STUDY ON PARTICIPATION OF WOMEN IN SILK INDUSTRY OF MURSHIDABAD DISTRICT, WEST BENGAL: A GEOGRAPHICAL ANALYSIS

THESIS SUBMITTED TO NAGALAND UNIVERSITY
IN FULFILMENT OF THE REQUIREMENT FOR
THE AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY

BY

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2024

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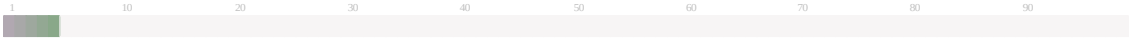

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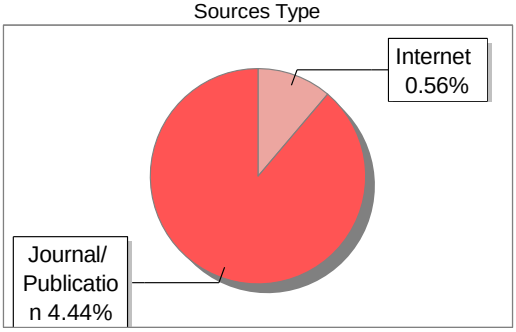

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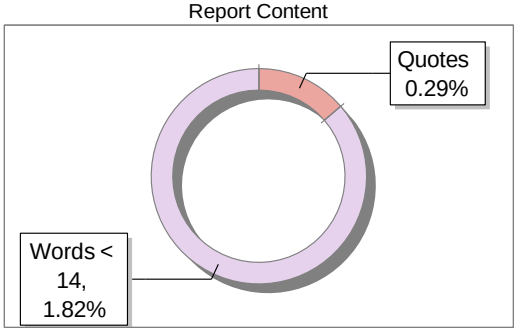

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Abhirupa Chatterjee

ABBREVIATION

AVG	Average
AIKVIB	All India Khadi and Village Industries Board
AISA	All India Spinners Association
AIVIA	All India Village Industries Association
CHDS	Comprehensive Handloom Development Scheme
CSB	Central Silk Board
CSRTI	Central Sericultural Research and Training Institute
DFLs	Disease Free Layings
GI	Geographical Indication
GOI	Government of India
HSS	Hathkargha Samvardhan Sahayata
IGNOU	Indira Gandhi National Open University
MGBBY	Mahatma Gandhi Bunkar Bima Yojana
MM	Milli Meter
MT	Metric Tonne
NHDP	National Handloom Development Corporation
NIOS	National Institute of Open Schooling
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojona
PMSBY	Pradhan Mntri Suraksha Bima Yojona
RMSS	Raw Material Supply Scheme
RSBY	Rashtriya Swasthya Bima Yojona
YSS	Yarn Supply Scheme

LIST OF TABLES

LIST OF FIGURES

PHOTO PLATES

CONTENTS

CHAPTER 1

INTRODUCTION

1.1. INTRODUCTION

Silk also known to be as “Queen of Textile” add an extra elegance to any outfit whether it is traditional or western, and is considered to be an indispensable part of Indian heritage and culture as it is carrying an aura of royalty over thousands of years (Sundari, & Lakshmi, 2015). It has become a way of life in India as here no ritual is complete without silk, and so Indian Silk industry got an inbuilt domestic market since long back, which always helps to flourish the industry and make India the largest silk products’ using country in the world (Savithri et al., 2013).

Silk has long been associated with luxury. It was one of the main goods exchanged between continents and has historical references. The elegance and beauty of silk appear to be driving up demand for silk and silk-related products daily (Majumdar et al., 2017). It is the most distinguished and opulent natural cloth available in the world because of its unmatched beauty, natural shine, instinctive affinity for colours, low weight, sensitive touch, and exceptional durability (Rama Lakshmi, 2018). Silk is known as Resham in Eastern and North India and Pattu in the southern parts of the India.

Silk is far more expensive than other natural fibers because of its beauty. Similar to other natural fibers, silk has a relatively low dimensional stability and is hygroscopic in nature. Silk's molecular orientation differs from that of synthetic fiber. Silk is also referred to as an uneven textile fiber because of its relatively lower intermolecular attraction and higher intermolecular distance. Silk can also be used with wool and synthetic materials (Rangswami et al., 1976).

India is blessed as all the varieties of silk called Mulberry, Tasar, Muga and Eri produced here and the production of the Mulberry silk which is the superlative quality of silk, is 27654 MT in 2022-23, is highest among all the types of silk (Note on Seri CSB 2022-23 4th QTR).

The major production centres for silk in India are Banaras in the north and Pochampally, Kanchipuram, Dharmavaram, Mysore, etc. in South India, which is used to make sarees and other clothing. The historically well-known "Murshidabad silk" is mostly made in West Bengal's Malda and Murshidabad districts, and it is hand-loomed in Birbhum and Murshidabad district. Bhagalpur is another location well-known for its silk manufacturing (Rama Lakshmi, 2018).

People still struggle to make enough money to meet their basic necessities, such as food and housing, in a nation like India where poverty affects almost one-third of the population. When people lack the necessary education and marketable abilities, it can be challenging for them to find work and a suitable occupation to support themselves (Majumdar et al., 2017). Silk sector has a unique feature as sericulture includes agriculture by involving a few techniques started from plantation of trees to feed the silkworms, production of cocoon, reeling of cocoon for obtaining silk yarn, whereas silk weaving includes industry in it and so, these sectors always be considered as a fruitful employment opportunity and so, worked as a tool of poverty alleviation for the populated countries like India (Banday, 2001). Other than this, due to the industry's rural-based on-and off-farm operations and significant employment-generating potential, planners and policymakers have recognized silk industry as one of the most suitable sectors for the socioeconomic advancement of an economy that is predominately agrarian, such as India.

Sericulture is a good fit for small-scale landowners due to its minimal investment requirements, high guaranteed returns, short gestation period, and abundant prospects for year-round family employment and income development. About 53,814 villages in India sericulture is being practiced (Sarkar et al., 2017). Sericulture industry provides employment and supports approximately 9.18 million people economically in rural and semi urban areas (Note on Seri-CSB 2019-2020) in our nation. In India, the sericulture sector employs about 8 million people in rural and semi-urban areas. Among these, a sizable portion of the workforce is made up of women and members of the economically disadvantaged groups in society (Rama Lakshmi, 2018).

Silk reeling and weaving is a labour-intensive profession, relies heavily on household labour, with family members contributing to its operations and is primarily performed by the poor and those with low skill levels, while some people with higher education have also taken up the trade. They frequently stay in this line of work until they are unable to continue working (Inbanathan, 1993). The Silk Weaving Industry relies heavily on household labour, with family members contributing to its operations. It is strewn throughout the nation's thousands of towns and villages (Kumar, 2014).

The primary traditional sericulture state in India is West Bengal. Both West Bengal and the Murshidabad District have a long history of sericulture (Bhukhari et al., 2019). West

Bengal is the third-largest producer of mulberry raw silk in India out of five traditional raw silk-producing states, with 2524 MT of mulberry silk produced in 2016–17 (Sericulture Statistical Yearbook India, 2018), accounting for 11.5% of the nation's total output (CSB, Annual Report 2017–18). West Bengal occupied fifth position (1966 MT) in the production of raw silk in India in the year 2022-23 (Note on Seri CSB, 2023).

Murshidabad being the second largest silk producing state of West Bengal carries a fame for producing superlative silk in India since long back. The district is dominated by the production of the superior type of silk, mulberry. The district has secured second position in the production of mulberry silk (546.96 MT in 2016-17) (Compendium on Seri-States, 2019) after Maldah. The silk producing districts of the state is mainly confined around the district Murshidabad and as a matter of fact sometimes the silk of West Bengal goes by the name of Murshidabad silk. The silk industry is a small business that includes both silk weaving and silk production (sericulture). The district Murshidabad of West Bengal is self-sufficient in both production and weaving of mulberry silk through it seems that day by day, people are losing interest in this field and as a matter of fact the number of weavers is decreasing.

Due to deeply rooted social taboos, traditions, and customs, most rural women are discouraged from working outside away from home or on someone else's property, despite the convenience for family work and respect for current social norms. And so, sericulture and silk weaving are a blessing in this environment for women, since it allows women to work in the home (Goswami, & Bhattacharya, 2013). This Rural women's employment and income generation could be seen as a gauge of the nation's social development and advancement if rural households are to become economically viable self-sustaining entities (Sarkar et al., 2017).

1.2. TYPES OF SILK

Among the four types of silk, Tasar, Eri, and Muga are classified as non-mulberry silks since mulberry leaves are not used as food for the worms. Because they are performed in forested and hilly regions, the aforementioned kinds are also referred to as wild silks or Vanya silks. The Murshidabad district has long been recognized for its mulberry sericulture.

- **MULBERRY SILK**

It is created by the fully domesticated silkworm which are raised indoors. The Bombyx mori L silkworm, is the source of mulberry silk, which only consumes the leaves of the mulberry plant. Thus, it is also referred to as "Mori culture." The majority of the world's commercial silk production is derived from this strain, which is commonly referred to as mulberry silk. The term "mulberry silk" is frequently used to describe silk as ninety percent of the silk produced worldwide comes from this variety.

- **TROPICAL TASAR SILK**

Tasar silk is derived from the silk glands of tropical and tasar silkworms, respectively, Antheraea mylitta and Antheraca proylei. The three primary food plants that this silkworm feeds on are Shorearobusta (Sal), Terminalia tomentosa (Asan), and Terminalia Arjuna (Arjun). In contrast to mulberry silk, tasar silk has a coppery hue and lacks luster. Bihar, Jharkhand, Madhya Pradesh, and Orissa are the main states in India that produce tasar. In Andhra Pradesh, West Bengal, and Maharashtra, tasar culture is practiced on a modest scale. Since ancient times, the Adivasis and Tribes in the tropical belt region have been the primary participants in these silkworm races. In the aforementioned regions, it is a component of the rich traditional culture.

- **OAK TASAR**

Antheraeaproylei, the family that eats oak plants, is the Oak Tasar race. The sub-Himalayan region of India, which includes the states of Manipur, Nagaland, Himachal Pradesh, Uttar Pradesh, Uttarakhand, and Jammu and Kashmir, is where oak tasar is made.

- **ERI SILK**

The cocoons of the Samia and Philosamia ricini silkworms are the source of eri silk, a naturally occurring fiber based on proteins.

- **MUGA SILK**

Muga silk is a type of wild silk that is specifically associated with the Indian state of Assam. The silk has a sparkling, glossy texture, a natural yellowish-golden tone, and is renowned for its exceptional longevity. Previously, royalty was the only group allowed to use it.

1.3. PROCESS OF SERICULTURE

The proper growth of mulberry leaves, which are utilized as food for the silkworms, is the first step in the raising process. The silkworms are fed the leaves or twigs in specially constructed platforms or trays after being transported from the field. Silkworms have a life span of roughly 23 to 26 days. Before the worms reach the stage of spinning cocoons and developing into pupae, they go through five phases of growth known as “instars”.

The worms go through a respite phase after each instar, up until the fourth stage, during which they lose their skins. We call this process "moulting."(The term 'fever' is used locally, and it typically lasts for twenty to twenty-four hours.) The feeding is halted during moulting. To protect the worms from any potential disease attack, appropriate preventive measures must be implemented. Regular intervals are used for the feeding. Mulberry leaves are given to the worms three to five times a day. Early morning is often when the first feeding begins, and late evening is when the last feeding occurs. The worms' size and maturity are directly correlated with the worms' chopping size and maturity of the leaves they consume. Typically, adult worms are given whole leaves that haven't been chopped. Worms get bigger during the course of the day. As the bed gets heavier with leaf debris and worm litter, "bed cleaning" is done. At the same time that the worms are growing, the number of trays is also growing. As a result, the workload likewise rises. In order to prepare the mountages, also called "chandrikes," for mounting the silkworms in order to produce cocoons, preparations must be made once the silkworms attain full maturity. Additionally, the worms are spinning silk cocoons during this procedure. Within three days, the spinning process will be finished (Rama Lakshmi, 2018). The cocoons are gathered and cleaned at the conclusion of the spinning process. Then the cocoons are subsequently subjected to additional change by the reeling, which is part of the silk production process. In order to create bells of yarn with the appropriate thickness for weaving, the reeler's job is to unwind silk from the cocoons and combine several filaments.

The young silkworms in Tasar and Muga are moved to trees that are naturally growing so they can eat on the leaves and build cocoons there. The raising process takes around 30 days to complete. The growers then harvest the cocoons by hand (Rama Lakshmi,

2018). Among the trees that support the Eri silkworm (Phillosomiaricini) are castor, kesseru, cassava, papaya, payam, and barkessuru (Hoque, 2020).

TABLE- 1.1. DISTINCTION OF SILK, SILKWORM NAMES AND FEEDING PLANTS IN INDIA

Distinction of Silk	Silkworm name	Common name of food plant rearing	Major Regions of rearing
Mulberry	Bombyxmori	Mulberry	All states the India
Tropical Tasar	Antheraeaperni Antheraeam Ylitta	Sal,Asan, Arjun	Bihar, Madhya Pradesh and Odisha, Maharashtra, West Bengal, Andhra Pradesh
Oak Tasar	Antheraeaproylei	Oak	Sub Himalayan states (Manipur, Himachal Pradesh, Uttar Pradesh, Assam, Meghalaya and Jammu and Kashmir)
Eri	Phillosomiaricin	Castor, Tapioca, Kesseru	Assam, Bihar, West Bengal, Odisha, Manipur
Muga	Antheraeaassama	Som, Soalu	Assam (Brahmaputra River valley)

Source: Hoque, 2020, Sericulture and Socio- Economic Development in Maldah District, West Bengal

1.4. CHOICE OF THE TOPIC

The name of the topic chosen for the present study is **"Study on Participation of Women in Silk Industry of Murshidabad District, West Bengal: A Geographical Analysis".** Murshidabad occupied second position as a silk producing state of West Bengal carries a fame for producing superlative silk in India since long back. The district is dominated by the production of the superior type of silk, mulberry. The district has secured second position in the production of mulberry silk (546.96 MT in 2016-17) (Compendium on Seri-States, 2019), after Maldah. The silk producing districts of West Bengal are mainly confined around the district Murshidabad as this district is well equipped in both weaving and production of silk and so sometime the silk weaving industry of West Bengal goes by the name of 'Murshidabad Silk' (Roy, & Dey, 2019).

In India majority of women, work in household-based and agro-based occupations such dairying, fishing, small-scale animal husbandry, handlooming, handicrafts, and sericulture, where they frequently perform unpaid family labor (Goswami, & Bhattacharya, 2013). The unpaid labor that is primarily done by women is not included in the so-called labor force survey, employment and unemployment survey, or census. This research work is an attempt to calculate the unpaid labor that women perform in the silk sector and their economical contributions to their family.

Women are naturally able to nurse their children. Women can make use of this skill when raising silkworm larvae (Kasi, 2013). The Bombyx mori L silkworm, is a fully domesticated silkworm which are raised indoors, is the source of mulberry silk. The rearing of this silkworm allows women to work in the home. Respect for the current social norms and convenience for family work, the majority of rural women are discouraged from working outdoors away from home or on someone else's property by deeply ingrained social taboos, traditions, and customs. And so, sericulture is a blessing in this environment for women. Silk is an extremely fine, delicate thread and so silk reeling that should only be handled by women because of their delicate hands. As a result, women are more qualified for these positions and are found to run the entire sector.

Other than weaving, ancillary preparatory works related to weaving have been done by the women dominantly. In maximum cases the male weavers have got this privilege of

having one or sometimes more than one helping hands as their female family members help them by doing all the ancillary works, where their female members' labour contribution remained unpaid; whereas female weavers are unable to work for more hours as they have to manage all their household works and in maximum cases, they are not getting any helping hands as the male members of their families are engaged with other professions.

1.5. CONCEPTS OF SERICULTURE AND SILK WEAVING

- **SERICULTURE**

It is a process of rearing silkworms, and extracting silk from them. It is an agro-based industry.

- **MULBERRY PLANTATION**

Farmers are cultivating land to plant mulberry trees since they are one of the leaf and feed types used to raise silkworms. It is one of the first phases of sericulture farming; sericulture farming cannot exist without mulberry plantations.

- **BOMBYX MORI L**

The silk worm, also known as the "silkworm of the mulberry tree" in Latin, is the larva or caterpillar of the domesticated silk moth species Bombyx mori. Being the main producer of silk, a silk worm is an economically significant insect. Its favorite meal is white mulberry leaves, but it can also consume the leaves of any other mulberry tree, such as Morus rubra or Morus nigra, as well as Osage oranges.

- **COCOON**

According to science, it is a covering, typically made of silk, that certain insects (like caterpillars) create around themselves to protect them while they are at full development. This is the last stage of sericulture farming, during which preparations are made to mount the silk worms for the formation of cocoons.

- **SILK**

Silk is a naturally occurring protein fabric that may be woven into several types of clothing. Some insect larvae manufacture the protein fiber of silk, which is primarily made up of fibroin, in order to form cocoons. The cocoons of the mulberry silkworm Bombyx mori larvae raised in captivity yield the most well-known silk.

- **MOUNTING**

The process of moving mature silkworm larvae to a mountage, also known as a cocooning frame, so they can spin cocoons is known as mounting in sericulture.

- **DFLs**

Disease Free Layings, or DFLs for short, are disease-free silkworm eggs used in sericulture.

- **RENDITTA**

  The quantity of silk cocoons needed to make one kilogram of yarn is known as renditta in sericulture.

- **SILK REELING**

The sericulturists are also considered as reelers as they do silk reeling also. Various techniques are being used by reelers to extract silk from the cocoon. Silk reeling is the technique of removing silk filament from cocoons using a series of procedures.

- **WEAVING**

Weaving is a process that allows silk yarn to interlace with one another to create fabrics. Preparing the warp and the weft is crucial for weaving.

- **WEFT**

The yam that fills in the gaps across the warp's width is called weft.

- **WARP**

The length-wise yams in a woven cloth or on a loom.

- **PIRN**

In weaving, weft thread is wound onto a rod called a pirn.

- **MAHAJAN**

Generally speaking, a mahajan or master weaver does not weave cloth. He provides his team of weavers with looms, silk yams, and other supplies. The weavers receive payment on a piece-by-piece basis and provide completed goods that are made in accordance with the master weaver's specifications and design.

- **KHADI SAMITY**

After returning from South Africa in 1915, Mahatma Gandhi spent over a year touring India to gain a comprehensive understanding of the Indian people's plight. According to Gandhiji, khadi may be extremely important to the country's economic

development in addition to being an instrument for independence and nationalism. He recommended boycotting foreign products, particularly foreign clothing, and promoted Swadeshi.

In December 1923, Gandhiji established the All-India Khadi Board. The Akhil Bharat Charkha Sangh's All India Spinners Association (AISA) was established in 1925. Gandhiji focused on additional village industries in the 1930s, which led to the creation of the All-India Village Industries Association (AIVIA). The operations of AISA and AIVIA were taken over by the Akhil Bharat Sarva Seva Sangha in 1948. The All India Khadi and Village Industries Board was established by the Indian government in January 1953. The creation of a Commission with "executive as well as administrative powers" for the appropriate development of Khadi and Village Industries was then suggested by a bill that was filed in Parliament. Additionally, AIKVIB was approved to serve as an advisory body. The Khadi and Village Industries Commission was established in April 1957. In response to the AIKVIB's advice, which was mandated by the Government of India's Resolution on January 14, 1953, to operate "in close co-operation with the State Governments," State Boards have been established in various states. "It would be desirable to see that the work in States should be carried on through State Boards," the AIKVIB stated in a May 1953 declaration. The State Board was thus envisioned by the AIKVIB as the Principal Agency for carrying out its programs.

In India, the Khadi and village industries are two significant national heritage sectors that are essential for creating jobs in rural regions at low per capita investment, particularly for those from underprivileged social groups.

Chandrakanta and Lalitmohan Saha, the Saha brothers of Chak Islampur (Dt. Murshidabad, West Bengal), have a long history of dealing in silk. Through a number of well-known national figures, they were able to reach respected Gandhiji and urge him to incorporate the silk industry into his "Khadi" program, highlighting its significance to the nation's economy. However, because it was violent, Gundhiji initially opposed its inclusion in Khadi. In 1925, he recognized it as a Khadi industry after conducting research and concluding that it was violence-free and that a sizable number of rural spinners and weavers were involved.

On July 19, 1954, Sri Lalitmohan Saha established this samity, under the Society Registration Act, 1961 of the Govt. of West Bengal. This Samity was later incorporated

into the KVIC when the Khadi and Village Industries Commission was established in 1966 in compliance with the Special Act of the Government of India. The Samity has been managing its many operations, including Khadi and Village Industries, ever since. Sri Nanda Kumar Chowdhury took on the duty of serving as Secretary to manage the Khadi program's flagship to the highest standards of the Samity following the death of Lalitmohan Saha in 1964. His unwavering efforts allowed the Samity to achieve the illustrious status of India's top-performing Khadi institution in 1999. Through many ups and downs, the samity has operated for 58 years with the primary goal of creating jobs for rural craftsmen while improving their social, economic, and moral conditions in an atmosphere of cooperation.

- **BLOCK LEVEL CLUSTER**

Government of India (GOI), Ministry of Textiles has implemented many schemes in order to revive, expand and develop the handloom sectors and the National Handloom Development Programme (NHDP) is one of them. The National Handloom Development Programme (NHDP) includes the Comprehensive Handloom Development Scheme (CHDS). The implementing agencies for the component under NHDP is National/State Level Handloom Corporation. In 2015–16, the Block Level Cluster was introduced as a component of the NHDP. The program entails establishing block-level clusters in handloom-concentrated areas. Enhancing the lives of handloom weavers and the handloom industry is the main goal of NHDP.

- **WEAVERS COOPERATIVE SOCIETY LTD.**

(TANTUJA) The West Bengal State Handloom Weavers' Cooperative Society Ltd., the state's apex body for primary weavers' cooperative societies, is primarily in charge of selling primary societies' handloom goods and supplying inputs. In accordance with the Co-operative Societies Act of 1912, a cooperative society is established.

1.6. REVIEW OF LITERATURE

Silk Industry is one of the industries in India that has been in operation for many centuries. For countless thousands of weavers who rely on this business directly, it provides their means of subsistence. Numerous scholars have attempted to look into different aspects of the Indian silk industry as well as the living and working conditions of those who labor in this field. This study examines a few significant studies in an effort to pinpoint the research gap.

Goswami & Bhattachaya, (2013) elaborated that women's income boosts the nutritional economic and educational condition of the family. Women in general are found to carry both family burden and economic burden. Sericulture being a cottage industry is ideal for women as the silk worm rearing process has been conducted in their own house with which they can take care of their family too. In India's tropical states, sericulture is regarded as a profitable cash crop since it yields consistent and alluring returns. This industry is therefore well suited for small and marginal farmers. The income comes from this industry distributed at the root level though the major portion of the income is captured by the primary producers that is farmers who produce cocoons.

Dewangan et al., (2011) stated that sericulture provides ample amount of employment opportunities to women, especially in the silkworm rearing sector and reeling sector. With little initial investment, this farm-based industry can accommodate both small and big land holdings. Sericulture sector is a labour-intensive industry and highly suitable for the overpopulated country like India as it provides employment for up to 11persons for every kg of raw silk produced.

52360 villages around India are estimated to undertake sericulture, in accordance with Bharathi (2016), and gives employment to over 7.56 million people, in maximum of them are small as well as marginal farmers and as a result, it seems that sericulture creates minimum employment for 12-13 people every mulberry hectare. It holds a significant position by generating employment, particularly in semi-urban & rural areas and helps determine the financial future of those working in this field. Sericulture has a better prospect of growth in developing nations instead of in countries that are already developed. The temperate countries for example South Korea, Japan, USSR etc have faced a diminishing growth of silk production not only because of the high labour cost but also because of the climatic restrictions that allow just 2 crops annually whereas India got distinctive benefits for yielding 4-6 crops per annum.

Chowdhury, (1967) emphasized sericulture as an "industry of the poor" and silk as "the queen of fabrics". The silk industry helps to raise many subsidiary industries likewise seed production rearing of silkworms for cocoon production, spinning and weaving. Natural silk is the domesticated insect which feeds solely on mulberry leaves. Proper cultivation of nutrient mulberry, improved method of preservation of seeds and also the modernized process of rearing would sustain the industry in its prosperity. The people

from Eastern India are solely or partly dependent on sericulture. The weaving activity is considered as the tradition of Assamese household. It has been said that silkworms probably originated from the Eastern Himalayas. The natural environment of a particular region imposes a peculiar natural adaptation upon the silkworm and their food plant helps to continue this cultural practice.

Siddapaji et al., (2014) incorporated that sericulture is an agro-based industry and provides more employment in comparison with other sectors, particularly for rural & semi-urban people of Karnataka. This activity also gave employment opportunities for women as maximum of the work began with cultivation of mulberry; harvesting of leaves and silkworm rearing are being performed by females.

India has a rich history of silk production and trading dating back to the fifteenth century, as demonstrated by Soi (2019). The world's most elegant textile is silk called the “Queen of Textiles”. It gives livelihood opportunities to the rural and semi rural people with low capital investment and is regarded as a profitable cash crop. A large number of economically weaker sections of our society especially women are dependent on this sector. Because the waste from raising silkworms can be utilized as garden inputs, sericulture is not only an environmentally responsible activity but also has considerable employment potential. Since the business is labor intensive and primarily agro-based, there is little utilization of machinery that emits smoke.

Bhattacharyya & Kumar, (2016) illustrated that sericulture comprises both farm along non-farm industries and thus helps to make employment for more than 7 million families in rural as well as urban population. Farm based sector encompasses mulberry plantation and cocoon production whereas fabric dyeing and yarn and fabric making are non-farm activities. With mulberry cultivation covering 85% of the total area and approximately 96% of the total cocoon production, Tamil Nadu, Andhra Pradesh, West Bengal, Jammu and Kashmir, as well as Karnataka are the states that produce the most silk. However, because of the tremendous efforts of the Central Silk Board, mulberry sericulture production has spread to many other states in the last ten years, that include Maharashtra, Assam, Madhya Pradesh, Punjab, along Manipur.

The position of the Indian silk industry in the international market was explained by Anitha (2011). The only nation in the world that produces all four types of silk Mulberry, Tasar, Eri, and Muga is India. Though Indian silk industry occupies a

predominant position in the world by producing 15% of the total world production, but still cannot beat China which contributes 80% of the total world's silk production. With the help of Japanese technology and cooperation, the Central Silk Board has lately been able to develop and popularize Bivoltine racing, which can produce raw silk that meets international standards and boost production with the goal of being competitive in the global market.

Radha, (2008) described about all the aspects of mulberry silkworm cultivation up to weaving. Conditions required for mulberry cultivation such as soil type climatic condition, establishment of mulberry garden maintenance of irrigated mulberry garden and maintenance of irrigated mulberry garden has been described in a proper way. Sericulture plays a significant role in transferring the income from the rich people to the poor villagers. Income is distributed to the grass root level among the farmers, reelers, twisters, weavers and traders.

Savithri et al., (2013) stated that being an agro-based industry, sericulture plays a crucial role in shaping the destiny of the rural economy as it contains both agriculture and industry. Sericulture is suitable for a country like India where man power and land resources are in surplus and it has high potentiality by providing employment to all members of a family with the process of chawki rearing. It involves low investment with frequent income. It is a village-based activity consist several sets of activities which control migration. The mulberry plantation which is solely feeds by the silkworm could be grown under both irrigated and rained conditions.

Banday, S. (2003) described the future prospects and development of Sericulture in Jammu and Kashmir and also mentioned the status of sericulture in India. Sericulture is a beautiful gift of nature, being an agro-based industry; it has two main aspects – agricultural aspect and industrial aspect. The agriculture aspect considers the mulberry cultivation & rearing of silk whereas, industrial aspect considers the reeling of cocoon, processing of silk, dying and lastly printing. For rural residents who work in agriculture, sericulture is a side activity and gives income to them during the lean periods of agriculture. Thus, it serves as an antidote to the problem of unemployment.

According to Bukhari et al., (2019) sericulture is one of the most substantial cottage businesses and contributes considerably to the creation of employment for women.

Because they are self-sufficient, rural women in India live in extremely poor conditions; yet, the growth of the sericulture sector has the potential to empower them. India's rural women's empowerment and the growth of the sericulture sector are related. Women's participation in sericulture has been primarily limited by the absence of a separate raising home, a suitable plantation, and elevated technological knowledge.

Mookherjee, (1992) discussed the importance of sericulture as a resource- based industry. Author has also described the geographical environment for sericulture. The historical background of sericulture in West Bengal has also been elaborated in this book. West Bengal has a very old tradition of mulberry based sericulture, starting from the medieval period during the Mughal regime. The district wise distribution of sericulture is also given precisely in this book.

Sandhya Rani, (2006) mainly illuminated the role of sericulture in the employment generation for women in her book. Sericulture is a highly remunerative cash crop which performs a crucial function in shifting wealth from the wealthier sections of society to the poorer ones. The money which comes from the rich urban market is equally dispersed among the reelers, traders, twisters, weavers, and sericulturists. Author also described the progress of sericulture in Andhra Pradesh where sericulture is considered a backbone of rural economy.

According to the study conducted by Manjhi (2015), handloom is a significant industry in India and offers employment opportunities to the people of both Chandauli and Varanasi districts of Uttar Pradesh. Both districts' weavers' socioeconomic conditions are subpar, and the weaving community has not yet been properly informed about the numerous programmes. The handloom sector faces challenges in surviving due to the effects of globalisation on raw materials, equipment, and tools as well as the use of new technology in the production process. The near extinction and safeguarding of handloom workers' livelihoods are made more difficult by the financial and loan settlement issues that are pervasive in this industry.

Kasi, (2013) stated that it is evident from any discussion of sociology and anthropology that women are typically trusted to carry out their responsibilities with the highest care and attention. This is especially true for agriculture and related fields. It's no secret that women are crucial to the sericulture sector. The effective breeding of silkworms is greatly aided by their traits, such as mother instincts and tender care of those in their

care. The sericulture sector has created amazing job opportunities and empowered women to take a significant role in decision-making, both within family as well as in the community at large. For every community development project to be successful, women's active participation is crucial. This has been demonstrated numerous times throughout the world, particularly in developing nations. For example, women have played a crucial part in the success of Self-Help Groups (SHGs) in Andhra Pradesh and other Indian states. This article's main focus is on how women support sericulture in the village and how their involvement has benefited the growth of the community. In light of the aforementioned context, the current paper is based on an empirical study conducted in the South Indian state of Andhra Pradesh's Kotha Indlu village in the Chittoor District. Sericulture is a very suitable domestic activity and a significant way to create jobs and improve crop firms' revenue. Women have demonstrated their abilities and carried out their tasks with the highest level of skill in each of these activities. Women are heavily involved in the cultivation and processing of silk in the community that is being studied. This article will attempt to demonstrate how the agro-based practice of "sericulture" has contributed to the general growth of individual families, the village, and the community as a whole.

Roy et al., (2018) have described that the second-largest traditional silk-producing area in West Bengal, Murshidabad has a distinguished history of creating superior silk in India dating back to the seventeenth century. As the Industrial Revolution began in the West, the industry experienced a severe downturn. In India, efforts were made to revitalise this home-based artisanal sector after Independence in order to increase job and income opportunities in the rural economy. But between 2002 and 2012, there was a mass migration of more than 23,000 silk producers and 10,000 silk weavers from the sector. This study explores the concerns related with the income determinants of the household silk industry of Murshidabad. They further suggested that to boost the ability of the silk workers and to generate more income for them, the government should adopt pro-active measures like subsidizing the cost of silk weavers, revamp the health insurance scheme of the women of silk industry.

In the study conducted by Sarkar, S. (2015), it was stated that the handloom industry's main challenge is low productivity since the number of weavers has been declining each year and younger generations do not favour this occupation. It advises that in order to raise the level of output and the economic standing of weavers, the government

should encourage the introduction of fresh designs for traditional sarees and establish welfare programmes for weavers.

Goli & Rao's (2012) study emphasise the socioeconomic conditions of handloom weavers and other issues pertaining to the organization of the handloom industry in India in general and Andhra Pradesh in particular. It made a feeble effort to provide a thorough and integrated examination of this state's most significant domestic industry. The study also examines the effects of various policies put in place by succeeding administrations in order to determine how they have affected the expansion and advancement of the handloom sector.

