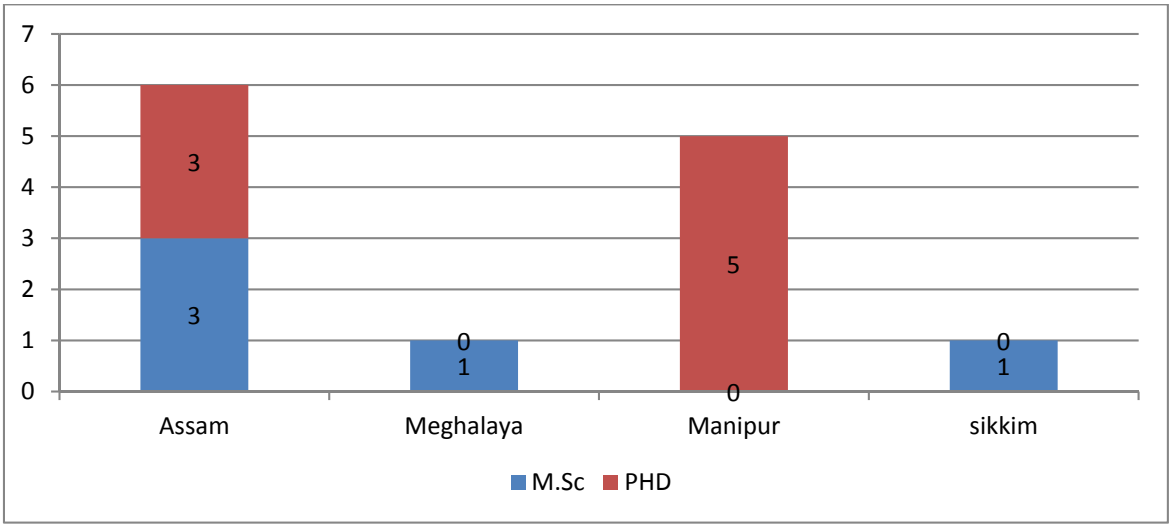


Figure 50 shows the awarded WOS-B from the project period and it was observed that only two WOS one each from Assam and Manipur were awarded from the project assigned.

Figure 50: Demographic representation of the awarded WOS-B from the project period

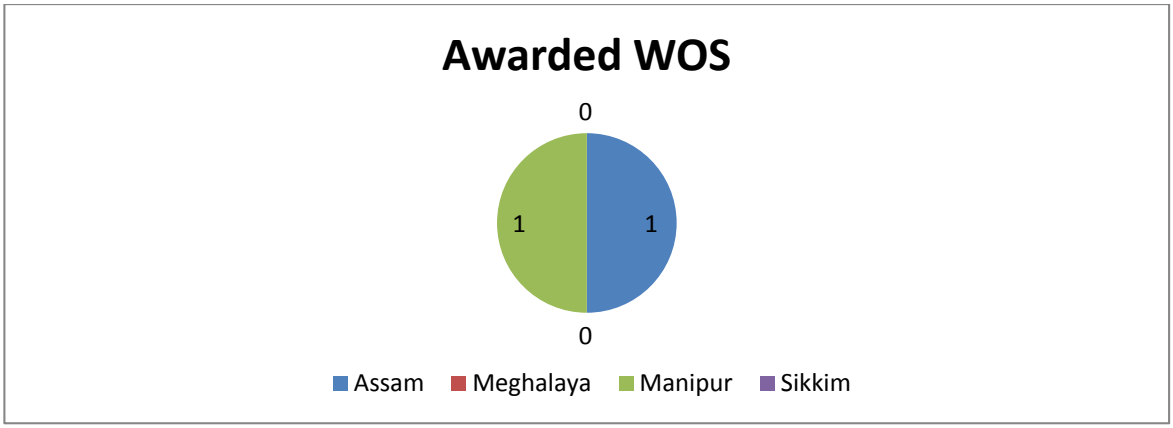


Figure 51 (a), (b) & (c) shows the publication of paper with citation index and high index. Publication of one paper each was observed from WOS of Assam and Manipur with 50 % but publication of four research paper was observed in Manipur. Citation index of the research published was below 10 in both the state WOS and H. index of below 1 also observed in the WOS of Manipur and higher H. Index of 5.4 were observed in the WOS of Assam.

Figure 51 (a): Demographic representation of WOS-B with the number of publication from the project assigned

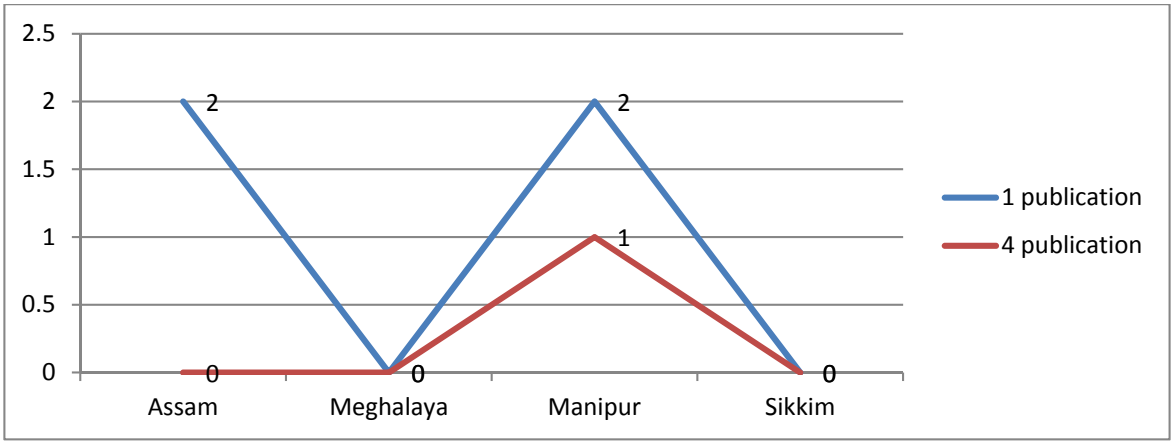


Figure 51(b): Demographic representation of WOS-B with the publication citation index from the project assigned

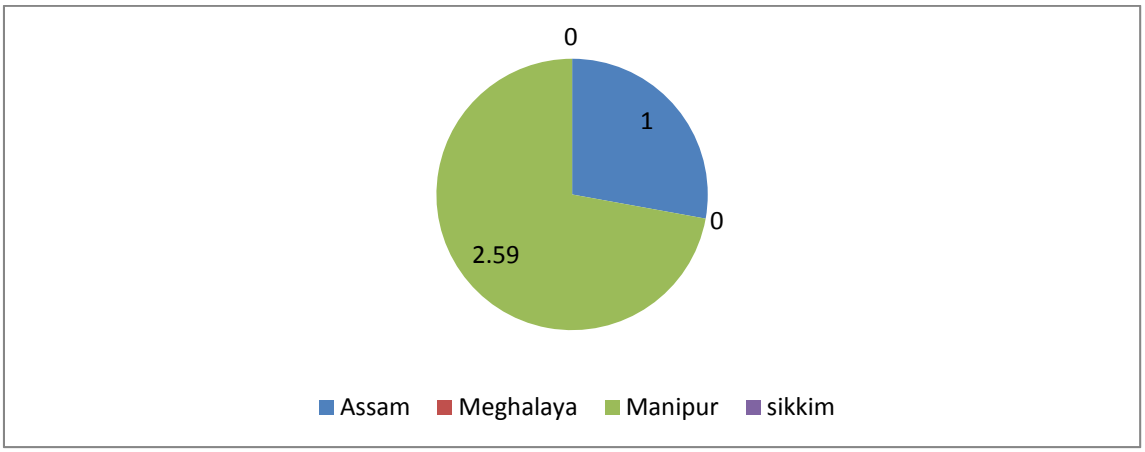


Figure 51(c): Demographic representation of WOS-B with the publication H.Index from the project assigned

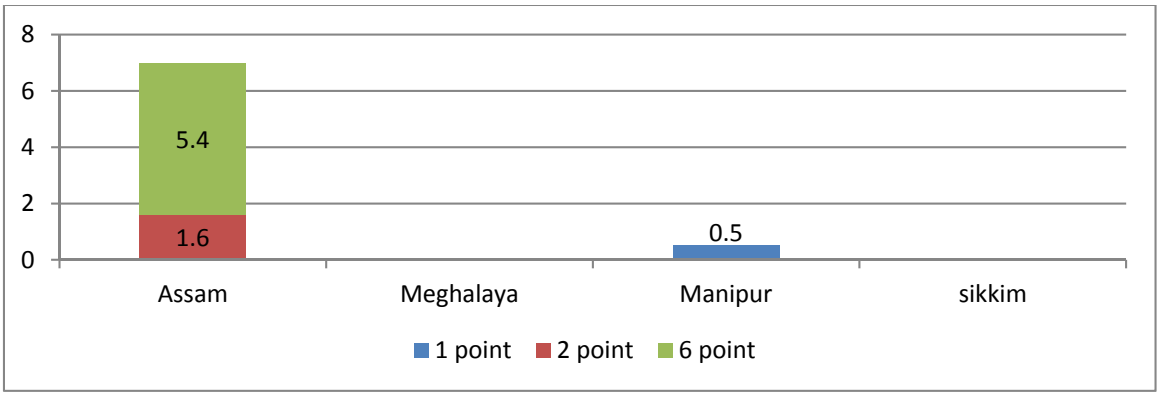


Figure 52 shows that 51 numbers of national and international seminars were attended by the WOS-B of NER during the project period of which Manipur WOS's attended 46 number of seminar followed by Assam with 5 seminars. Manipur WOS's presented 14 seminars of both national and international but Assam attended 7 seminars for paper presentation of both national and international seminar.

Figure 52: Graphical representation of WOS-B attended and presented at National and International seminar

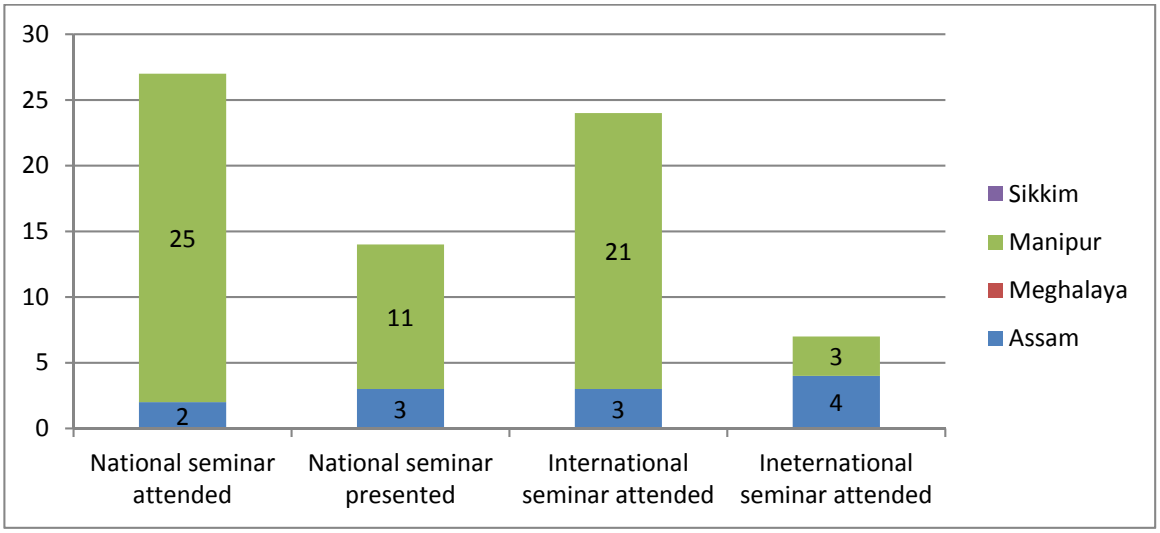


Figure 53 shows that 4 numbers of national and international workshops were attended by the WOS-B of NER during the project period of which one each WOS of Assam, Manipur and Meghalaya attended the national workshop and one WOS of Assam attended the international workshop. Presentation at national and international workshop was made only from Assam WOS. It was not observation on Sikkim WOS on attending and presenting workshop.

Figure 53: Graphical representation of WOS-B attended and presented at National and International workshop

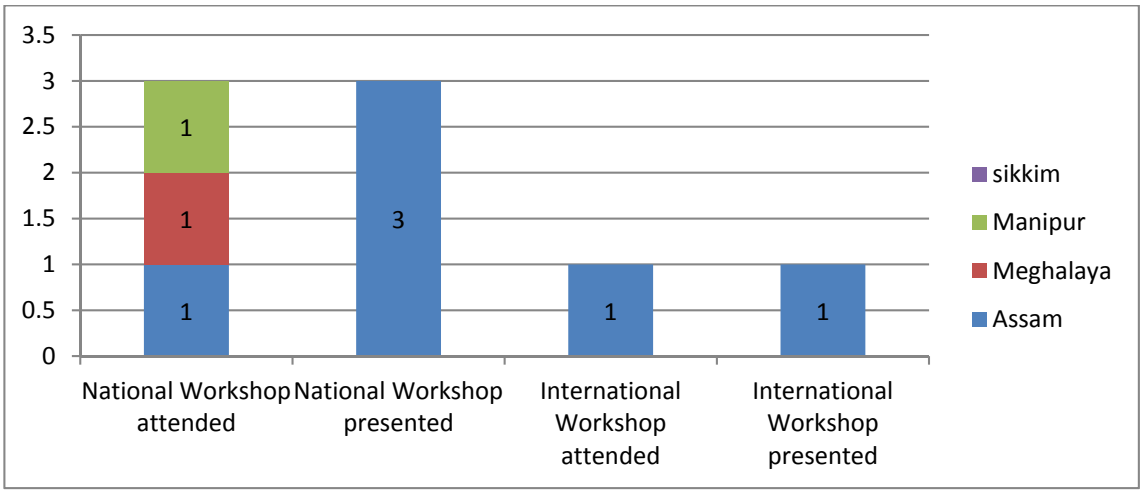


Figure 54 shows the extension involvement conducted by the WOS-B of the NER in which maximum Manipur WOS-B delivered talk followed by Assam and Meghalaya WOS. 50% each of organising workshop was conducted from Assam and Manipur. Assam WOS also conducted other extension programme. No extension involvement was reported from Sikkim WOS.

Figure 54: Graphical representation of extension involvement

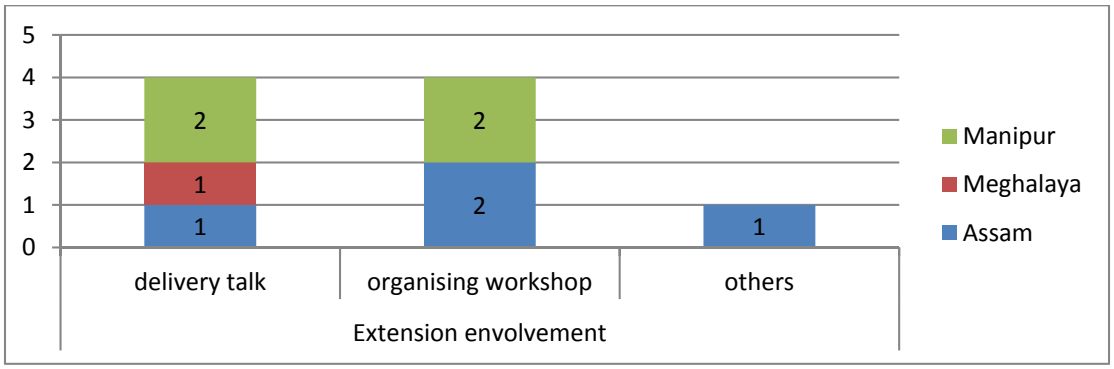


Figure 55 (a) & (b) shows the women scientist project is maximum rated excellent from Assam WOS-B in both the rating and satisfaction of the programme but fluctuation in the rating of good and very good can be observed.100% excellent rating and satisfaction level of the programme was observed in Meghalaya WOS. Not satisfy rated on rating of the programme and satisfaction level of the programme can be observed from One WOS of Manipur. Average rating of the programme and satisfaction level of the programme can be observed 100% from WOS of Sikkim.