A thorough review of silk production, characteristics, and structure-property connections is attempted by Murugesh Babu (2008), who also includes a chapter on possible uses of silk in the pharmaceutical, cosmetic, and biomedical sectors. Investigating novel applications for silk is fascinating.

Phukan, (2012) examines the Muga silk business in Assam and concludes that it has always played a significant role in the socioeconomic life of the state. He also looks at how the muga silk sector has been dealing with a lot of issues that have prevented it from producing things to the best of its abilities. The entire study includes historical viewpoints, production levels and trends, marketing channels, stakeholder socioeconomic situations, land use patterns, economic impacts, issues, and opportunities.

Sarkar, (2017) stated that women make up one-third of the workforce, more than half of the world's population, and nearly two-thirds of all working hours. Additionally, the majority of workers in the unorganized sector are women. This is especially true for agriculture and related fields. One of the major potential labour-intensive agro-based rural industries in the globe is sericulture. It is understandable why women are so crucial to the sericulture sector. The effective breeding of silk worms is greatly aided by their traits, such as mother instincts and tender care of those in their care. The sericulture sector has created amazing job opportunities and empowered women to take a significant role in decision-making, both within the family and in the community at large. For every community development project to be successful, women's active participation is crucial. This has been demonstrated numerous times worldwide, particularly in developing nations. This study examined the effects of women's

dominance in the sericulture industry on the inclusive development process in West Bengal's rural household sectors. In sericulture and silk production, women's activities have become increasingly prevalent due to their patience, tenacity, caring attitude, and capacity to adapt to new technology. According to this study, around 60% of women (roughly 57% in their first year and roughly 64% in their second year) are employed in a variety of sericulture-related fields, such as mulberry cultivation and silk weaving, and they are succeeding in all of these fields.

Miranda, (2018) examined the current study was carried out in Imphal West, Manipur, in the 2017–18 academic year. Out of the seven independent variables, education, land ownership, social participation, and training exposure were found to be positively significant at the 0.05 level of probability, family size was found to be negatively significant at the 0.05 level of probability, and there was no significant relationship between the respondents' age and the extent of women's participation in the silk industry. These findings came from a correlation analysis between the independent variables and the extent of women's participation in the silk industry.

In accordance with Hosali & Murthy, (April 2015), sericulture is one of India's key economic sectors and contributes substantially to the reduction of poverty. Sericulture offers more throughout the year employment and generates more revenue for rural farm families than agricultural crops.

Gaitan et al., (2019) claimed that silk in particular and textiles in general are a part of Europe's rich history. The collections of the largest European museums now demonstrate the appreciation of this significant legacy. Despite numerous European specialized agencies working to restore its status, silk textiles have become a highly endangered legacy. However, normal software solutions, which are typically in line with the features of contemporary, mechanical looms, are unable to replicate many of the historical silk weaving processes. For instance, contemporary looms are unable to make the spines used in handloom weaving.

Buhroo et al., (2018) provided a vivid picture of the significance of production in sericulture. The most significant source for sericulture farmers is the production of silk cocoons. Sericulture is a large-scale, autonomous technology that produces a variety of products and wastes. In nations including China, India, Brazil, Bulgaria, Vietnam, Korea, and Thailand, 30 million families are employed by the silk industry.

Inana et al., (2020) claimed that in the Bugis Wajo tribe's silk weaver family, the craft is transmitted from one generation to the next via the process of entrepreneurship education. For them, weaving silk is a means of making money in addition to being a cultural practice. One of the local wisdoms in the globe that must be conserved to preserve its authenticity is the Bugis Wajo tribe's weaving techniques. In order for members of a community to respect their own culture while learning about others', cultural identity must be maintained.

Jabeen et al., (2020) stated that the condition of rural women in India is very poor because they are financially independent, but through the growth of the sericulture sector, they can be empowered. India's rural women's empowerment and the growth of the sericulture sector are related. The main barrier to women's involvement in sericulture has been the absence of a separate raising home, a suitable plantation, and advanced technological understanding.

Sundari & Lakshmi (2015) stated that, in India, sericulture is a long-standing industry that originated in China. One of the oldest and most well-known worldwide trade routes for silk and other valuable commodities is the Silk Road. Silk is one of the key items to be exchanged in the barter system, and history shows that it is also utilized as an alternative currency. Silk has been a major commodity in India from its inception, with a rich history and a high commercial value. Indian sericulture is important on a national and worldwide scale. At the national level, it provides approximately 6 million people with well-paying jobs, mostly in rural areas, and the majority of these individuals are women and members of the socioeconomically disadvantaged segments of society. Additionally, the export of silk products helps the nation generate a sizable amount of precious foreign exchange. Additionally, this enterprise guarantees the domestic market's supply of raw silk. India is second globally in terms of raw silk production, accounting for roughly 18% of the world's total output. Additionally, it is crucial to provide new, developing sericulture nations with technical training and consulting services. There are 27 states in the nation where sericulture is performed, and 18475 MT (Mulb+ Non) of raw silk are now produced. On the other hand, silk exports have reached all-time highs of Rs. 3244.74 crores. India is second only to China in terms of silk production, although there is a significant difference between the two countries in terms of both quantity and quality. As a result, this essay discusses the history and

current state of the Indian silk industry. Additionally, an analysis of the prospects for India's state-by-state silk output is attempted.

Trivedi & Sarkar, (2015) made a comparative study on income generation through agriculture and sericulture. Many segments of the population are impacted by the sericulture sector, particularly in rural & semi-urban areas, such as- weavers, farmers, twisters, market intermediaries, reelers. Thus, it helps in checking population migration from rural to urban areas by providing regular employment to the farmers and thereby minimizing the population in urban areas.

Rejitha et al., (2023) stated in the study that the handloom industry in India is one of the greatest unorganised economic sectors in the nation and its fine craftsmanship and elegance depict the history of our illustrious tradition and legacy. The handloom census emphasised the important data that starkly emphasised the necessity for a sector revival. Additionally, it revealed the appalling condition of Indian handloom. Reviving the industry and bringing it back to its former glory is a difficult but essential task. Particularly in the domestic market, handloom products are becoming less popular and in demand. The primary cause is modern society's pessimistic attitude toward traditional industries and its image of Indian textiles as outmoded fashion that does not meet contemporary needs. The handloom industry is in horrible shape even though the government has provided help through a variety of programmes and policies, including those for base yarn, dyes, patterns, credit, product development, entrepreneurship, technical upgradation, packaging, and market access.

Balakrishnan, (2022) narrated in the study that India's handloom industry is one of the oldest in the world, producing distinctive handloom goods with geographic identification both domestically and internationally. It is a rather unorganised industry that, after agriculture, offers the most employment prospects in the nation. To grow the handloom industry, new inventive concepts, production processes, and methodologies are required. The study reveals that technological advancement is inevitable across all industries. The government must develop more institutes in order to provide incentives for the weavers as well as sufficient training, direction, and support.

Das, (2008) stated that a sizable rural population in Murshidabad depends on the silk industry for their living, thus it should be supported in every way possible. The district produces both popular domestically and for export silk textiles. A significant amount of

silk fabrics is made in this country solely for export. Since this sector of the economy contributes to industrial production, employment, and export revenue in addition to providing one of life's essentials, it is crucial that it continue to expand quickly.

Kalaiselvi, (2013) elaborated that the working and living situations of those employed in the Kanchipuram district's silk industry were investigated in this study. The fact that the labour legislation regarding working hours, pay rates, prompt payment of wages, leave provisions, medical allowances, insurance, and maternity benefits is not at all applied in these units highlights the fact that the working conditions are quite poor in the studied area. Since the salary rate is low and not paid on time, this has major repercussions for the working and living conditions of the employees in this business. Since the majority of young people prefer to work in other industries like automobiles and telecommunications, which are quite popular in Kanchipuram district, the industry also faces a manpower shortage. In fact, the young people who are currently employed in the silk industry are those who consider it to be a tradition.

Majumdar et al., (2017) elaborated that once, Murshidabad's silk products were exported to several nations around the globe. Murshidabad traded silk in the sixteenth century to the shores of East Africa, Arabia, Turkey, Syria, and other nations. The craft of hand weaving performed a substantial function in the rich cultural history of Murshidabad. Reeling and weaving industries, however, are currently also experiencing a decline. The analysis identifies the significant issues in the weaving sector. The study also shows that the young generations are not at all interested in weaving sector. The study also shows that the reelers and weavers are not satisfied with their pay in 90% to 100% of cases. These are a few of the main issues that are to blame for the deteriorating sectors in our region. The study also suggested various potential remedies to resolve the issue and restore the "Murshidabad Silk" to its former splendour.

1.7. RESEARCH GAP

- Most of the researcher has clubbed cotton and silk industry together in their research work. Separate research solely on silk industry will definitely help to identify the major problems hindering the growth of the industry.
- Maximum of the research work only focussed on either sericulture or silk industry though these two fields are dependable on each other. In this research

work socio-economic status of the sericulturists has also been discussed briefly along with the detailed discussion of silk industry.

- There are only few literatures on silk weaving industry maximum of the literatures are based on handloom industry in general and among the available literatures about silk weaving industry, major part of the analysis done so far were concentrated on Karnataka, Andhra Pradesh and Tamil Nadu. Compared to these three traditional silks producing states very little literature has been found on the West Bengal's artisanal silk industry. At the back drop of its rich historical milieu why this artisanal industry decayed over the passage of time needs to be studied properly.
- The literatures available for sericulture also, mainly done based on the profile of the major Silk producing South Indian states.
- There are many literatures that elaborate the factors that influence the income level of the silk manufacturer and weavers, but here is a research gap observed in that the distribution of income among weavers graphically and measures of income inequality statistically were not included in any of those literatures.
- There is literature that discusses the problems faced by the weavers of Murshidabad, but there is a void exists in this literature, as the current problems such as, not having a direct scope of marketing and not getting regular work from cooperatives, Khadi or clusters has not included here. There is also a research gap observed that the identified problems not ranked as per severity.

1.8. STATEMENT OF THE PROBLEM

Similar to agriculture, the textile sector offers both men and women, as well as unskilled and semi-skilled labourers, chances for a living. As a result, there is a significant level of reliance on the textile sector, particularly among the less educated and uneducated. However, there has always been a dichotomy that this industry is under both organised and unorganised sectors. Since it is being carried out on a small scale at a household level, it seems that many weavers still don't have weavers' identity cards. Numerous opportunities for labor exploitation are presented in this industry because of its unorganized and cottage industry structure on the one hand and the workers' illiteracy or lack of literacy on the other. Hence the study of the problems of the primary weavers

of the silk industry and the issues related to their earning and employment generation is essential to be discussed.

Silk is a remunerative cash crop, and further, as per the planners, it can help to secure the future of the Indian rural economy by being used as a tool of poverty alleviation, so it is necessary to discuss the earnings of sericulturists as well as the problems faced by them.

Weavers are engaged in different working structures, such as working for master weavers, working under clusters as well as for master weavers, and working under Khadi Society, and all of these working structures are linked to the delicate existence of weavers in the silk and other handloom sectors. The master weavers played the most significant role in the silk weaving sector, as they provide weavers with constant work and no other system has been identified to take its place. The government sector, such as clusters of handlooms, Khadi society, and co-operatives, and the newly formed clusters are not operating satisfactorily and are not producing the goods that are expected from these. Weavers are not willing to work directly as a weaver of khadi, as Khadi societies can give work for an average of 10 months, and the per-month wages have been transferred to the weavers' bank accounts. As it takes around 15 days to get the payment through the bank, it becomes a problem for the poor weavers to bear all the family expenditures, and so they prefer to work under mahajans. Most of the weavers are working for mahajans and only registered their names in the Khadi societies and in the block-level cluster, just to avail themselves of the facilities given by the government, and mainly working under the mahajans, after knowing that they have been exploited by the mahajans to a maximum extent, as they are giving work throughout the year.

1.9. SIGNIFICANCE OF THE STUDY

Sericulturists and silk weavers are being considered as the root of the silk industry, and so it is necessary to discuss the socio-economic circumstances of these two economic groups in Murshidabad district, keeping in mind that the present study discusses the status of sericulture in Murshidabad district in brief and thoroughly elaborates the profile of the silk weaving industry, as the name of the thesis concerns.

Since weavers and the industry complement one another and good income opportunities would automatically attract the next generation to join, it seems that the number of silk

weavers is decreasing day by day, and so it is necesSericulturists and silk weavers are being considered as the root of the silksary to analyse the complex issues that the silk weavers have to deal with, mainly related to income earning and employment generation. The goal of the current study is to discuss the problems faced by the silk weavers and further enable the researcher to suggest the remedial measures for making the proper infrastructure for the silk weavers, which support and strengthen the industry, with this field study along with the data available for silk weaving.

It is quite necessary to examine the socioeconomic circumstances of silk weavers in Murshidabad district, as the rise of the economic status of the weavers will have a beneficial impact for the silk industry.

Sericulture and the silk industry are both considered household industries, and the labour is contributed by all the family members. As a matter of fact, the income earned through these two sectors is considered family income. But only the main weaver and the registered sericulturist have been considered as paid workers, whereas others have remained unpaid. It seems that 1.5 ancillary weavers other than the weaver have been needed for one loom to be weaved, and at least 3 members of the same family are needed to do sericulture activity, including the registered sericulturist. In most cases, these unpaid labourers are female, and their role and economic contribution to this industry are not acknowledged. In the present study, the socio-economic status of the women, both paid and unpaid, engaged in this sector has been discussed, and the economic contribution towards their family income from this sector has also been elaborated.

The production of raw silk in Murshidabad and its block wise data are necessary to examine as sericulture helps to create employment for the people without judging their caste, religion, or gender.

There is a huge income inequality visible among the silk weavers, and so the present study analyses the issues related to income determinants and also measures the income inequality shown in between the weavers of the silk industry.

1.10. AREA OF THE STUDY

The district Murshidabad is located at the south bank of river Ganga and its location plays a significant role in the silk trade and bounded within the geographical periphery of 23°43’ and 24°52’ North latitude and 87°49’ and 88°44’ East latitude (Das, 2008). The district is one of the most populous districts of West Bengal with having approximately Seventy-one lakh population (Census of India, 2011). Robert Clive remarked “the city of Murshidabad is as extensive and populous and rich as the city of London” (Guha, 2005). From the very beginning Murshidabad silk has always played a leading role in the global silk market because of its rich history behind, which was started during the Mughal regime when Nawab of Bengal named Murshid Kuli Khan shifted his capital from Dhaka to a town and named it Murshidabad and with this, a rich silk weaving tradition was started to bring employment in the area (Das,2008). Though with time the district had lost its political importance but the importance of silk industry of this region has never changed (Roy, & Dey, 2019). The silk producing districts of the state West Bengal are mainly confined around the district Murshidabad as this district is well equipped in both weaving and production of silk and so sometime the silk weaving industry of West Bengal goes by the name of ‘Murshidabad Silk’.

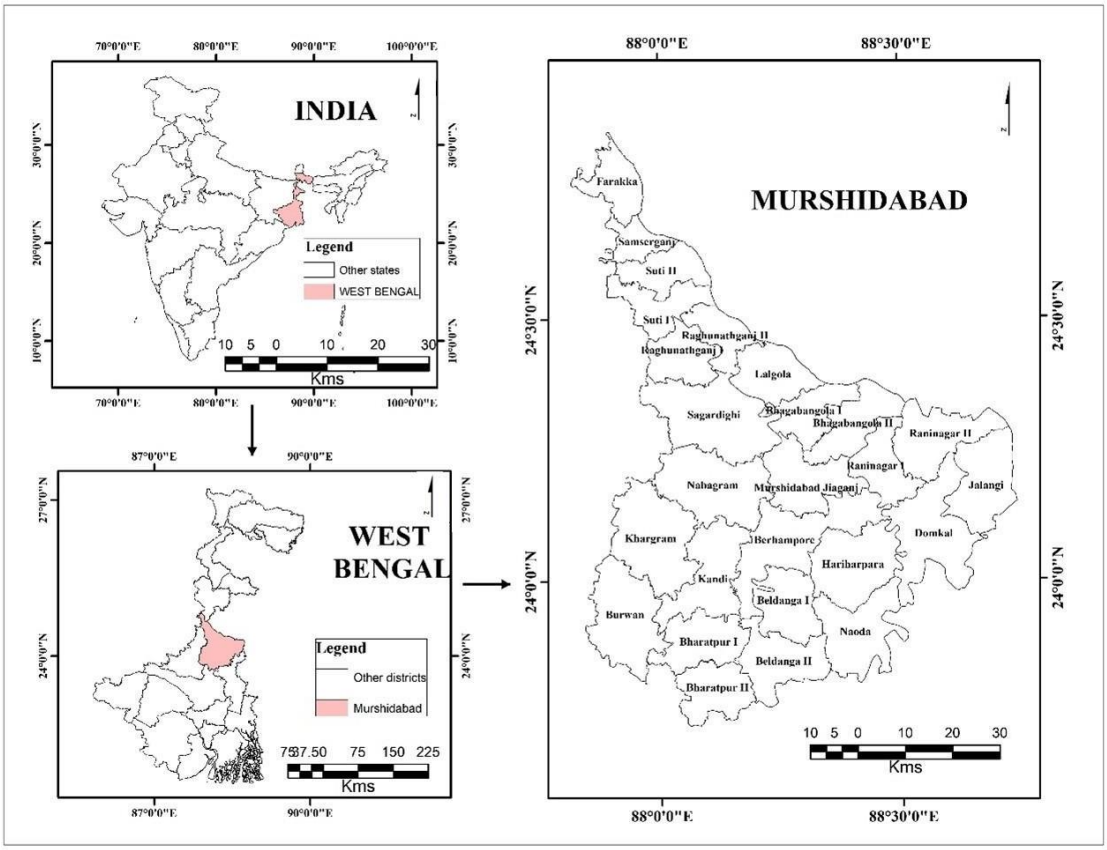

FIG. 1.1.

LOCATION MAP OF STUDY AREA

SOURCE- Shapefile of India and West Bengal map have been obtained from online sources and the map of Murshidabad digitized manually.

Nabagram and Khargram blocks are renowned for sericulture activities and they have highest number of sericulturists and highest area under sericulture in the district. High concentration of sericulturists is found in many villages in these two blocks. Milki Palasi and Saheb Nagar villages of Nabagram block and in Khargram block Kelai and Nonadanga villages of Khargram block are some of them (FIG. 1.2, 1.3.).

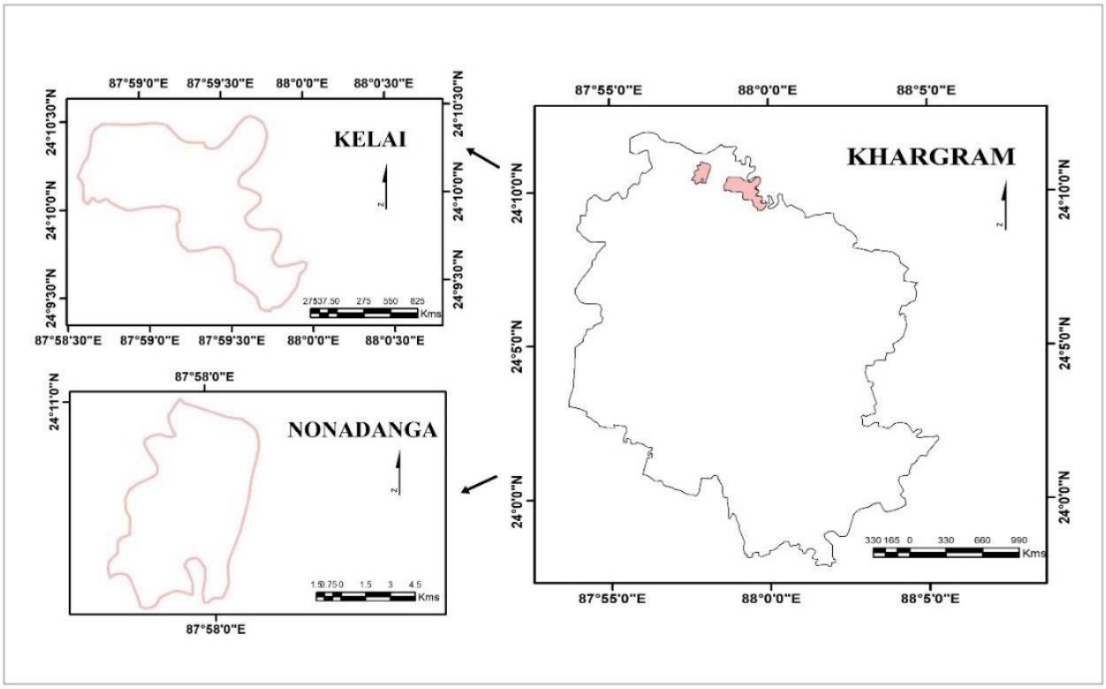

FIG. 1.2.

LOCATION MAP OF SELECTED SERICULTURE VILLAGES OF KHARGRAM

Source- Shapefile and associated data of Villages obtained from NASA Socio Economic Data and Application Centre's Website

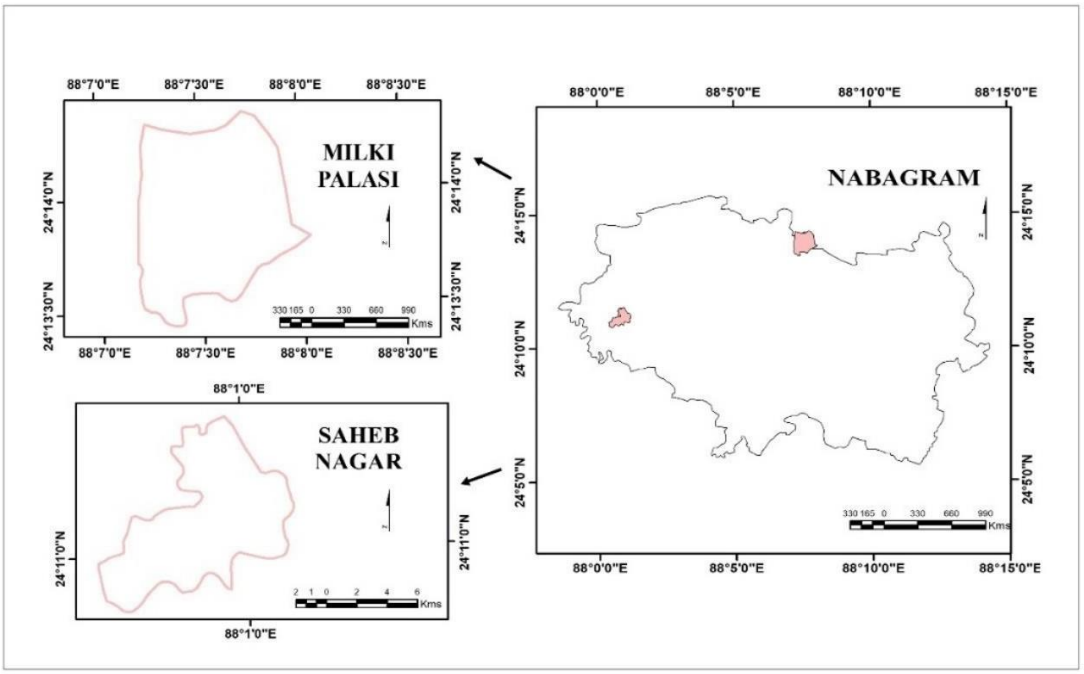

FIG. 1.3.

LOCATION MAP OF SELECTED SERICULTURE VILLAGES OF NABAGRAM

Source- Shapefile and associated data of Villages obtained from NASA Socio Economic Data and Application Centre's Website

Khargram block is famous for raw silk than's production and has highest number of silk weavers, Murshidabad Jiaganj block is famous for Garad saree (only produced in Murshidabad) as well as for making raw silk than and Raninagar 1 block is famous for Spun silk production which is named as Matka silk. Nagar and Margram villages in Khargram block have high concentration of silk weavers (Figure-1.4.). Tantipara village in Murshidabad Jiaganj block is famous for garad saree weaving and Dangapara village in famous for raw than weaving and these two villages are the only silk weavers' villages in this block (Figure-1.5.). Harharia Chak is the only silk weaver's village found in Raninagar I block and is famous for spun silk weaving (Figure-1.6.).

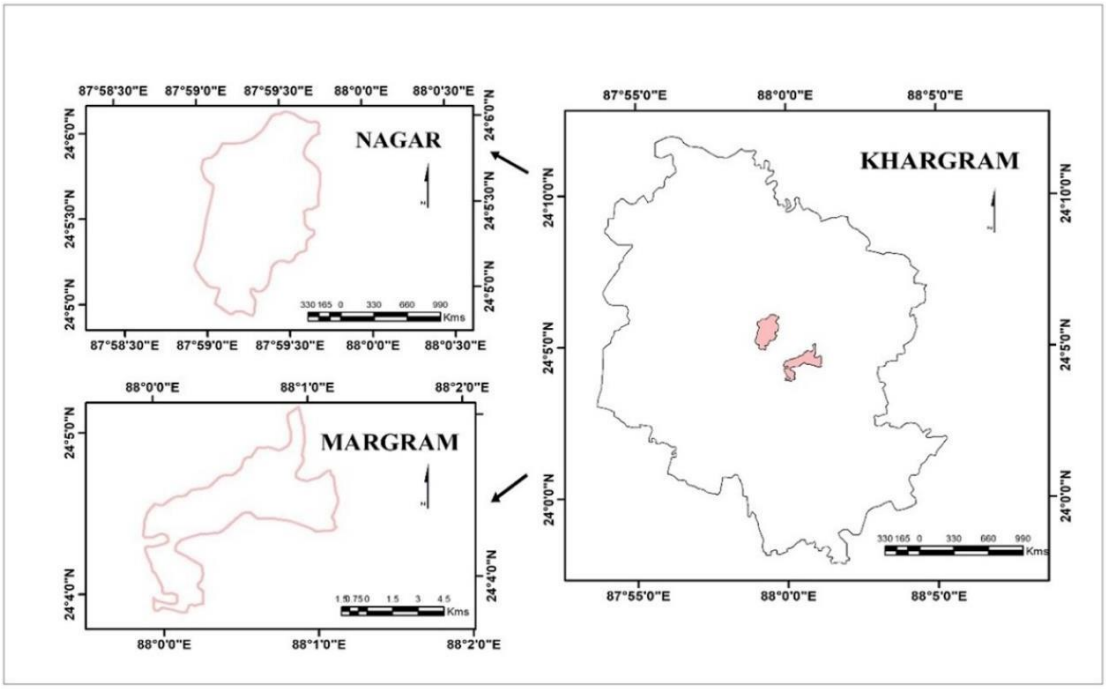

FIGURE- 1.4.

LOCATION MAP OF SELECTED SILK WEAVINGG VILLAGES OF KHARGRAM

Source- Shapefile and associated data of Villages obtained from NASA Socio Economic Data and Application Centre's Website

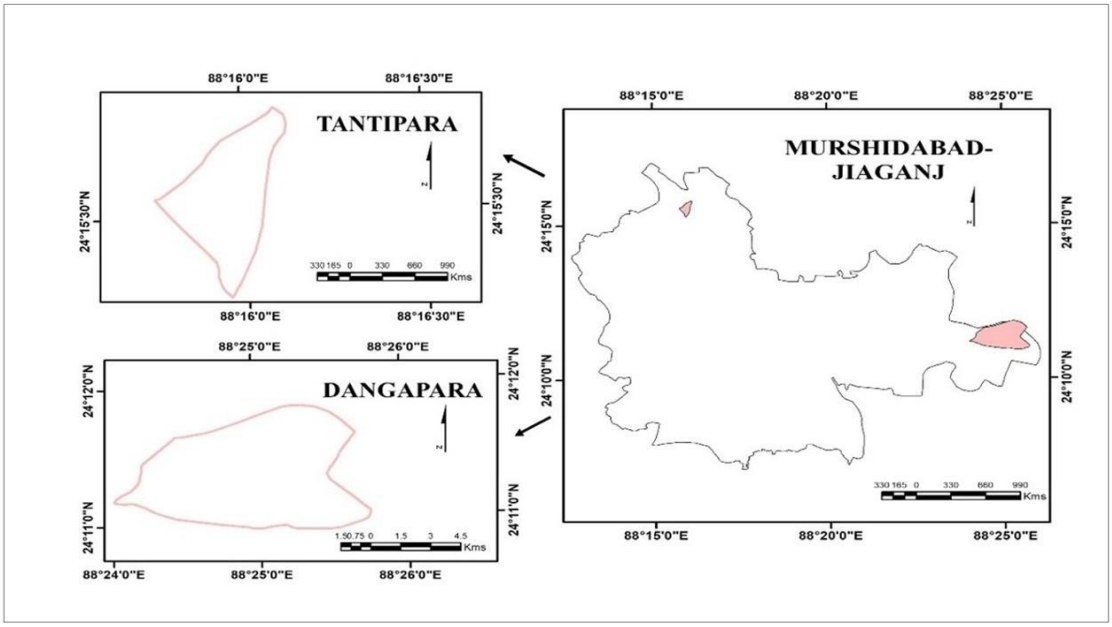

FIG. 1.5.

LOCATION MAP OF SILK WEAVING VILLAGE OF MURSHIDABAD JIAGANJ

Source- Shapefile and associated data of Villages obtained from NASA Socio Economic Data and Application Centre's Website

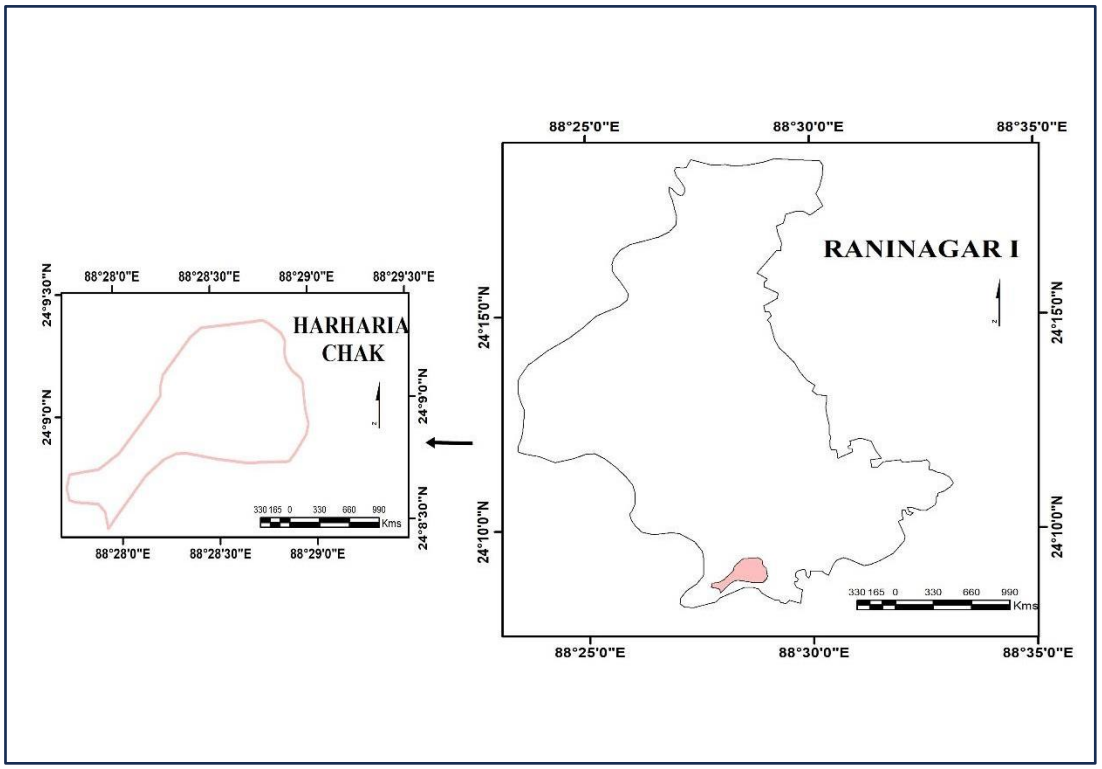

FIG.1.6.

LOCATION MAP OF SILK WEAVING VILLAGE OF RANINAGAR I

Source- Shapefile and associated data of Villages obtained from NASA Socio Economic Data and Application Centre's Website

1.11. OBJECTIVES

The following are the broad objectives of the study-

- To find out the distribution of sericulture and silk weaving industry in this region.
- To discuss the socio-economic life of Sericulturists and Silk weavers.
- To measure the income inequality of the silk weavers and analyse the factors behind the income inequality of them.
- To assess the importance of women's participation in sericulture and silk weaving industry.
- To analyse the problems of Murshidabad silk industry and evaluate the role of Government schemes in the prospect of this industry.

1.12. METHODOLOGY

- **RESEARCH DESIGN**

The frameworks used to carry out the investigation are referred to as the research design. The current study's research design combines an analytical and descriptive approach.

The present study will analyze the profile of sericulture in Murshidabad in brief and the status of the silk weaving industry in Murshidabad in detail. The study emphasizes the importance of women in the field of sericulture and silk weaving industry in Murshidabad. For this study, both primary and secondary data and also qualitative and quantitative data have been collected.

- **SOURCE OF DATA**

Secondary data are collected from Central Sericultural Research and Training Institute (CSRTI) Berhampore; district office under Directorate of Textile (Sericulture) Berhampore, Murshidabad; Directorate of Textiles, Handlooms, Spinning Mills, Silk Weaving, and Handloom-based Handicrafts Division, Office of the Handloom Development Officer, Berhampore, Murshidabad; and from the website of the Ministry of Statistics and Programme Implementation, Government of India. Primary data are collected through structured questionnaire surveys.

Shapefile and associated data of sampled villages have been obtained from NASA Socio Economic Data and Application Centre's website, and railways and roadways have been extracted from the District Survey Report of Murshidabad District, November 2021, and the Open Street Map.

- **SAMPLING DESIGN**

A multistage sampling procedure is used for collecting the primary data. Murshidabad was selected purposefully as it is well equipped in both the production and weaving of mulberry silk.

In the second stage, Nabagram and Khargram blocks were also chosen purposefully for data collection of sericulturists, as these two blocks are very famous and renowned for sericulture activities, and they have the highest number of sericulturists and the highest area under sericulture in the district. From Nabagram block, Milki Palasi and Saheb Nagar villages were selected, and from Khargram block, Kelai and Nonadanga villages were selected purposefully for primary data collection, as these villages have a high concentration of sericulturists.

Khargram, Mushidabad Jiaganj, and Raninagar 1 blocks were selected purposefully to collect data on silk weavers in the district. Khargram block is famous for raw silk's production and has the highest number of silk weavers; Murshidabad Jiaganj block is famous for garad sarees (only produced in Murshidabad) as well as for making raw silk; and Raninagar 1 block is famous for spun silk production, which is named Matka silk. For primary data collection of weavers, Nagar and Margram villages were taken purposively from Khargram block, as these two villages have a high concentration of silk weavers; Tantipara village in Murshidabad Jiaganj block is famous for garad saree weaving, and Dangapara village is famous for raw than weaving, and these two villages are the only silk weavers' villages in this block and were taken for data collection purposively; and Harharia Chwak, which is the only silk weavers' village in Raninagar I block, was chosen purposively for data collection.

- **SAMPLES FOR THE STUDY**

A total of 196 sample sericulturists, which is 30% of the total number of sericulturists of the selected villages, were chosen randomly, and in maximum cases, it seems that at least 2 family members other than the sericulturist are to be needed for silkworm rearing, and most of these additional members engaged with silkworm rearing are female, so 319 female members of the sericulturists' family were found to do the sericulture-related activities.

A total of 505 sample silk weavers, which is 30% of total silk weavers of the selected villages, were chosen randomly, and other than silk weavers, 547 ancillary workers who are doing preparatory work before weaving were found, and all of them are the female members of the weavers' family.

The sample collection of the present research work is displayed below with the help of following figure.

TABLE-1.2. SAMPLE DETAILS AND SIZE OF SILK WEAVERS

BLOCK NAME	VILLAGE NAME	TOTAL NUMBER OF SILK PRIMARY WEAVERS	30% OF TOTAL NUMBER OF PRIMARY WEAVERS	TOTAL NUMBER OF SAMPLE ANCILLIARY WORKERS (WOMEN)
KHARGRAM	NAGAR	696	209	273
	MARGRAM	287	86	99
MURSHIDABAD-JIAGANJ	DANGAPARA	121	36	39
	TANTIPARA	209	63	0
RANINAGAR I	HARHARIA CHWAK	369	111	136
TOTAL			505	547

TABLE- 1.3. SAMPLE DETAILS AND SIZE OF SERICULTURISTS

BLOCK NAME	VILLAGE NAME	TOTAL NUMBER OF SERICULTURISTS	30% OF TOTAL NUMBER OF SERICULTURISTS	NUMBER OF WOMEN ENGAGED IN SERICULTURE RELATED ACTIVITIES FROM SERICULTURISTS' FAMILY
KHARGRAM	KELAI	203	61	92
	NONADANGA	92	28	41
NABAGRAM	MILKI PALASI	201	60	108
	SAHEB NAGAR	149	47	78
			196	319

- **TOOLS FOR DATA COLLECTION**

A thorough questionnaire was created in order to gather the data from the primary source. The Research work mainly emphasise about the silk weaving industry though

briefly discuss about the sericulture as a part. Data was collected using two organized interview schedules-

- Sericulturists
- Silk Weavers

➢ **RELIABILITY TEST OF THE QUESTIONNAIRE**

To check the reliability of the questionnaire made for the silk weavers, as silk weaving industry is the main concerned part of the thesis; Cronbach Alpha (α)was run as, it is the most commonly used reliability test. The result for Cronbach Alpha has been calculated (N=200) and the value of α has been found to be 0.890. This implies that the questionnaire has high internal consistency and is highly reliable.

➢ **DATA PROCESSING**

The collected data are further classified in tabular form, analysed with proper statical techniques and finally represented with suitable graphical representation. Maps were prepared with the help of Arc GIS 10.5 version.

➢ **TOOLS OF ANALYSIS**

To examine the objectives of the present study, data analysis was done. Secondary data was analysed by using Annual Growth Rate, Compound Annual Growth Rate, Location Quotient.

- **AVERAGE ANNUAL GROWTH RATE**

The average annual growth rate, which is essentially the present growth percentage value divided by the growth percentage of the previous year, is used to identify patterns or percent changes from one period to another (Kumar, 2014).

$$\text{AAGR}=\frac{\text{PRESENT YEAR}}{\text{PAST YEAR}}\times 100$$

- **COMPOUND ANNUAL GROWTH RATE**

The study conducted Compound Growth Rate in regression analysis to know the growth rate trends in silk production in India. It was computed using the following steps.

Step 1, $V= A+Bx$

Where, A and B refer to the y intercept and slopes respectively, of the regression equation on involving AGR as the criterion and the years as the predictor.

Step 2, $\sum V = n\ A+B\sum x$

Step 3, $\sum XV = A\sum x + B\sum x^2$

Step 4, The Standardise regression co-efficient (β) is found out using the following equation.

$$\beta = \frac{\sum xv - \frac{1}{n}\sum x \sum v}{\sum x^2 - \frac{(\sum x)^2}{N}}$$

Step 5, b = antilog (β)

Step 6, CAGR = (b-1) x100 (Mote & Sananse, 2014)

- **LOCATION QUOTIENT**

Location Quotient has been used to indicate the relative concentration or dispersion of block wise sericulture adopted villages in Murshidabad district. A straightforward method for figuring out a phenomenon's spatial distribution (clustering/dispersal) in a certain area relative to the overall region is the location quotient (Strotebeck, 2010).

The formula of Location Quotient is-

$$LQ = \frac{v_i/v}{V_{i/V}}$$

Where, v_i = number of sericulture adopted villages in block i

v = total number of sericulture adopted villages

Vi= number of villages in block i

V= total number of villages

The collected primary data has been analysed with the application of tools like Lorenz Square, Gini Coefficient, Chi Square Test and Percent Position.

- **LORENZ CURVE**

The Lorenz Curve was developed by the American Economist Marx Lorenz in 1905. It is a graphical method of representing the degree of income inequality or wealth inequality. Drawing of Lorenz curve is a way to visualize the income distribution in a particular population. The 45degree line shows the line of equality, when income is shared equally whereas the curve beneath the line of equality shows the degree of inequality (Gastwirth, 1971). If the distance between the Lorenz curve and the line of equality is more then it shows more inequality and if the gap is less then it shown less

inequality. Here in the study calculation of Lorenz Curve has been done for showing the distribution of income of weavers.

- **GINI COEFFICIENT**

The Gini Coefficient was first introduced by the Italian Statistician Corrado Gini in 1912 which is most commonly used summary measure of income inequality and directly linked to the Lorenz Curve (Trapeznikova, 2019). The region of concentration between the Lorenz Curve and the Line of Equality is represented by the Gini Coefficient (Rodrigue, 2020). The Gini Coefficient is a measure of statistical dispersion graphically represented as a ratio where; the numerator is the area between the line of equality and the Lorenz curve and the denominator is the area under the line of equality and the value of the ratio ranges in between 0 (0 means perfect equality) to 1 (1 means perfect inequality) (Ramzai, 2020). A low Gini coefficient indicates less inequality or more equality in income distribution while high value indicates more inequality (Hayes, 2023).

The Gini Coefficient (G) can be calculated by using the following formula-

$$G = 1 - \sum_{k=1}^{n} (X_k - X_{k-1})(Y_k + Y_{k-1})$$

Where, X_k is the cumulative proportion of variable of number of weavers, for k = 0,……,n, with X_0= 0, X_n= 1 and Y_k is the cumulative proportion of variable of the income ranges, for k = 0,……,n, with Y_0= 0, Y_n= 1 (Delbosc, & Currie, 2011). Here in this study, to measure the income inequality statistically, Gini Coefficient has been used.

- **CHI SQUARE TEST**

Chi square test was first introduced by Karl Pearson in 1900 (Plackett, 1983). It is a statistical technique, used to compare observed and expected value (Ilbery, 1977). This test aims to determine whether a discrepancy between actual and projected data is caused by chance or by a connection between the variables being examined (Tata, 1969). To find out that whether there is a relation in between the age group, gender and the location of the villages with the income of the weavers or not, Chi Square test has been used.

Formula for the Chi square test is $\boldsymbol{x^2} = \sum \frac{(O-E)^2}{E}$

Where, X^2 is the calculated chi square value, O is the Observed Frequency and E is the Expected Frequency

Calculation for **E** = $\frac{RT*CT}{N}$

Where, RT=The row total for the row containing cell,

CT=The column total for the column containing cell and

N=Total number of observations.

df is Degrees of Freedom,

level of significance (α) is 5% and

table value is the tabular or observed value of Chi Square.

- **HENRY GARETT'S RANKING METHOD**

Henry Garett's Ranking Method is used to identify the main problem faced by the weavers (Zalkuwi et al. 2015).

Percent Position = $100*(R_{ij}-0.5)/N_j$

Where, R_{ij}= Rank, i^{th} item, j^{th} individual,

N_j= number of items Ranked by j^{th} individual,

R=1^{ST}, 2^{ND}, 3^{RD}, 4^{TH} ranks and

N_j = Total rank given by 270 respondents (Dhanavandan, 2016).

1.13. PLAN OF THE STUDY

The present research work is consisting of six chapters.

CHAPTER -1. INTRODUCTION

The first chapter includes information about silk industry in general, statement of the problem, significance of the study, objectives of the study, methodology of the study.

CHAPTER-2. GEOGRAPHICAL SETTING OF THE STUDY AREA

The third chapter is associated with the geographical profile of the study area which includes administrative setting, physical setting such as- physiography, drainage,

climate, soil and also cultural setting such as demography, land use land cover, agriculture, industry, transport of the district.

CHAPTER- 3. PROFILE OF SERICULTURE AND SILK WEAVING INDUSTRY

The chapter represents the global trends of silk production, trends of silk production of India as well as West Bengal. The second part of the third chapter dealt with the general scenario of the block wise Sericulture profile of Murshidabad. The socio-economic profile of the sample respondents like their age distribution, religious composition, educational levels, family size, house type, size of land holdings, working experience and annual income has also been discussed. The last part of the chapter solely discusses about the block wise number of silk weavers and the socio-economic profile of the selected silk weavers in detail and are analysed with diagrammatic representation.

CHAPTER-4. ROLE OF WOMEN IN SERICULTURE AND SILK WEAVING INDUSTRY

This chapter includes the role of women in sericulture and silk weaving industry. As maximum of the women are unpaid labourers in both the sector, the type of work done by the women and the savings amount of the sericulturists and the silk weavers', because of the female members of the family, has been analysed in this chapter.

CHAPTER- 5. PROBLEMS AND MAJOR FINDINGS

This chapter includes the problems faced by the sericulturists and silk weavers, the major findings of the study and the government schemes for the sericulturists and silk weavers.

CHAPTER- 6. SUMMARY, CONCLUSION AND SUGGESTIONS

This chapter includes the summary of all the chapters and major findings, some suggestions to overcome the problem faced by the sericulturists and the silk weavers, the limitation of the study and the concluding part.

CHAPTER -2

GEOGRAPHICAL SETTING OF THE STUDY AREA

2.1. INTRODUCTION

It is common and required to include the geographical setting of the area being studied in a geographical study. Under this chapter an attempt has been made to give brief physical and cultural setting of Murshidabad district. This chapter also discusses about the Historical background of the district Murshidabad.

2.2. ADMINISTRATIVE SETTING

Murshidabad occupies the central plain of the state of West Bengal. The lower Ganga River forms the district's natural border, splitting into the Padma (Eastern Course) and Bhagirathi Hugli (Western Course) close to Dhulian in the northern part of the district. The district's northern and eastern borders are formed immediately after the bifurcation by the Padma river's blooming flow, which borders Bangladesh to the east and Malda district to the north; the district is surrounded by Barddhaman in the south, Nadia in the south-east and Birbhum in the west. The state boundary between West Bengal and Jharkhand lies in the north-west. Compared to other districts in the State, the district shares one of the longest international borders with Bangladesh. Berhampur is the district head quarter located in the central part and at the flank of River Bhagirathi.

The district is divided into five subdivisions: Jangipur, Lalbag, Kandi, Domkal, and Berhampore Sadar. Figure shows that there are 26 Community Development (C.D.) Blocks, 7 Municipalities, and the district.

The Behrampore-Sadar Sub-division consists of two municipalities, Beldanga (M) and Berhampore (M), and five C.D. Blocks, Beldanga-I, Beldanga-II, Berhampore, Hariharpara, and Nawda. The Jangipur Sub-division consists of two Municipalities, Jangipur (M) and Dalani (M), and seven C.D. Blocks, which are Farakka, Samserganj, Suti-I, Suti-II, Raghunathganj-I, Raghunathganj-II, and Sagardighi. Lalbagh Sub-division consists of two municipalities, Jiaganj-Azimganj (M) and Murshidabad (M), along with five C.D. Blocks: Lalgola, Bhagawangola-I, Bhagawangola-II, Murshidabad-Jiaganj, and Nabagram. There is one municipality, Kandi (M), and five C.D. Blocks in the Kandi Sub-division: Kandi, Khargram, Burwan, Bharatpur-I, and Bharatpur-II. There are four C.D. Blocks in the Domkal Sub-division: Domkal, Jalangi, Raninagar-I, and Raninagar-II (District Census Handbook, 2011).

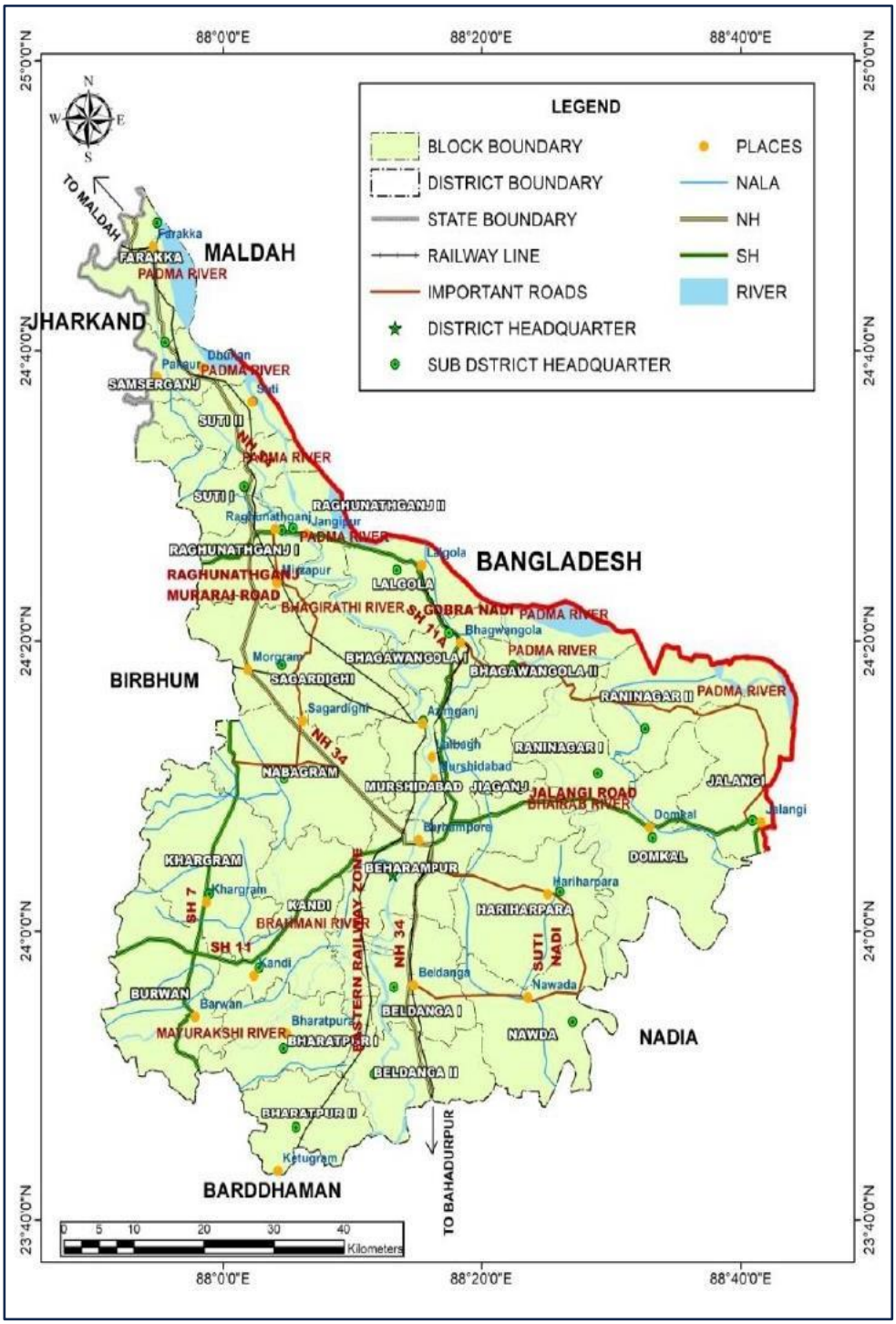

FIGURE-2.1

BLOCK DIVISIONAL MAP OF MURSHIDABAD

Source- District Survey Report of Murshidabad District, November 2021

2.3. HISTORICAL BACKGROUND

Murshidabad boasts an incredibly rich political and cultural past. Karna Suvarna, which is now the district of Murshidabad, was ruled by Raja Shashanka, the first sovereign monarch of Bengal, in the seventh century. Once more, in the eighteenth century, the majority of significant political activity in the nation took place at Murshidabad, the capital of Bengal's final autonomous Muslim rulers. Actually, the district's history as a component of the province of Bengal up until 1757 was just Bengal's overall history. The authors of Greek and Latin literature said that this tract represented the dominance of the Prasioi and Gangaridai, or inhabitants of the Ganges region. It is stated that upon learning of the strong monarch and his subjects from the Gangaridai and Prasoi region, Alexander withdrew from further attack into the Ganges valley. The district's Karna Suvarna served as the royal residence of Bengal's Shashanka, a strong independent monarch, during the seventh century. Sometimes before 606 A.D., Shashanka rose to become the king of Gauda, establishing his capital at Karna Suvarna. The renowned Chinese adventurer Hu-yen-Tsang visited Bengal in 638 A.D., not long after Shashanka passed away. He cited the existence of numerous Buddhist temples as places of study as well as the Karna Suvarna as a significant centre of learning. Shashanka's realm was taken over by the antagonistic Kamrupa monarch Bhaskara Varma a few years after his death. The district's history is not further revealed for several centuries, but Mahipala's excavation of the massive Sagardighi tank honors the palas' raid in the early eleventh century.

In November 1697, Prince Muhammad "Azim-ud-din" assumed leadership of the Bengali government. In December 1700, Murshid Kuli Khan took over as the province of Bengal's new Diwan. He subsequently rose to the position of subadar. He was the creator of a Bengali provincial dynasty that was independent. Following the death of Murshid Kuli Khan on June 30, 1727, his son-in-law Shuja-ud-Din Mohammad Khan assumed leadership of the provinces of Bengal and Orissa. Shuja-ud-Din passed away on March 13, 1739. In April 1740, his son Sarfaraz was the heir apparent. Siraj-ud-Doulah ascended to the throne following Alivardi. Upon assuming the reign, Siraj-ud Doulah desired to expel the British from the nation. In June of 1756, he launched an attack on Calcutta and took it. A number of confrontations with the British troops preceded the ultimate battle of Plassey for Siraj-ud-Doulah. In the end, Lord Clive prevailed in the conflict on June 23,1957 (Rahaman, 2009).

2.4. PHYSIOGRAPHY

From a physiological standpoint, the entire district is part of the plain region. The district is divided into two equal halves by the river Bhagirathi, which flows across it from north to south. The two parts differ greatly from one another in terms of their geology, physical characteristics, agricultural practices, and even religious beliefs. A larger portion of Sagardighi, the western portion of Murshidabad-Jiaganj, Berhampur, Beldanga, Samserganj, Suti-1, Suti-II, Raghunathganj-1, Nabagram, Khargram, Burwan, Kandi, Bharatpur-1, Bharatpur-Il, and the remainder of the Blocks are located in the eastern part.

The Rarh, or western portion of the area, is characterized by its rough, undulating topography, which is broken up by several bogs and the channels of ancient rivers. The elevation increases as one approaches the Rajmahal hills, which rise a few Kilometres past the district's northwest border, and the Birbhum district. This area contains a few hillocks, the most well-known of which is called Dhuli Pahari. The Farakka Block's northern section is where the 45-meter highest point in the Rarh area is located. The Eastern tract, also known as Bagri, is characterized by frequent flooding and a large number of wetlands. It is located almost entirely between the Ganga and Bhagirathi basins. As was already indicated, the eastern portion is a level plain with a height variation of 12.5 to 24 meters. The region's average slope is from its west and northwest to its east and southeast corners (District Survey Report of Murshidabad District, November 2021).

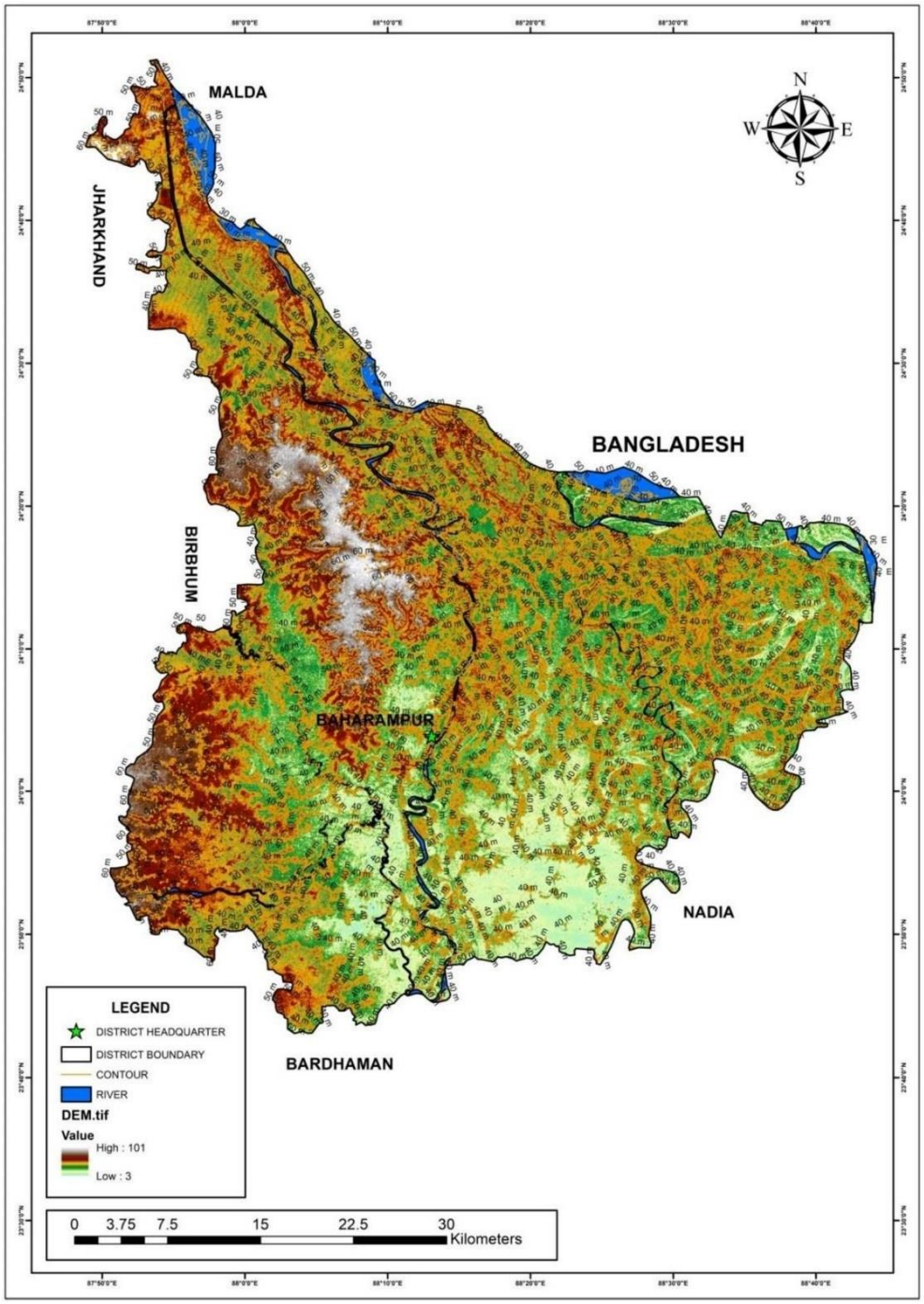

FIG. 2.2.

PHYSIOGRAPHIC MAP OF MURSHIDABAD DISTRICT

Source- District Survey Report of Murshidabad District, November 2021

2.5. DRAINAGE

The Ganga (Padma) and its distributaries, the Bhagirathi, Jalangi, and Bhairab being the three most significant, make up the majority of the district Murshidabad's river system. Owing to typical topographical features, the majority of the Murshidabad district's rivers are mostly rain-fed and related to the powerful Ganga.Navigation is hampered by shoal development because the streams are unable to transport the massive amounts of sediment that they accumulate during the upper course. Because of the Ganga River's downward flow, the rivers to the district's east are somewhat full during the dry season. However, during the past few decades, there has been a significant shift in the river pathways due to the construction of the Farakka Barrage in the district's northern section. In addition to the monsoon's excessive rainfall, flash floods and the devastation of farmland and habitation due to the shifting of river streams have become typical occurrences.

It is evident from the figure that the Ganga-Padma River channel and the Mayurashki River channel both run through the district. The "bagri" region of Murshidabad is traversed by the Ganga Padma River, Bhagirathi, Jalangi, and its distributaries, Sialmari and Bhairab. During the monsoon, these distributaries transport water; otherwise, they are dry.

The Mayurakshi, Dwarka, and Brahmani Rivers drain the western Rarh block primarily from the south, and the River Basloi, River Pagla, and River Gumani drain the north-western portion. During the monsoon, the sand and silt that build in these canals of the "rarh" blocks of Murshidabad form a deltaic plain.

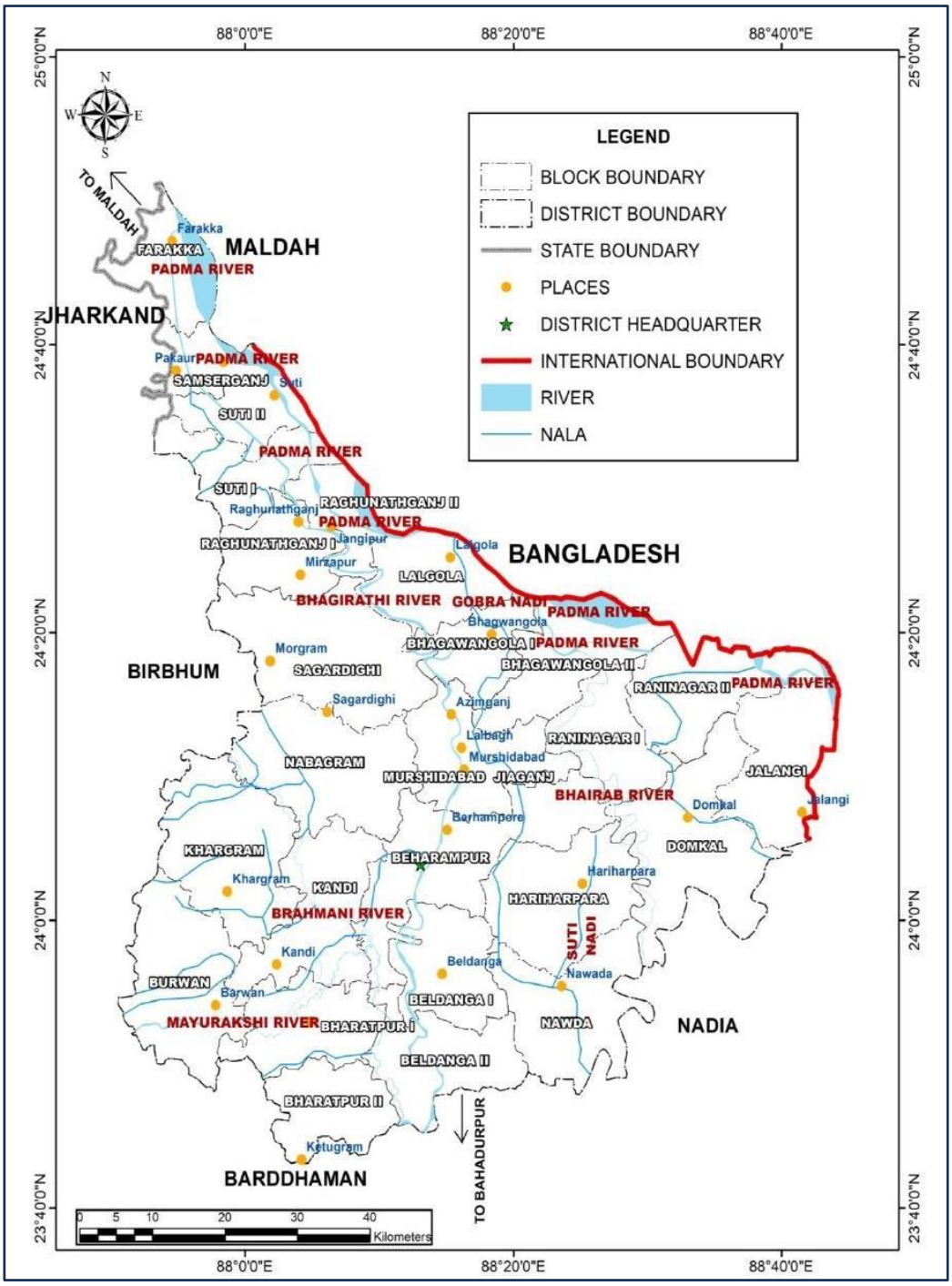

FIGURE. 2.3.

DRAINAGE MAP OF MURSHIDABAD DISTRICT

Source- District Survey Report of Murshidabad District, November 2021

2.6. CLIMATIC CONDITION

The climate of the Murshidabad district is humid tropical monsoon. The district's meteorological department reports that there are only very slight variations in temperature, precipitation, and relative humidity from west to east and from north to south. This district's climate is defined by a scorching summer, high humidity almost year-round, and evenly spaced rainfall during the southwest monsoon season. There are four distinct seasons in a year. The middle of November until the end of February is considered the cold season. The summer season lasts from March through May. The south west monsoon season lasts from the end of September until the beginning of June. The district receives 1179.64 mm of rain on average every year. There aren't many differences in the district's yearly rainfall from year to year. The monsoon season, which runs from June to September, produces 74% of the yearly precipitation; the wettest months are July and August. The district experiences 815.7 mm to 1673.5 mm of mean annual rainfall. Table presents the annual rainfall data for the district of Murshidabad for the five years spanning from 2014 to 2018. Figure provides a graphic explanation of the district's average rainfall.