Figure 55 (a): Rating of the programme presented by WOS-B

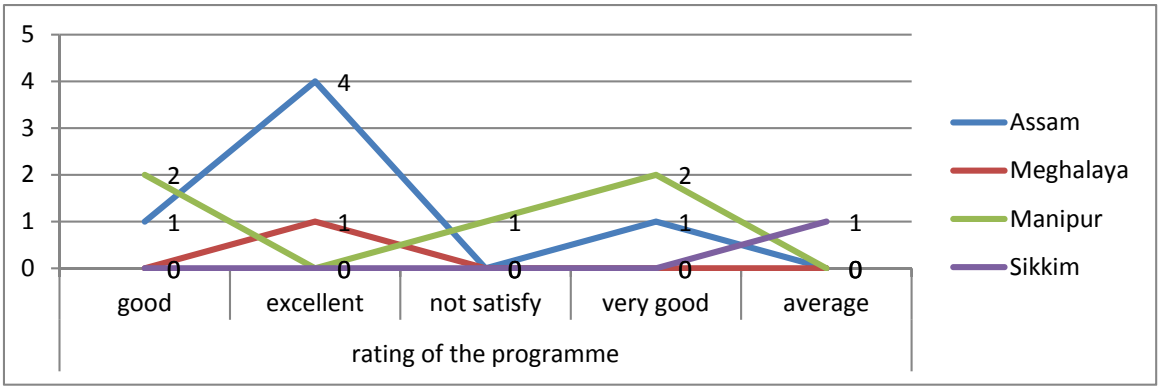
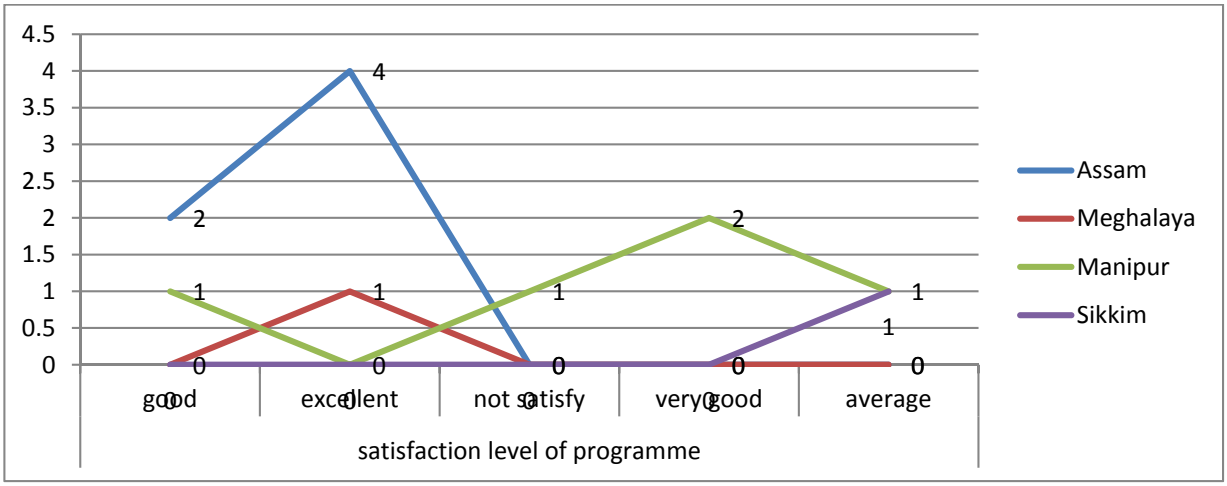


Figure 55 (b): Demographic representation of satisfaction level of the programme presented by WOS-B



Related to support:

Figure 56 shows the family support received for project activities. Fews of the WOS did not give any opinion about the family support but WOS from Meghalaya and Sikkim got 100 per cent motivational support from the family. Neutral family support and moderate family support was observed from the WOS of Assam and Manipur but motivational family support was maximum in both the state WOS i.e, Assam and Manipur.

Figure 56: Graphical representation of WOS-B family support for the programme

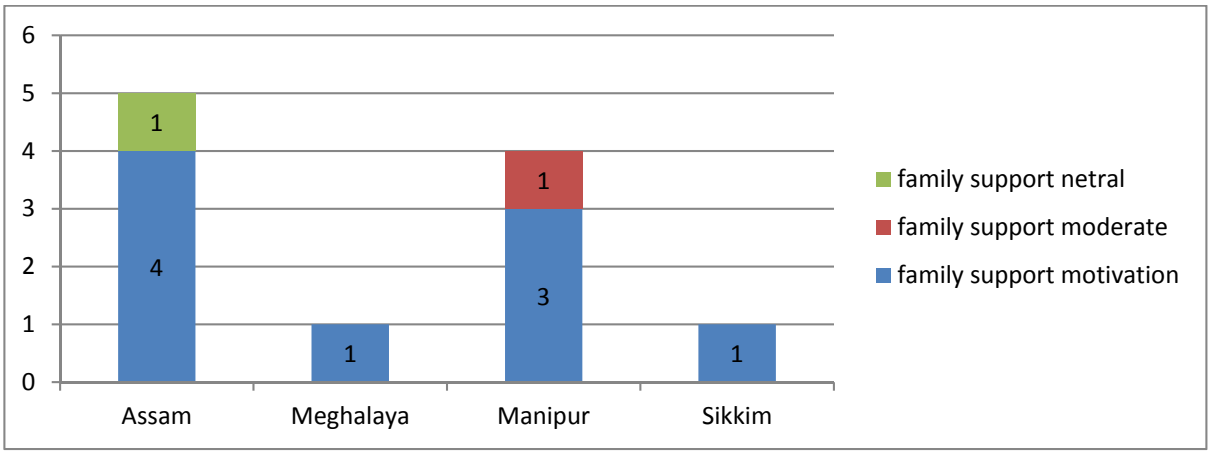


Figure 57 shows the mentor's support of the project and 100 per cent satisfaction from mentor support was observed in Meghalaya WOS. Descending order of extremely satisfy, very satisfy and moderately satisfy for mentor support can be observed in Assam

and Manipur WOS but WOS from Sikkim did not express the satisfaction level of the mentor's support.

Figure 57: Graphical representation of the mentor's support

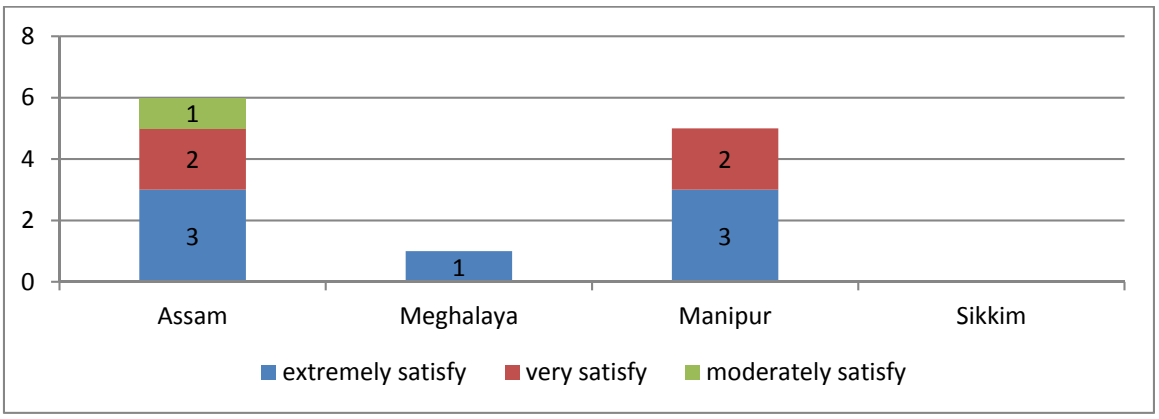
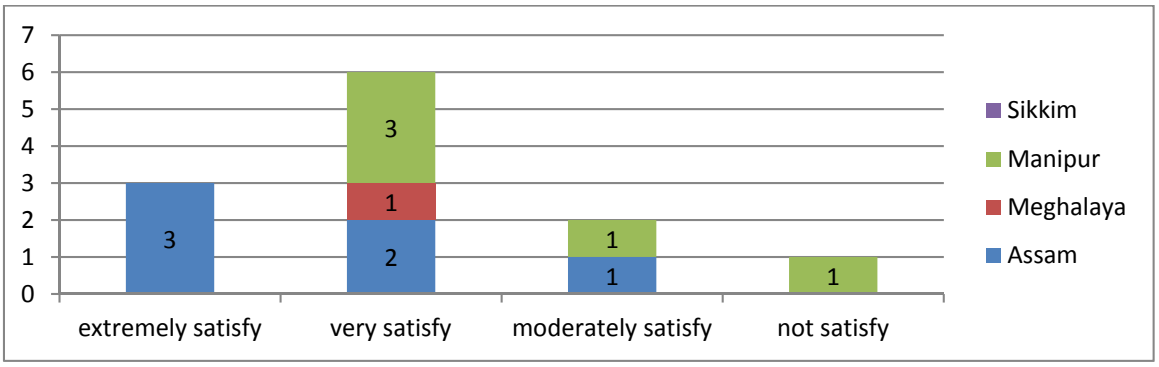


Figure 58 shows the institutional support satisfaction level. Very satisfaction level of institutional support for the project was highest in Manipur, Assam and Meghalaya WOS. Assam WOS expressed 100 per cent of the extremely satisfy in regards to institutional support. 50 per cent of the total average of the moderately satisfy was expressed form the WOS of Assam and Manipur. Not satisfaction regarding institutional support was expressed from Manipur WOS Wile Sikkim WOS not mention to any of the responses in regards to institutional support.

Figure 58: Graphical representation of the institutional support



Problems faced:

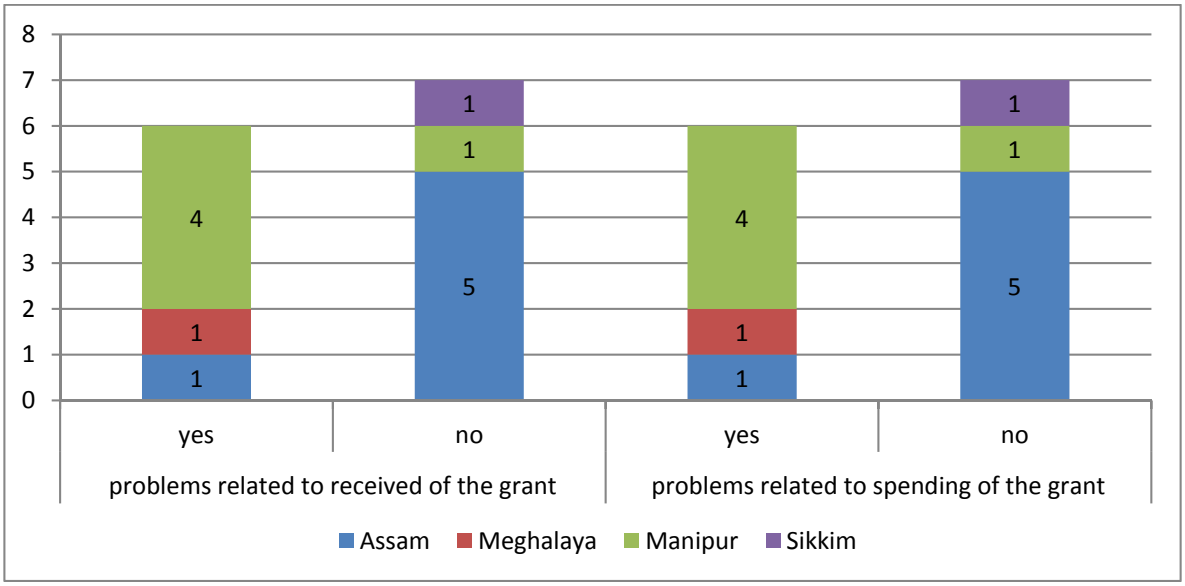
While receiving and spending of the grants of the programme, 100 % WOS of Sikkim, one WOS of Manipur and five WOS of Assam did not faced any problem. 4

WOS of Assam, 1 WOS from Meghalaya and 1 WOS from Manipur faced problems on receiving and spending of the grants of the programme. **(figure 59).** There was not significantly negative correlation while receiving and spending the grants (**table 26**)

Table 26: Showing of the correlation of the problems receiving and spending the grants of the programme

		problems related to received of the grant		problems related to spending the grant	
		yes	no	Yes	No
problems related to received of the grant	yes	1			
	no	-0.13	1		
problems related to spending the grant	yes	1	-0.13	1	
	no	-0.13	1	-0.13	1

Figure 59: Graphical representation of the problems receiving and spending of the grants of the programme



WOS-C:

Under WOS-C, only one women scientist from entire north eastern region has implemented the project. Details of the research could not be put to statistical test since the population size is not representative. However, the study has represented in the overall performance of the WOS under WOS-C.

Mrs Jyotisikha Deka, age 35, married women from general category of Assam is the only WOS-C scientist from north eastern region of India. She was a 10th batch WOS-C with her enrolment no. WOSC10-02391. During her intern, there was not break in her career. She completed M.Tech with Engineering Sciences specialization. She implemented the project under the supervision of Mrs. Divya Kapoor, partner in designation at Subramaniam & Associates, M3M Cosmopolitan, 7th floor, Golf Course Extension Road, Sector 66, Gurugram, Haryana in the area of search patent, drafting patent and filling IPR prosecution. During her internship of the project, she could learn basics of all fields of IPR, hand on training and patent drafting and prosecution in detail. She also attended many workshop related to IPR organised by TIFAC and she also did not face any problem during her intern work. She also cleared patent Agent examination during 1th January, 2019 and became an employee of Subramaniam & Associates, Gurugram within one year after the project.

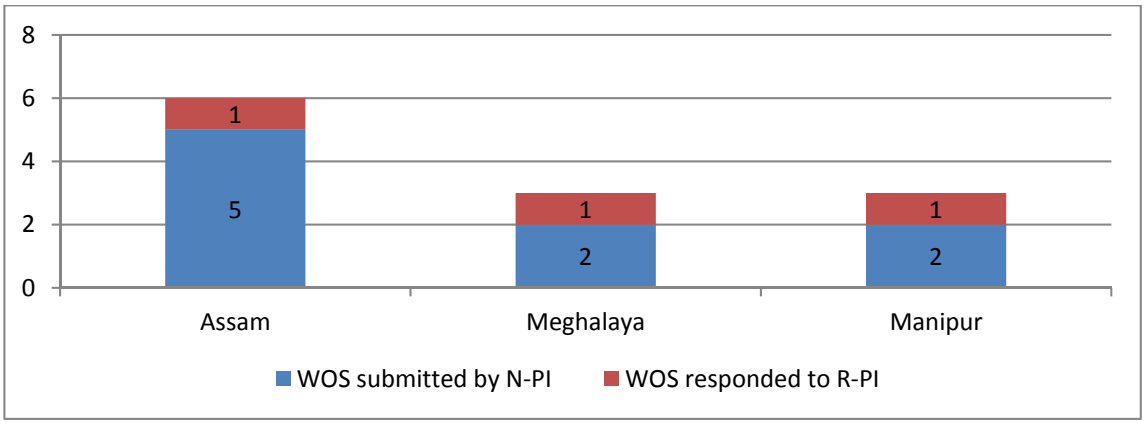
Currently she is working as an associate in IPR related prosecution at her mentor institute (Subramaniam & Associates). She is fully satisfied with the current job even though she did not achieve any professional certificate or additional higher qualification. She did not receive any honour or award with the project but the project is very helpful to build up her career. She did not get the internship stipend on time but it was quite needful in gaining basic knowledge about IPR sector. She expressed with the excellent in rating and satisfaction level of the WOS-C programme.

WOS-Bio care:

No of responses w.r.to total no of beneficiaries:

Figure 60 shows that out of 9 WOS- bio care, 3 WOS submitted the questionnaire, from the state of Assam, Meghalaya and Manipur.

Figure 60: Demographic representation of WOS-Bio care submitted from N-PI and responded to R-PI



Geographical Spread:

Table 27 and **figure 61** shows the marital status of the WOS-Biocare and it can be observed that married WOS were from the state of Meghalaya and Manipur and unmarried WOS is from Assam.

Table 27: Marital status of WOS-Biocare from NER.

*Point	Married WOS	Rank	Percent	*Point	Unmarried WOS	Rank	Percent
2	1	1	50.00%	1	1	1	100.00%
3	1	1	50.00%	2	0	2	0.00%
1	0	3	0.00%	3	0	2	0.00%

*1= Assam; 2= Meghalaya; 3= Manipur

Figure 61: Marital status of WOS-Biocare from NER.

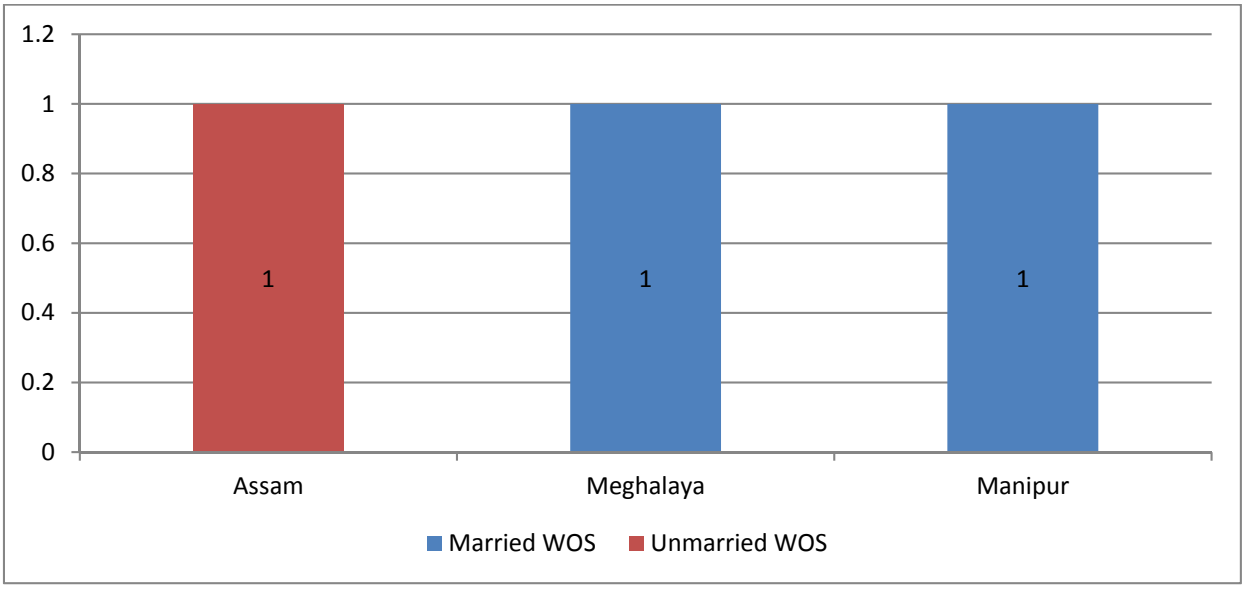


Figure 62 shows the categories of WOS-biocare. Out of the three WOS- biocare only one belong to ST category and the rest are from general and OBC categories

Figure 62: Demographic representation of category wise of WOS-Biocare

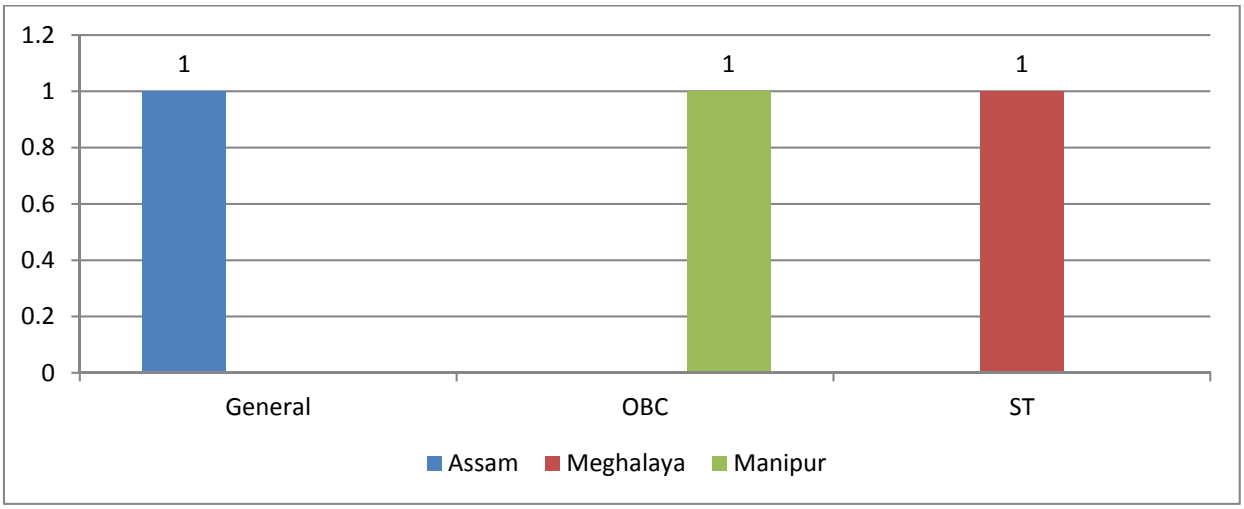


Figure 63 shows the educational qualification status of WOS-Biocare. The WOS-Biocare of all the state completed PhD. All the WOS of Manipur, Meghalaya and Assam worked an availed project through CAU, NEHU and NIT under the stream of agriculture and allied subject and life Sc. WOS from Manipur worked in the stream of AAS at CAU,

WOS from Meghalaya and Assam worked the project in the stream of life science at NEHU and NIT respectively and is shown in **figure 64 (a) & (b).**

Figure 63: Status of WOS-Biocare with their educational qualification.

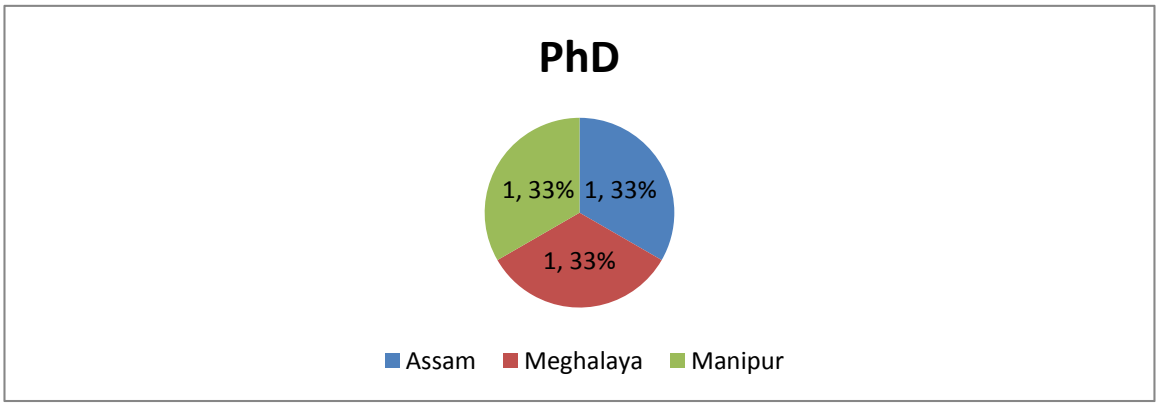


Figure 64 (a): Institution and University conducted the women Scientist programme

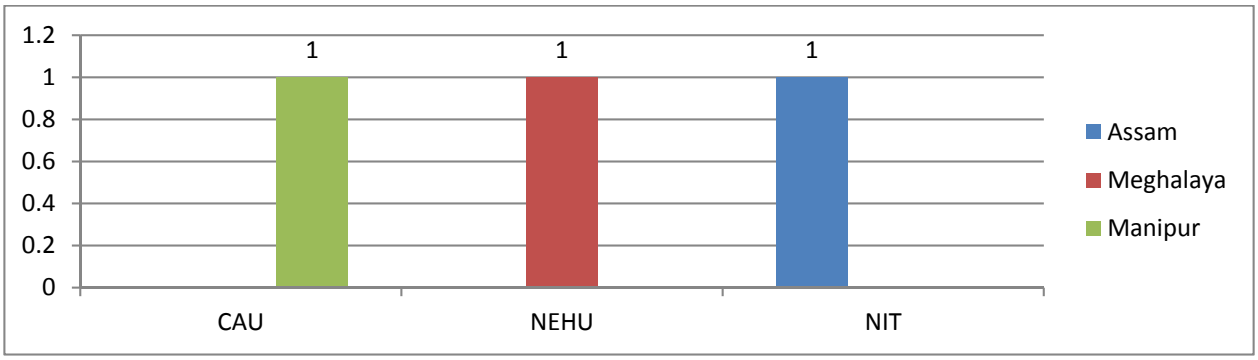
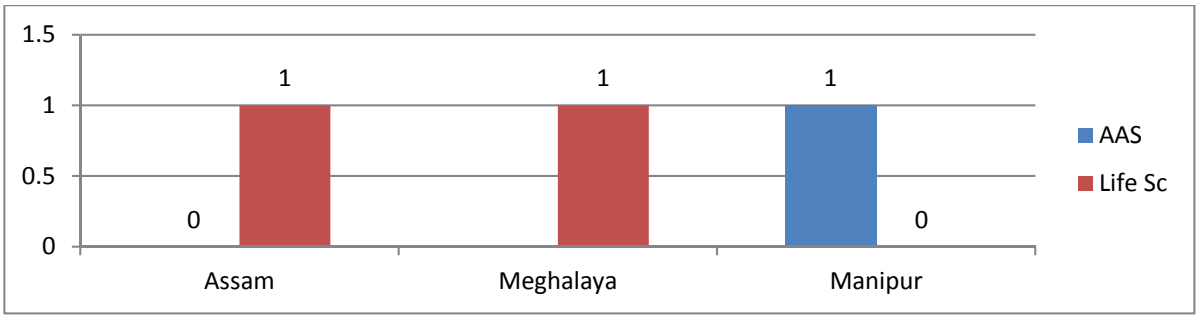


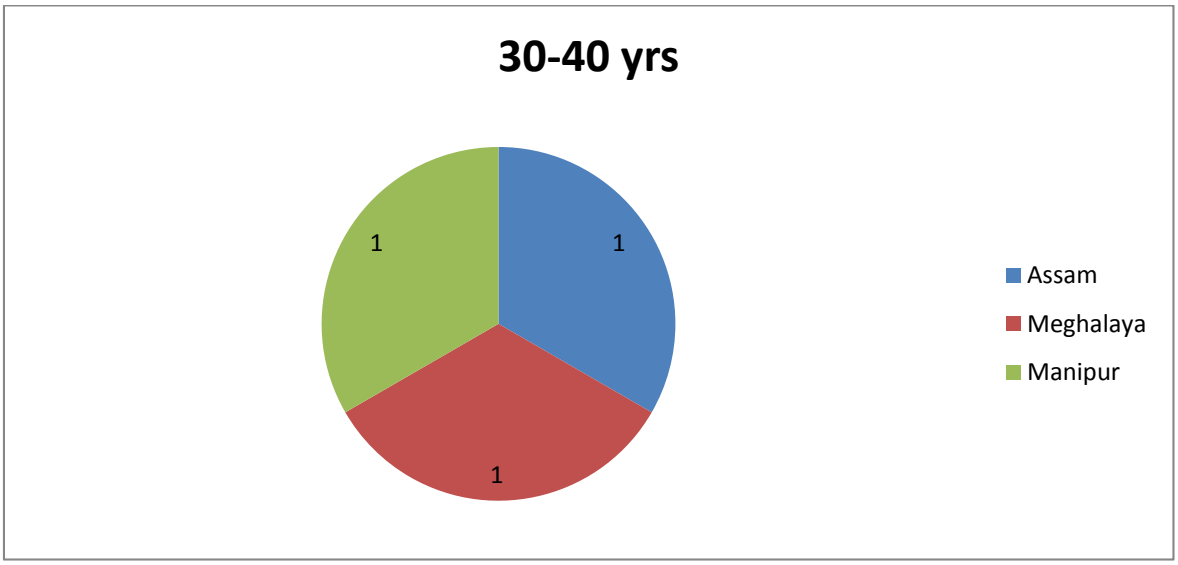
Figure 64 (b): Graphical representation of Subject wise division of WOS-Biocare



Age Group:

Figure 65 shows the age-wise distribution of WOS-Biocare. WOS- biocare from different north eastern state falls under the age limit between 30-40 years.

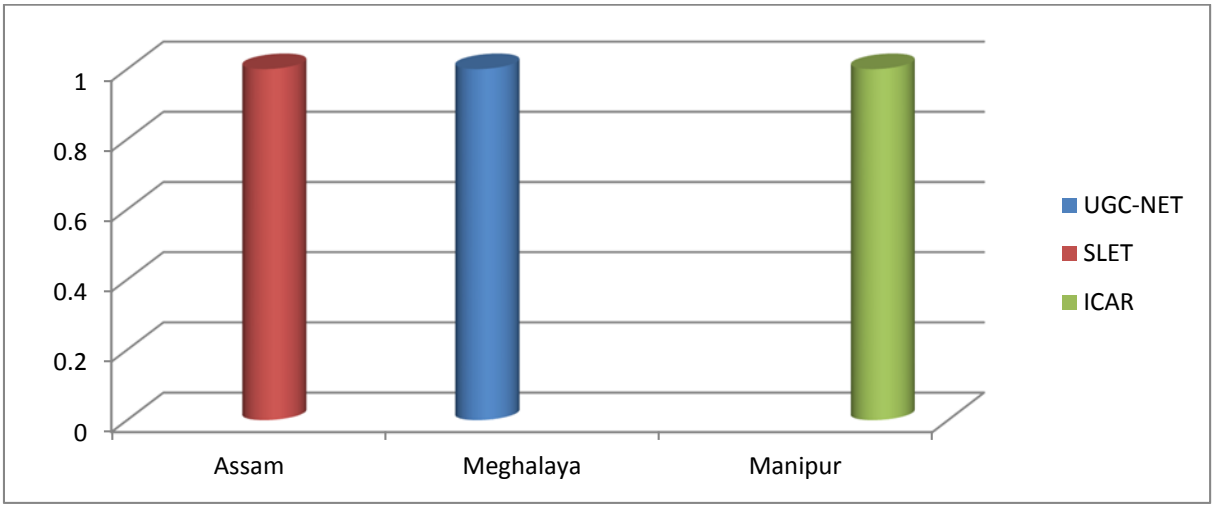
Figure 65 : Age –wise distribution of WOS- bio care



Subjects-wise:

Figure 66 shows the eligible test cleared by the WOS-biocare. WOS from Manipur could cleared eligibily test conducted by ICAR and the two WOS, one each from Meghalaya and Assam could qualified test namely SLET and UGC-NET.

Figure 66: Graphical representation of eligibility test cleared by WOS-Biocare.



No. of projects, no of schemes:

The number of project availed from the Government of India's Gender Mainstreaming programme under WOS-Biocare. WOS-Biocare from north eastern state of Assam, Manipur and Meghalaya availed only one project from the Government of

India's Gender Mainstreaming programme. It is evident that break in career while conducting the project was not mentioned by WOS-Biocare of the study region.

Achievements:

Figure 67 shows the status and duration of the project for the WOS-Biocare from north eastern state. Unfortunately, WOS from Assam did not mention anything's about the status and duration of the project. The status of the project for the WOS of Manipur and Meghalaya was completed within the duration of 36 months from the start of the project.

Figure 67: Graphical representation of the status and duration of the project for WOS-Biocare.

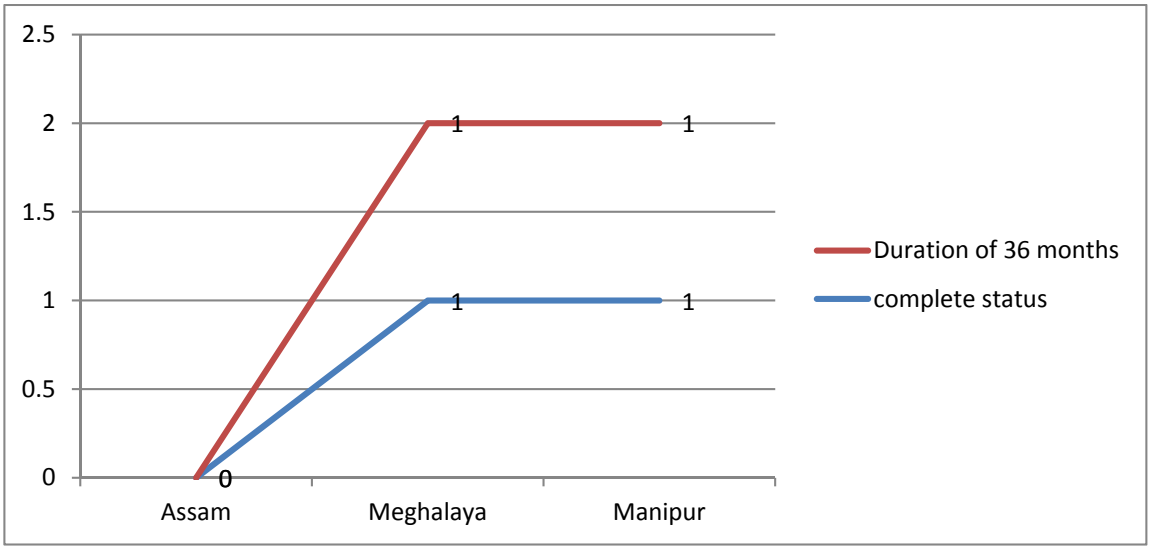


Figure 68 shows the requested for the extension of the project period by WOS – Biocare. Manipur WOS requested for extension of the project but it was not extended and Assam and Meghalaya WOS did not request for extension of the project.

Figure 68: Demographic representation for the request of the extension of the project

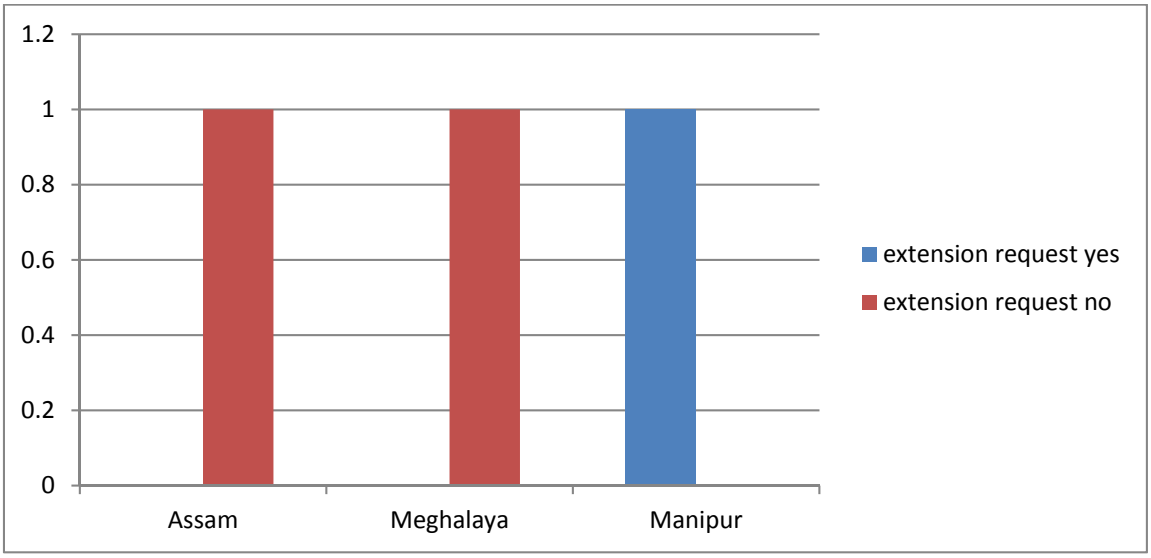


Table 28 shows the employment status of the WOS-Biocare for the project awarded. Before the project awarded, WOS worked as research scholar in Assam and Assistant professor in Meghalaya and Manipur. But after the completion of the project, WOS of Assam remained unemployed. **Figure 69** shows the satisfaction level of the current job and Assam WOS rated good, Meghalaya with very good and Manipur with excellent rating

Table 28: Employment status of WOS-Biocare

State/ Status	Before the initiation of the project-		After the completion of the project		Current position of employment status	
	RA/SRF	Asst Prof.	Unemployed	Asst Prof.	Unemployed	Asst Prof.
Assam	1	0	1	0	1	0
Meghalaya	0	1	0	1	0	1
Manipur	0	1	0	1	0	1
Total	**1**	**2**	**1**	**2**	**1**	**2**
Mean average	0.5	1	0.5	1	0.5	1

Figure 69: Demographic representation for satisfaction level with current job.