TABLE- 2.1. ANNUAL RAINFALL RECORDED IN MURSHIDABAD DISTRICT

Month	2014	2015	2016	2017	2018	Average
Jan	0.3	7.1	41	2.7	0	10.22
Feb	30.7	7	7.5	0	16.1	12.26
Mar	4.4	12	7	16.7	2.9	8.6
Apr	0	50	24	53.6	54.3	36.38
May	138.9	88	89	130.3	94.9	108.22
June	183.6	341.5	141.7	134.4	140.9	188.42
July	280.1	640.4	304.5	336.7	185.5	349.4
Aug	239.7	274.6	171	224	120.4	205.94
September	282.3	193.2	203.4	163.1	99.6	188.32
October	15.6	49.9	57.3	108.7	72.8	60.86
November	0	7.8	0	0.9	2.9	2.32
December	0	2	0	16.1	25.4	8.7
Total	1175.6	1673.5	1046.2	1187.2	815.7	1179.64

Source- District Survey Report, Murshidabad District, November 2021

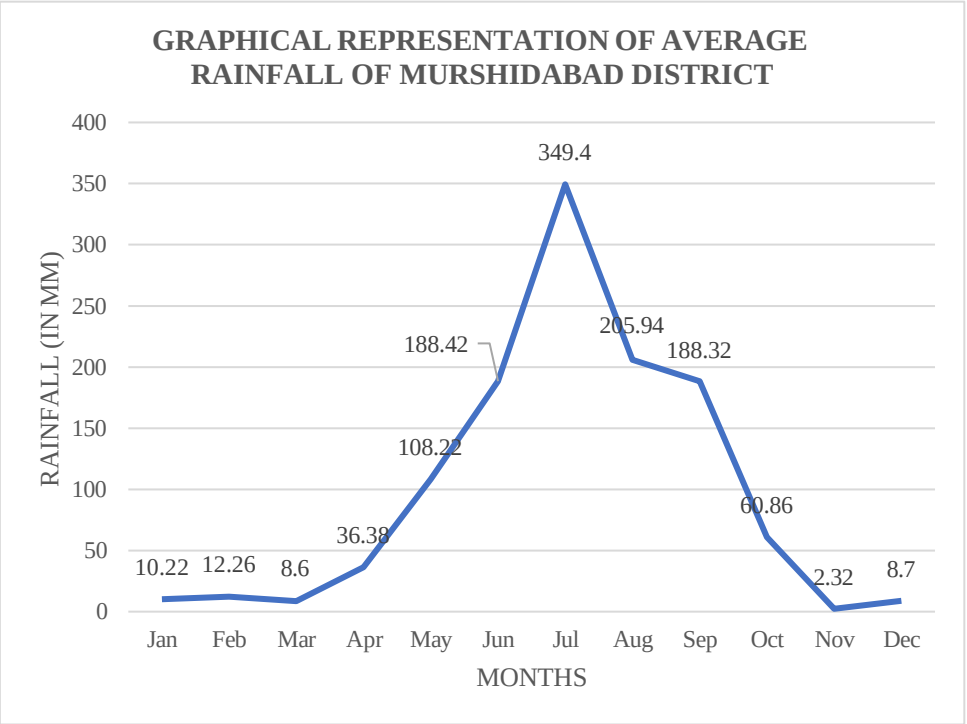

Fig. 2.4.

Source- District Survey Report of Murshidabad District, November 2021

- **TEMPERATURE**

The district's temperature is generally consistent with other weather factors. When the temperature starts to drop in the middle of November, the cold season officially begins. With a mean daily maximum temperature of 28 ºC and a minimum temperature of 10º C, January is the coldest month. The temperature starts to rise at the end of February, with April being the hottest month with an average daily maximum temperature of 38º C and an average daily minimum temperature of 25º C. At Berhampore, the highest temperature ever recorded was 46.1º C on May 25, 1961, and the lowest recorded temperature was 3.9 ºC on January 16, 1933. Table shows the average maximum and lowest temperatures that were noted in the Murshidabad area between 2010 and 2014.

TABLE- 2.2. DISTRIBUTION OF MONTHLY MEAN TEMPERATURE OF MURSHIDABAD DISTRICT

Months	2010	2011	2012	2013	2014
	Avg	Avg	Avg	Avg	Avg
January	16	19	18		18
February	22	21	22	23	20
March	29	29	27	26	
April	32	28	30	30	31
May	30	29	32	30	32
June	29	30	31	31	31
July	30		29		30
August	29		30		30
September	29			30	30
October	27		27	27	28
November	25	25			23
December	19				18

Source- District Survey Report of Murshidabad District, November 2021

RELATIVE HUMIDITY, WIND SPEED & WIND DIRECTION

All throughout the year, high levels of humidity are noted; however, during the summer months of March and April, relative humidity is relatively low, starting around 60 to 65 percent in the morning and 35 to 40 percent in the afternoon. The humidity rises in May. May has moderate to heavy cloud cover in the sky. During the south-west monsoon season, there is an increase in cloud cover and usually cloudy skies. October marks a decrease in cloud cover, with clear or partly cloudy skies dominating the sky over the next six months. Generally speaking, winds are mild to moderate, with a modest rise in strength throughout the summer.

2.7. SOIL

The district is split almost evenly in half by the Bhagirathi River; the eastern portion is called Bagri, and the western portion is called Radh. In terms of soil, these two divisions—aside from the Southeast section—are very different from one another. The alluvial tract on the right was created by flooding. The soil is ideal for cultivating crops such as rabi, jute, paddy, and aus. The Kalantartract is located in the district's southeast. The area is low lying. The predominant crop supported by the stiff, dark clay surface soil is aman paddy, which requires flooding to be successfully farmed.

The majority of the soil of Rarh, on Bhagirathi's left side, is lateritic clay, which is relatively heavy and has a gray or reddish color. The terrain is gently sloping from west to east, making it high and somewhat undulating. The region's soil is often poor in carbon and reacts acidically to neutrally. The primary crops are potatoes, sugarcane, and rice, but vegetables and oil seeds can also be effectively grown in all three seasons. Because mulberries grow well here, sericulture has flourished.

The area at the extreme western boundary slopes gradually upwards towards the Rajmahal hills and the Birbhum district, which are located a few kilometers beyond the district's north-western frontier. This area contains a few hillocks, the most well-known of which is called Dhuli Pahari. The district is roughly divided into two relatively equal halves by the river Bhagirathi, which flows through it from north to south. These sections differ greatly from one another in terms of its geology, physical traits, and agricultural practices. The western "rarh" region is elevated since this tract's Rajmahal hill range descends gradually downward.

FIGURE- 2.5.

SOIL MAP OF MURSHIDABAD DISTRICT

Source- District Survey Report of Murshidabad District, November 2021

TABLE-2.3. DESCRIPTION OF SOIL TYPE OF MURSHIDABAD DISTRICT

MAP SYMBOL	DESCRIPTION	TAXONOMIC NAME
ACTIVE ALLUVAIL PLAIN (Flood plain soil)		
W012	Very deep, fine loamy, poorly drained soils with a loamy top and significant floods that are found on an active alluvial plain that is level to almost level.	Fine Loamy,Typic Haplaquepts
W015	Very deep, coarse loamy soils that are reasonably well drained and found on a gently sloping active alluvial plain with a loamy surface are linked to very deep, fine loamy soils that are inadequately drained.	Coarse Loamy, Typic Ustifluvents; Fine Loamy, Fluventic ustochrepts
W016	Very deep, fine, poorly drained soils that are found on low-lying, level to almost level alluvial plains with a clayey surface come from these types of soils.	Fine Silty, Typic Ustifluvents; Fine Loamy, Fluventic ustochrepts
ALLUVAIL PLAIN (Sub Recent alluvial soil)		
W037	Loamy surfaces are linked to very deep, fine, cracking soils that are poorly drained and occur on low-lying, level to almost level alluvial plains. .	Fine, AericHaplaquepts; Fine, Typic ustochrepts
W040	Level to almost level, low-lying alluvial plains with clayey surfaces are home to very deep, fine, cracking soils that are poorly drained.	Fine, Vertic Ochraqualfs; Fine, AericHaplaquepts
W042	Level to almost level, low-lying alluvial plains with clayey surfaces are home to very deep, fine, cracking soils that are poorly drained.	Fine, AericHaplaquepts; Fine, Vertic Ochraqualfs
W044	Moderate flooding is linked to very deep, fine, cracking soils that are poorly drained and have a	Fine, VerticHaplaquepts; Fine AericHaplaquepts

	clayey surface. These soils are found on low-lying, level to almost level alluvial plains.	
W045	On low-lying, flat to almost level alluvial plains with a clayey surface and considerable floods, there are very deep, fine-cracking, poorly-drained soils that require cracking.	Fine, Vertic Haplaquepts; Fine AericOchraqualfs
W047	Extreme flooding is linked to very deep, somewhat well-drained, fine loamy soils that are found on low-lying, clayey, low-lying alluvial plains that are flat to nearly level.	Very Fine, Aeric Haplaquepts; Fine Loamy, Typic ustochrepts
W051	Very deep, fine loamy, poorly drained soils with a loamy top that exist on a meander plain that is level to almost level and mild floods are linked to these soils.	Fine Loamy, AericHaplaquepts; Fine Loamy, Fluventic ustochrepts
W053	occur on a meander plain that is flat to almost level and has a clayey surface.	Fine Loamy, Fluventic ustochrepts; Fine silty, Typic Ustifluvents
W055	On level to almost level meander plains, there are very deep, fine, poorly drained loamy soils with a clayey top and severe flooding linked to these soils.	Fine, AericHaplaquepts; Fine Loamy, Fluventic ustochrepts;
W058	On level to almost level meander plains, there are very deep, fine, poorly drained loamy soils with a clayey top and severe flooding linked to these soils.	Fine, AericHaplaquepts; Fine Loamy, Typic Ustifluvents
W059	Moderate flooding is linked to very deep, coarse loamy soils that are moderately well drained, and fine loamy soils that are poorly drained and found on a meander plain that is almost flat.	Fine Loamy, AericHaplaquepts; Coarse Loamy, Typic Ustifluvents

W060	Moderate flooding is linked to very deep, fine loamy soils that are inadequately drained and coarse loamy. These soils are found on level to nearly level meander plains with a loamy surface.	Coarse Loamy, Typic Fluvaquents; Fine Loamy, Typic Ustifluvents
W065	Located on a gently sloping flood plain, these fine loamy soils are very deep, somewhat well-drained, sandy soils with a loamy top and mild flooding.	Fine Loamy, Typic Ustifluvents Typic Ustipsamments

Source- District Survey Report of Murshidabad District, November 2021

The Ganges Padma system's vast alluvial plain includes the entire district. The rivers Bhagirathi, Dwaraka, and Mayurakshi have deposited the alluvial deposits in this district as flood-plain deposits. The sediments consist of coarse to medium sand intercalated with clay lenses, as well as boulders, pebbles, and gravels. The sands are micaceous (muscovite), subrounded, and range in texture from coarse to fine.

2.8. POPULATION AND LITERACY

As per the 2011 Census, the Murshidabad district spans a land area of 5324 square kilometers and is home to 71,03,807 individuals, comprising 36,27,564 men and 34,76,243 women. Among the C.D. Blocks, Samserganj C.D. Block has the highest sex ratio (female per thousand male) at 1000, while Murshidabad-Jiaganj C.D. Block has the lowest at 936. Table and Figure shows the population distribution for Murshidabad district, respectively, per block.

TABLE- 2.4. DEMOGRAPHIC DISTRIBUTION OF MURSHIDABAD DISTRICT (2011)

BLOCK NAME	TOTAL POPULATION	MALE	FEMALE	LITERAY RATE (IN %)
Farakka	324546	164816	159730	59.75
Samserganj	419437	210933	208504	54.98
Suti II	402586	201859	200727	55.23
Suti I	208728	106464	102264	58.06
Raghunathganj II	282489	144866	137623	61.17
Raghunathganj I	246761	126489	120272	64.49
Lalgola	469928	241049	228879	64.32
Sagardighi	331168	169200	161968	65.26
Bhagabangola I	330956	169912	161044	66.79
Bhagabangola II	187983	96210	91773	62.82
Murshidabad Jiaganj	244561	126232	118329	69.12
Raninagar I	206145	105599	100546	67.25
Raninagar II	298529	152516	146013	63.6
Jalangi	356317	184107	172210	67.35
Nabagram	235340	120411	114929	70.83
Khargram	277660	142537	135123	63.56
Burwan	262270	135260	127009	68.96
Kandi	222594	114373	108221	65.13
Berhampore	503424	258934	244490	73.51
Bharatpur I	180136	93787	86349	62.93
Beldanga II	264367	137060	127307	67.86
Bharatpur II	181399	93534	87865	66.07
Beldanga I	334419	172398	162021	70.06
Naoda	276969	142670	134299	66.09
Hariharpara	266646	136770	129876	69.2
Domkal	300731	155326	145405	63.9

Source- Socio Economic and Caste Census, 2011 and District Survey Report of Murshidabad District, November 2021

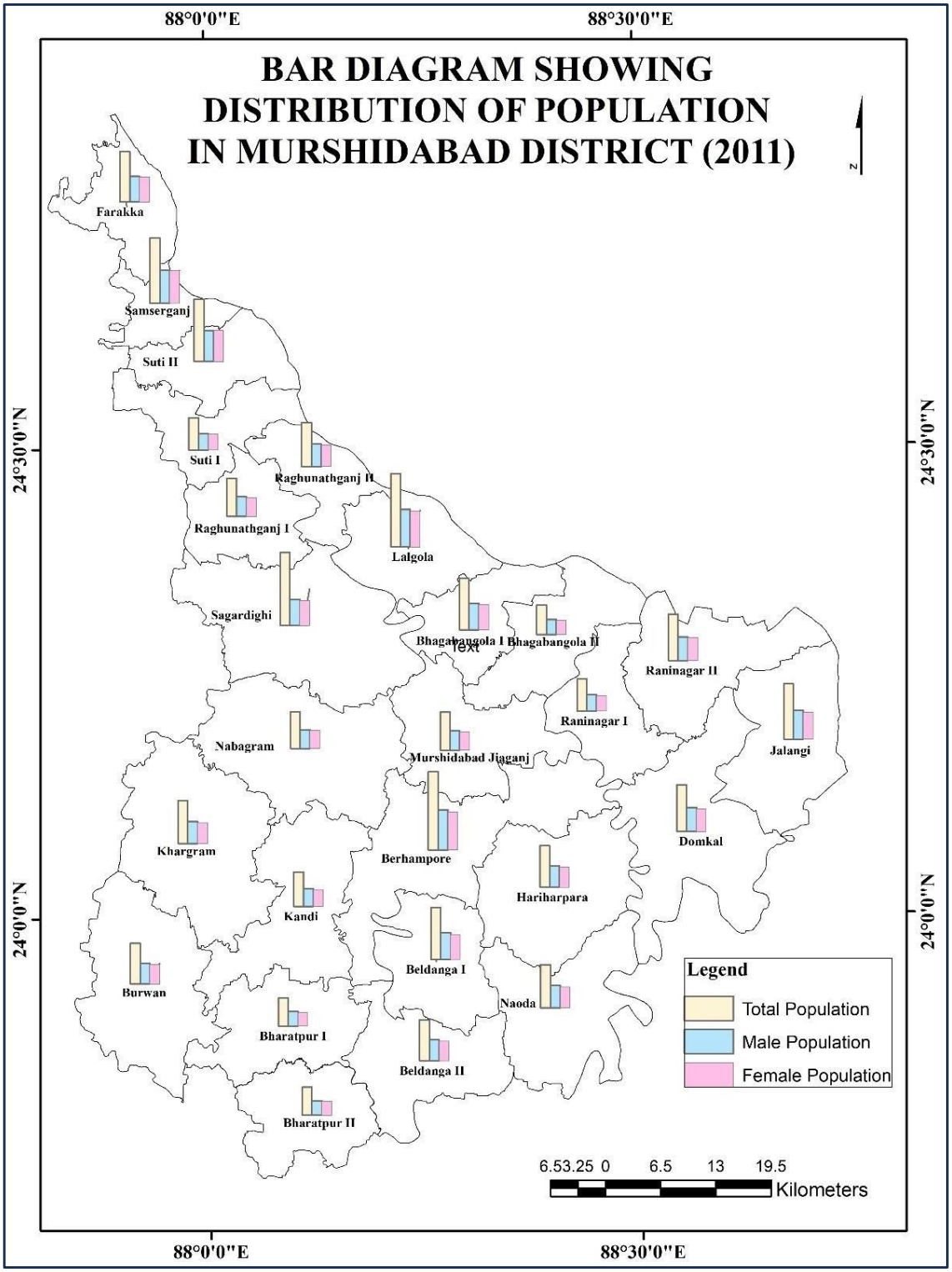

FIG. 2.6.

Source- Socio Economic and Caste Census, 2011

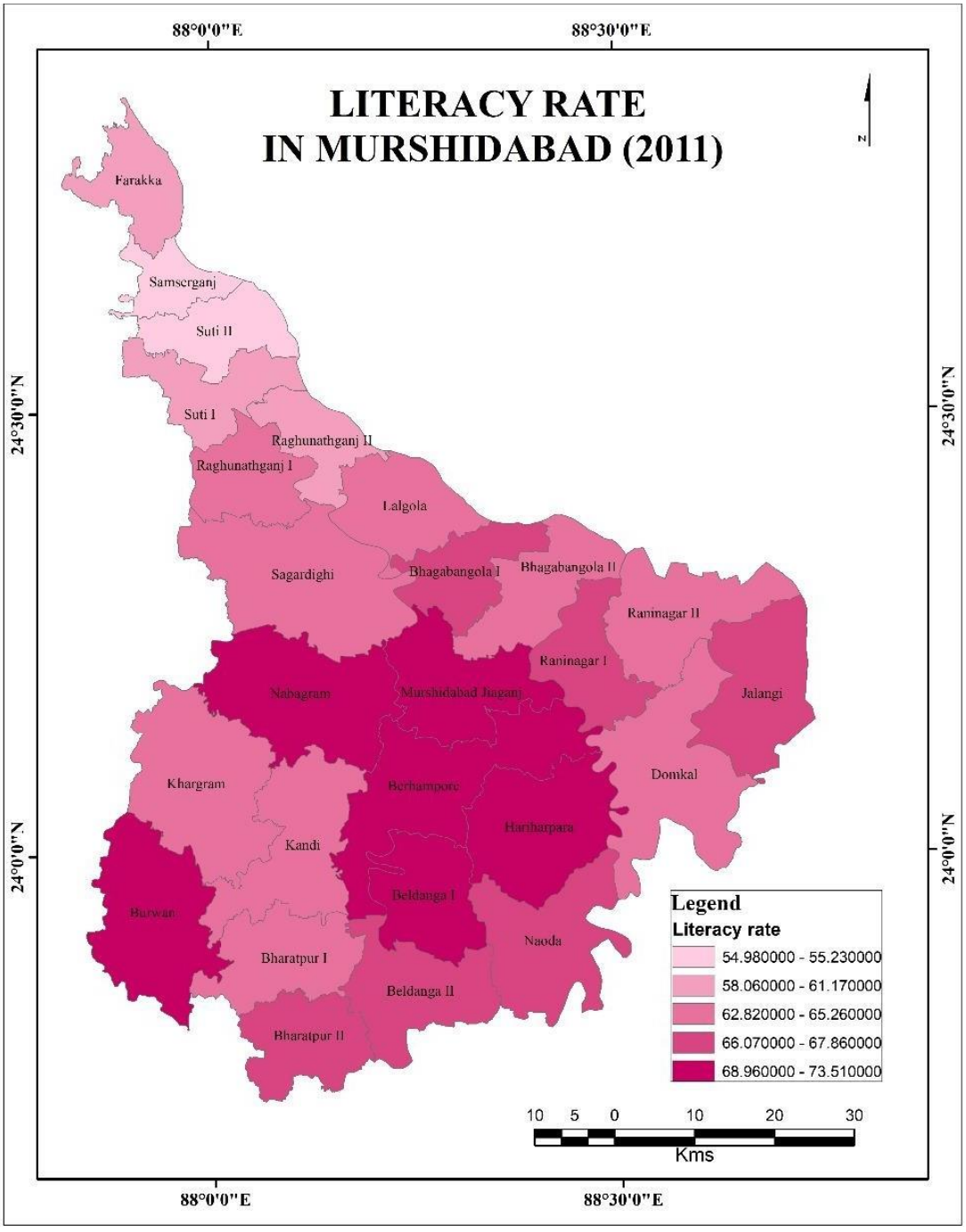

FIG.2.7.

Source- District Survey Report of Murshidabad District, November 2021

A population share of 66%, Muslims make up the bulk of the population, followed by Hindus (33.21%) in 2011 in Murshidabad (Table-2.5.).

TABLE-2.5. POPULATION BY MAJOR RELIGION IN MURSHIDABAD DISTRICT (1991-2011)

Year	Muslims	Percentage of Muslim Population to Total Population	Hindus	Percentage of Hindu Population to Total Population	Total Population
1991	2910220	61.4	1819588	38.39	4740149
2001	3735380	63.67	2107469	35.92	5866569
2011	4707573	66.27	2359061	33.21	7103807

Source- District Census Handbook, Census of India 2011

Based on the 2011 census, Table displays the demographic profile of the Murshidabad district. The district's overall literacy rate is 66.59, with a 6.85 male-to-female literacy rate differential between the male and female rates of 69.95 and 63.09, respectively. The percentage of literate people in the seven-year-old age group and above is known as the block-wise literacy rate of the population (Figure). Berhampore block has a highest level of literacy and Samserganj block has lowest level of literacy rate. Table, figure shows the block wise literacy rate of Murshidabad district (5351).

2.9. OCCUPATIONAL STRUCTURE

Block-wise occupational structure of Murshidabad district is given in the table and it is clearly seen that out of total workers maximum of the workers engaged in manual casual labour (1077159), followed by cultivation (255072), others (204922), followed by Non-agricultural Own Account Enterprise 46073. Begging/Charity/ Alms collection (45205), Part-time or Full- Time Domestic Service (35949) and foraging rag picking (Table-2.6).

TABLE- 2.6. OCCUPATIONAL STRUCTURE IN MURSHIDABAD (2011)

Block Name	Cultivation	Manual Casual Labour	Part-time or Full-Time Domestic Service	Foraging Rag Picking	Non-agricultural Own Account Enterprise	Begging/ Charity/ Alms collection	Others
Beldanga II	10036	34384	320	107	1949	1606	8914
MURSHIDABAD-JIAGUNJ	8835	39643	1002	143	968	1336	4516
RANINAGAR-I	9136	30759	788	141	2224	1950	3488
BELDANGA-I	12670	43394	261	153	2357	1993	9106
BURWAN	13516	36134	994	181	1452	2047	6221
DOMKAL	18048	46636	589	112	1664	1118	5812
FARAKKA	2632	40532	636	56	946	101	17577
KHARGRAM	18578	34787	1832	259	1426	2084	6676
LALGOLA	8990	64746	3183	391	2966	4078	12438
BERHAMPORE	17008	77453	1416	152	4726	2188	23431
NABAGRAM	15337	32025	1155	160	389	1828	3277
SAGARDIGHI	9569	50513	1639	430	482	2756	5393
BHAGAWANGOLA-I	6549	55572	778	179	1380	3058	6862
RAGHUNATHGANJ-I	5803	30287	803	118	1782	567	8910
SUTI-I	3883	30363	113	37	643	592	5289
SHAMSHERGANJ	2054	53289	4176	189	4226	760	10005
JALANGI	12769	63317	745	110	2461	2119	5529
BHARATPUR-II	5807	23454	1122	121	1955	1067	6997
RANINAGAR-II	11067	47648	472	352	2376	3156	5469
SUTI-II	3773	42121	9222	162	1043	936	18005
BHARATPUR-I	6472	25136	543	839	1514	1140	5107
NAWDA	13074	41593	1099	110	2293	1384	4986
RAGHUNATHGANJ-II	2434	37065	1393	365	1306	2540	8001

BHAGABANGOLA-II	7017	30267	303	232	1309	2395	2848
HARIHARPARA	17460	38948	744	177	1466	991	3581
KANDI	12555	27093	621	75	770	1415	6484
TOTAL	255072	1077159	35949	5351	46073	45205	204922

Source- District Survey Report of Murshidabad District, November 2021

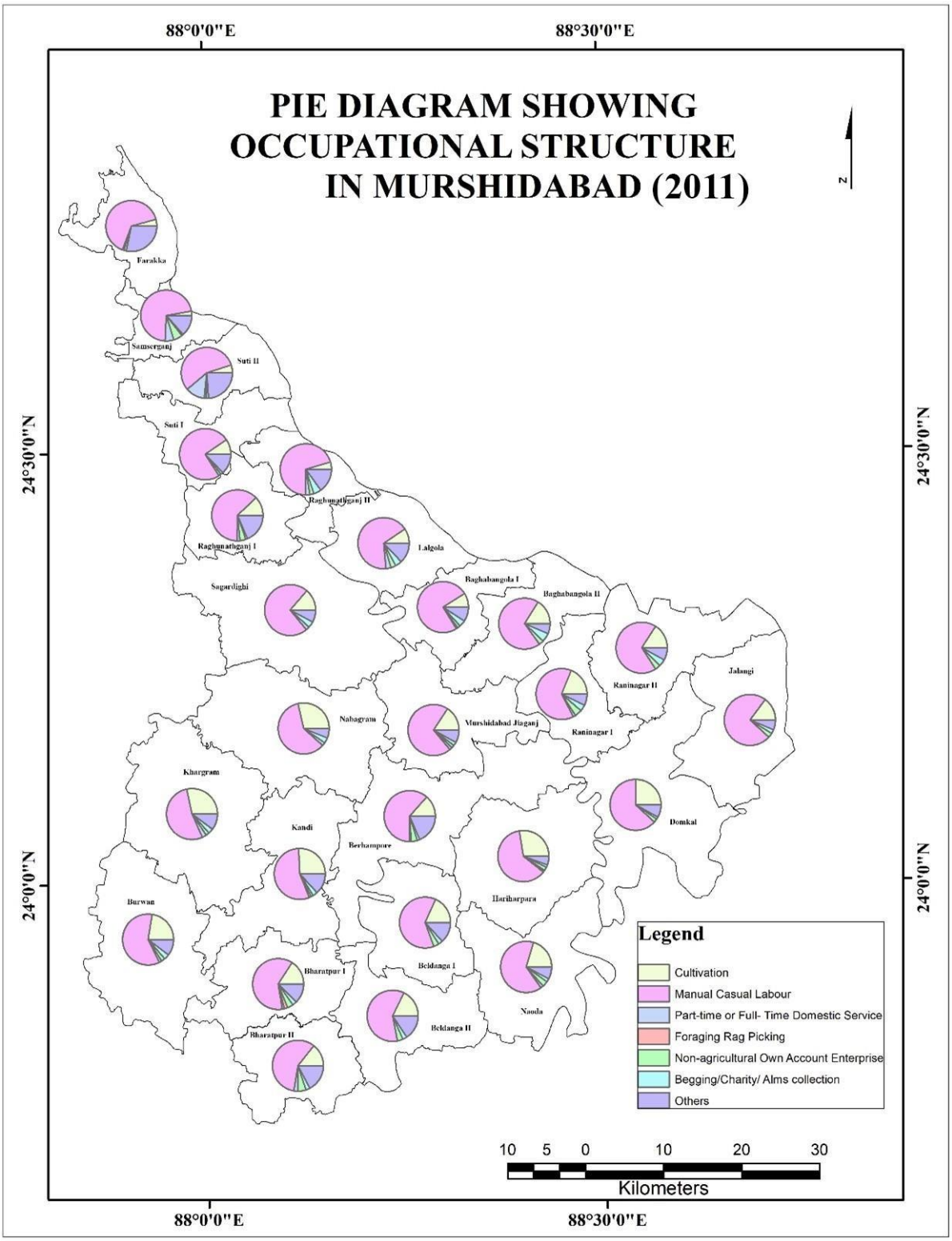

FIG.2.8.

SOURCE- District Survey Report, Murshidabad District, November 2021

2.10. LAND USE AND LAND COVER

The soil at the extreme western boundary rises gradually uphill toward the Rajmahal hills and the Birbhum district, which rise a few miles beyond the district's northwest boundary. There are several hillocks in this area, the most famous of which is Dhuli Pahari.

The river Bhagirathi flows across the district from north to south, dividing it roughly into two nearly equal halves. The geology, physical characteristics, and farming methods of these regions vary substantially. The western "rarh" area is higher because the Rajmahal hill range gently drops down in this tract. Approximately 390 square kilometers of low-lying ground to the district's north gets transformed into a massive lake during the monsoon season. To the south of this narrow strip of land is a plain that is largely devoid of trees at the "hijal," or meeting place, of the Mor and the Dwaraka. The eastern "bagri" is a low region with fertile soil that is subject to flooding during the monsoon season. This swampy area of dark clay, known as "Kalantar," is located in the southeast corner of the district and has an area of roughly 130 square kilometers. In certain areas of the district, it receives the drainage from the swampy rivers.

According to data from the district statistical handbook, there are 770 hectares of forest land overall. In 2013–14, there were 397 thousand hectares of land used for agriculture. The Murshidabad district's land use status is shown in the table.

The distribution of irrigated and unirrigated agricultural land among the villages in the Murshidabad district is displayed in the table. Of the district's total land area, around 76.17 percent is suitable for cultivation. One of the most crucial aspects of gardening is irrigation. 64.61 percent of the arable land is irrigated, according to the 2011 census data. The blocks of Farakka and Suti-I have the smallest percentages of cultivable land relative to their entire area. Samserganj and Farakka are noted to have a lower percentage of irrigated land.

The eastern portion of the district, primarily east of the Bhagirathi River, is dominated by agricultural land, shows in the district's land use land cover map. The district has extremely little vegetation cover. The district's elevated Rarh region is where most of the settlements are located.

TABLE- 2.7. CLASSIFICATION OF LAND UTILISATION STATISTICS IN THE DISTRICT

(In thousand hectares)

Year	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Reporting Area (In Thousand Hectares)	532.50	532.50	532.50	532.50	532.50
Forest Area	0.77	0.77	0.77	0.77	0.77
Area under Non-agricultural use	129.41	130.76	130.94	131.02	131.34
Barren & unculturable land	1.96	1.98	1.68	1.58	1.52
Permanent pastures & other grazing land	0.01	0.01	0.01	_	_
Land under Misc. tree groves not included in Net area sown	1.19	1.08	1.16	1.08	1.13
Culturable waste land	1.02	1.37	1.53	1.32	0.81
Fallow land other than Current fallow	0.16	0.24	0.20	0.11	0.11
Current fallow	0.51	0.33	0.94	0.50	0.84
Net area sown	397.47	395.96	395.27	396.12	395.98

Source- District Survey Report of Murshidabad District, November 2021

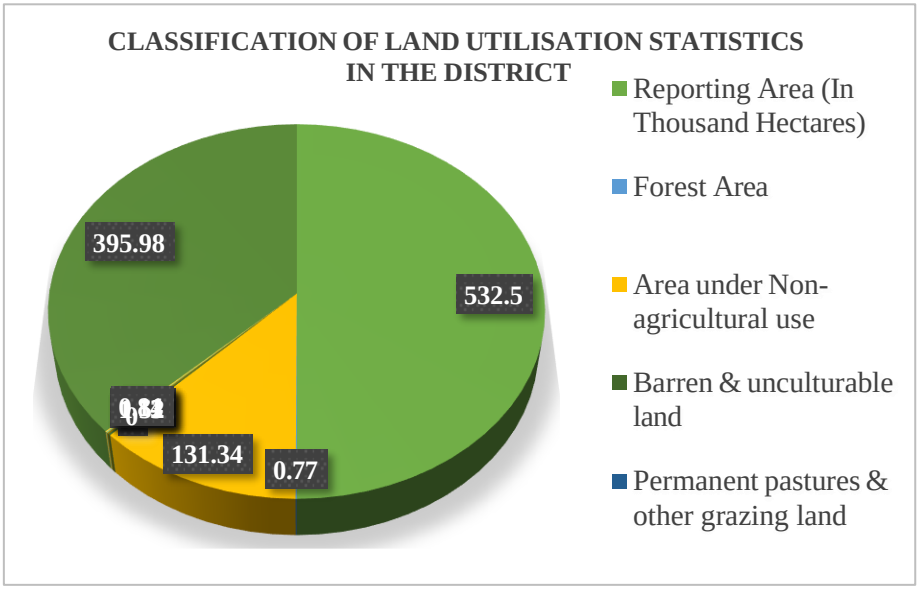

FIG.2.9.