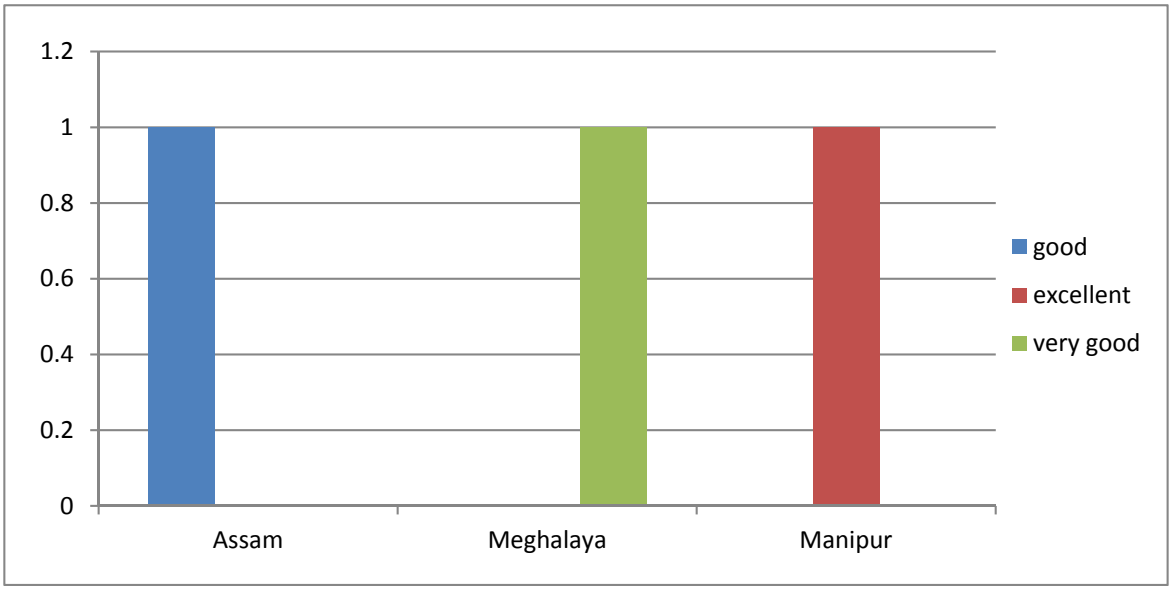


Figure 70 shows the educational qualification of WOS-Biocare at the grant of the project. Manipur WOS held master degree and WOS from Meghalaya and Assam held degree of PhD at the grant of the project. But after the completion of the project, WOS from Manipur pursued and held PhD degree.

Figure 70: Graphical representation for educational qualification of WOS-Biocare during the grant of the project

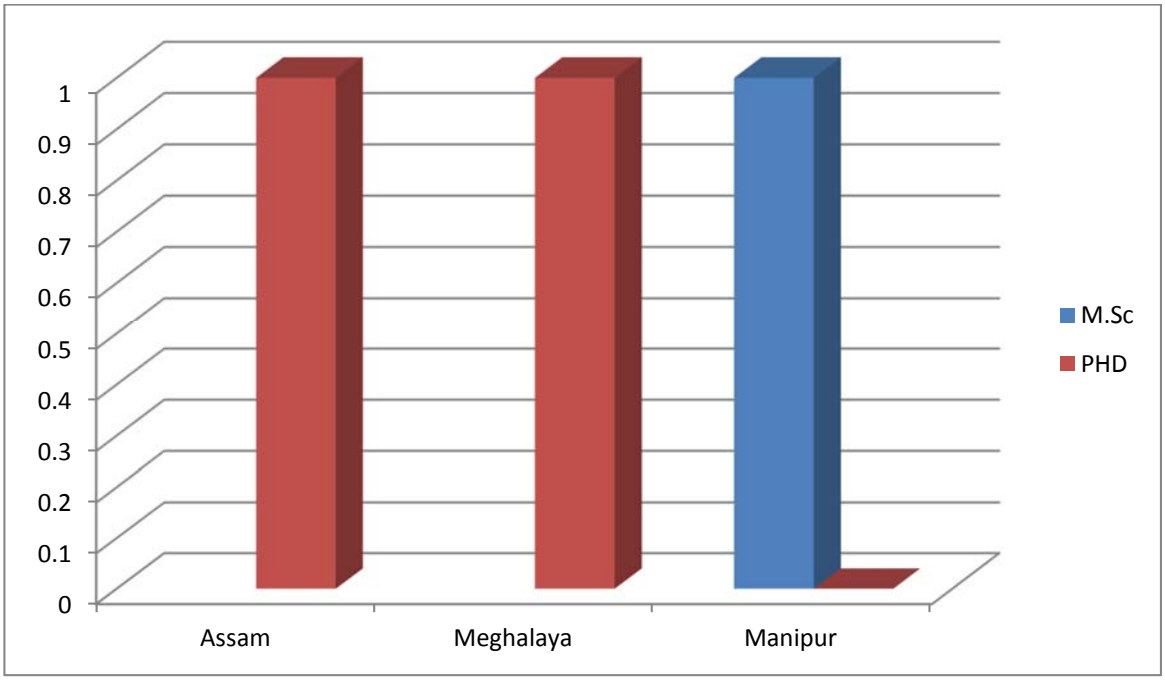


Figure 71 shows WOS receiving awards during the project period. Amongst the WOS of Biocare from north eastern region, only Assam WOS got the award in the field of her project work.

Figure 71: Demographic representation of the awarded WOS- Biocare from the project period

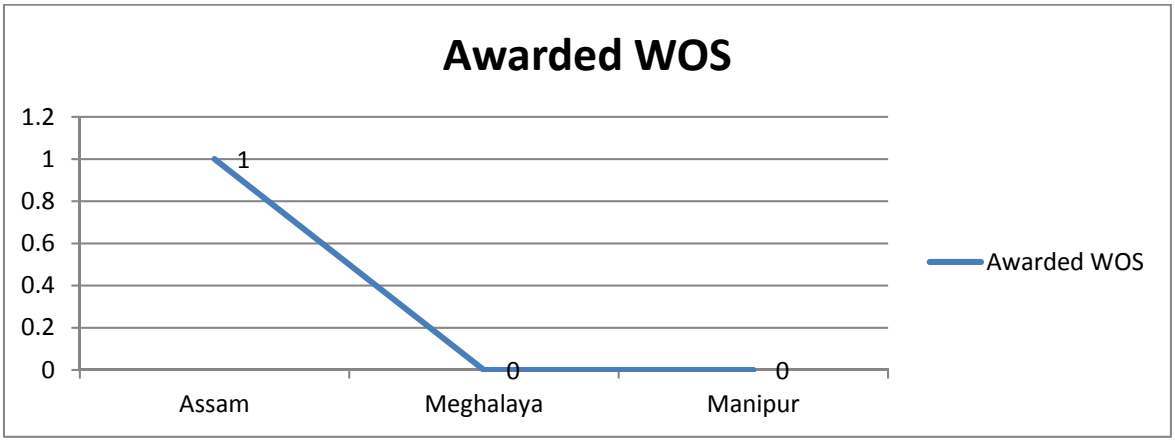


Figure 72 (a), (b) &(c) shows the publication of one paper with high index of 4 and citation index less than 10. 2 publications with less than 10 citation index were published from Manipur WOS.

Figure 72(a): Demographic representation of WOS-Biocare with the number at publication from the project awarded

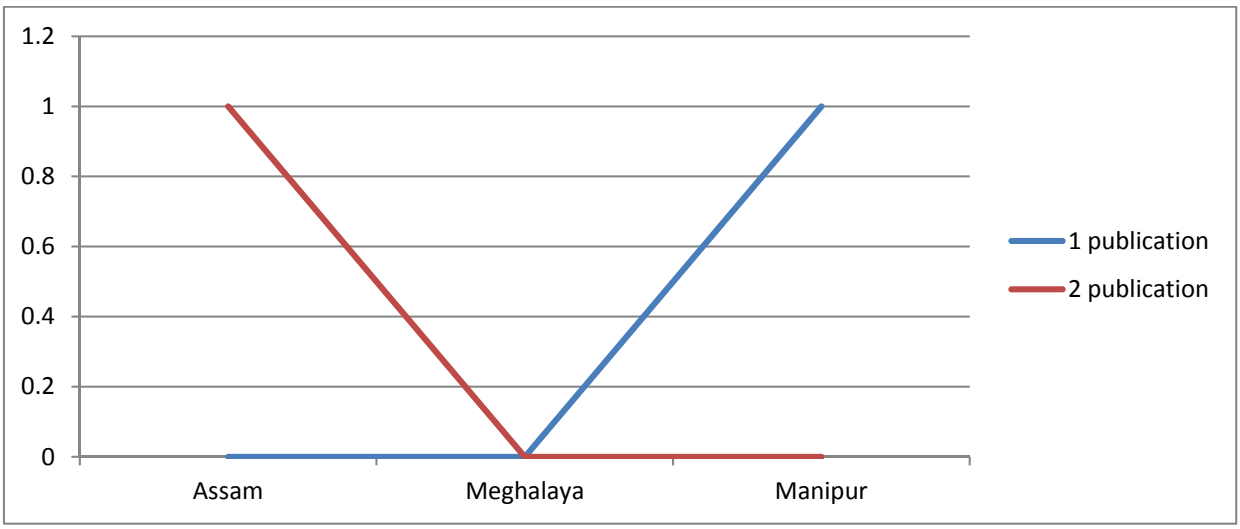


Figure 72 (b): Demographic representation of WOS-Biocare with the publicationcitation index from the project awarded

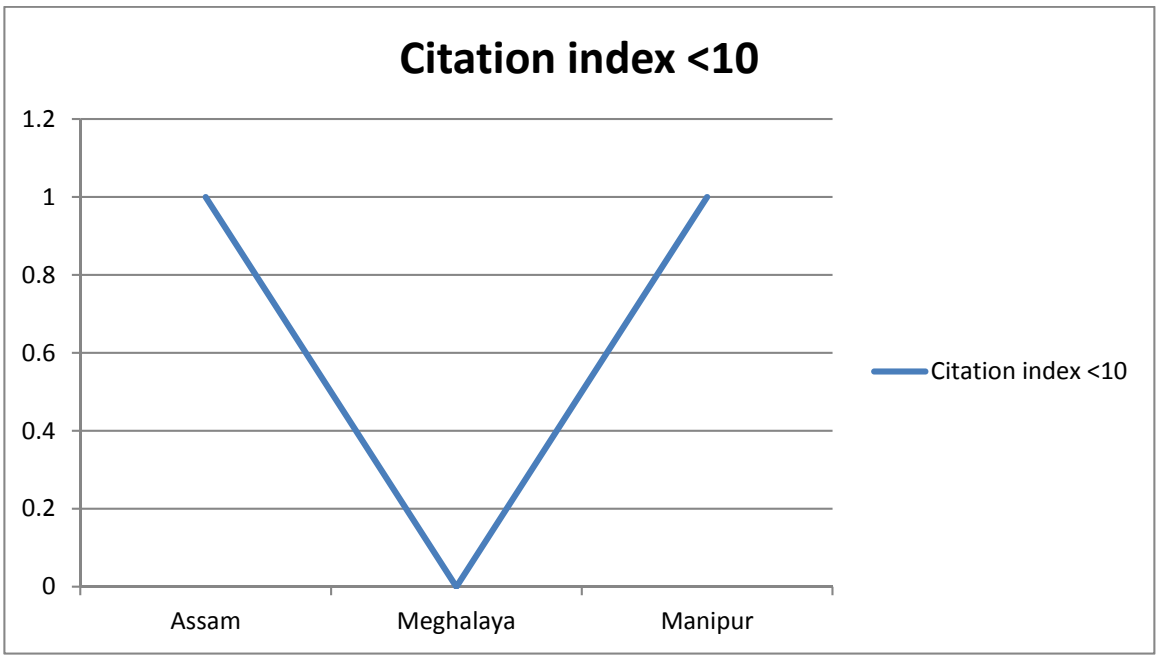


Figure 72 (c): Demographic representation of the publicised H.Index from the project awarded

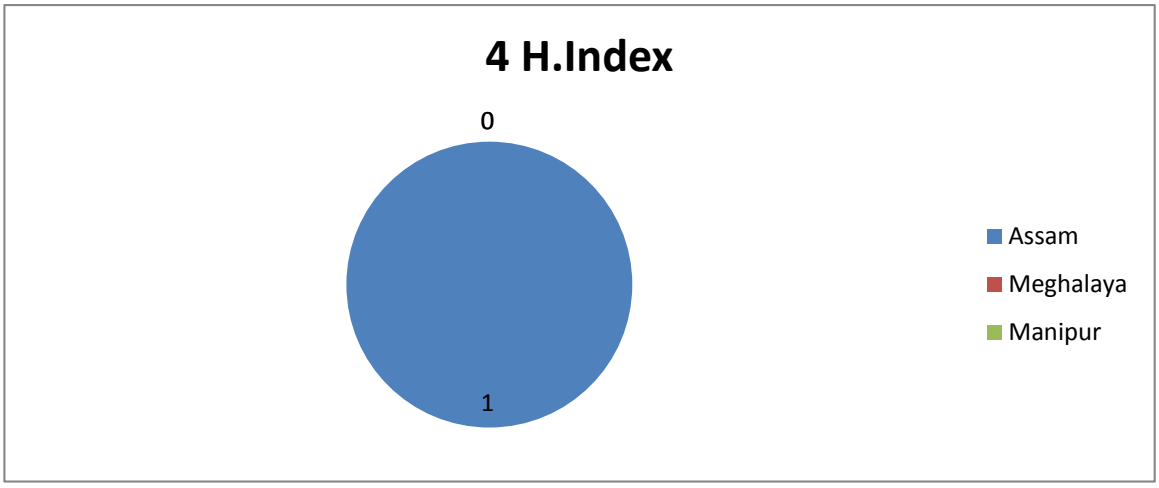


Figure 73 shows that 5 number of national and international seminars were attended by the WOS-biocare of NER during the project period of which Assam WOS attended 2 number each of national and international seminar and Manipur and Meghalaya attend one each national seminar. Presentation of national seminar and international seminars were done from WOS of Assam and only national seminar was presented from Manipur WOS. No observance on presented and attended of the national

and international workshop from the WOS. Extension involvement on delivery talks was performed only from WOS of Meghalaya and Manipur.

Figure 73: Graphical representation of WOS-Biocare attended and presented at National and International seminar

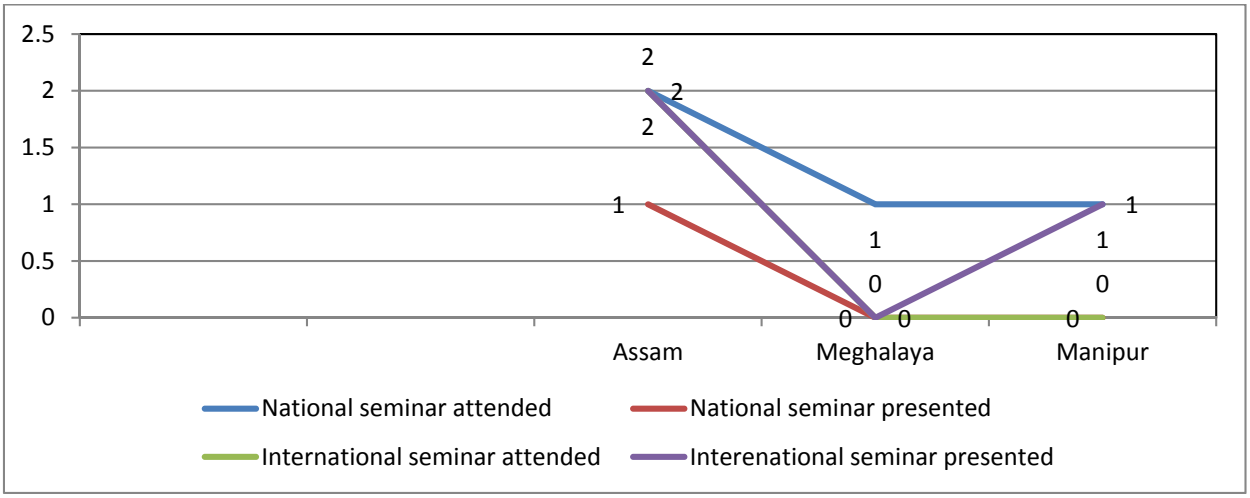
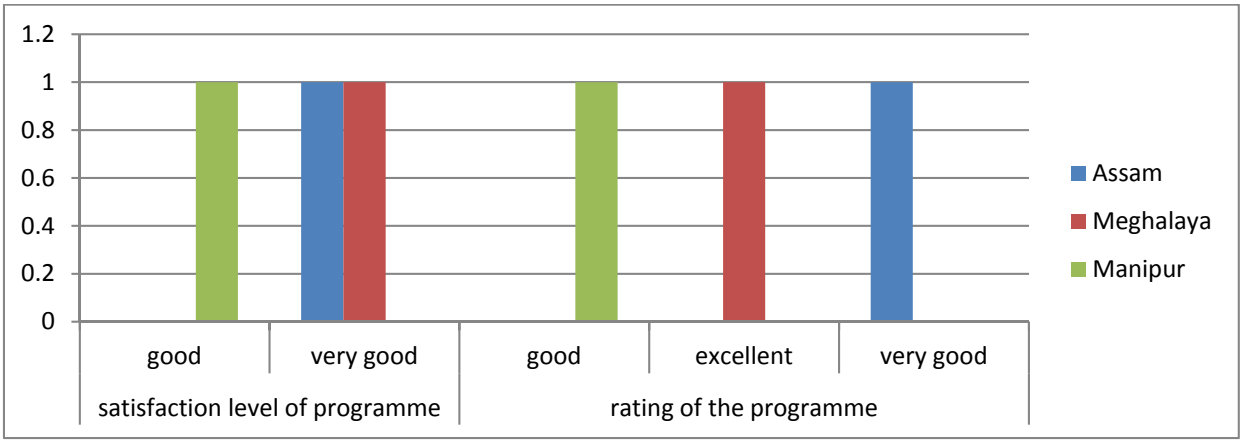


Figure 74 shows that good level of satisfaction and rating of the programme was observed from Manipur WOS. Very good and excellent rating and satisfaction toward the programme were observed from Assam and Meghalaya WOS.

Figure 74: Graphical presentation of rating and satisfaction level of the programme

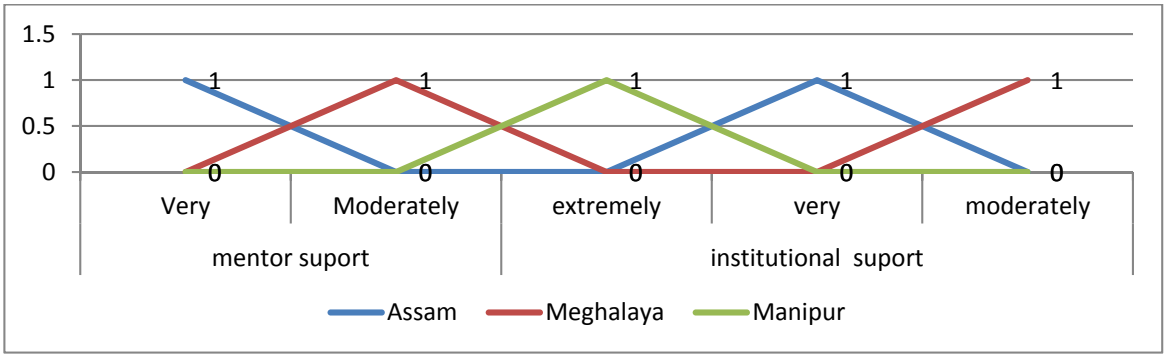


Related to support:

Motivational family support was expressed from all the WOS of Assam, Meghalaya and Manipur. Mentor and institutional support of WOS-Biocare was rated as very satisfy and moderately satisfy from WOS of Assam and Meghalaya. Extremely

satisfy by institutional support was expressed from WOS of Manipur but not expressed on mentor support **Figure 75.**

Figure 75: Graphical representation of the mentor's and institutional support of WOS-Biocare



Problems faced:

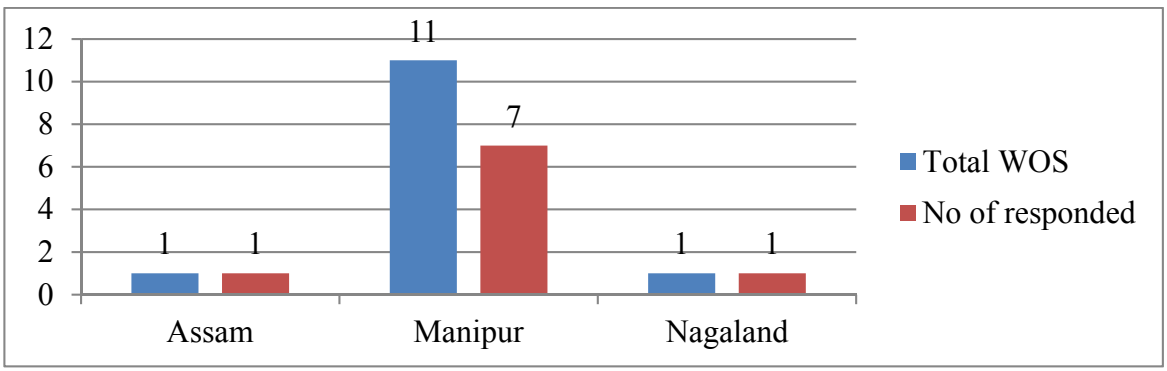
In receiving the grant of the programme, WOS of Manipur and Meghalaya face problems but no problems were face on spending of the grants from all the WOS of NER.

WOS- UGC_PDF:

No of responses w.r.to total no of beneficiaries:

Figure 76 show that the total numbers of WOS-UGC data received from N-PI were 100 per cent from Assam and Nagaland. But for the WOS of Manipur, 63 per cent response was received with 7 numbers as against 11 from N-PI.

Figure 76: Total number of WOS-UGC data received from N-PI and response to R-PI.



Geographical Spread:

Figure 77 shows that maximum number of married WOS was observed with Manipur and minimum with Assam. Manipur also recorded maximum number of unmarried WOS and minimum number was observed with Nagaland.

Figure 77: Marital status of responded WOS-UGC from NER.

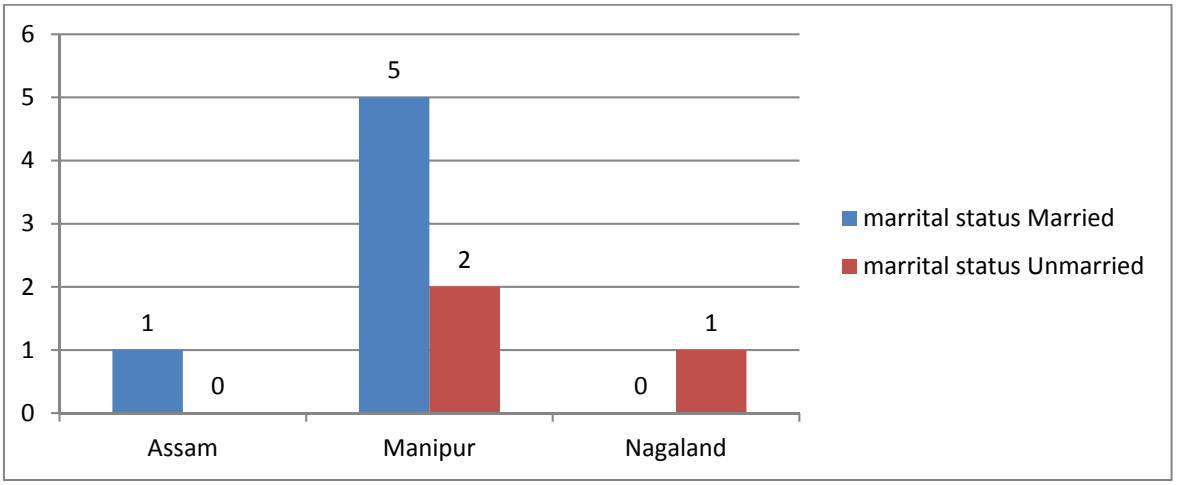


Figure 78 shows that general category of the WOS-UGC-PDF was observed in Assam and Manipur. OBC category was only observed in Manipur. ST category was observed in Manipur and Nagaland. SC category WOS was observed from Manipur WOS.

Figure 78: Demographic representation of category wise of WOS-UGC

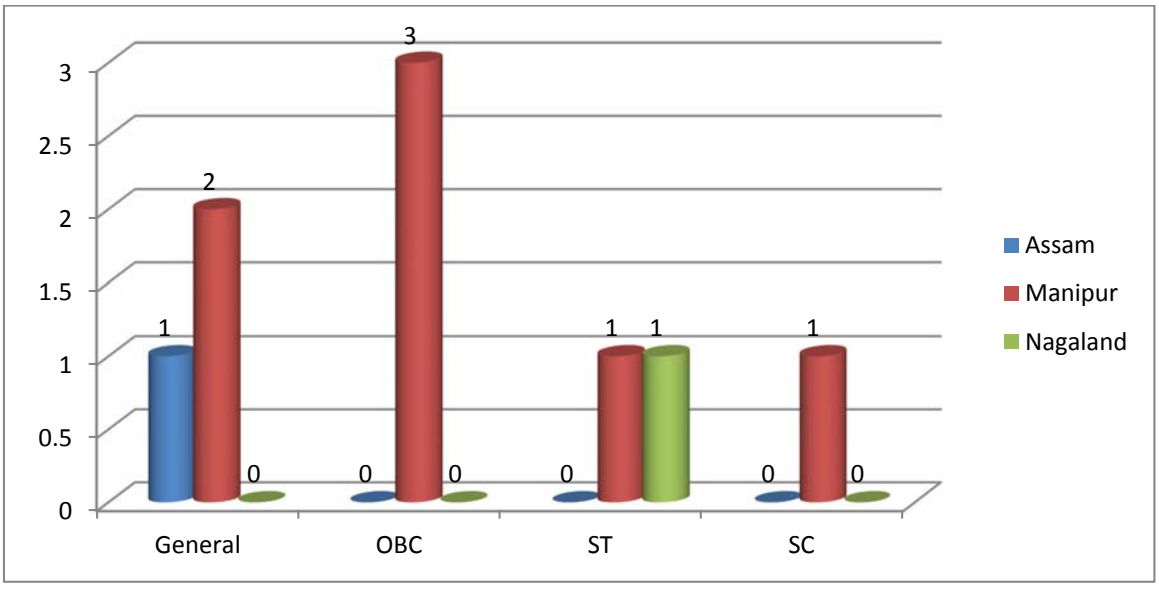


Figure 79 shows the educational qualification of WOS-UGC. One WOS-UGC from Manipur completed Post doctorate. 6 WOS of Manipur and 1each from Assam and Nagaland completed PhD.

Figure 79: Status of WOS-UGC with their educational qualification.

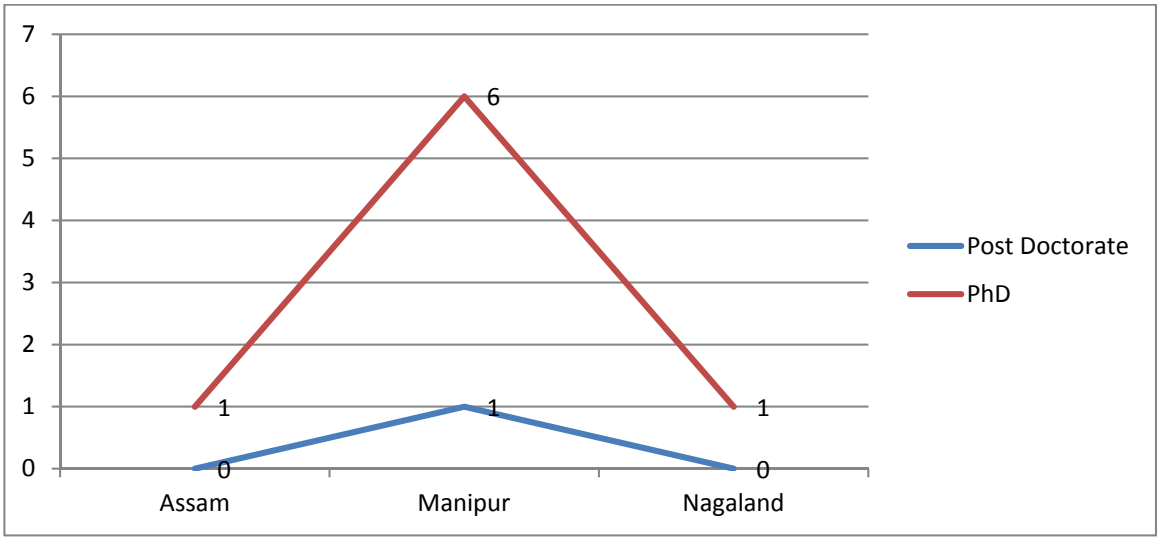


Figure 80 shows that WOS of Manipur from Manipur University leads in implementing the programme and Assam Don Bosco University, Central Agricultural University and Inter University Accelerator Centre stand. Guwahati University and Nagaland University WOS of Assam and Nagaland and shows negative correlation as compared to other various university of Manipur (**table 29**).

Figure 80: Institution name for the WOS-UGC conducted the project.

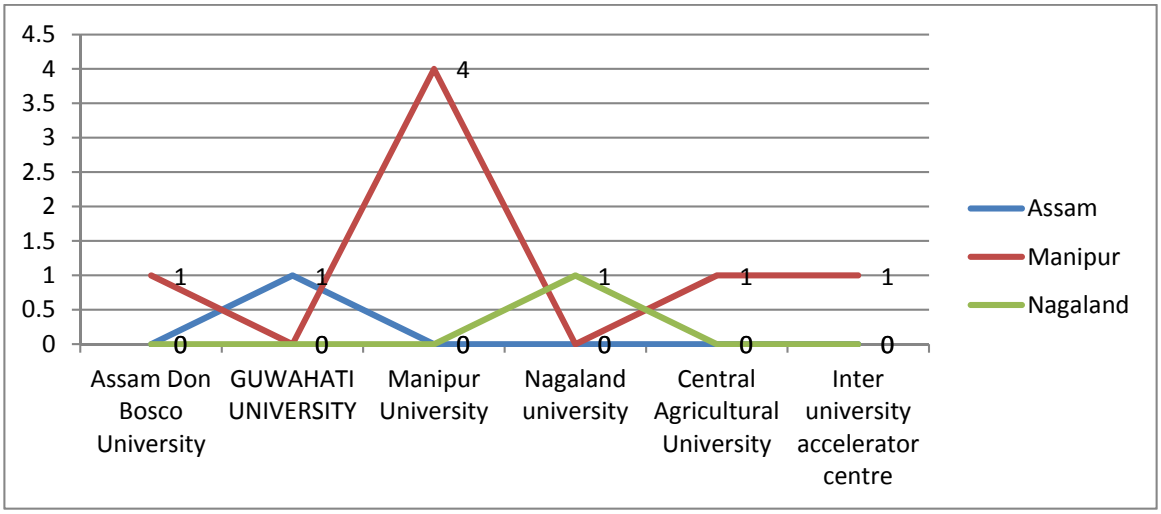


Table 29: Showing of correlation between the institutions where the WOS-UGC conducted the project

	ADBU	GU	M U	N U	CAU	IUAC
ADBU	1					
GU	-0.5	1				
MU	1	-0.5	1			
NU	-0.5	-0.5	-0.5	1		
CAU	1	-0.5	1	-0.5	1	
IUAC	1	-0.5	1	-0.5	1	1

- **ADBU**= Assam Don Bosco University; **GU**= Guwahati University; **MU**= Manipur University; **NU**= Nagaland university; **CAU**= Central Agricultural University**; IUAC**= Inter University Accelerator Centre

Subjects-wise:

Figure 81 illustrates the subject wise division of WOS-UGC. WOS of Nagaland carried out the programme at the division of life science; Mathematical science was for the WOS of Assam while Chemical science, HFN, AAS and Earth science were the subjects of WOS of Manipur.

Figure 81: Showing of subject wise division of WOS-UGC

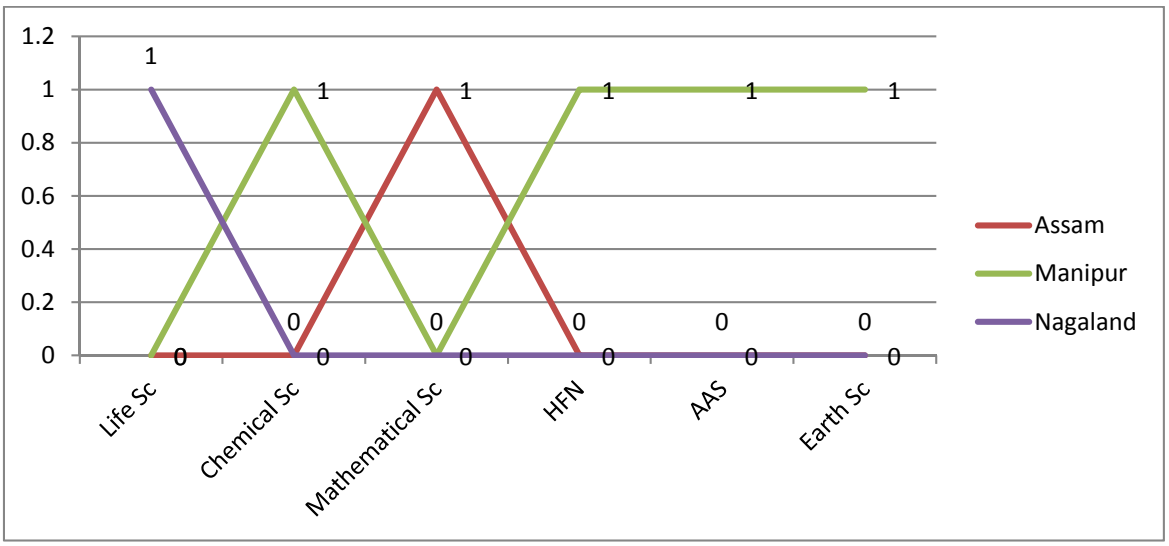
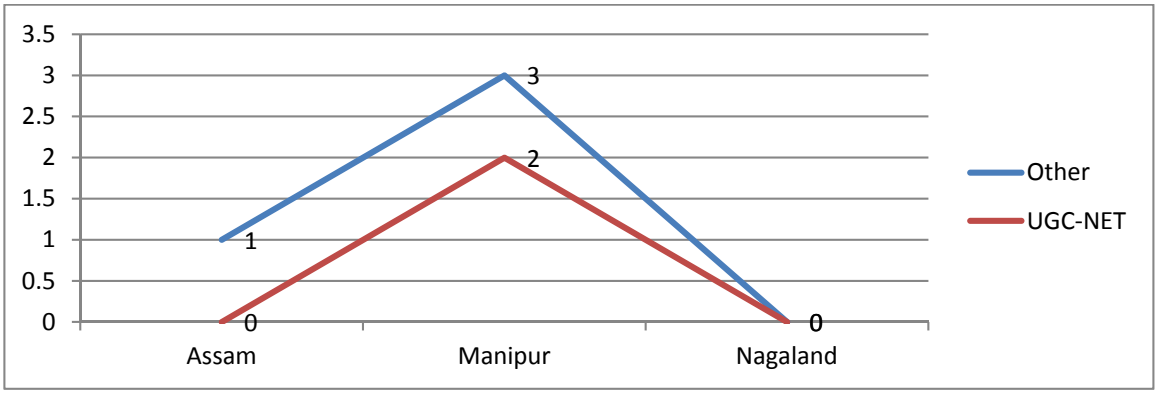


Figure 82 shows the eligible test cleared by the WOS-UGC and it can be observed that 2 WOS of Manipur passed UGC conducted net exam and 3 WOS of Manipur and one WOS of Assam mentioned the test cleared as others. 2 of the WOS from Manipur did not express the test clear.