Source- District Survey Report, Murshidabad District, November 2021

TABLE- 2.8. Distribution of Villages according to Agricultural Land Use, 2011

C.D. Block	Total area (in Hectares)	Cultivable area to total area (In %)	Irrigated area to cultivable area (In %)
Farakka	8819.61	48.23	25.55
Samserganj	4242.52	52.48	27.83
Suti-I	12645.64	50.98	67.13
Suti-II	6629.2	72.22	46.24
Raghunathganj-I	11931.11	76.38	73.58
Raghunathganj-II	6493.36	53.12	40.15
Lalgola	15686.25	67.03	52.49
Sagardighi	33240.93	85.97	65.45
Bhagawangola-I	13397.71	75.55	81.92
Bhagawangola-II	13839.97	61.21	69.15
Raninagar-II	16192.58	68.44	54.73
Jalangi	19698.38	84.57	57.67
Domkal	29999.67	77.35	69.48
Raninagar-I	13793.79	75.29	71.68
Murshidabad- Jiaganj	18843.1	81.31	89.5
Nabagram	29036.68	86.92	51.2
Khargram	29744.98	81.19	68.02
Kandi	21849.7	75.07	43.1
Berhampore	27200.85	82.11	58.81
Hariharpara	24526.11	79.53	68.76
Nawda	22348.76	66.12	33.94
Beldanga-I	15801.96	83.83	53.31
Beldanga-II	19385.87	72.3	89.43
Bharatpur-II	15135.53	83.81	92.36
Bharatpur-I	17661.65	80.86	72.02
Burwan	29418.71	76.55	78.91
Total	**477564.62**	**76.17**	**64.61**

Source- District Survey Report, Murshidabad District, November 2021

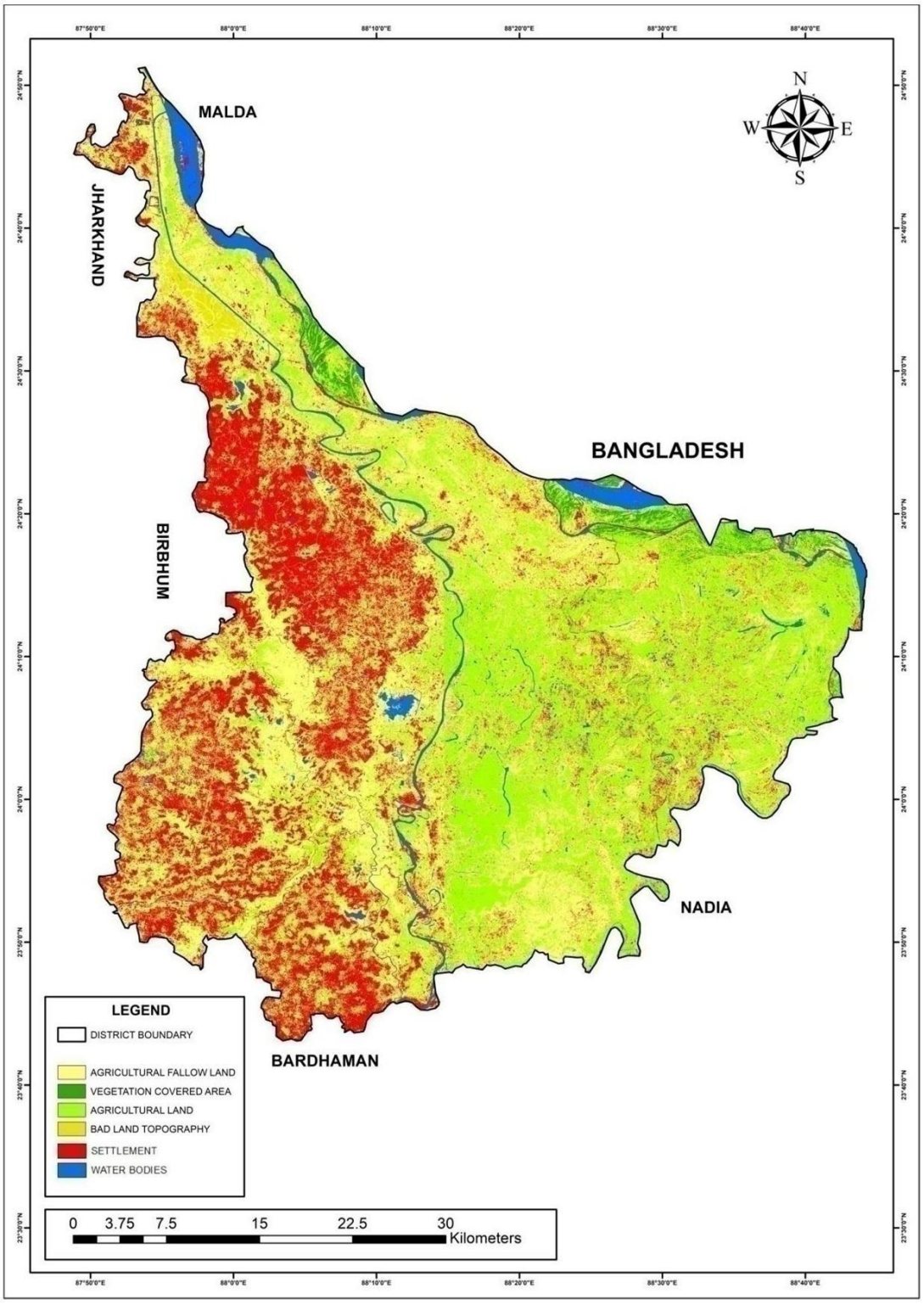

FIG. 2.10.

LAND USE LAND COVER MAP OF MURSHIDABAD DISTRICT

Source- District Survey Report, Murshidabad District, November 2021

2.11. AGRICULTURE

The district of Murshidabad relies heavily on agriculture as its main economic driver. For the residents of the district, cultivation is the primary source of income. Paddy, wheat, gram, and other crops can be grown along the low-lying northern boundary of the Nabagram Plain, which ends in the basin of the Bhagirathi River. Additionally, extremely fertile and better adapted for winter paddy crops is the Mayurakshi-Dwarka Plain. This climate is drier than that of the Eastern tract, and in addition to wheat and paddy, other crops grown here include gram, sugarcane, pulses, mustard, and pulses. The Ganga-Bhagirathi Basin is a long, narrow river-valley basin that is better suited for the production of rabi crops such as paddy and jute. The primary crop grown in this area is paddy.

The main crop in the Jalangi-Bhagirathi interfluves is likewise paddy. In addition, a lot of potatoes, legumes, and oilseeds are farmed. The fertile and alluvial soil of the Raninagar Plain is ideal for growing rabi crops such as paddy and jute.

Diversified from agriculture in terms of cultivation of crops, jute is the main feature of the district. Rice, wheat, mustard, grams, potato, sugarcane, mulberry cultivation, pulses, and oilseeds are important crops of the district. The district produces significant amounts of sugarcane, cabbage, cauliflower, and brinjal (District census handbook 2011).

The district has 3,95,980 hectares of total cultivable land. In some parts of the district, multiple crop production is now possible due to the availability of adequate irrigation facilities. In the district, there were 2,20,090 hectares of irrigated land overall in 2013–2014. The district's primary irrigation sources include river lift irrigation, deep and shallow tube wells, and government canals.

Agriculture is the dominant occupation in the district since it provides jobs, a means of subsistence, and raw materials for major businesses.

2.12. INDUSTRY

The district's key industries are the bell, brass, jute, and silk sectors. Since the Middle Ages, the district's silk business has been well-known, drawing the attention of the East India Company. At the state level, the district's silk production continues to play a significant role in the economy. This industry can be divided into two different

categories: (i) growing mulberries, raising silkworms and reeling raw silk; and (iii) weaving silk fabrics.

The district's other significant cash crop is jute. Due to the district's abundance of large jute sticks, there are also a few jutes stick companies.

The Jangipur Sub-division has seen a boom in the "Beedi" manufacturing sector, particularly in the Suti-I, Suti-II, and Samserganj C.D. Blocks. This industry is the primary source of income for many of people in these areas.

During the Nawab era, ivory desire was a significant cottage industry. Jiaganj and Khagra are the primary locations where this business has thrived.

Large amounts of bell metal and brass kitchenware are produced in Khagram, Berhampore, Kandi, and Jangipur (District Census Handbook, Murshidabad, 2011).

2.13. TRANSPORTATION

Nearly flat topography dominates the district physiography. The district's primary mode of transportation is surface transportation, which includes both train and road.

Along with other State Highways, the area is traversed by the National Highway No-34. The state highways SH-07, SH-11, and SH-11A link the district's various areas. A crucial link in the district's rail and traffic networks is the Farakka Bridge. The district is well managed because to its numerous rail and road links to all of the state's major locations. The district is connected to North Bengal and Kolkata by the main rail route, which stretches from north to south.

At Azimganj, a different line splits off from this one and joins the Sahebgunj loop at Nalhati (Birbhum). The district's oldest railway line is the one that runs from Ajimganj to Nalhati. The Ganga River is located with the Sealdah-Lalgola Section on its western bank and the Katwa-Ajimganj Section on its eastern bank.

There isn't an airport in the Murshidabad district. N.S.C. Bose International Airport in Dumdum is the closest airport. The district capital of Murshidabad is located 195 Kilometers from Kolkata Berhampore (Source: District census handbook 2011).

Blacktop or village/link roads connect the district's existing riverbeds, which are made of gravel and sand, to the state highways. On the other hand, there is scope for infrastructure development. The development of the sector's road network and infrastructure can be funded by the significant revenue that can be produced from the mining of riverbed sand in promising locations.

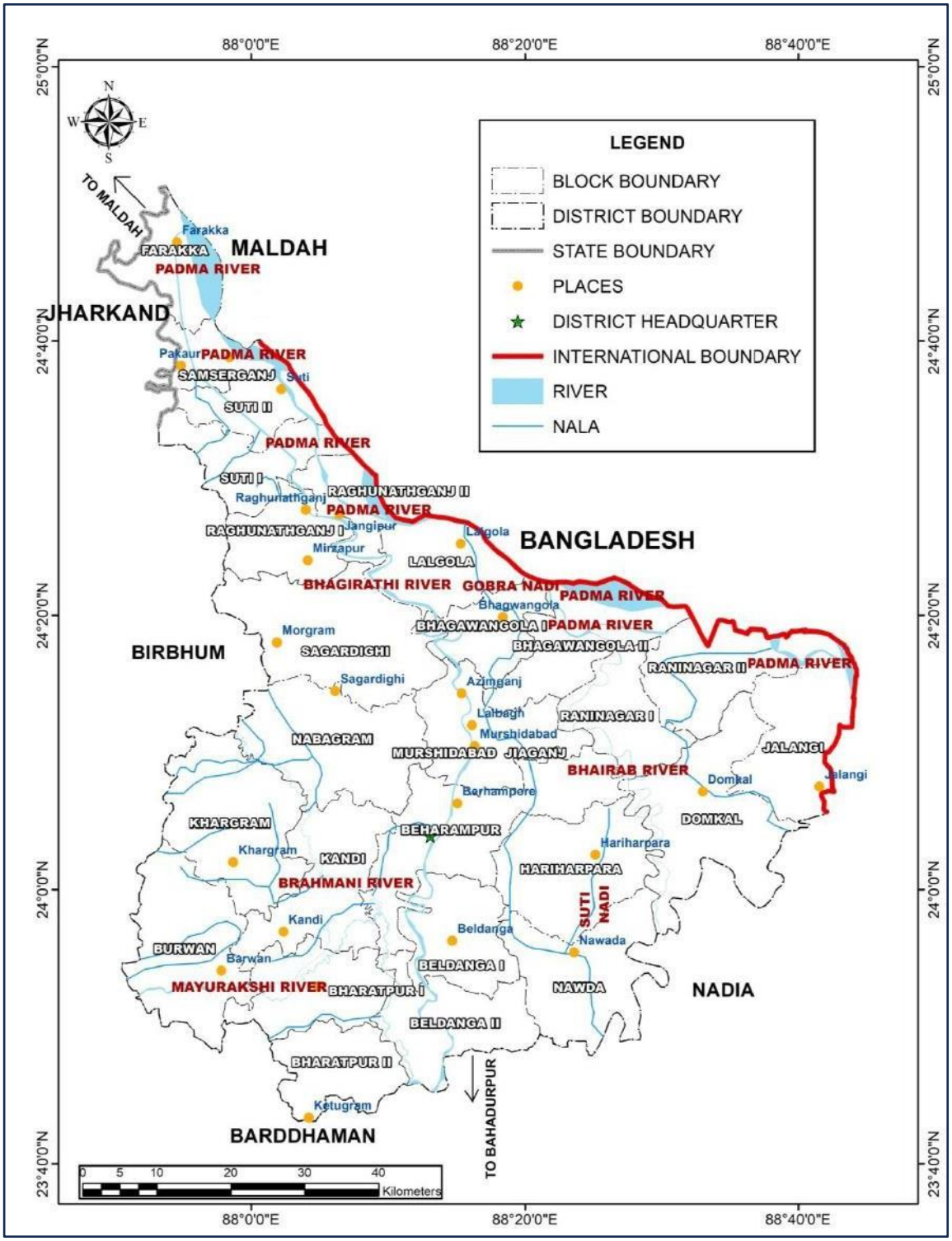

FIG.2.11.

TRANSPORTATION MAP OF MURSHIDABAD DISTRICT

Source- District Survey Report of Murshidabad District, November 2021

CHAPTER-3

A PROFILE OF SERICULTURE AND SILK WEAVING INDUSTRY

3.1. ORIGIN OF SILK INDUSTRY

When archaeologists investigated portions of the Indus River Valley, they found some of the earliest evidence of silk fiber crafts. That's silk from between 2450 and 2000 B.C. Silk artifacts from ancient China that have been carbon dated to 2570 B.C. and maybe earlier are just marginally older. The Sassanids exported the first silk prototypes from China to India and the Mediterranean. Silk arrived in European marketplaces from the Mediterranean region. In the second century A.D., silkworm husbandry, or sericulture, spread outside of China (Good et al., 2009). Confucius asserts that silk was discovered as early as 2640 B.C. According to legend, Xi Lin Shi, a Chinese princess, was sipping tea in a mulberry grove when a cocoon fell into her cup. The cocoon's rigid outer shell was destroyed by the hot tea. She found that there was a continuous filament inside the cocoon when she attempted to remove it with her long fingernail. The thread continued to unwind as she pulled on it (Frank et al., 2000). The first method of reeling silk had recently been created by the princess. To keep a monopoly on its manufacture, the Chinese fiercely protected the hidden art of sericulture from other countries for hundreds of years.

The secrets of sericulture were brought to Korea by Chinese immigrants about 200 B.C., and Korea started to establish its own silk industry. Sericulture was brought to Khotan (modern-day Hetian) near the Afghan border in the first half of the first century A.D. when a Khotan prince wed a Chinese princess who smuggled silkworm eggs by concealing them in her thick hairpiece. This made it possible for sericulture to spread to nations like India, Turkey, and Persia, where silkworm cultivation had been established by 300 A.D. Around 195 A.D., sericulture made its way from Korea to Japan, albeit in less ideal circumstances. A steady flow of trade was established throughout Asia starting in 206 B.C. via the Silk Road, which ran through North India.

The Roman Empire was heavily involved in the manufacturing and trading of silk, which they first acquired from Parthia, a trading partner of China. However, it wasn't until approximately 550 A.D. that the Byzantine Empire brought the secret of sericulture to Europe. According to Western tradition, two Persian monks were despatched as spies by the Roman Emperor Justinian to China in order to discover the secrets of silk manufacture. The monks returned to Constantinople two years later, one with a pouch of white mulberry seeds and the other with silkworm eggs concealed

within a bamboo walking stick. Although they were equally clandestine, the Byzantines swiftly built their own silk industry and ended China's monopoly. For many centuries, the weaving and trafficking of silk cloth was a rigid (and extremely expensive) imperial monopoly. But after Constantinople, sericulture expanded throughout Greece and Asia Minor, and the amount of silk imported from China decreased (Fritze, 1998). The rebel leader Biachu took control of Canfu, the hub of the international silk trade, in A.D. 877. He executed all of its residents, destroyed all of the area's mulberry plants and silkworms, and imposed harsh and onerous tariffs on all international trade. For over 60 years, these acts halted international trade in China. The price of silk in the rest of the world was barely impacted by the widespread destruction, despite the fact that silk production was so well established in eastern Europe and western Asia (Sadeesh Kumar, 2014).

3.2. GLOBAL SILK PRODUCTION

Asia is the largest silk producer (produces 90% of the world's mulberries and nearly all of its non-mulberry silk) in the world but bulk of it produces in India and China though its production base is dispersed among 60 countries worldwide. After being produced in so many countries still silk only accounts for less than 0.2% of the global textile market (it is hard to determine the exact global value because most importing nations lack accurate statistics on completed silk products). India and China together produce almost 95% of the total global silk production (Bukhari et al., 2019). The silk industry in China employs about a million people. Silk is mostly supplied to global markets by China, which is the world's largest manufacturer (International Sericultural Commission).

The world's top producers of silk include China, India, Uzbekistan, Brazil, Japan, the Republic of Korea, Thailand, Vietnam, Korea, Iran, and so forth. A small number of other nations, including Kenya, Botswana, Nigeria, Zambia, Zimbabwe, Bangladesh, Colombia, Egypt, Japan, Nepal, Bulgaria, Turkey, Uganda, Malaysia, Romania, Bolivia, and others, also produce cocoon and raw silk in negligible amounts (Kumara, 2016). Among these above countries sericulture companies have recently been founded in Brazil, Bulgaria, Egypt, and Madagascar. Labor is a major factor in sericulture. Table 3.1. shows the year wise trend of global silk production.

TABLE- 3.1. YEAR WISE GLOBAL SILK PRODUCTION

Countries	Year Wise Production (in MT)						
	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Bangladesh	44	41	41	41	41	41	41
Brazil	650	600	650	469	377	373	300
Bulgaria	9	10	10	10	10	9	7
China	158400	142000	120000	68600	53359	46700	50000
Colombia				1	1	1	1
Egypt	1	1	1	2	2	2	1
Ethiopia							
India	30348	31906	35468	35820	33770	34903	36582
Indonesia	4	3	3	3	3	3	3
Iran	125	120	110	227	270	272	275
Japan	32	20	20	16	16	10	10
Madagascar	6	7	7	8	8	8	8
North Korea	365	365	350	370	370	370	370
Philippines	2	2	2	2	2	2	1
Romania				1	1	1	1
South Korea	1	1	1	1	1	1	1
Syria	0	0	0	1	1	1	1
Tajikistan	-	-	-	-	-	-	-
Thailand	712	680	680	700	520	503	435
Tunisia	2	2	2	2	2	2	1
Turkey	32	30	30	5	5	5	5
Uganda				3	3	3	3
Uzbekistan	1256	1200	1800	2037	2037	2037	2037
Vietnam	523	520	680	795	969	1067	1236
Total	192512	177507	159855	109111	91765	86311	91319

Source- International Sericultural Commission’s Report

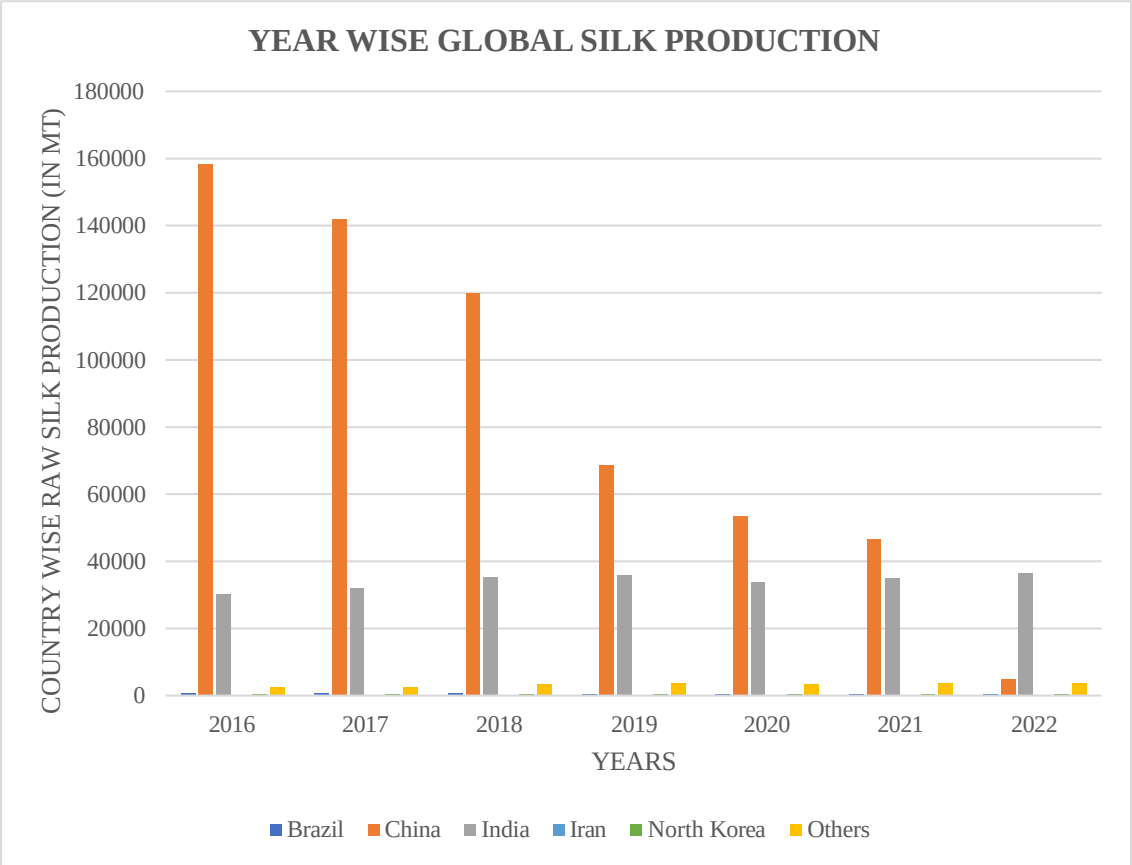

FIG. 3.1.

Source- International Sericultural Commission's Report

China is a leading country in the world raw silk production, by contributing more than 80 percent to the world production in the recent years. There is a variation in the production of raw silk in China is 158400 MT (71.21%) in 2016 and has decreased to 142000 MT (80.83%) in 2017, 120000 MT (81.76%) in 2018 and to 68600 MT in 2019, 53359 MT (81.89%) in 2020, 46700 MT in 2021 and again it increased to 50000 MT (81.55%) in 2022 and also remain same in 2023. India contributes more than 40 percent to the world production in last few years , that is 30348MT (15.76%) in 2016 which has increased to 31906 MT (17.97%) in 2017, then it increased to 35468 MT (22.19%) in 2018, has increased to 35820 MT (32.83%) in 2019, and it decreased to 33770 MT (36.8%) in 2020, 39403 MT (45.65%) in 2022, 36582 MT (40.06%) in 2022, 38913 MT (41.40%) in 2023, because India has favourable climatic conditions for the production of all types of silk next to China (Table-3.1). In the year 2022 China and India together produce 94.91% total silk production of the world (Table- 3.2).

TABLE- 3.2. PRODUCTION OF SILK IN TWO MAJOR SILK PRODUCING COUNTRIES IN THE WORLD (2022)

Countries	Production (in MT)	% of production to total production	Total % of Production
	2022		
India	36582	40.1	94.91
China	50000	54.81	
Total	91221		

Source-International Sericultural Commission's Report

3.3. A BRIEF HISTORY OF INDIAN SILK INDUSTRY

A silkworm's larvae generate a glossy, resilient, and elastic fibre known as silk; the phrase also refers to the thread or fabric made from this fibre. Conventional wisdom states that the silk business began in China as early as 2640 BC (Rama Lakshmi, 2018). The silkworm and its products were known to Japan by the third century AD, having presumably made its way to India a bit later through Korea. Western historians note that silk originated in China and was transported to India via the well-known Silk Road, which created a commercial channel connecting China and the Roman Empire. Later, in the foothills of the sub-Himalayas and the surrounding regions of the Brahmaputra and Ganges rivers, mulberry agriculture and silkworm breeding were started (Hoque, 2020). Even two millennia before Christianity, the ancient Indian epics Ramayana and Mahabharata have references to the practice of sericulture. The world's biggest silk user is India. A special kind of cloth, silk has slowly found its way into every household. Among the oldest sectors in India, the silk industry plays a crucial role in the country's textile sector (Rahaman, 2009).

3.4. SILK INDUSTRY IN INDIA

In a nation with a high population density like India, issues like unemployment are brought on by an expanding population growth curve. India takes great pride in its agriculture sector, but its structure is insufficient to create enough jobs. Because land is a fixed resource, it must be used as efficiently as possible by employing labor. Being an agro-based enterprise, the silk industry encompasses both the agricultural and industrial sectors. It is regarded as an ideal sector for rural economies, is crucial for creating the greatest number of jobs, second only to agriculture and worked as a tool of poverty alleviation for the populated countries like India.

The silk industry has a distinctive position in India duly because of its culture and no ritual is completed here without it and thus considered as the way of life for Indians. As a result of internal high market demand makes India, the largest silk consuming country and the second largest silk producing country of the world with more than 18% to the world's silk production (Sarkar et al., 2017). The Indian silk industry has crossed 30,000 MT mark with a production of 30,348 MT of total raw silk production in 2016-17 and 31,906 MT in the year 2017-18(Annual Report of Central Silk Board, 2017-18).

India is blessed as all the varieties of silk called Mulberry, Tasar, Muga and Eri produced here (Adapa, 2021). Commercially Mulberry silk is considered as true silk and the others are considered as wild or Vanya silk. Mulberry silk is the highest quality silk available for purchase (Kumaresan, & Devi, 2006). The bulk of commercial silk produced in the world comes from this variety and often silk generally refers to mulberry silk. Mulberry silk is produced mainly in the states of Karnataka, Andhra Pradesh, Tamil Nadu, Jammu Kashmir and West Bengal while the non-mulberry silks are produced in the Jharkhand, Orissa, Chhattisgarh and North Eastern states.

TABLE-3.3. STATE-WISE RAW SILK PRODUCTION DURING 2016-17 TO 2022-23 (till December, 2022)

STATE	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Karnataka	9571	9322	11592	11143	11292	11191	11823
Andhra Pradesh	5970	6778	7481	7962	8422	8834	9312
Telangana	119	163	224	297	309	404	462
Tamil Nadu	1914	1984	2072	2154	1834	2373	2589
Kerala	11	15	16	13	7	9	11
Maharashtra	259	373	519	428	428	523	620
Uttar Pradesh	269	292	289	309	316	355	373
Madhya Pradesh	111	103	100	61	47	33	22
Chhattisgarh	361	532	349	480	300	224	223
West Bengal	2565	2577	2394	2295	872	1632	1966
Bihar	77	63	55	56	64	56	48
Jharkhand	2631	2220	2375	2402	2185	1052	874
Odisha	125	116	131	137	102	108	130
Jammu & Kashmir	145	132	118	117	80	99	100
Himachal Pradesh	32	32	34	31	20	28	31
Uttarakhand	34	35	36	40	25	42	41
Haryana	1	0.7	0.7	1	1	0.75	0.3
Punjab	3	3	3	3	1	3.5	4
Assam	3811	4861	5026	5316	5462	5700	5721
Arunachal Pradesh	45	54	59	64	43	53	61
Manipur	529	388	464	504	327	462	454
Meghalaya	927	1076	1187	1192	1213	1234	1168
Mizoram	76	83.6	92	104	43	59	84
Nagaland	678	615	620	600	264	315	350
Sikkim	9	0.001	0.4	1	0.08	0.03	0.4
Tripura	75	87	230	111	112	113	115
Total	**30348**	**31905**	**35467**	**35821**	**33769**	**34903**	**36583**
AGR	0.000000	5.131478	11.163659	0.997826	-0.572826	3.358694	4.811639
CAGR	-6.7						

SOURCE-Note on Seri CSB, 2016 to 2022

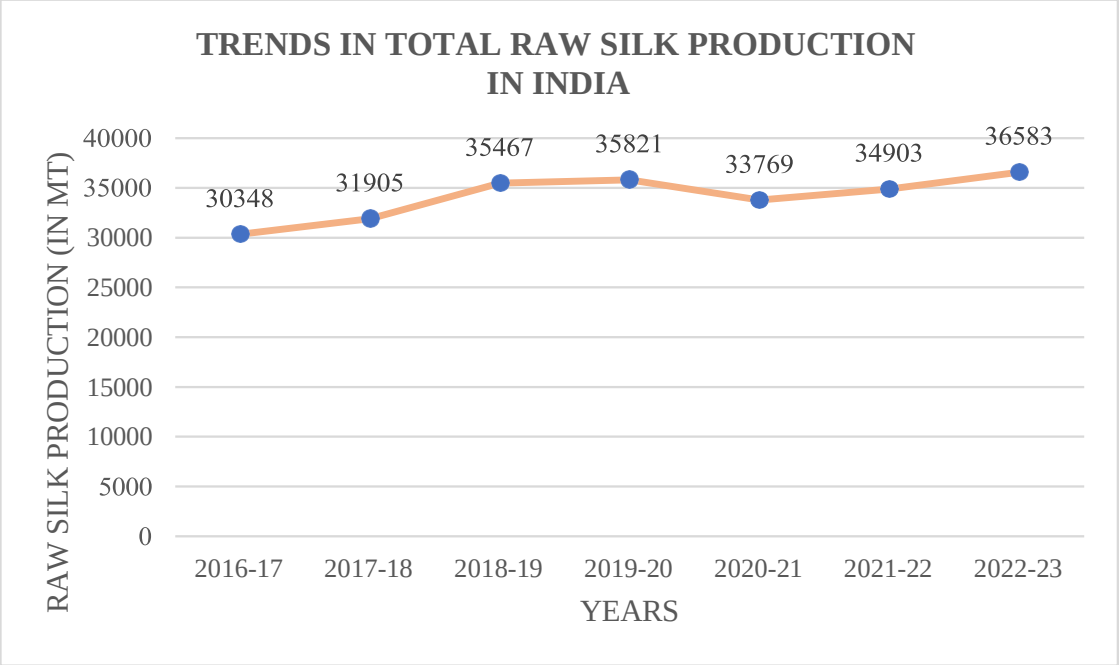

FIG. 3.2

SOURCE-Note on Seri CSB, 2016 to 2022

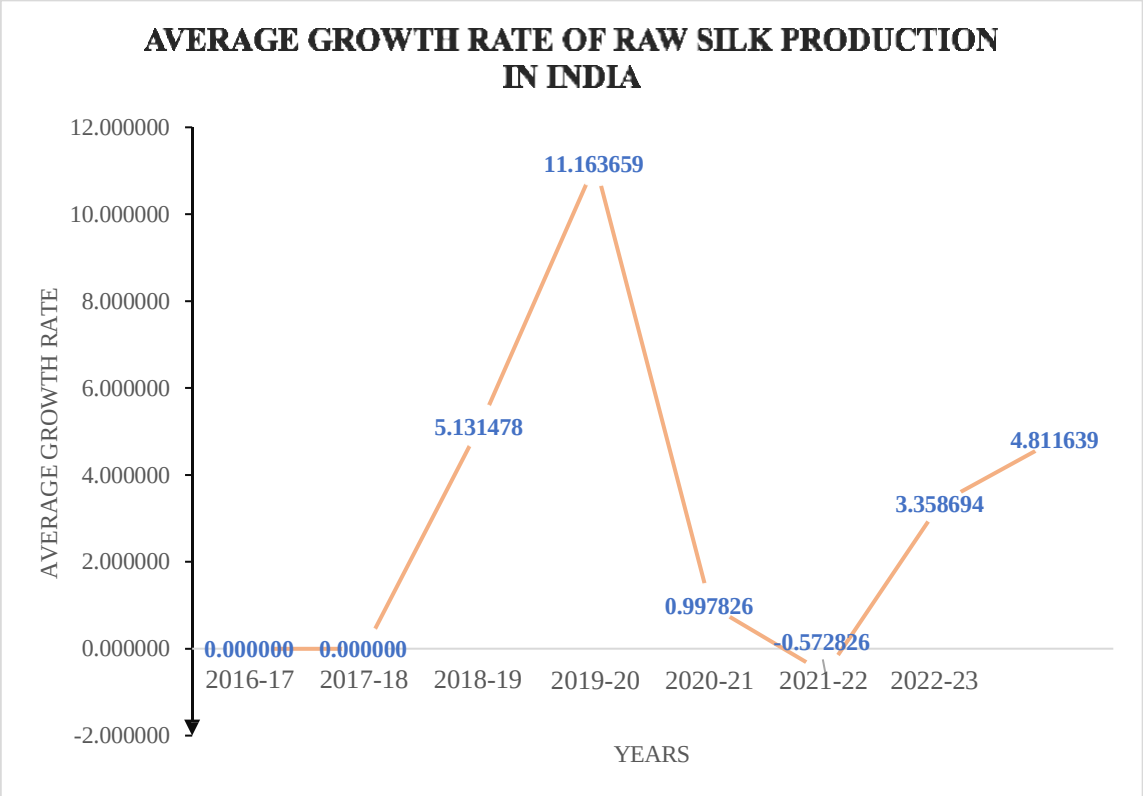

FIG. 3.3.