Figure 82: Graphical representation of eligibility test cleared by WOS-UGC



No. of projects, no of schemes:

Figure 83 shows that one each project was availed by all the women scientists-UGC to build up their own career. During the project period, the response of break is reported by the 4 WOS of Manipur while 3 WOS of Manipur and 1 WOS of Assam continued the project without any break. Break during the project period is mainly due to family responsibility, for not getting the suitable job, marriage and maternity leaves. Duration of breaks, it was not properly described by all the WOS **(figure 84)**.

Figure 83: Demographic representation of Gender mainstreaming project availed by WOS-UGC

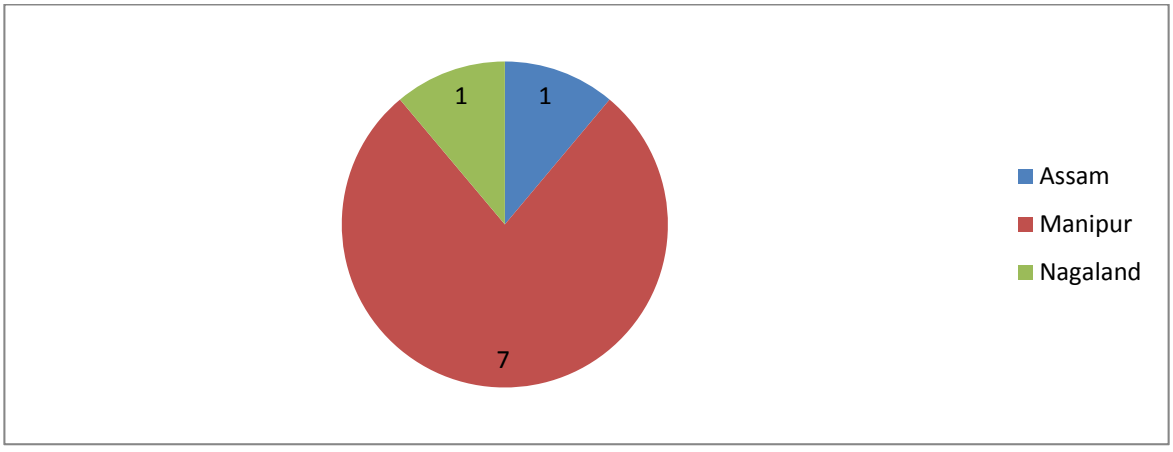
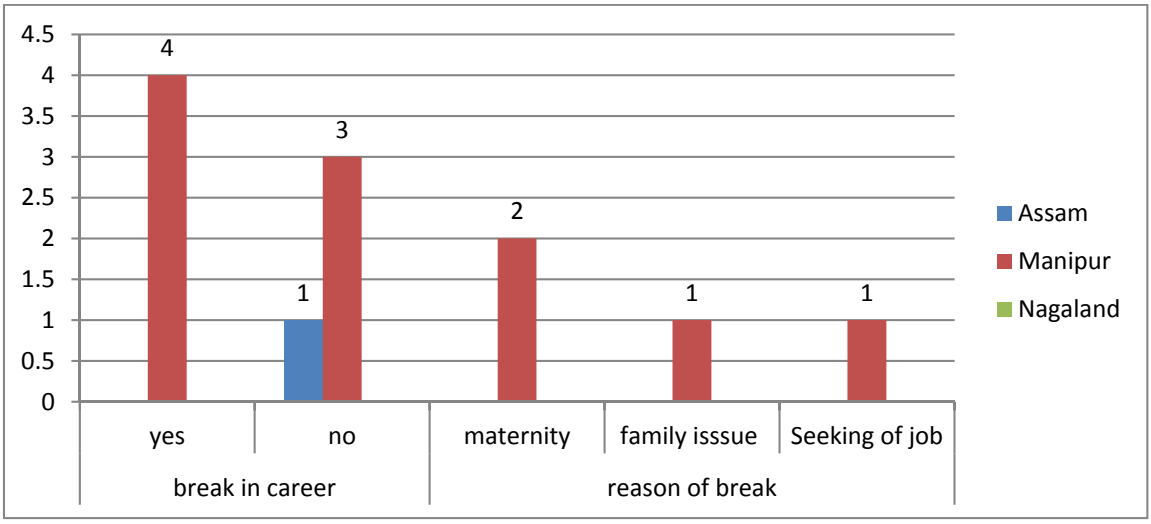


Figure 84: Graphical presentation of responses of break in career by WOS-UGC and reason of break



Achievements:

Figure 85 shows that project implementing by Assam WOS and 3 Manipur WOS had already completed and 4 Manipur WOS and 1 Nagaland WOS still continue the project. One WOS each of Assam and Manipur completed the project in 60 months. 2 WOS of Manipur completed project in 36 months and one WOS of Nagaland is still continuing (**Figure 86**). Extension of the project was applied by one WOS of Manipur but it was not granted and rest WOS of Manipur, Assam and Nagaland did not request for extension of the programme (**Figure 87**).

Figure 85: Status of the project for WOS-UGC of NER

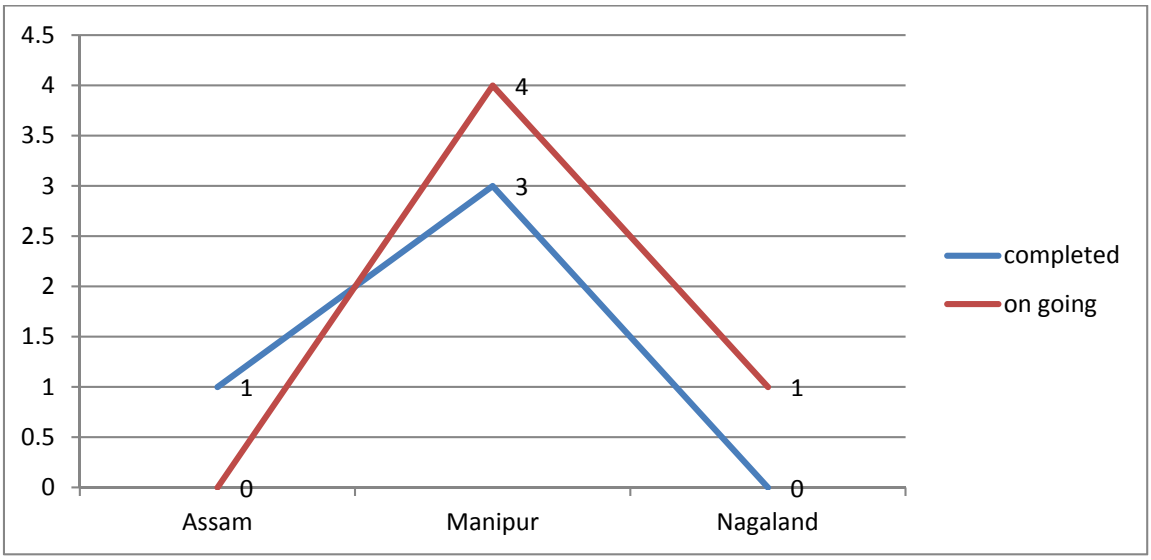


Figure 86: Demographic representation of duration of the project awarded to WOS-UGC

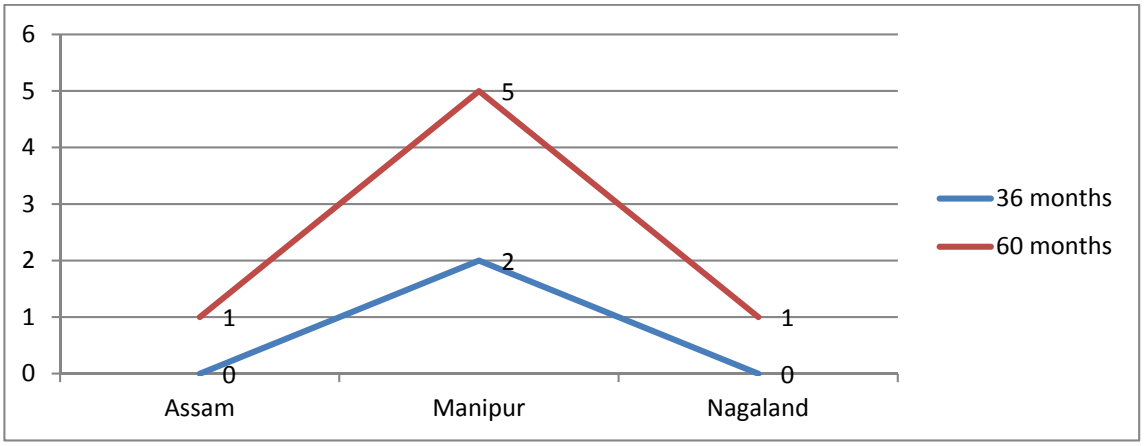


Figure 87: Demographic representation of the request for the extension of the project

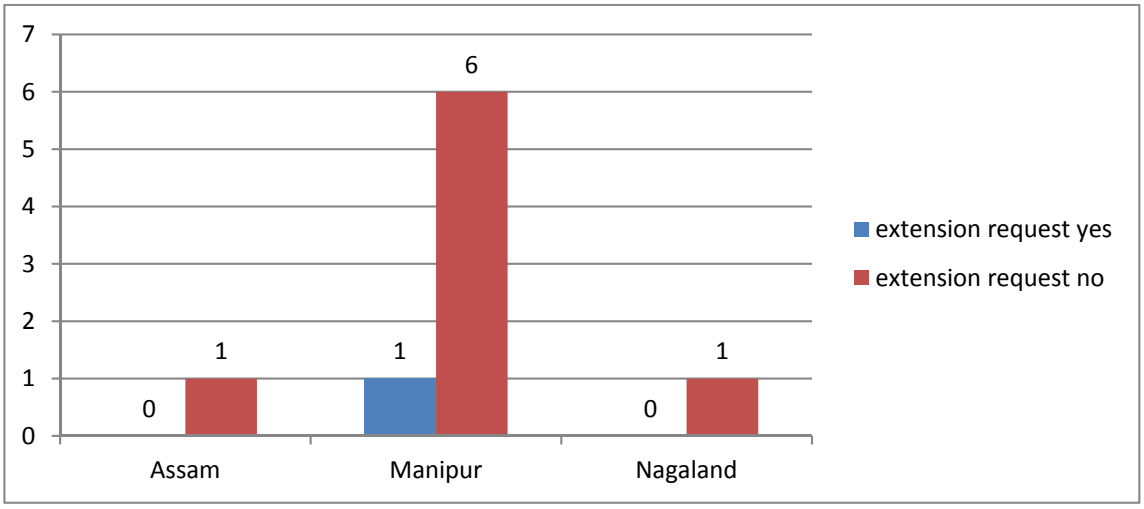


Figure 88 shows that Assam WOS remained unemployed before and after the project and unemployment is on the rise for the WOS of Manipur till current year. WOS of Manipur working as research scholars before the implementation of the project was reduced to only one WOS after the completion of the project but in current employment status there was no WOS working as research scholar. After the completion of project, one WOS of Manipur got job for the post of assistant professor and is still working in the same. Currently, one WOS of Nagaland and one WOS of Manipur worked as WOS and PDF respectively.

Figure 88 : Demographic representation of the employment status of WOS-UGC

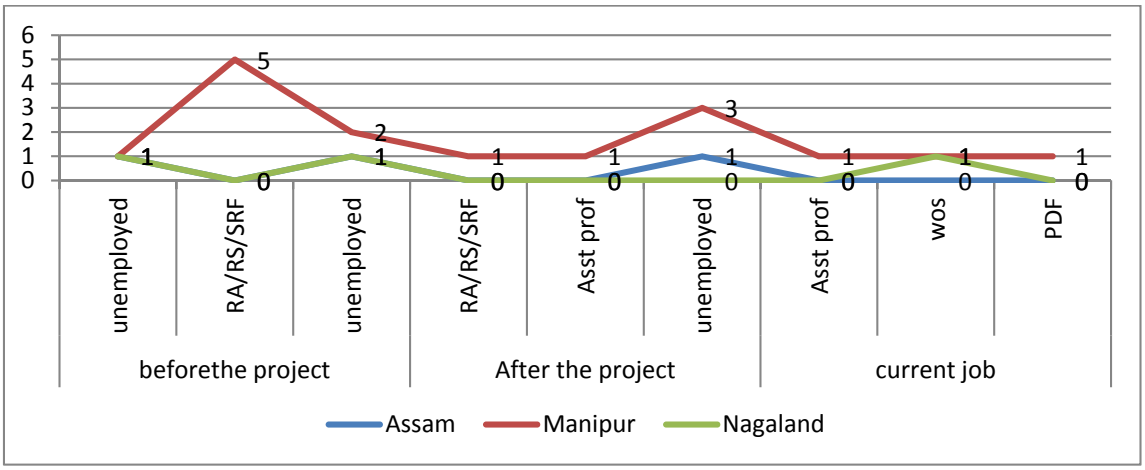


Figure 89 shows the satisfaction level of the current job where one Assam WOS and 2 WOS of Manipur were not satisfy with the employment status. Very good level of satisfaction for employment status was expressed by 2 WOS of Manipur while one WOS of Manipur also expressed the excellent level of satisfaction with the current job. 2 WOS of Manipur did not express the satisfaction level of job since the project is still ongoing and was same with the WOS of Nagaland.

Figure 89: Graphic representation of satisfaction level with current job of WOS-UGC.

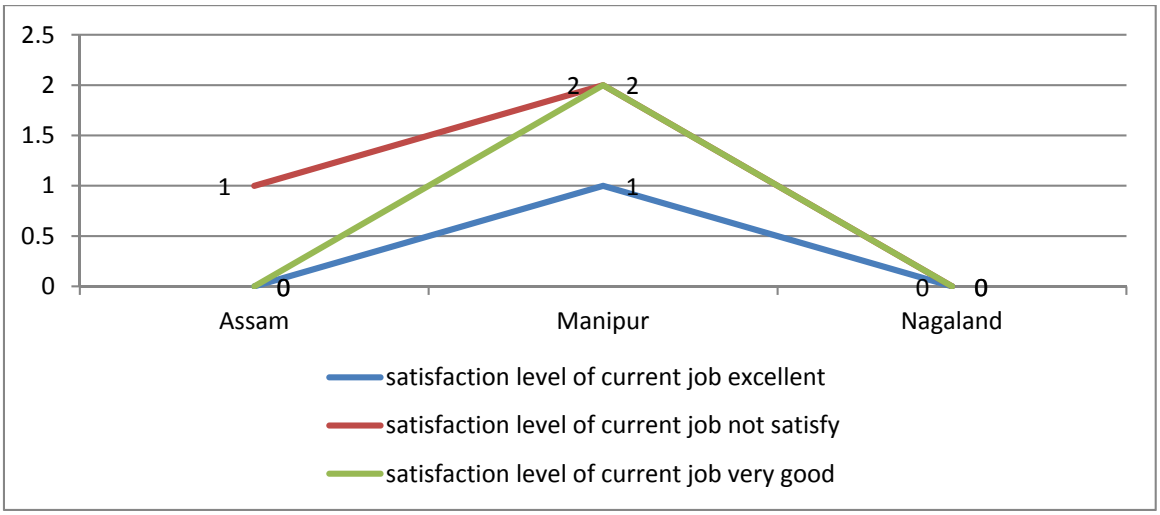


Figure 90 shows that 7 WOS were PhD degree holder at the grant of the project and one WOS from Manipur underwent post doctorate fellowship after completion of the project.

Figure 90: Graphical representation of WOS-UGC educational qualification at the grant and completion of the project

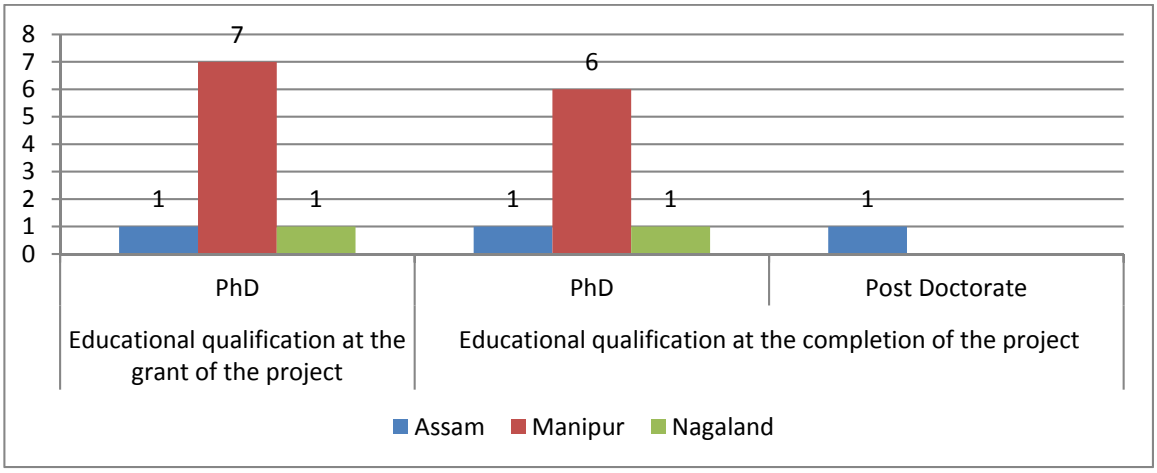


Figure 91 shows that H.Index of 6 points of one paper was published by Nagaland WOS followed by H.Index of 3 points by Manipur WOS with one paper. One Assam WOS published 4 papers and 4 WOS of Manipur published 5 research papers, 4 paper and 3 research papers and1 research paper respectively.

Figure 91: Demographic representation of WOS-UGC with the number of publication from the project awarded

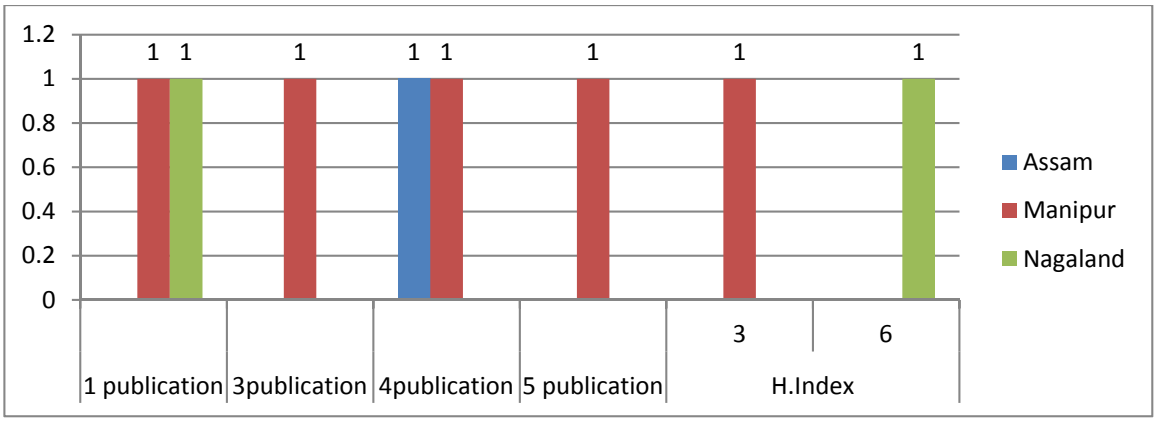
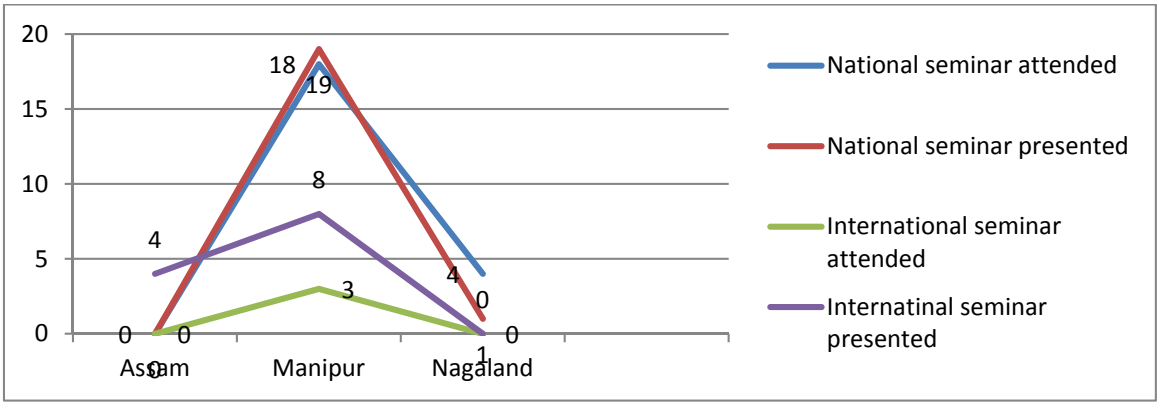


Figure 92 shows that 25 numbers of national and international level seminars were attended by the WOS-UGC of NER during the project period, of which Manipur WOS attended 18 number of national level seminar and 3 number of international level seminar and presented 19 national level seminar and 8 international level seminar with

papers. Assam WOS presented international paper 4 times and Nagaland WOS attended national level seminar 4 times and presented paper only in one national seminar.

Figure 92: Graphical representation of WOS-UGC participation and presentation at National and International seminar



8 numbers of national and international workshops were attended by the WOS of NER during the project period, of which Manipur WOS and Nagaland WOS attended the workshop four times exclusively. One WOS from Manipur also presented paper at the national workshop **(figure 93**).

Figure 93: Graphical representation of WOS-UGC participation and presentation at the National and International workshop

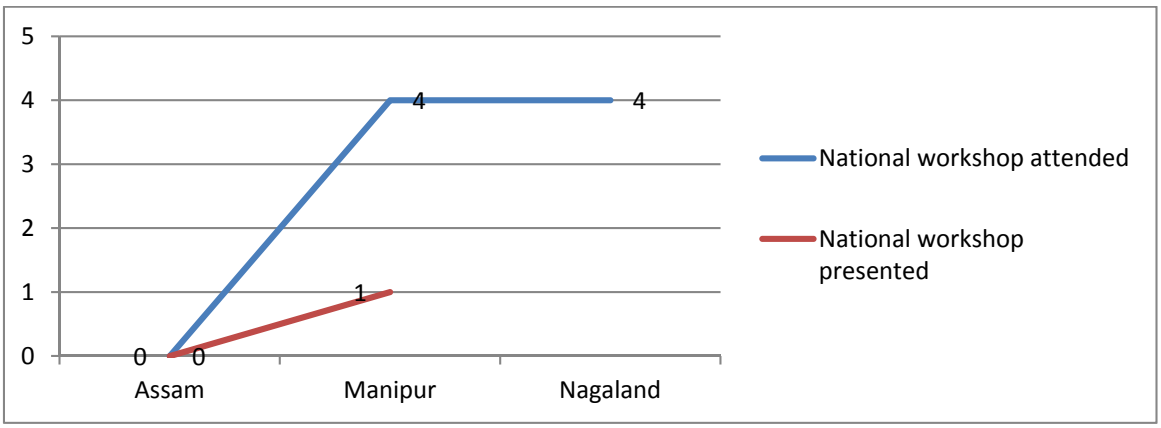


Figure 94 shows the extension involvement by the WOS of the NER in which workshop was organised by Manipur WOS and delivery of talk was also made. Maximum extension involvement was observed in Manipur WOS followed by Assam and Nagaland WOS.

Figure 94: Graphical representation of extension involvement

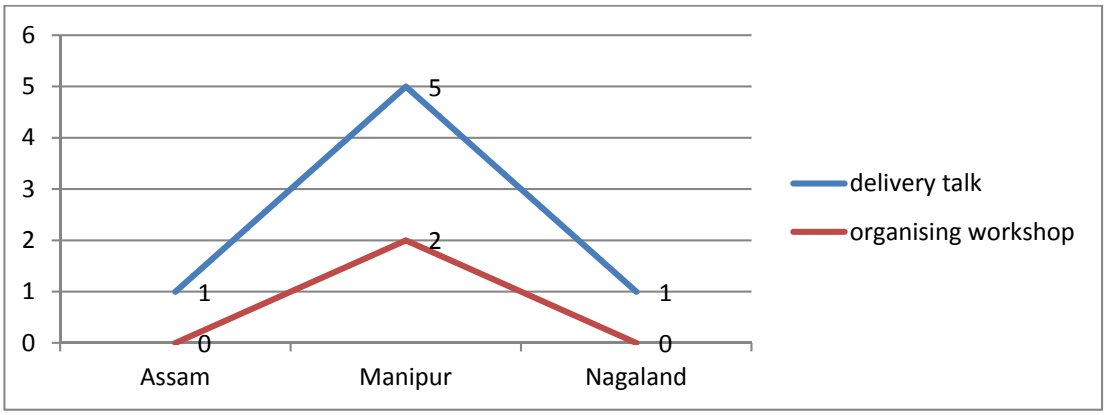
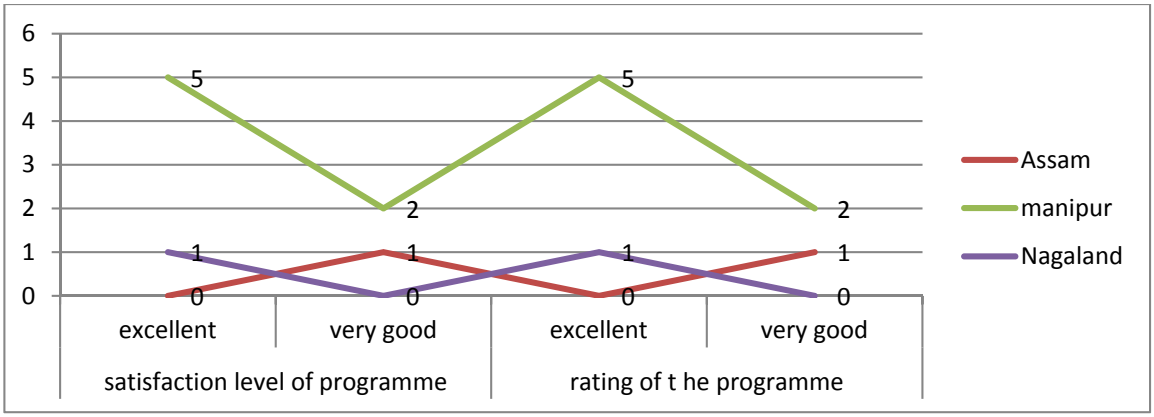


Figure 95 shows that 100 per cent excellent rating of the programme and satisfaction of the programme was expressed by Nagaland WOS and 100 per cent of very good on the rating of the programme and satisfaction of the programme was also expressed by Assam WOS. 5 WOS of Manipur expressed excellent in both rating and satisfaction of the programme while 2 WOS express very good of the rating and satisfaction of the programme

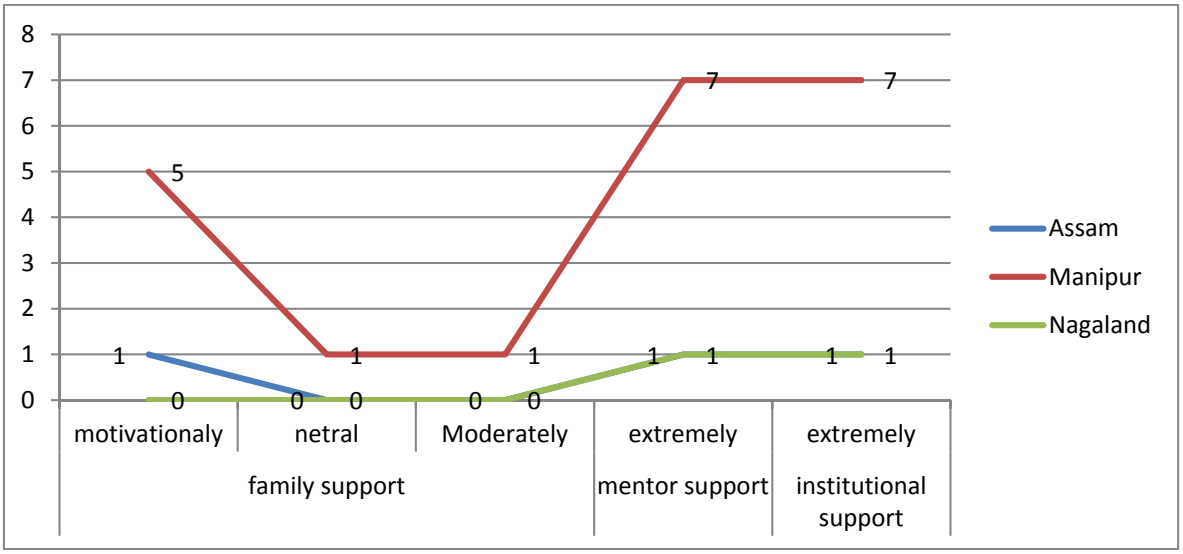
Figure 95: Demographic representation of rating and satisfaction level of the programme



Related to support:

Figure 96 shows that motivational family support of WOS was maximum for the Manipur WOS but 100 per cent motivational and moderate family support was observed in Assam and Nagaland WOS. 100 per cent of the mentor and institutional support was observed in all the WOS of NER.

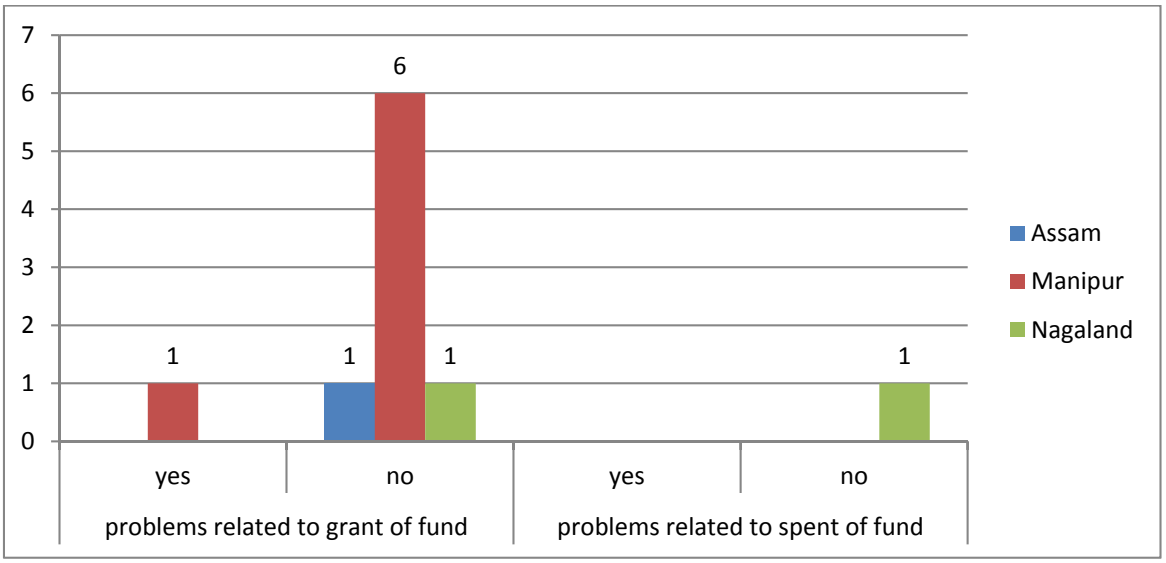
Figure 96: Demographic representation of family support, mentor support and institutional support for WOS-UGC



Problems faced:

While receiving the grants of the programme, one WOS from Manipur face problems and other WOS of Manipur, Assam WOS and Nagaland WOS did not face any problems. But regarding the spending of the fund of the programme, only Nagaland WOS expressed about not facing of any problems and others WOS of Manipur and Assam did not express the problems face in spending the fun (**figure 97**).

Figure 97: Graphical representation of the problems receiving and spending the grants of the programme



SUGGESTIONS AND STRATEGIES:

The following strategies can be adopted:

1. Creation of women programmes about the science education and its advantages for carrier building at school level.
2. Encouraging different civil societies/ NGO's in promotion of science education through different motivational strategies among the girl students.
3. Separate sectual policy on science and technology for NER need to be framed.
4. Strengthening the existing government science institute of north east region by out sourcing aids and supports under the scheme of Cooperate Social Responsibility (CSR) of differences Cooperate bodies of India.
5. Establishing strong linkage between science institute and ministry of science and technology for better understanding of science as a career.
6. Need supportive policy of state to encourage women to pursue science education through institute parent counselling.

The above strategies/ measure may attacked more girl students toward science education, since the north east region have poor representation of students pursuing science education as compared to national average.