SOURCE-Note on Seri CSB, 2016 to 2022

The nation produced 30348 MT of raw silk in total during 2016-17, 31905 MT of raw silk in total during 2017–18, 35467 MT of raw silk in total during 2018–19, 35821 MT of raw silk in total during 2019-20, 33769 MT of raw silk in total during 2020-21, 34903 MT of raw silk in total during 2021-22 and 36583 MT of raw silk in total during 2022-23. The table shows the raw silk production by state from 2018–19 to 2022–23 (till December 2022). Karnataka, Andhra Pradesh, Assam, Tamil Nadu and West Bengal are the top five silk producing states in India.

The average annual growth rate of raw silk production in India explained in the Table 3.3. that was 5.13 percent in 2017-18 has increased to 11.16 percent in 2018-19, then it decreased to 1 percent in 2019-20, then it decreased to negative growth rate of 0.57 percent in 2020-21, then it increased to 3.36 percent in 2021-22, then it decreased to 4.81 percent in 2022-23. The compound average growth rate is found to be -6.7, implying a decline in the overall raw silk production of India through the period of 2017 to 2013.

3.5. HISTORY OF SILK INDUSTRY OF WEST BENGAL

Bengal started producing silk in the Middle Ages, and the area gained notoriety for its Bengal silk. Bengal started producing silk in the Middle Ages, and the area gained notoriety for its Bengal silk. European traders founded trading hubs in these areas in the 17th century in order to export silk and silk-related goods to Europe. To sell Murshidabad silk to Europe, the British East India Company founded a business hub in Kasimbazar in 1658. Additionally, traders from the Netherlands, Portugal, and France developed commercial hubs in Kasimbazar after developing an interest in Murshidabad silk (Goswami et al., 2019). In West Bengal, the silk industry suffered during the Industrial Revolution. In an effort to boost employment and income in rural regions, efforts were undertaken to resurrect the silk industry after independence.

3.6. SILK INDUSTRY IN WEST BENGAL

Sericulture plays an important role as a rural avocation in West Bengal, plays as an important tool for poverty alleviation and creates family employment round the year. It is appropriate for both marginal and small – scale land holders because of its low investment and high assured returns at regular interval. It provides livelihood and employment to more than 1.2lakh people of West Bengal (Seri States Profile, 2019) and considered as a remunerative cash crop. Figure shows the trend of total raw silk

production in west Bengal from 2016-17 to 2022-23. The total raw silk production of West Bengal was 1966 MT in 2022-23 (FIGURE- 3.4.).

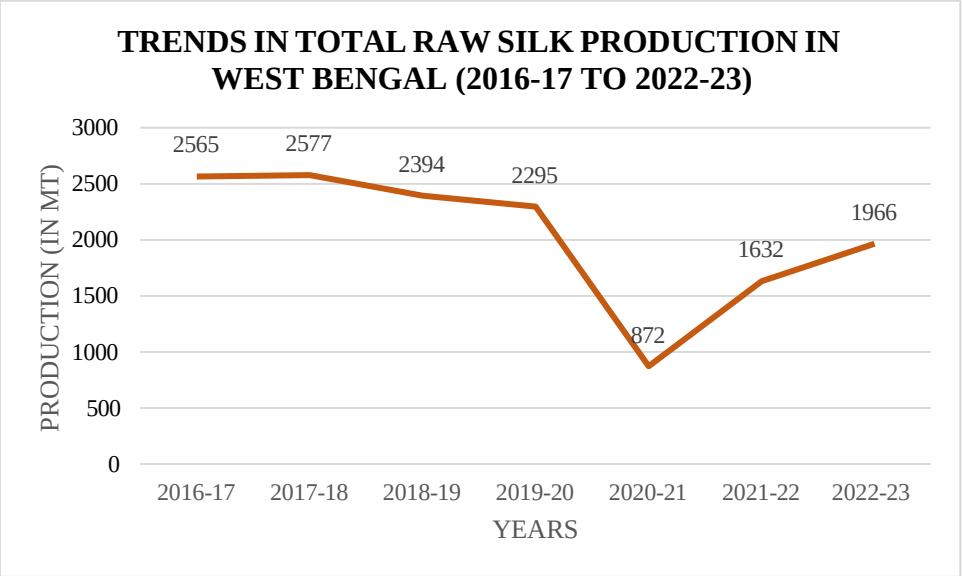

FIG. 3.4.

SOURCE- Note on Seri-CSB, 2023

TABLE- 3.4. YEAR-WISE TREND OF TYPES OF SILK PRODUCTION IN WEST BENGAL (2016-17 TO 2020-21)

Years	Mulberry	Vanya	Total
2016-17	2524	41	2565
2017-18	2540	37	2577
2018-19	2365.2	28.6	2393.8
2019-20	2262.1	32.6	2294.7
2020-21	850	21	872

Source- Central Silk Board, Ministry of Textiles- Govt of India, Annual Report, 2016-21

TABLE- 3.5. DISTRICT WISE MULBERRY SILK PRODUCTION IN WEST BENGAL (2016-17)

District	SILK PRODUCTION (IN MT)			
	Mulberry Silk	**Tasar Silk**	**Eri Silk**	**Muga Silk**
Maldah	1714.62	0	0	0
Murshidabad	546.96	0	0	0
Birbhum	262.46	10.65	0	0
Jalpaiguri	0	0	3.79	0
Coochbehar	0	0	0	0.2
Bankura	0	16.55	0	0
Purulia	0	9.92	0	0
Total	2524	37.12	4	0.2

Source- Sericulture Statistical Year book India, 2018

It is clearly noticed that the production of mulberry silk has dominated much of the district, West Bengal over any other type. Mulberry Silk is the most renowned and popular forms of silk. The Mulberry silk production of West Bengal was 2524 MT in 2016-17(Table-3.4.). Murshidabad district of West Bengal is well equipped in both the production and weaving of mulberry silk and has occupied second position in the production of mulberry silk, 546.96 MT in 2016-17; after Maldah (Table-3.5.).

Mulberries are regarded as a lucrative cash crop in West Bengal since their income range is significantly higher than that of the other crops, as can be shown in Table 3.6 below.

TABLE-3.6. COMPARISON OF MULBERRY CULTURE WITH OTHER CONVENTIONAL AGRICULTURAL CROP PER 1 ACRE OF LAND IN WEST BENGAL

(INCOME VS EXPENDITURE STATEMENT ON PREVALENT MARKET PRICE)

Crop	**Time Period [months]**	**Yield (in Mon)**	**Sale Price/Mon (Rs)**	**Total Sale Price (Rs)**	**Expenses (Rs)**	**Income (Rs)**
Aus Crop (Paddy)	4(four)	48	616	29,568	23,550	6,018
Amon Crop (Paddy)	5(five)	50	616	30,800	21,450	9,350
Jute	4(four)	28	1,500	42,000	21,150	20,850
Wheat	3(three)	30	640	19,200	17,500	1,650
Potato	3(three)	280	360	1,00,800	36,600	64,200
Mustard	3(three)	18	1,250	22,500	8,400	14,100
Mulberry	5 Crops/Year 400Dfls hybrid laying/crop	20	10,000	2,00,000	80,000	1,20,000

Source- Directorate of Agriculture/ Directorate of Sericulture

3.7. SERICULTURE PROFILE OF MURSHIDABAD

The silk producing districts of West Bengal are mainly confined around the district Murshidabad as this district is well equipped in both weaving and production of silk and so sometime the silk weaving industry of West Bengal goes by the name of 'Murshidabad Silk'. The first phase of this sub chapter is an attempt to discuss about the block wise profile of sericulture which includes block wise number of villages engaged with sericulture, distribution of area under sericulture (mulberry cultivation), cocoon production, silk production and the number of sericulturists in Murshidabad. The chapter also confines the socio-economic profile of the sericulturists and silk weavers.

Location Quotient has been used to indicate the relative concentration or dispersion of block wise sericulture adopted villages in Murshidabad district (Table-3.7.). Location

Quotient is a simple tool used to determine the spatial distribution (clustering/dispersal) of a phenomenon in an area compared to an entire region.

TABLE-3.7. LOCATION QUOTIENT SHOWING CONCENTRATION OF SERICULTURE ADOPTED VILLAGES (2018-19)

Name of the Block	Total Number of Villages	Block wise Sericulture adopted villages	Percentage of sericulture adopted villages to total villages	L. Q. Values
Khargram	155	60	38.71	6.47
Nabagram	118	63	53.39	8.93
Murshidabad Jiaganj	132	12	9.09	1.52
Hariharpara	63	06	9.52	1.59
Jalangi	53	05	9.43	1.58
Raninagar I	63	05	7.94	1.33
Raninagar II	36	05	13.89	2.32
Berhampore	138	05	3.62	0.61
Domkal	87	09	10.34	1.73
Bharatpur I	92	0	0	0
Bharatpur II	52	0	0	0
Naoda	39	01	2.56	0.43
Beldanga I	65	15	23.08	3.86
Beldanga II	71	02	2.82	0.47
Samserganj	44	0	0	0
Raghunathganj I	56	05	8.93	1.49
Raghunathganj II	77	08	10.39	1.74
Lalgola	94	08	8.51	1.42
Bhagabangola I	65	05	7.69	1.29
Bhagabangola II	70	05	7.14	1.19
Farakka	74	0	0	0
Sagardighi	197	09	4.57	0.76
Kandi	93	01	1.08	0.18
Burwan	160	02	1.25	0.21
Suti I	62	0	0	0
Suti II	48	0	0	0
TOTAL	2204	231	5.98	

Source- District office under Directorate of Sericulture and India Village Directory

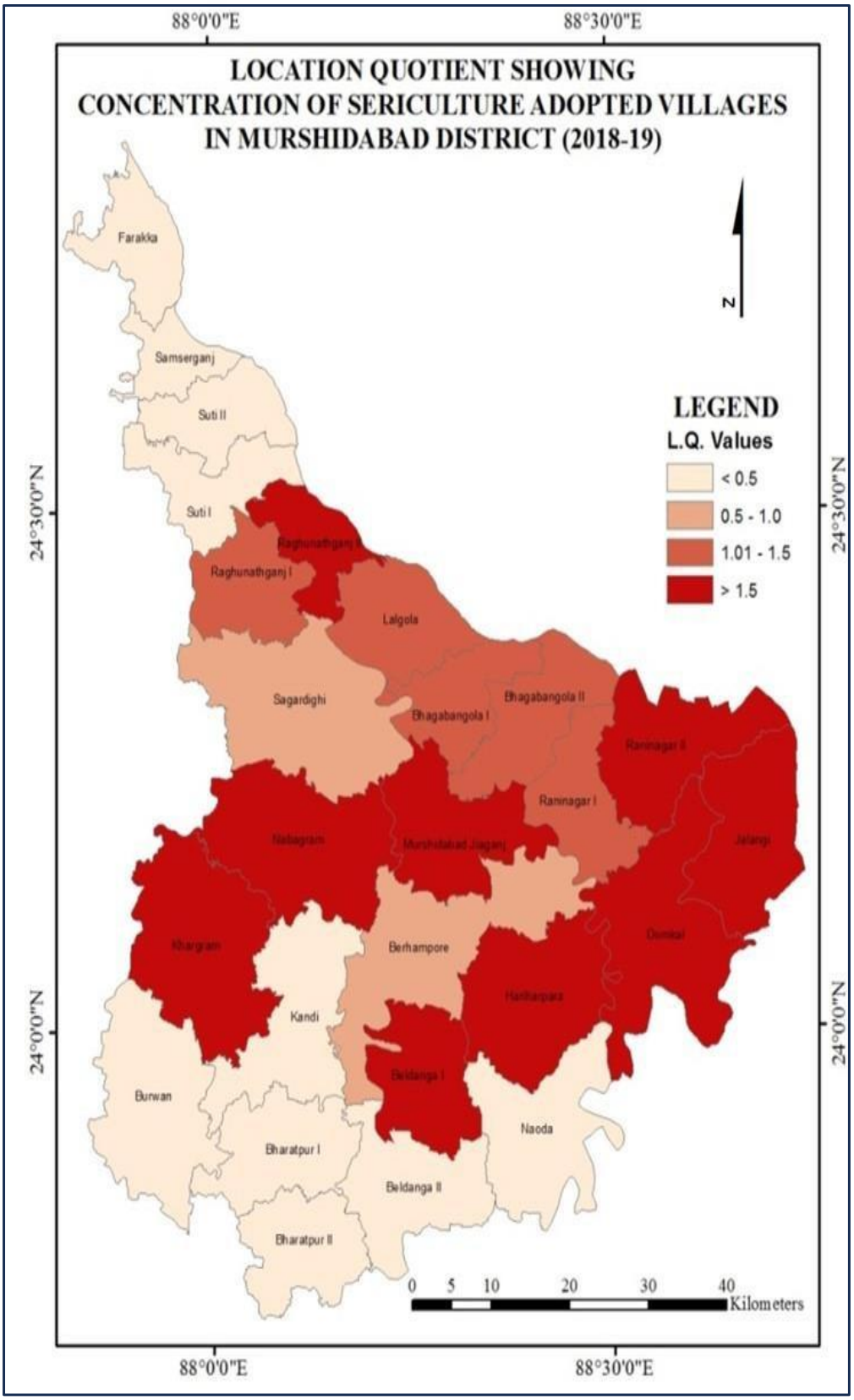

FIG. 3.5

Source- District office under Directorate of Sericulture and India Village Directory

The values of Location Quotient (Table-3.7.) show a higher concentration of sericulture adopted villages (>1.5) in Khargram (6.47), Nabagram (8.93), Murshidabad Jiaganj (1.52), Hariharpara (1.59), Raninagar II (2.32), Domkal (1.73), Beldanga I (3.86) and Raghunathganj II (1.74) whereas, moderate concentration (1.01-1.5) in Raninagar I (1.33), Bhagabangola I (1.29), Bhagabangola II (1.19). The relative concentration of sericulture adopted villages is low (0.5-1) in Berhampore (0.61) and Sagardighi (0.76) and in the other blocks the concentration is very low (<0.5).

The area of mulberry plantation or sericulture in Murshidabad (acre) (Table-3.8.) (Figure-3.6.) is very high (340.01- 3495.09) in Khargram (3495.09) and Nabagram (2297.22); high (180.01-340) in Jalangi (339.88) block and moderately high (55.01-180) in Raninagar I (94.75), Domkal (55.08), Beldanga I (178.10). Whereas low (22.01-55) in Bhagabangola I (25.97), Murshidabad Jiaganj (33.12), Raninagar II (37), Raghunathganj I (30), Berhampore (49.50) and very low (0-22) in rest of the blocks.

There are some blocks in Murshidabad with zero sericulture activity. The names of such blocks are Bharatpur I, Bharatpur II, Samserganj, Farakka, Suti I and Suti II (Table-3.8.).

Calculation of cocoon production and silk production in the blocks of Murshidabad has been calculated on the basis of following formula described by the Directorate of Textiles, Sericulture and the following table has been prepared (Table3.8.) based on the calculation below -

1acre land is appropriate for rearing of 1800DFLs/year

100 DFLs produce 40 KGs of cocoon

Therefore, from 1800 DFLs $\frac{40\times1800}{100}$ KGs of cocoon produce

So, 720 KG of cocoon can be reared from 1acre land.

3495.09 acres (Khargram) of land produces 2516464.8 KGs of cocoon i.e. 2516.46 MTs of cocoon (Table- 3.8.).

Renditta is the number of kilograms of fresh cocoons required to produce one kg silk.

9.5 KGs cocoon are required to produce 1 kg of silk

Therefore, 2516464.8 KGs of cocoon produce 264891.031 KGs of silk i.e. 264.89 MTs of silk (Khargram) (Table-3.8.).

On the basis of the above calculation, the cocoon production in Murshidabad (2018-19) found very high in Khargram (2516.46 MT) and Nabagaram (1653.0 MT) block, high in Jalangi (244.71 MT), moderately high in Beldanaga I (128.23 MT), Hariharpara (72.23 MT) and Raninagar I (68.22 MT), whereas low in Domkal (39.66 MT), Beldanga II (37.08 MT), Berhampore (35.64 MT), Lalgola (35.14 MT), Raninagar II (26.64 MT), Msd- Jiaganj (23.85 MT), Raghunathganj I (21.6 MT) and Bhagabangola I (18.69 MT) and very low (0.00 -15.84 MT) in rest of the blocks (Table-3.8.).

On the basis of the above calculation, very high concentration of silk production in Murshidabad found in Khargram (264.89 MT) and Nabagaram (174.11 MT) block, high in Jalangi (25.76 MT), moderately high in Beldanaga I (13.5 MT) and Hariharpara (7.6 MT) and Raninagar I (7.18 MT), whereas low in Domkal (4.17 MT), Beldanga II (3.9 MT), Berhampore (3.75 MT), Lalgola (3.7 MT), Raninagar II (2.80 MT), Msd-Jiaganj (2.51 MT), Raghunathganj I (2.27 MT) and Bhagabangola I (1.97 MT) and very low (0-1.67 MT) in rest of the blocks (Table-3.8.).

TABLE-3.8. BLOCK WISE VARIATION OF AREA UNDER SERICULTURE, PRODUCTION OF COCOON, RAW SILK AND NUMBER OF SERICULTURISTS (2018-19)

Name of the Block	Block wise Area under Sericulture (acre)	Block wise Cocoon production (in MT)	Block wise silk production (in MT)	Block wise Number of Sericulturists
Khargram	3495.09	2516.46	264.89	11617
Nabgram	2297.22	1653.0	174.11	7491
Msd-Jiajang	33.12	23.85	2.51	214
Hariharpara	100.32	72.23	7.6	362
Jalangi	339.88	244.71	25.76	1006
Raninagar-I	94.75	68.22	7.18	272
Raninagar-II	37.00	26.64	2.80	105
Berhampore	49.50	35.64	3.75	153
Domkol	55.08	39.66	4.17	156
Bharatpur I	0	0	0	0
Bharatpur II	0	0	0	0
Nawda	2.50	1.8	0.19	06
Beldanga I	178.10	128.23	13.5	305
Beldanga II	51.50	37.08	3.9	121
Samserganj				
Raghunathgang I	30.00	21.6	2.27	68
Raghunathgang II	19.50	14.04	1.48	20
Lalgola	48.81	35.14	3.7	74
Bhagabangola-I	25.97	18.69	1.97	45
Bhagabangola –II	15.25	10.98	1.16	25
Sagardighi	22.00	15.84	1.67	41
Kandi	4.66	3.36	0.35	10
Burwan	16.75	12.06	1.27	25
Suti I	0	0	0	0
Suti II	0	0	0	0

Source- District office under Directorate of Sericulture and data compilation done by the researcher

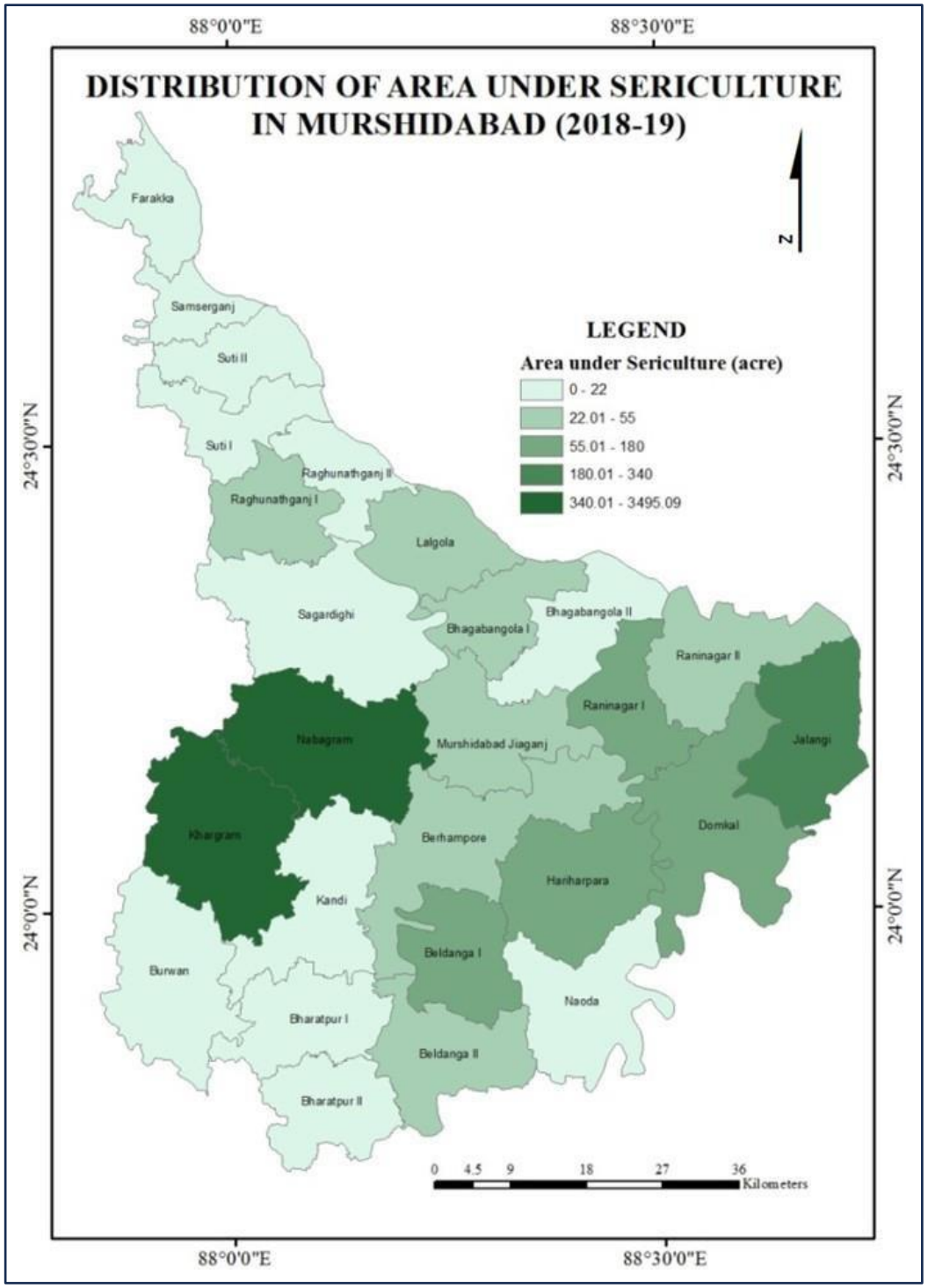

FIG. 3.6.

Source- District office under Directorate of Sericulture

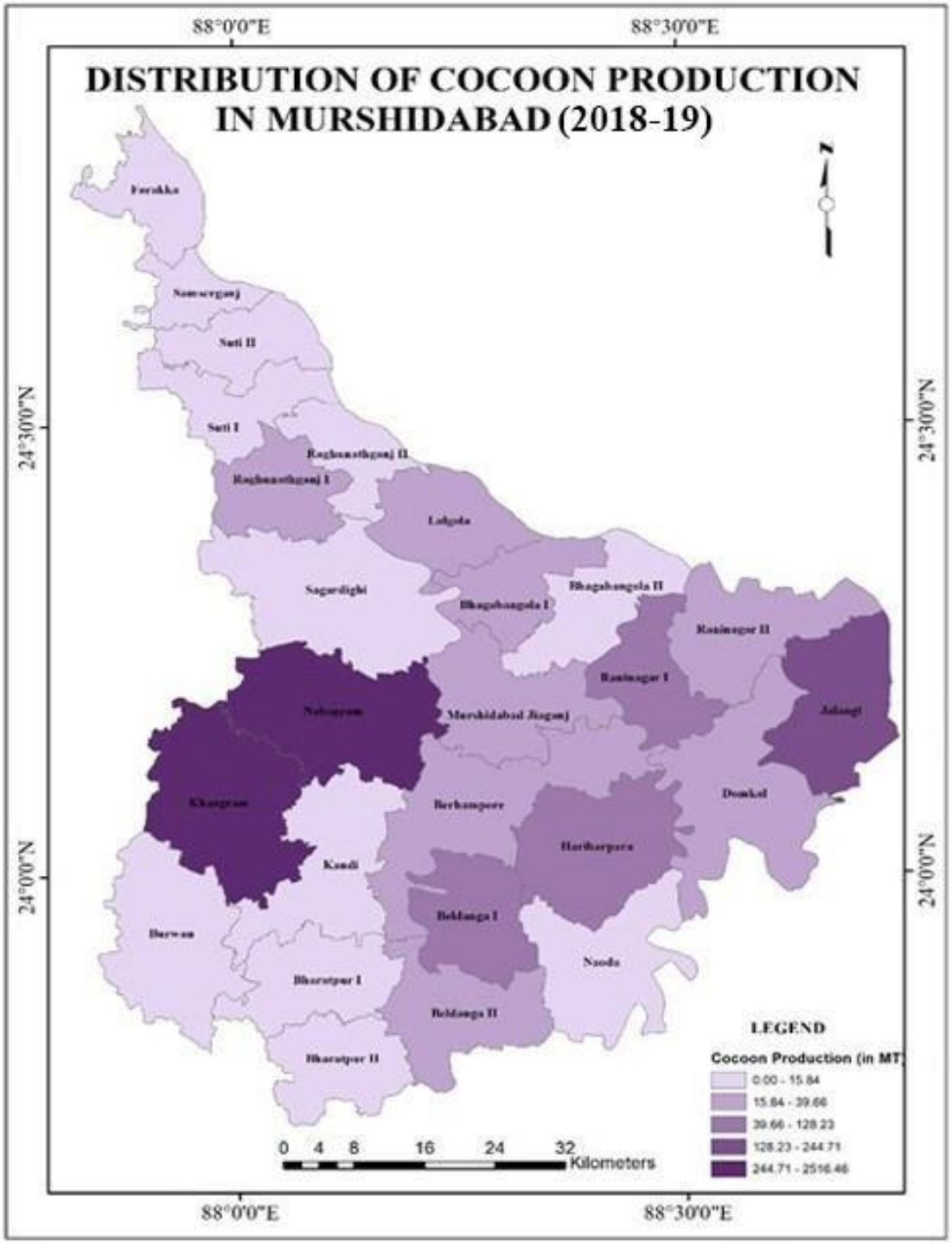

FIG.3.7.

Source-District office under Directorate of Sericulture and data compilation done by the researcher

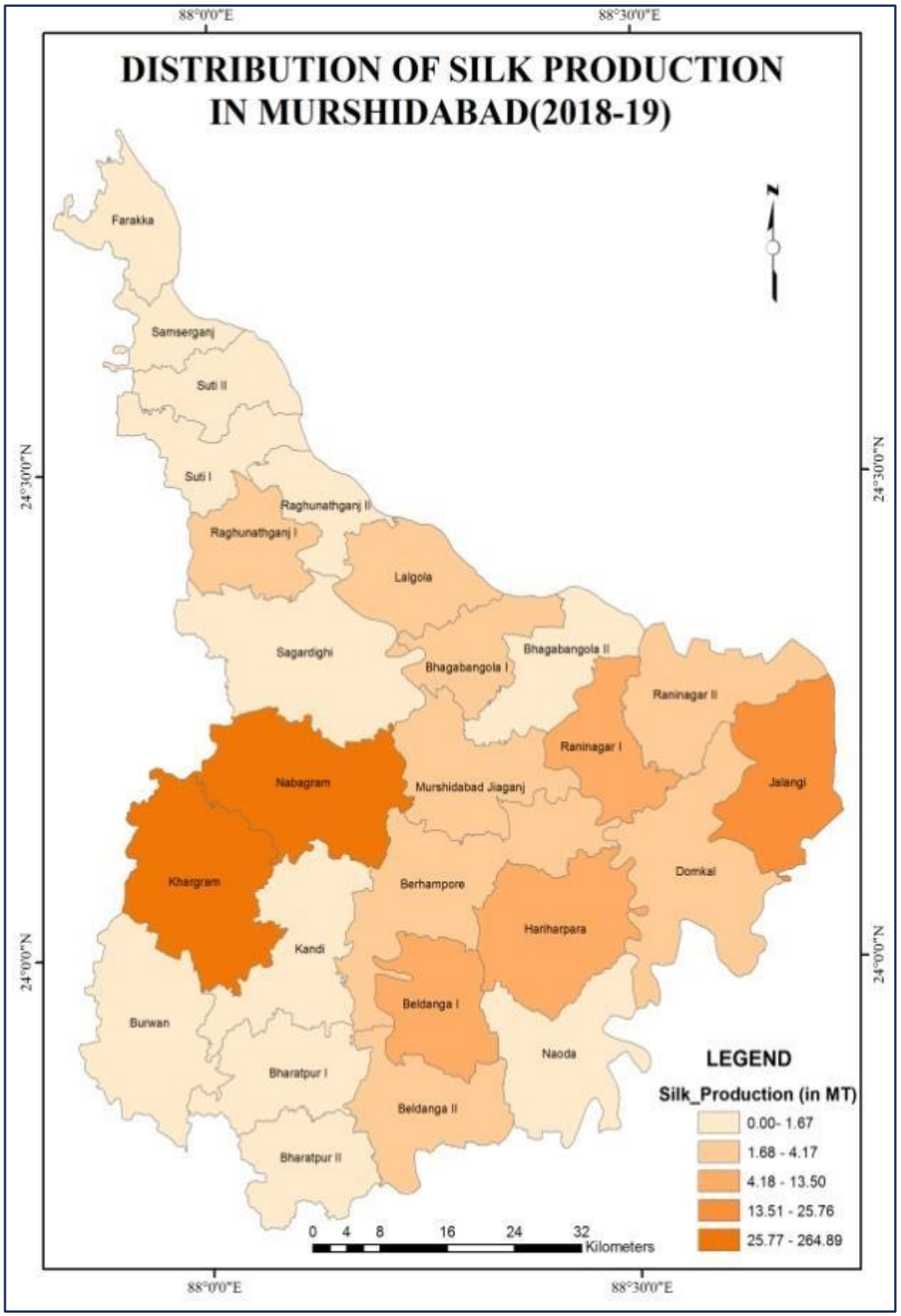

FIG. 3.8.

Source-District office under Directorate of Sericulture and data compilation done by the researcher

The number of sericulturists (Table-3.8.) are very high (1007 - 11617) in Khargram (11617) and Nabagram (7491) block whereas it is moderately high (363-1006) in Jalangi (1106) and low (122-362) in Beldanga I (305), Raninagar I (272), Hariharpara (362), Domkal (156) and Murshidabad Jiaganj (214). In the other blocks number of sericulturists are found to be very low (0 - 121).

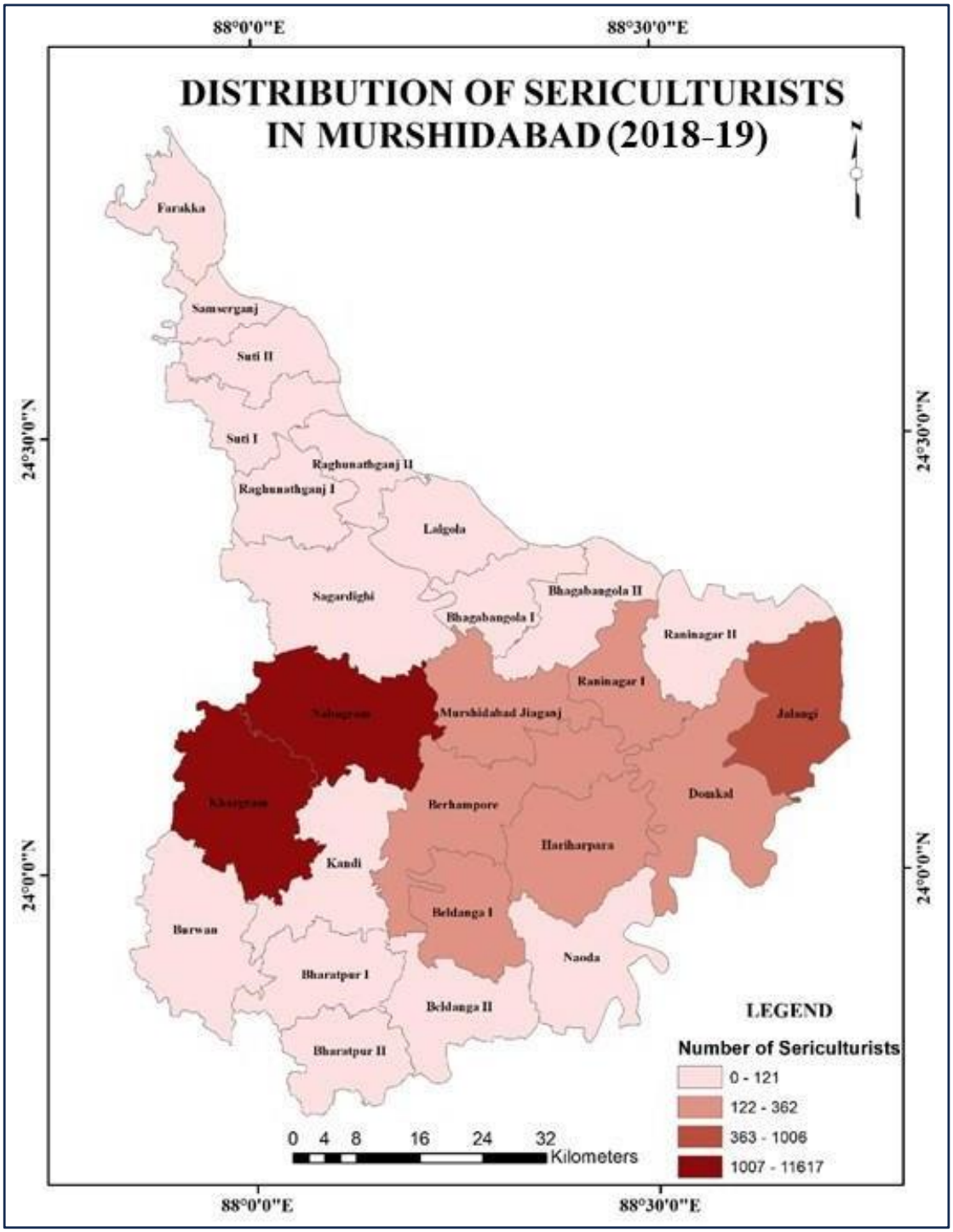

FIG. 3.9.

Source- District office under Directorate of Sericulture

3.8. SOCIO-ECONOMIC CONDITION OF THE SAMPLED SERICULTURIST

Development is a state of affairs where things are viewed positively in qualitative measurements. Depending on the decision in the field of research, the idea of socio-economic development involves a variety of indicators and variables. It is a fairly wide term that is just based on social and economic sector metrics.

The process of identifying the social and economic requirements of a community and developing methods to meet those needs in a way that is both realistic and long-term beneficial to the community is known as socio-economic development. Public concern is taken into account while creating social policies and economic projects as part of socioeconomic development.

The second phase of the chapter emphasise the socio-economic profile of the sericulturists, includes religious composition, family size, age group, educational status, house types, sources of domestic water, sources of fuel for cooking, area under mulberry cultivation, income, savings etc.

3.8.1. RELIGIOUS COMPOSITION

A population's religious makeup is the distribution of different religions within that community. Out of the total surveyed sericulturists 18.88% are Hindu and 81.12% sericulturists are Muslim (Table- 3.9.).

TABLE- 3.9. RELIGIOUS COMPOSITION OF SAMPLED SERICULTURISTS

Religion	SERICULTURISTS (In Number)	SERICULTURISTS (In Percentage)
Hindu	37	18.88
Muslim	159	81.12

Source- Field Survey

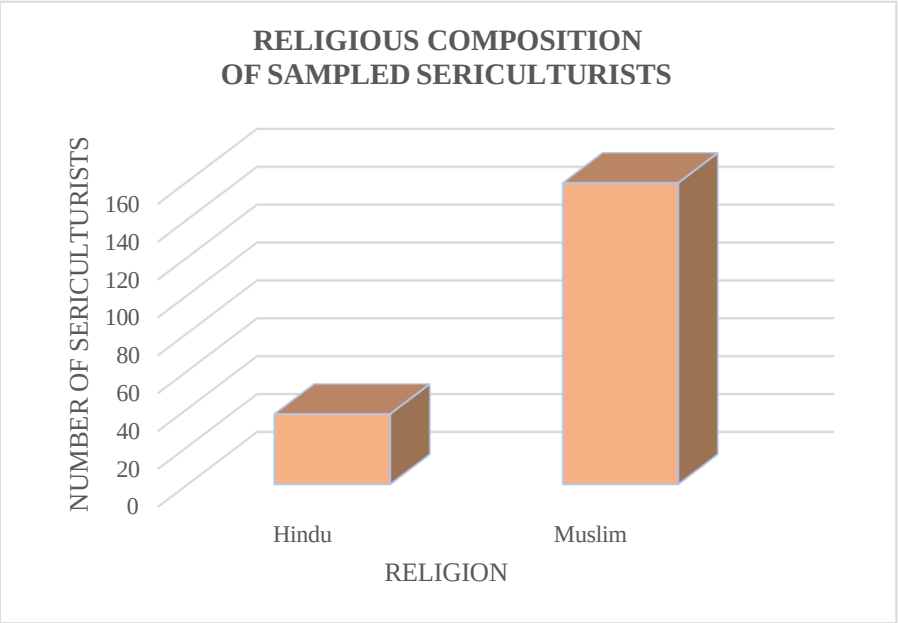

FIG. 3.10.

SOURCE- Field Survey

3.8.2. FAMILY SIZE

The term "family size" describes how many people comprise a family. There is a correlation between the size of a family and its socioeconomic status. Any family with a mother, father, and one to four children is considered tiny; any family with a mother, father, and more than four children is considered large. The size of a family can affects how a child develops their personality and has a significant effect on how its members interact with one another. In rural settings, most families have large, extended households. The parents live and work with their married sons and their family. The present study shows that (Table- 3.10.) 0.51% of the sericulturists have 1 to 2 family members, 2.04% of sericulturists have 2 to 3 family members, 21.43% of the sericulturists have 3 to 4 family members and 76.02% of the sericulturists have more than 4 family members.

TABLE-3.10. FAMILY SIZE OF SAMPLED SERICULTURISTS

Family Size	SERICULTURISTS (In Number)	SERICULTURISTS (IN %)
1 To 2	1	0.51
2 To 3	4	2.04
3 To 4	42	21.43
>4	149	76.02

Source- Field Survey

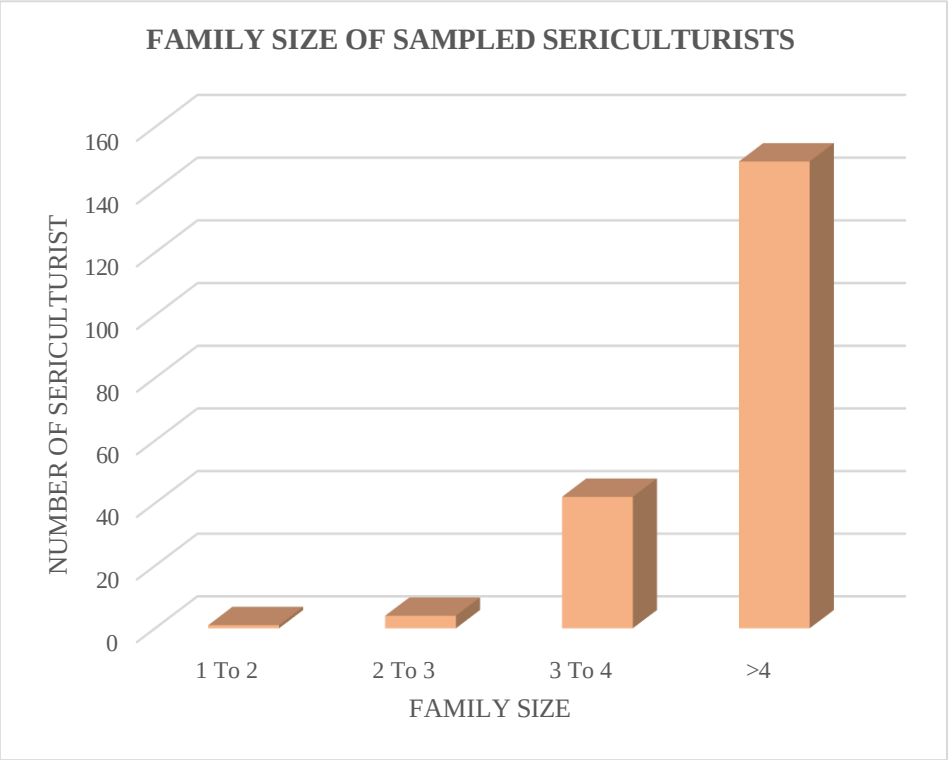

FIG. 3.11.

SOURCE- Field Survey

3.8.3. AGE GROUP

Age is one of the acquired characteristics of a person's life. An age group is a subgroup of the population that is approximately the same age or that falls within a particular age range. However, individuals of similar ages are considered to be in the same age group. Age is one of the key social factors affecting the socioeconomic and demographic conditions of the country. It is evident that (Table- 3.11.) 19.9% of the sericulturists belong to less than 25 age group, 17.86% of the sericulturists belong to 25 to 35 age

group. 24.49% of the respondents belong to 36 to 45 age group, 21.94% of the sericulturists belong to 46 to 55 age group, 14.29% of the sericulturists belong to 56 to 65 age group and 6.12% of the sericulturists belong to greater than 65 age group.

TABLE- 3.11. AGE GROUP OF SAMPLED SERICULTURISTS

AGE GROUP	SERICULTURISTS (IN NUMBER)	SERICULTURISTS (IN %)
<25	30	19.9
25-35	35	17.86
36-45	48	24.49
46-55	43	21.94
56-65	28	14.29
>65	12	6.12

Source- Field Survey

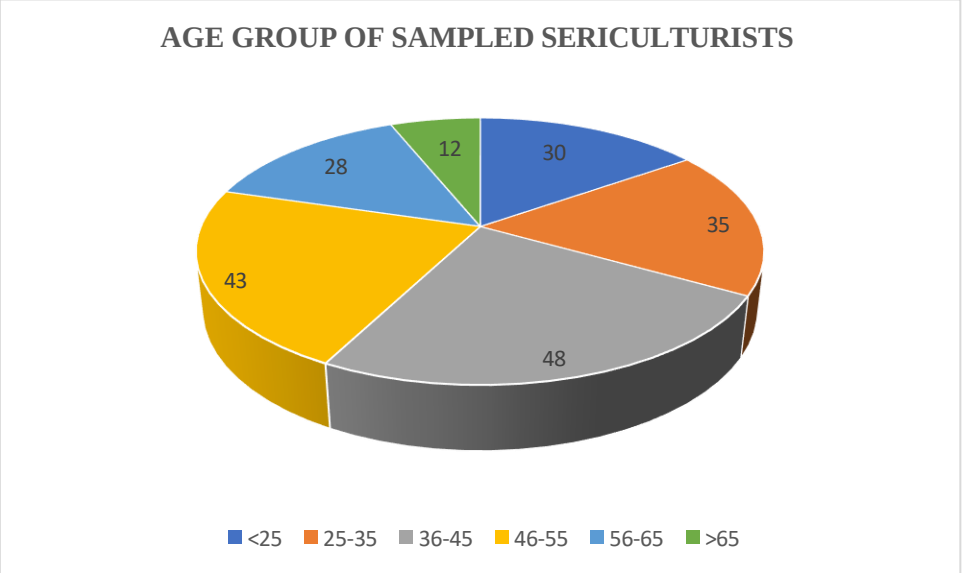

FIGURE: 3.12.

SOURCE- Field Survey

3.8.4. EDUCATIONAL STATUS

Education is one of the most important social aspects affecting the social and economic growth of a country. Education is the process of encouraging learning, or the development of knowledge, skills, values, beliefs, and behaviours. A person's complete growth is referred to as their education in a broad sense. In other words, education is the path to advancement for people. It's a common misconception that most Indian farmers are illiterate and that farmers with higher levels of education can produce more. The sample's respondents had a range of educational backgrounds. The study (Table-3.12.) shows that 14.29% of sericulturists are illiterate, 23.47% of sericulturists have primary school education (class 1 To 5), 40.31% of sericulturists have middle school education which is also classified as upper primary class (class 6 To 8), 17.86% of sericulturists have secondary education (class 9 To 10), 4.08% of sericulturists have higher secondary education (class 11 to 12).

TABLE- 3.12. EDUCATIONAL STATUS OF SAMPLED SERICULTURISTS

Levels of Education	SERICULTURISTS (In Number)	SERICULTURISTS (IN %)
Illiterate	28	14.29
Primary School	46	23.47
Middle School	79	40.31
Secondary School	35	17.86
Higher Secondary School	8	4.08

Source- Field Survey

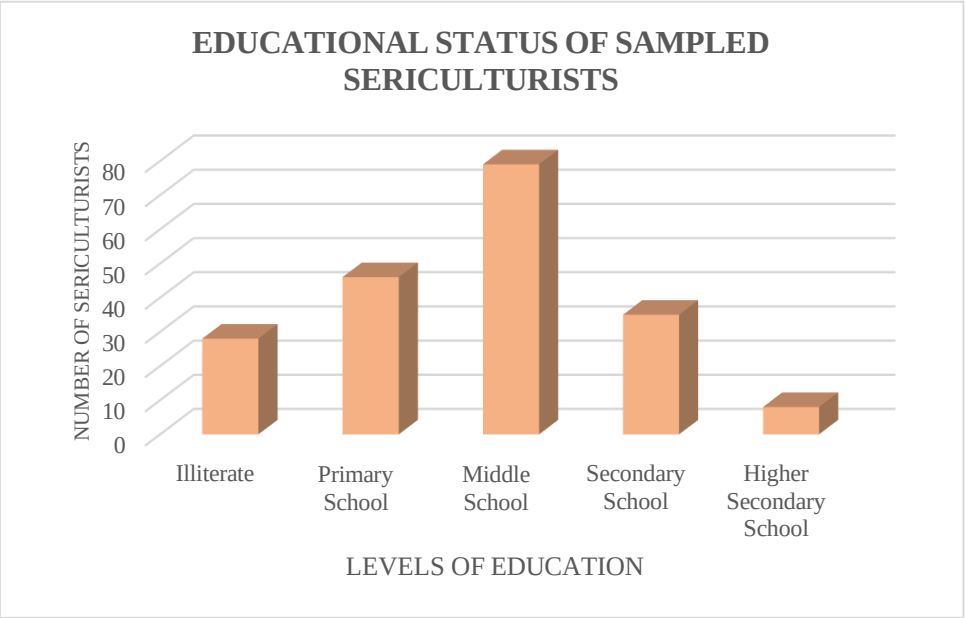

FIG. 3.13.

SOURCE-FIELD SUURVEY

3.8.5. HOUSE TYPES

From a sociological perspective, a home confers social standing and financial stability. In general, housing refers to the people's place of residence where they can enjoy their social and financial lives. From a sociological perspective, a home confers social standing and financial stability. It is evident from the study (Table-3.13.) that 27.04% of sericulturists have mixed type of house that means, the floor is made of mud and the wall and the ceiling of the house is concrete. 12.24% of sericulturists have pucca house and 60.71% of sericulturists have kutcha house made of mud.

TABLE- 3.13. HOUSE TYPES OF SAMPLED SERICULTURISTS

HOUSE TYPES	SERICULTURISTS (IN NUMBER)	SERICULTURISTS (IN %)
Kutcha	119	60.71
Pucca	24	12.24
Mixed	53	27.04

Source- Field Survey

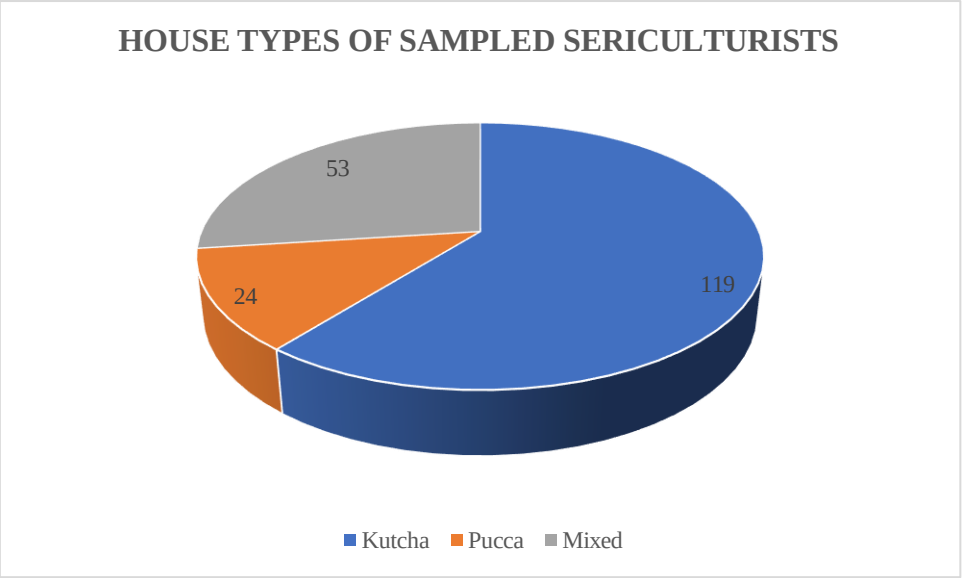

FIG. 3.14.

SOURCE-FIELD SURVEY

3.8.6. SOURCES OF DOMESTIC WATER

Water is the most precious natural resource. As they say, "Water is life." Water is nature's greatest gift for guaranteeing the existence of life on Earth. It shows from the study (Table-3.14.) that 11.73% of sericulturists got water for households from municipality, 43.73% of sericulturists got water for households from deep tube well and 44.9% of sericulturists got water from both the sources.

TABLE- 3.14. SOURCES OF DOMESTIC WATER OF SAMPLED SERICULTURISTS

Sources of Domestic Water	SERICULTURISTS (In Number)	SERICULTURISTS (In %)
Municipality	23	11.73
Deep Tube Well	85	43.73
Both	88	44.9

Source- Field Survey

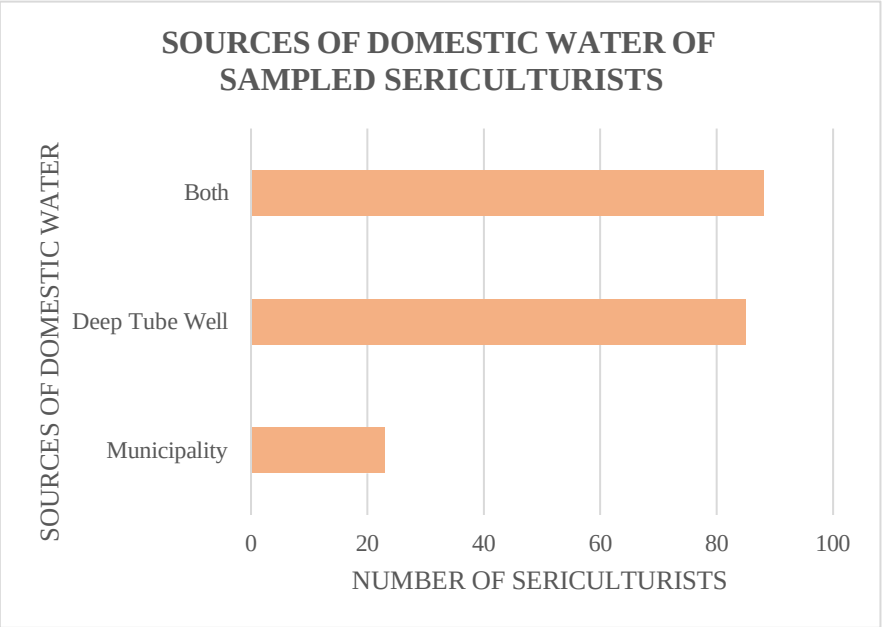

FIG. 3.15.

SOURCE-FIELD SURVEY

3.8.7. AVAILABILITY OF TOILET FACILITIES

The sanitation facilities have a major impact on the socioeconomic status of the population. It is evident from the study (Table- 3.15.) that 95.92% of sericulturists have toilet facility and 4.08 % of the sericulturists don't have toilet facility in their house.

TABLE- 3.15. AVAILABILITY OF TOILET FACILITIES OF SAMPLED SERICULTURIST

Availability of Toilet facility	Number of Sericulturist (in Number)	Sericulturist (IN %)
Yes	188	95.92
No	8	4.08

Source- Field Survey

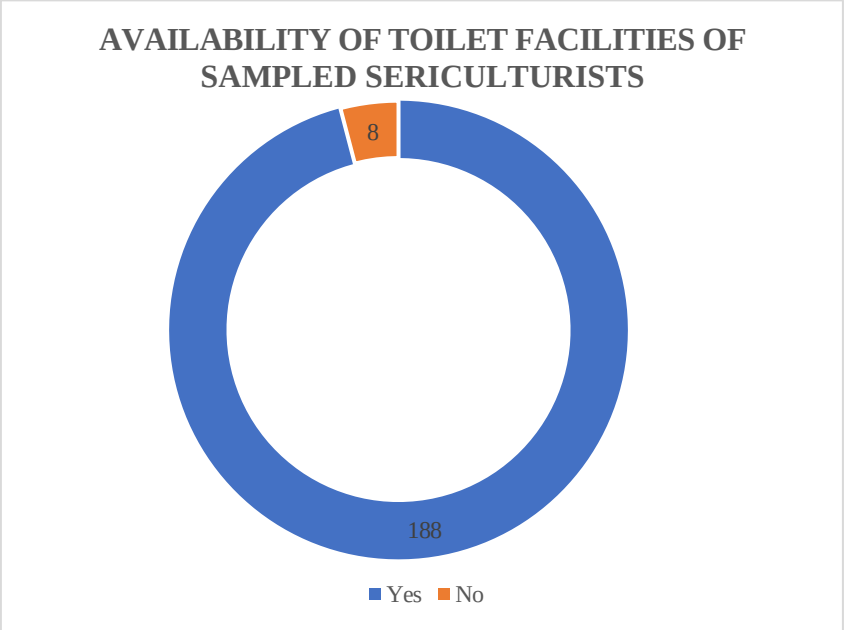

FIG. 3.16.

SOURCE- FIELD SURVEY

3.8.8. FUEL SOURCES

Another measure of the socioeconomic status of the population is the use of fuels for domestic cooking. Food is one of a person's most basic needs. It shows from the table (Table- 3.16.) that 29.59% of the sericulturists are using CNG and wood, 32.14% of the sericulturists are using coal, 21.94% of the sericulturists are using wood, 16.33% of the sericulturists are using CNG and coal in the housing for cooking.

TABLE-3.16. FUEL SOURCES OF THE HOUSEHOLDS OF SAMPLED SERICULTIRISTS

SOURCES OF FUEL	SERICULTURISTS (In Number)	SERICULTURISTS (IN %)
Coal	63	32.14
Wood	43	21.94
CNG and Wood	58	29.59
CNG and Coal	32	16.33

Source- Field Survey

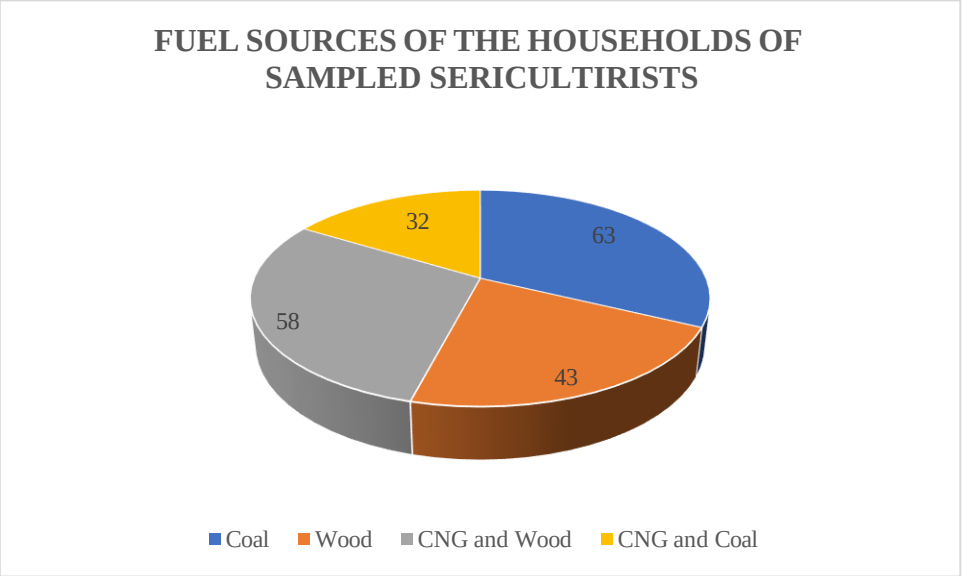

FIG. 3.17.

SOURCE- FIELD SURVEY

3.8.9. SIZE OF LANDHOLDINGS UNDER MULBERRY CULTIVATION

It is evident from the study (Table-3.17.) that all the sericulturists are marginal farmers (cultivate less than 2.5 acres). The study shows that 17.86% of the sericulturists have less than 1 acres of land, 57.16% of sericulturists have 1 to 1.5 acres of land, 20.92% of sericulturists have 1.51 to 2 acres of land and 3.06% of sericulturists have greater than 2 acres of land.

TABLE- 3.17. SIZE OF LAND HOLDINGS UNDER MULBERRY OF SAMPLED SERICULTURISTS

SIZE OF LAND HOLDINGS (IN ACRES)	**SERICULTURISTS (IN NUMBER)**	**SERICULTURISTS (IN %)**
<1	35	17.86
1-1.5	114	57.16
1.51-2.0	41	20.92
>2	6	3.06

Source- Field Survey

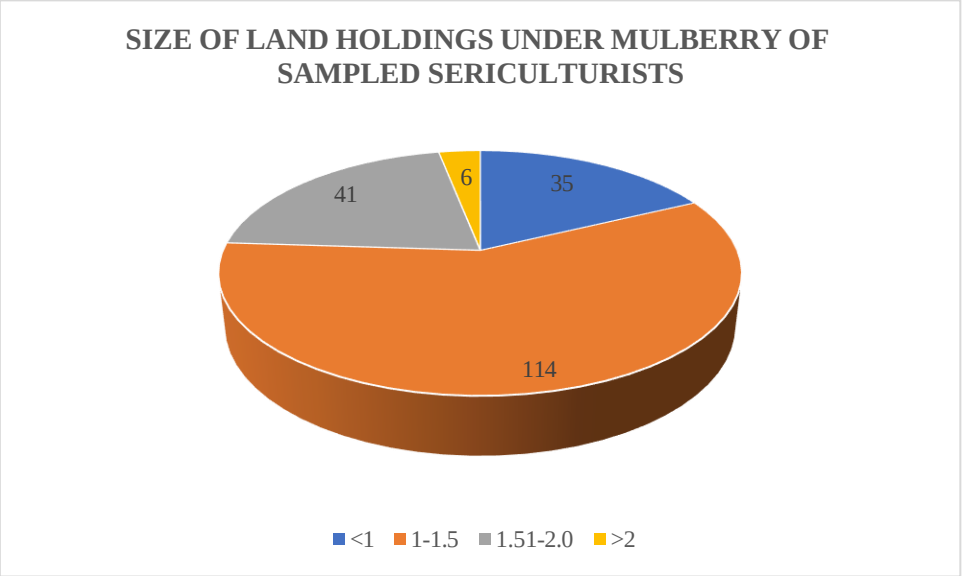

FIG.3.18.

Source- Field Survey

3.8.10. WORKING EXPERIENCE

Gaining job experience allows you to network, learn about a certain industry, and develop new talents. The study shows that 11.22% sericulturists have working experience of less than 10 years; 12.24% sericulturists have working experience of 10 to 20 years; 26.53% of sericulturists have working experience of 21 to 30 years, 27.55% of sericulturists have working experience of 31 to 40 years and 22.45% of sericulturists have working experience of greater than 40 years (Table- 3.17.).

TABLE-3.17. WORKING EXPERIENCE OF THE SAMPLED SERICULTURISTS

WORKING EXPERIENCE	NUMBER OF SERICULTURISTS	SERICULTURISTS (IN %)
<10	22	11.22
10 To 20	24	12.24
21 To 30	52	26.53
31 To 40	54	27.55
>40	44	22.45

Source- Field Survey

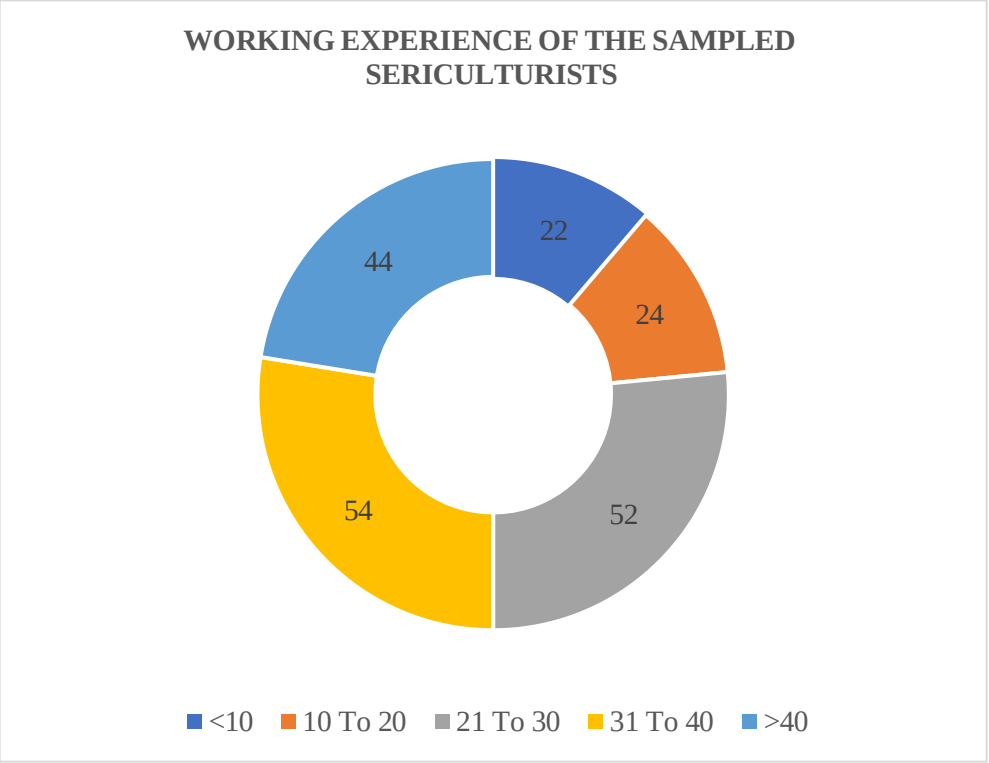

FIG. 3.19.

SOURCE- FIELD SURVEY

3.8.11. INCOME RANGE

Income, which is typically expressed in monetary terms, is the sum of an individual's savings, consumption, and opportunities over a given period of time. The production of cocoon mainly depends on the production of mulberry leaves and so, a sericulturist's silkworm rearing capacity is mainly dependent on the mulberry plantation land owned by them. According to the sericulturist, 1 bigha land (0.33 acres in West Bengal) is appropriate to cultivate 100 dfls to 150 dfls per crop and as per the calculation explained by the officials of Directorate of Textile, Sericulture, 100 DFLs produce 40 Kg of cocoon and approx. 9.5 Kg to 10 Kg coccon required to produce 1 kg of silk yarn. As per the Central Sericulture Berhampore, from 1 bigha mulberry cultivation a sericulturist’s profit is 40000 to 45000 rupees by doing silkworm rearing and there is total 5 seasons for silkworm rearing in Murshidabad, Baisakhi, Jaithya, Ashwina, Aghrayani and Falguni. 1 kg of cocoon in Murshidabad costs 175 rupees and 1 kg of raw silk costs an average of 2000 rupees

The study shows (Table-3.18.) that 16.84% of sericulturists are earning less than 24000 rupees; 23.98% of sericulturists are earning INR 24001 to 32000; 38.27% of the sericulturists are earning INR 32001 to 40000;18.37% of the sericulturists are earning INR 40001 to 48000; 2.55% of the sericulturists are earning INR >48000 per crop and since there are five seasons for raising silkworms, their annual income is calculated by multiplying their per- crop income by five.