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Appendix 1:

FORMAT-A:

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)		

INFORMATIONON 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 1** and write appropriate	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	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:(Chronolog	Scheme:(Select the Scheme from the List given in	Field of Specialisation:(Select from the List given in
1		
2		
3		
4		

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/	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:	PinCode:	State:
Accreditation Status of the Affiliated Institution:	Select from the list given in **Annexure** and 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	
Institutiona l Support:	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					
Awards and Honours Received(During the Project	1 2 3				
Number of the Publications from the Project Awarded:					
Citation Index:					
H Index:					
Numbers of Seminars/Conferences:(Write the Nos)					
National Level:	Attended:	Papers Presented:			
International Level:	Attended:	Papers Presented:			

Numbers of Workshops:(Write the Nos)		
National Level:	Attended:	Papers Presented:
International Level:	Attended:	Papers Presented:

Involvement/Organising Extension Activities: (Tick Mark)	Organising Awareness Programmes	Organising Skill Development
	Organising Workshop	Delivered Talks
	Organising Public Lectures	Delivered Public Talks
	Any Other(Specify):	

Special Contributions/Achievements: (Give Details)	Achievements:
	Innovations:
	Patent:
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 Satisfie
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 Satisfie
Satisfaction Level of	Excellent	Very Good	Good	Average	Not Satisfie
Problems related to receiving	YES/ NO	Specify:			
Problems faced in Spending grants:	YES/ NO	Specify:			

COMMON QUESTION:

WHAT MOTIVATED YOU TO UNDERTAKE PROGRAMME/PROJECT:

YOUR REMARKS/OVERALL EXPERIENCE:

Format-2

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)		

INFORMATIONON CURRENTLYAFFILIATED 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 1** and write appropriate Code No)in space below:	YES/NO	Not Applicable
		Number	
Source of InformationtoaccesstheProjectandtheInstitution:(MultipleTicksarepermitted)	Friends/Relatives:	University Web site:	
	Scientific Journal:	Awareness Programme:	
	News Paper:	DST Web site:	
	Any Other Sources:		

PROJECT-WISE INFORMATION:

BASIC INFORMATION- PROJECT 2:

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/	Duration of the Extension(in Months):
Reasons for Extension Request:(Explain)	1 2 3	

INSTITUTIONAL INFORMATION (**PROJECT 2**):

Name and Address of the Institute:(Affiliated during Project1)			
	City:	Pin Code:	State:
Accreditation Status of the Affiliated Institution:	Select from the list given in **Annexure** and 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	
Institutiona l Support:	Extremely Satisfied	Very Satisfied	Moderately Satisfied
	Slightly Satisfied	Not Satisfied	

STATUS OF THE PROJECT 2 RELETED:

Whether the Project was transferred to another Institution?	YES	NO	
Any Reason for the Transfer?			
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	Very Satisfied	Moderately Satisfied
	Slightly Satisfied	Not Satisfied	
Institutional Support: (Tick Mark)	Extremely	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

Number of the Publications from the Project Awarded:					
Citation Index:					
H Index:					
Numbers of Seminars/Conferences:(Write the Nos)					
National Level:				Papers Presented:	
International Level:				Papers Presented:	
Numbers of Workshops:(Write the Nos)					
National Level:				Papers Presented:	
International Level:				Papers Presented:	

Involvement/Organising Extension Activities: (Tick Mark)	Organising Awareness Programmes	Organising Skill Development Programme
	Organising Workshop	Delivered Talks
	Organising Public Lectures	Delivered Public Talks
	Any Other(Specify):	
Special Contributions/Achievements:(Give Details)	Achievements:	
	Innovations:	
	Patent:	
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 PROJECT2:

	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:			

Appendix 2: LIST OF WOS SEEN UPLOADED IN THE WEB (STATEWISE)

	1. WOS-A				
Sl	**Name of WOS**	**Category**	Educational qualification	division	**State**
1	Putul Kalita Borauh	General	PhD	Physical Sc.	Assam
2	Alka Jain	General	PhD	Life Sc.	Assam
3	Pal Paulami	General	PhD	Life Sc.	Assam
4	Rahman Tabassum Yesmin	General	Persuing PhD	Mathematical Sc.	Assam
5	Sonia Arora	General	PhD	Chemical Sc.	Assam
6	Sangeeta Das	General	PhD	Life Sc.	Assam
7	Zaman Shazmira	General	PhD	AAS	Assam
8	Bondita Goswami	General	PhD	Agri metrology	Assam
9	Irani Sakia	ST	PhD	Mathematical Sc.	Assam
10	Monika Soni	OBC	PhD	Biotechnology	Assam
11	Dibyarupa Pal	General	PhD	Life Sc.	Assam
12	Monalisha Borauh	General	PhD	Chemical Sc.	Assam
13	Surobhi Deka	OBC	PhD	Mathematical Sc.	Assam
14	Swapnil Sinha	General	PhD	Life Sc.	Assam
15	Rupanjalee Bhattarcharjya Sharma	General	M.Sc.	Bioinformatics	Assam
16	Nishi Bhati	General	PhD	Chemical Sc.	Assam
17	RK Mrinalinee Devi	OBC	PhD	Earth Sc.	Assam
18	Stuti Borgahain	General	PhD	Mathematical Sc.	Assam
19	Suniti Sarna	General	PhD	Life Sc.	Assam
20	Swapnali Hazarika	OBC	PhD	Chemical Sc.	Assam
21	Bijayashree Mishra	General	M Phil	Chemistry	Tripura
22	lovely Rahaman	General	M.Sc.	Microbiology	Tripura
23	Richa Sharma	General	M Phil	Botany	Arunachal Pradesh

24	Rita Zomuanpuii	ST	PhD	Life Sc. (Biotechnology)	Mizoram
25	Malsawm Chenkual Tluangi	ST	PhD	Life Sc. (Biotechnology)	Mizoram
26	Sudipta Koley	General	PhD	physical sc	Meghalaya
27	Ningthoujam Sandhytarani	OBC	PhD	Life Sc.	Manipur
28	Ngangbam Sandhyarani	General	PhD	Life Sc.	Manipur
29	Hatneilhing Lotjam	ST	M.Phram.	Life Sc.	Manipur
30	Irom Gyaneshwori	OBC	PhD	Life Sc.	Manipur
31	Saikhom Binita Chanu	OBC	PhD	Chemistry Sc	Manipur
32	Panmei Chamgongliu	ST	PhD	Life Sc.	Manipur
33	Sagolsem Monteswori	OBC	PhD	Life Sc.	Manipur
34	Sapam Sujata	OBC	M.Sc.	Life Sc.	Manipur
35	Sanasam Shantibala	OBC	PhD	AAS	Manipur
36	Thokchom Tarnita	OBC	PhD	Life Sc.	Manipur
37	Dr.Adhikarimayum Haripyaree	General	PhD	Life Sc.	Manipur
38	Moirangthem Chitra	General	M.Sc.	Life Sc.	Manipur
39	Naorem Sobita	OBC	PhD	Life Sc.	Manipur
40	Kangujam Dhanapati Devi	OBC	PhD	Life Sc.	Manipur
41	Sapam Sobita Devi	OBC	PhD	Chemical Sc.	Manipur
42	Ningthoujam Sovarani	General	PhD	Life Sc.	Manipur
43	Khwairakpam Sofia	SC	M.Sc.	Life Sc.	Manipur
44	Asem Ibemhal Devi	OBC	PhD	Life Sc.	Manipur

45	Laimayum Geramanjuri	General	PhD	Life Sc.	Manipur
46	Thounaojam Thorny	OBC	PhD	Life Sc.	Manipur
47	Khomdram Bijoya	OBC	PhD	Life Sc.	Manipur
48	Thingbaijam Bijaya	General	PhD	Life Sc.	Manipur
49	Heisnam Nanita	General	PhD	Life Sc.	Manipur
50	Thingujam Indrama	General	PhD	Life Sc.	Manipur
51	Kangjam Tilotama	General	PhD	Life Sc.	Manipur
52	Maibam Pramodini	OBC	PhD	Life Sc.	Manipur
53	Ranjeeta Devi	OBC	PhD	Earth Sc	Manipur
54	Langoljam Reena	General	PhD	Chemical Sc.	Manipur
55	Sarangthem Zesmarani	General	PhD	AAS	Manipur
56	Oinam Geeta Devi	OBC	PhD	Earth Sc	Manipur
57	RK Jojoya Devi	General	PhD	Life Sc.	Manipur
58	Chingamgbam Sumitra	OBC	PhD	Chemical Sc.	Manipur
59	Sorokhaibam Padmati Devi	General	PhD	Life Sc.	Manipur
60	Dr. Purnima Gogoi	OBC	PhD	Life Sc.	Manipur
	2. WOS-B				
61	Manika Das	General	PhD	Biotechnology	Assam
62	Oli Talukdar	General	M.Sc.	Environment Sc.	Assam
63	Minakshee Sarmah	General	M.Sc.	Zoology	Assam
64	Dr. Mousami Dutta	OBC	PhD	Life Sc.	Assam
65	Akashi Borauh	OBC	PhD	Chemistry	Assam
66	Chinmayee Das	General	M.Sc.	Home Sc.	Assam
67	Swati Bhauso Patil	General	M.Tech.	Food Engineering and post harvest processing	Sikkim
68	Chinky Marak	ST	M.Sc.	Biotechnology	Meghalaya

69	Rajkumari Padamani	General	PhD	Life Sc.	Manipur
70	Rajkumari Lokeshwari	OBC	PhD	Life Sc.	Manipur
71	Hidangmayum Narmada	General	PhD	HFN	Manipur
72	Bachpatimayum Debkumari	General	PhD	Life Sc.	Manipur
73	Yumkham Sanatombi	General	PhD	Life Sc.	Manipur
	3. WOS-C				
74	Mrs. Jyotisikha Deka	General	M.Tech.	Engineering Sc.	Assam
	4. **WOS-Bio Care**				
75	Suktilang Majaw	ST	PhD	Biotechechnology and Biomicrobiology	Meghalaya
76	Elina Khatoon	General	PhD	-	Assam
77	Mamata Singh	OBC	PhD	Fishery	Manipur
	5. **PDF-UGC-WOS**				
78	Nongthombam Achoubi	OBC	PhD Persuing	HFN	Manipur
79	Aolemla Pongener	ST	PhD	Life Sc.	Nagaland
80	Dr. Mamata Maisnam	General	PhD	Chemical Sc.	Manipur
81	Chopfoza Catherine Pfoze	ST	PhD	-	Manipur
82	Monalisha Joshi	General	Post Doctorate	-	Manipur
83	Jaishree Prabha Karna	General	PhD	Mathematical Sc.	Assam
84	Lindah	SC	PhD	AAS	Manipur

	Nongthombam				
85	Rajia Nongjai	OBC	PhD	-	Manipur
86	Oinam Geeta Devi	OBC	PhD	Earth Sc	Manipur

Appendix 3: Successful WOS

Dr. Zeshmarani Sarangthem
No. SR/WOS-A/LS-344/2004

Dr. Zeshma Sarangthem has completed her PhD in Animal Husbandry and Veterinary Science form West Bengal University of Animal and Fishery Sciences, Belgachia, W.B. in 2005 and she is currently working as a Senior Scientist & Amp; Head at KVK-Thoubal, Manipur. Just after completion of PhD, I joined as DST-WOS-A sponsored scientist and work there form 2005- 2008 on using of silk worm pupae as a protein source feed. Just after completion of the Project, I got the job as a Scientist in KVK-Thoubal, Manipur and work for the benefits of the farmers with research, capacity development programme, skill development, Extension activities, etc. My current works involved administration, research, capacity development programme, skill development, Extension activities, etc. Till then I have 27 research paper publication and 2 book chapter to my credit. I have been presented 39 research finding presentation at different National Conference. And also I wrote Popular Article on local newspaper in local dialect at every Monday of one of the local newspaper called "Naharolgi Thoudang". I also life member for Indian Journal of Livestock Production Management, Advances in life sciences, Trends in Biotechnology and Biological Sciences, Trends in Biosciences. I am a proud mother of one daughter (13 yrs old) and one son (9 yrs old) and a caring and loving wife.

Dr Heisnam Nanita Devi
SR/WOS-A/LS-88/2009

Dr Heisnam Nanita Devi has completed her PhD in Agriculture from Visva Bharati, Shantiniketan, West Bengal in 2012 and she is currently working as a Junior Plant Breeder under All India Coordinated Research Project (Soybean) at Central Agricultural University, Imphal, Manipur. She is a caring wife and a proud mother of 2 years old boy.Before being awarded this DST project, I was working as a Senior Research Fellow (SRF) at KVK-Senapati as I waited for better research opportunity to pursue. The DST sponsored WOS-scheme gave me the much awaited opportunity. During the project period, I collected 40 maize genotypes from different area of Manipur and further analysed for crop improvement. Among the forty maize genotypes collected some lines with peculiar morphology are observed including one distinct type of maize with pointed kernel. The morphological and molecular data generated from the project was of great use in identifying the parents and breeding method for improvement of maize. I could published 23 research paper including 3 research papers from DST sponsored WOS-scheme at different national and International Journal. I also got best poster award in International Seminar on "Traditional food 2010 held at Pondicherry University from 1st to 3rd Dec., 2010 since then I have presented 11 research finding at different National and International Conference. I am also the life member of "The Orchid Society of India", "Society for Soybean Research and Development", "Association of Food scientist and Technologist" and "The Indian Society of Genetics and Plant Breeding". The programme was wonderful and due to its liberal funding, I had the opportunity to meet various farmers from the entire state and feel an awe seeing their honesty in conserving their landraces. Scientifically I could also learn many new molecular techniques from this programme. And Now I feel proud for being a WOS and this programme was a ladder to reach my goal.

Dr. Mamata Maisnam

Dr. Mamata Maisnam has completed her PhD in Physics from Manipur University (MU), Canchipur, Imphal in 2007. Before awarded the UGC-PDF-WOS project, I was working as a research associate (RA) at Department of Physics, Manipur University, Imphal. Just after few months gap from the completion of the project, I joint as UGC-PDF-WOS from 2012 to 2014. During the project period, I could experienced in characterization using XRD, SEM, HP4284 A LCR meter, Vibrating Sample Magmetometer, PAR VSM Model 155, Curie temperature using Soohoo's Model, Impedence Analyser, E4990A, B-H Hysteresis tracer, ERP Spectroscopy.

Currently, I am working as an Assistant Professor at National Institute of Technology Manipur, Langol, Manipur and also co guiding an SAC-ISRO, Ahmadabad funding project. Presently, I am guiding 6 Ph D research scholars and teaching particular physics, Quantum Mechanics, Classical Mechanics, Electrodynamics, Engineering Physics, Nuclear Physics and Research Methodology to UG and PG students. Till now I published 2 national research article and 56 international research article including 5 research articles from the UGC-PDF-WOS scheme and 95 abstracts in conference. I am a loving, caring and proud wife and mother of two daughter of 12 years and 9 years of ages. I am very much thankful to UGC for strengthen my carrier.

Dr. Monika Soni

SR/WOS-A/LS-245/2013

Dr. Monika Soni had completed her PhD in year 2018. She is currently working as an Assistant Professor at Assam Don Bosco University under Life Science Department. She is also a life time member of ABLE, India and Indian Immunological Society. Before being awarded with the fellowship, I was just in a temporary project staff and was insecure about my career. Lack of funding opportunity doomed my option to register PhD degree. At the same time I had to take care of my family and was completely unsure about my career prospects.

The fellowship opened the doors of few best labs of India to get necessary training. It helped me to present my work both nationally and internationally. I received lots of appreciation helped me to become a confidant and independent women.

During WOS-A, I have developed Animal cell culture skills, Artificial mosquito blood feeding, Intra thoracic inoculation of mosquitoes with the virus, Mosquito colony formation for Aedes mosquito, Mosquito colony maintenance, Virus culture and preservation, Confocal microscopy, Real time PCR, ELISA assay, Plaque assay, Animal models for virus culture, Sequencing technique etc.

I am teaching in a reputed university and I am able to share my knowledge with the young students which may help them to advance their career. I am carrying out research in broad area like bacteriophages and emergence of antibiotic resistance, Wolbachia detection in mosquitoes, Application of Mushrooms in bioremediation and water purification and wrote papers in peer review National Journals.

I see myself as a potential researcher and member of scientific community. I believe that science should not be confined into borders but should reach to the common people. I want to bring positive changes with the help of science in teaching as well as research.

Dr. Kangjam Tilotama Devi

SR/WOS-A/LS-90/2009

Dr. Kangjam Tilotama Devi had completed her PhD in the year 2018. She is currently working as a project scientist-B at Ethno-Medicinal Research Centre, Hengbung and Principal Investigator (PI) for Orchid Research & Development Centre, Hengbung. She is the second daughter of among five children of their parent.

Before being awarded with the fellowship, I was just in a temporary project staff as junior Research Fellow at Creation of Geo- spatial database from medicinal herbs. The DST sponsored WOS-A gave me the much awaited opportunity. During the project period, I could collect 164 wild edible plants (WEPs) and out of that 11 lesser known wild edible plants could short lists for analysis of nutrients content. Fewer WEPs materials namely *Allium stracheyi, Stixis suaveolens, Eurya acuminate, Parkia timoriasna* and *Prunus nepaulensis* were develop conventionally and were also supplied to the farmers of Senapati district to grow in their homestead garden for consumption as nutritious foods and to use as medicinal herbs. I could publish 7 research paper including 1 research papers from DST sponsored WOS-scheme at different national and International Journal. I have also presented 8 research finding at different National and International Conference including 2 international Proceedings. I wrote 2 book chapters and I was also a member in editing board for book entitled "Management of Abiotic Stress in Crops".

I am also life time member for The Orchid Society of India (TOSI) and Eastern Himalayan Society for Spermatophyte Taxonomy (EHSST). I am now currently working as a Guest lecturer at FEEDS Groups of Institute, College of Horticulture and Biotechnology. And Now I feel proud for being a WOS-A and this build my confidence and brought me back to educational track after a long career break.