TABLE- 3.18. INCOME RANGE OF THE SAMPLED SERICULTURISTS

INCOME PER CROP	TOTAL NUMBER OF SEASON FOR SILWORM REARING	TOTAL ANNUAL INCOME	NUMBER OF SERICULTURISTS	SERICULTURISTS (IN %)
<24000	5	<120000	33	16.84
24001 To 32000		120000 To 160000	47	23.98
32001 To 40000		160000 To 200000	75	38.27
40001 To 48000		200000 To 240000	36	18.37
>48000		>240000	5	2.55

Source- Field Survey

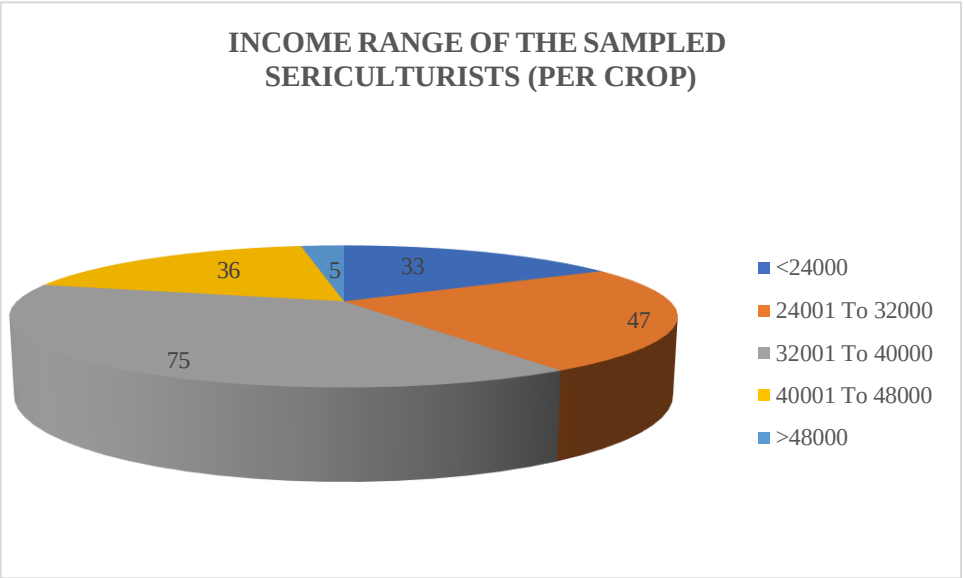

FIG. 3.20.

SOURCE- Field Survey

3.8.12. DEBT

Most of the sericulturists don't mark (98.47%) debt as a necessity; only some of them mark it yes (1.53%), as they borrowed money from the local money lenders mainly because of social functions such as their daughter's marriage or else to repair their house (Table-3.19.).

TABLE- 3.19. NECESSITY OF DEBT AMONG SAMPLED SERICULTURISTS

NECESSITY OF DEBT	NUMBER OF SERICULTURISTS	SERICULTURISTS (In %)
YES	3	1.53
NO	193	98.47

Source- Field Survey

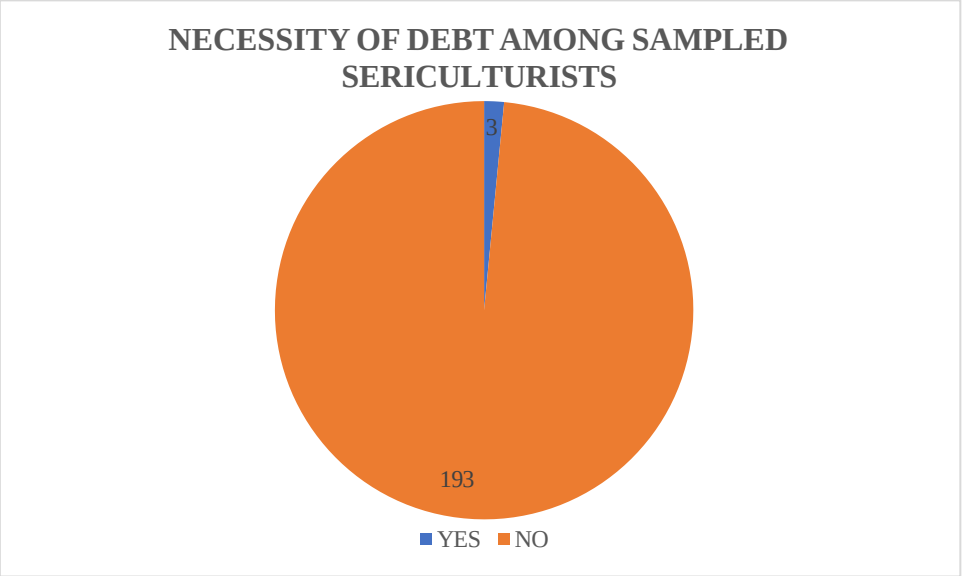

FIG. 3.21.

Source- Field Survey

3.8.13. SAVINGS OF MONEY

All the sericulturists of the selected study are saving money for their future. Maximum of them is not saving money in monthly basis and also not in an organized manner such as in Bank or Post office, they used to save it in their own houses' locker (Table-3.20.).

TABLE- 3.20. TENDENCY OF SAVINGS OF MONEY AMONG SERICULTURISTS

Savings of Money	SERICULTURISTS (In number)	SERICULTURISTS (In %)
Yes	196	100
No	0	0

Source-Field Survey

3.8.14. CONSUMER DURABLES

Table shows (Table 3.21.) the details about the consumer durables by the sample sericulturists of the study area. Consumers of fans and bicycles occupied the first position, where all the sample respondents said yes to it. Consumers of television occupied the second position, where 189 sample surveyors said yes to it. The consumers of motor cycles are 178, followed by 152 consumers of refrigerators, 123 consumers of coolers, 57 consumers of generators, and lastly 12 consumers of mopeds.

TABLE-3.21. OWNERSHIP OF DURABLE GOODS OF SAMPLED SERICULTURISTS

CONSUMER DURABLES	Yes	No	TOTAL
Fan	196	0	196
Cooler	123	73	196
Television	189	7	196
Fridge	152	44	196
Generator	57	139	196
Water Purifier	157	39	196
Bi Cycle	196	0	196
Motor Cycle	178	18	196
Moped	12	184	196

Source-Field Survey

3.9. BLOCK WISE PROFILE OF SILK WEAVERS

The 1st phase of this sub chapter analyses the block wise number of silk weavers of the year 2019-20 and also a comparative study of the number of silk weavers of 2009-10 and 2019-20.

It is clearly observed from the mentioned table below (Table-3.22.) that the number of weavers is decreasing over the last few years but the major exceptions have been clearly observed in Bhagabangola II, Murshidabad Jiaganj, Nabagram, Burwan, Kandi, Berhampore, Bharatpur I, Beldanga II and Bharatpur II. Highest number of silk weavers found in Khargram block (2115) in the year 2019-20. The total number of silk weavers has been decreased in the 10 years (from 2009-10 to 2019-20). The total number of silk weavers in the year 2009-10 was 13187 which decreased to 6492 in 2019-20.

TABLE- 3.22. DISTRIBUTION OF SILK WEAVERS IN MURSHIDABAD (2009 -10 AND 2019-20)

Name of the Blocks	Number of Silk weavers (2009-10)	Number of Silk weavers (2019-20)
Farakka	0	0
Samserganj	0	0
Suti II	0	0
Suti I	0	0
Raghunathganj II	397	196
Raghunathganj I	2974	799
Lalgola	396	0
Sagardighi	8	0
Bhagabangola I	0	0
Bhagabangola II	22	79
Murshidabad Jiaganj	16	433
Raninagar I	705	369
Raninagar II	313	106
Jalangi	0	0
Nabagram	15	85
Khargram	4255	2115
Burwan	171	344
Kandi	60	100
Berhampore	151	350
Bharatpur I	3	111
Beldanga II	41	213
Bharatpur II	300	388
Beldanga I	210	40
Naoda	0	0
Hariharpara	1016	72
Domkal	2134	649

Source-Handloom Development office, Berhampore, Murshidabad

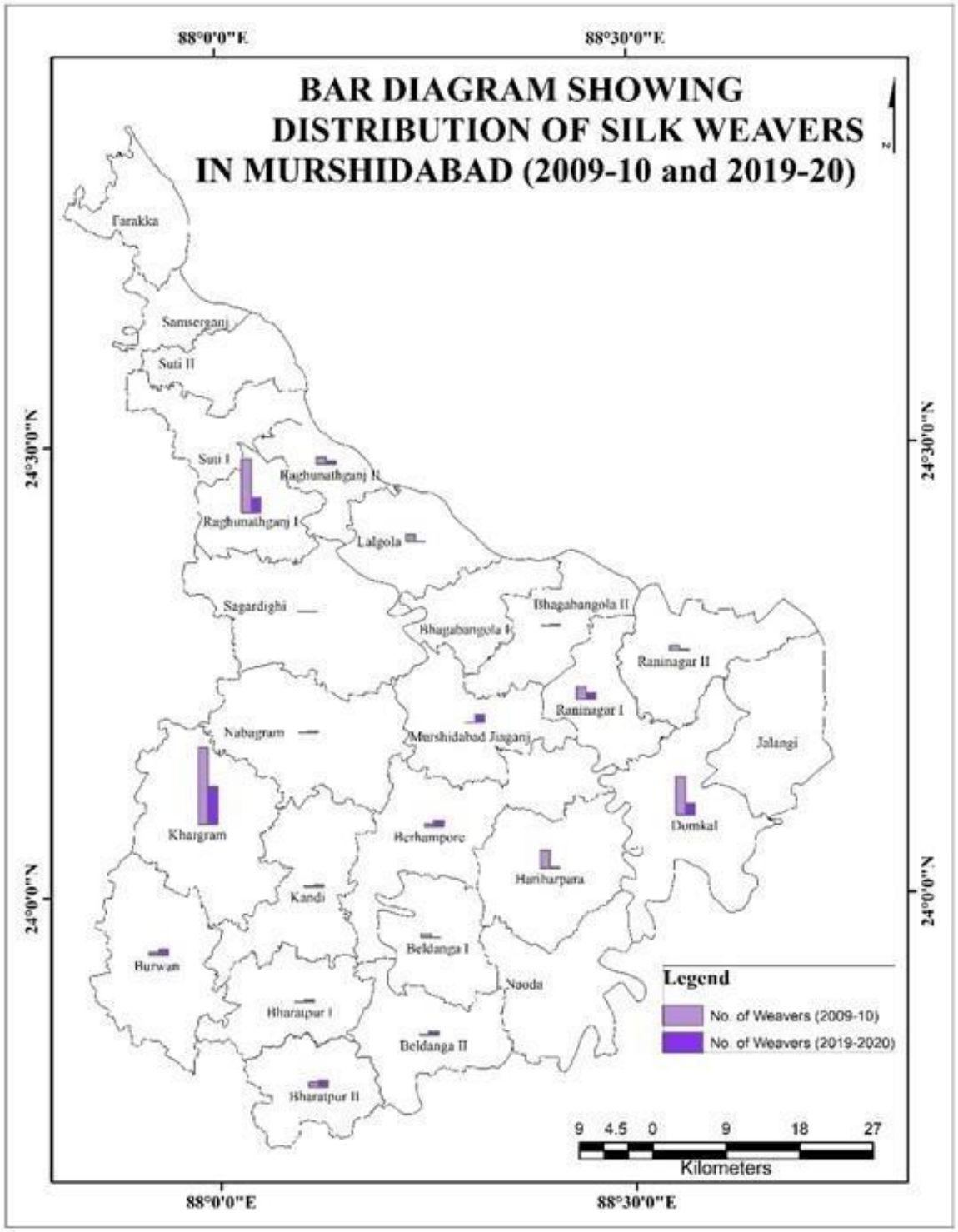

FIG. 3.22

Source-Handloom Development office, Berhampore, Murshidabad

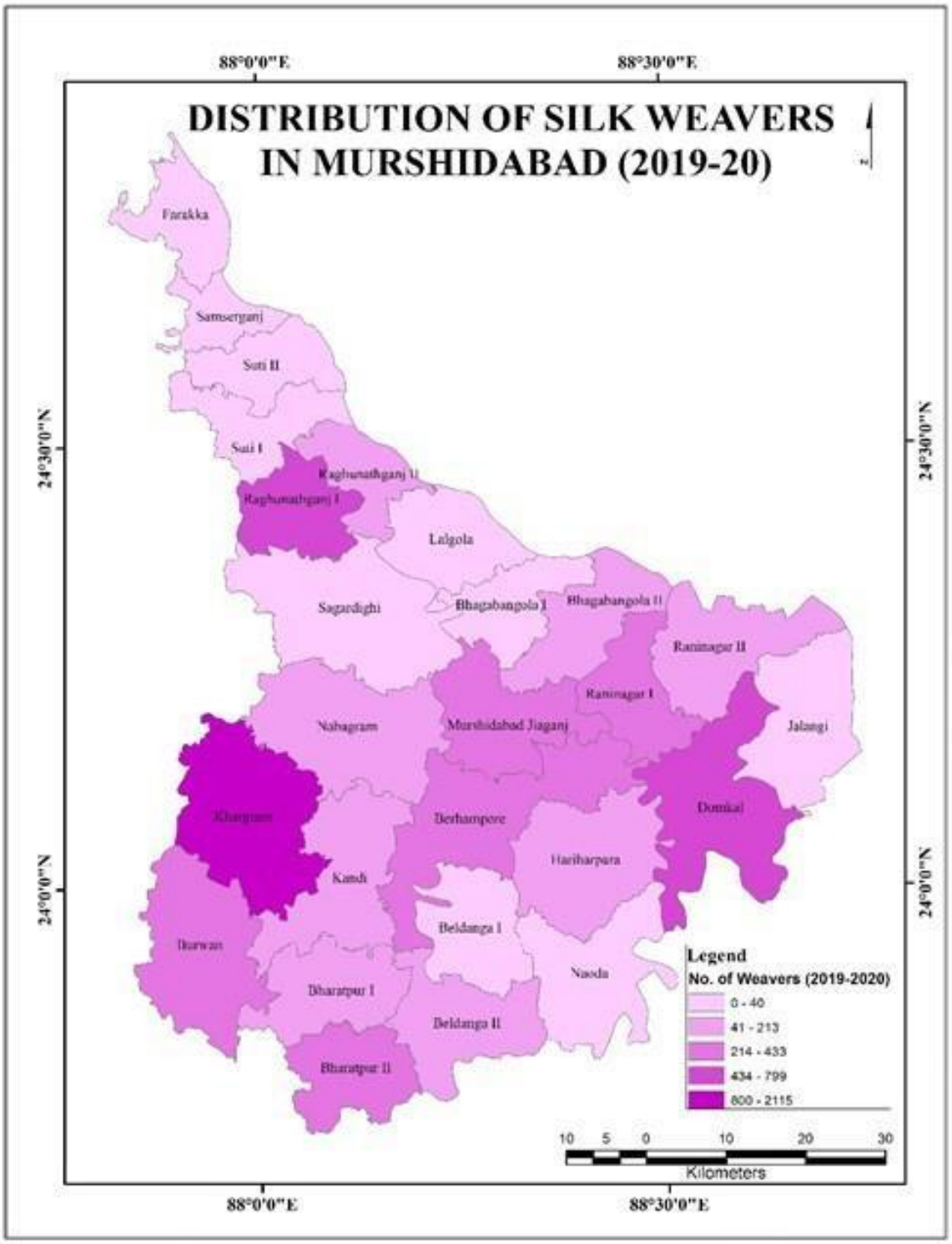

FIG. 3.23.

Source-Handloom Development office, Berhampore, Murshidabad

3.10. SOCIO-ECONOMIC PROFILE OF THE SILK WEAVERS

Improving the well-being of individuals, families, communities, and society as a whole over time is the ultimate goal of social development. Any region's socioeconomic development can raise the standard of living for its citizens. The state of well-being in the social and economic spheres is known as socio-economic development. The process of increasing a geographical unit's purchasing power parity, production, distribution, and consumption of goods and services is known as economic development.

The 2nd phase of the sub chapter relates to the weavers' socioeconomic characteristics, includes gender composition, religious composition, family size, age group, educational status, house types, sources of domestic water, sources of fuel for cooking, working experience, working organisation and monthly income.

3.10.1. GENDER COMPOSITION

The distribution of men and women in a population is known as gender composition, and it can change over time and between nations. It is evident from the study that 85.74% of silk weavers are male and 16.26% of silk weavers are female (Table-3.21).

TABLE- 3.23. GENDER COMPOSITION OF SAMPLED SILK WEAVERS

Gender	**SILK WEAVERS (In Number)**	**SILK WEAVERS (IN Percentage)**
Male	433	85.74%
Female	72	16.26%

Source- Field Survey

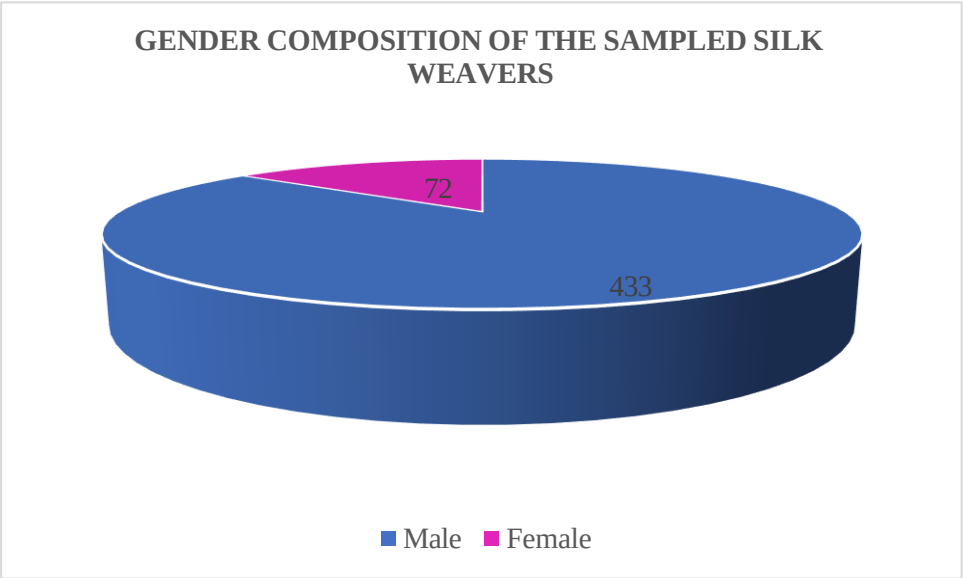

FIG. 3.23.

SOURCE- FIELD SURVEY

3.10.2. RELIGIOUS COMPOSITION

The distribution of various religions within a population is referred to as its religious composition. Out of the total surveyed weavers' 46.73% of male weavers and 8.51% of female weavers to the total weavers are Hindu and 39.01% of male weavers and 5.74 % of female weavers to the total weavers are Muslim and Muslim weavers only got in Khargram block among the surveyed areas (Table-3.24.).

TABLE- 3.24. RELIGIOUS COMPOSITION OF SAMPLED SILK WEAVERS

Religion	**Silk Weavers (in number)**		**Silk Weavers (in %)**	
	Male	Female	Male	Female
Hindu	236	43	46.73	8.51
Muslim	197	29	39.01	5.74

Source- Field Survey

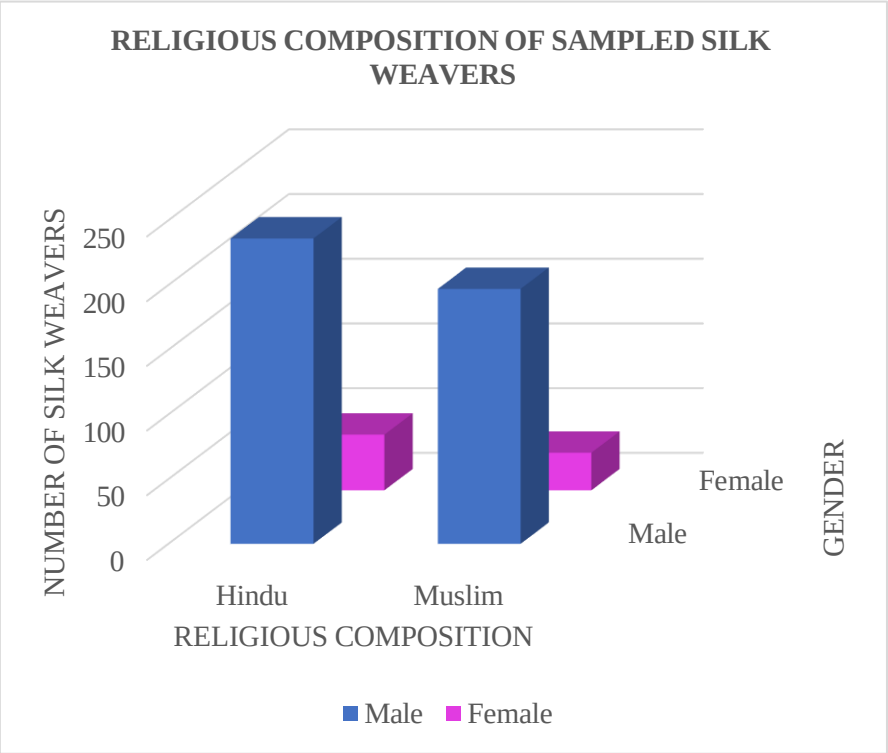

FIG. 3.24.

Source- Field Survey

3.10.3. FAMILY SIZE

The term "family size" describes how many people make up a family. There is a correlation between family size and socioeconomic level. A small family is defined as consisting of a mother, father, and one to four children; a large family is defined as consisting of a mother, father, and more than four children. The size of a family has a big impact on how its members interact with one another and can influence how a child develops their personality. Large, extended families make up the majority of families in rural areas. Along with their family, the parents live and work with their married sons. The present study shows that 12.28% of the male weavers and 7.33% of female weavers to the total weavers have 1 to 2 family members, 16.63% of the male weavers and 3.76% of female weavers to the total weavers have 2 to 3 family members and 38.41% of male weavers and 2.18% of female weavers to the total weavers have 3 to 4 family members and 18.42% of the male weavers and 0.99% of female weavers to the total weavers have more than 4 family members (Table-3.25.).

TABLE-3.25. FAMILY SIZE OF SAMPLED SILK WEAVERS

Family Size	Silk Weavers (in number)		Silk Weavers (in %)	
	Male	Female	Male	Female
1 To 2	62	37	12.28	7.33
2 To 3	84	19	16.63	3.76
3 To 4	194	11	38.41	2.18
>4	93	5	18.42	0.99

Source- Field Survey

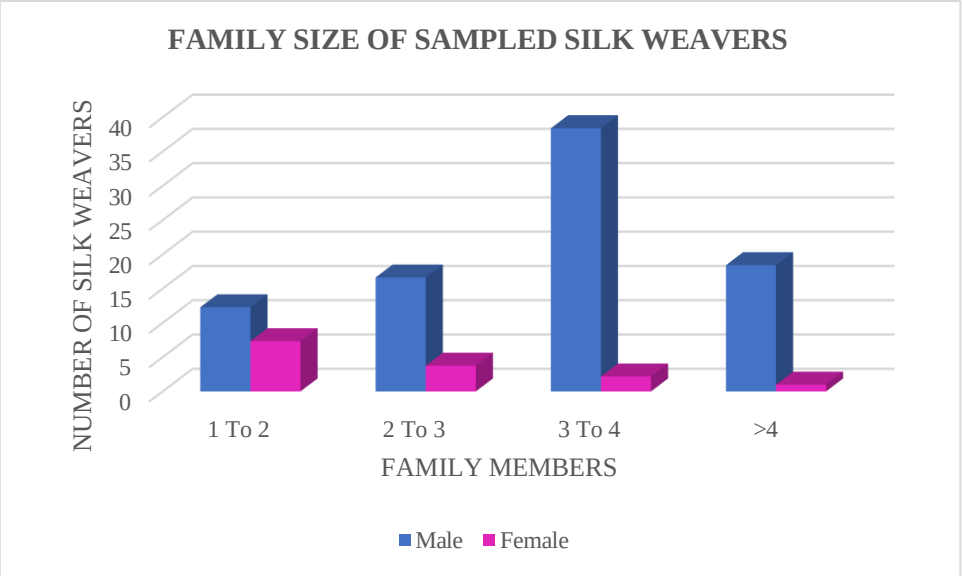

FIG. 3.25.

Source- Field Survey

3.10.4. AGE GROUP

One of the acquired traits in a person's life is their age. Generally speaking, an age group is a subset of the population that is around the same age or falls within a given range of ages. Conversely, individuals of comparable ages are regarded as an age group. One of the important social aspects influencing the nation's socioeconomic and demographic circumstances is age. It shows from the present study (Table-3.26.) that 6.93% of the male weavers and 0% of female weavers to the total weavers belong to less than 25 age

group, 9.11% of the male weavers and 0.59% of female weavers to the total weavers are belongs to 25 to 35 age group. 20.2% of the male weavers and 4.55% of female weavers to the total weavers belong to 36 to 45 age group, 28.91% of the male weavers and 8.32% of female weavers to the total weavers are belonged to 46 to 55 age group, 13.27% of the male weavers and 0.79% of female weavers to the total weavers are belongs to 56 to 65 age group and 7.33% of the male weavers to the total weavers belong to the age group of greater than 65 age group.

TABLE-3.26. AGE GROUP OF SAMPLED SILK WEAVERS

Age Groups	Silk Weavers (in number)		Silk Weavers (in %)	
	Male	Female	Male	Female
<25	35	0	6.93	0
25-35	46	3	9.11	0.59
36-45	102	23	20.2	4.55
46-55	146	42	28.91	8.32
56-65	67	4	13.27	0.79
>65	37	0	7.33	0

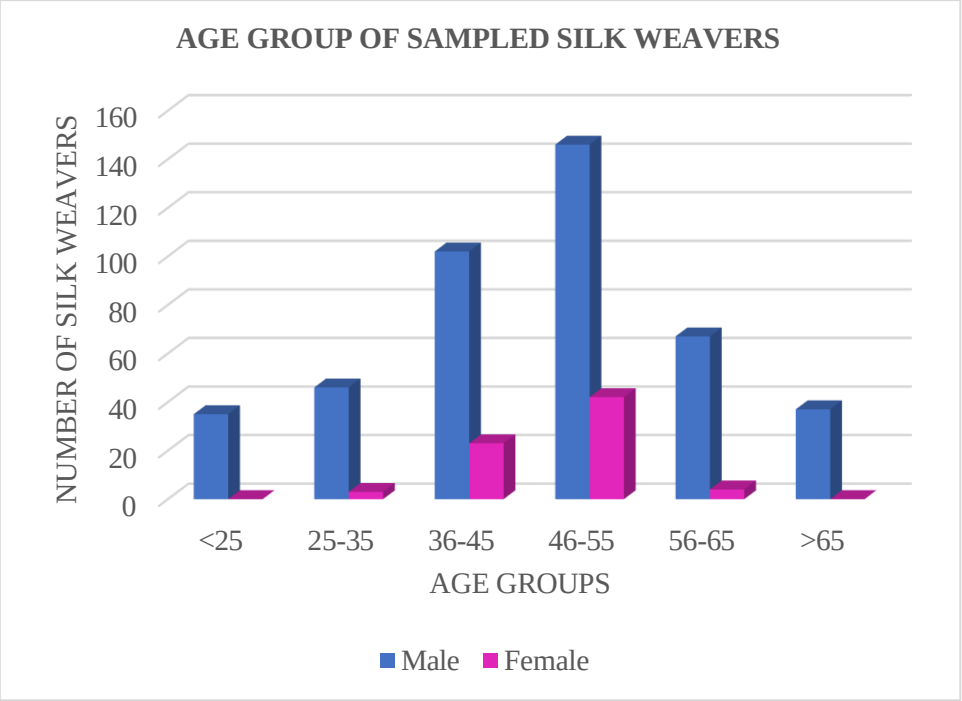

FIG. 3.26.

SOURCE- FIELD SURVEY

3.10.5. EDUCATIONAL STATUS

One of the key social factors influencing a nation's social and economic development is education. Education is the process of encouraging learning, or the development of knowledge, skills, values, beliefs, and habits. Broadly speaking, education refers to a person's overall development. To put it another way, education is the route that leads to human progress. There is a widespread belief that the majority of Indian farmers lack literacy and that an educated farmer can be more productive. The respondents in the sample come from a variety of educational backgrounds. The present study shows that (Table-3.27.) 0.59% of female weavers are illiterate, 12.28% of male weavers and 4.36% of female weavers to the total weavers have primary school education (class I to Class IV), 27.92% of male weavers and 8.12% of female weavers to the total weavers have middle school education (class V to class VIII), 39.6% of male weavers and 0.79% of female weavers to the total weavers have secondary school education(class IX to class X), 5.94% of male weavers and 0.4% of female weavers to the total weavers have higher secondary school education (class XI to class XII).

TABLE-3.27. EDUCATIONAL STATUS OF SAMPLED SILK WEAVERS

Levels of Education	Silk Weavers (in Number)		Silk Weavers (in %)	
	Male	Female	Male	Female
Illiterate	0	3	0	0.59
Primary School	62	22	12.28	4.36
Middle School	141	41	27.92	8.12
Secondary School	200	4	39.6	0.79
Higher Secondary School	30	2	5.94	0.4

Source- Field Survey

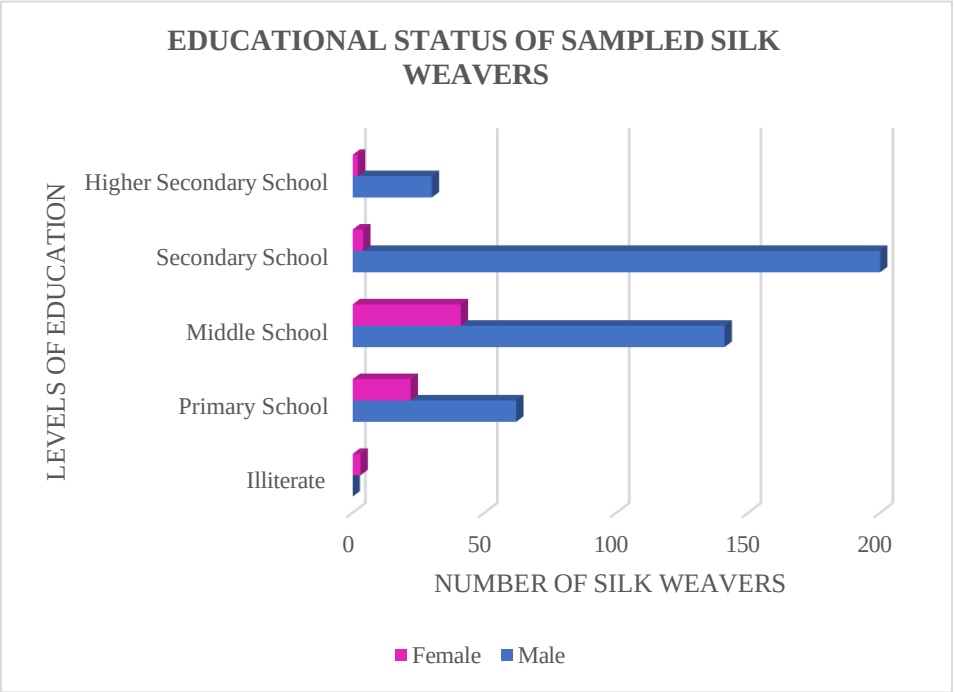

FIG. 3.27.

SOURCE- FIELD SURVEY

3.10.6. HOUSE TYPES

From a sociological perspective, a home provides social standing as well as economic security. The study makes this clear (Table3.28.) that maximum respondents that are 1.78 % of male weavers and 0.59% of female weavers to the total weavers have mixed type of house that means, the floor is made of mud and the wall and the ceiling of the house is concrete. 30.69% of male weavers and 2.57% of female weavers to the total weavers have pucca houses and 53.27% of male weavers and 11.09% of female weavers to the total weavers have kutcha houses made of mud.

TABLE-3.28. HOUSE TYPES OF SAMPLED SILK WEAVERS

Types of Houses	Silk Weavers (in number)		Silk Weavers (in %)	
	Male	Female	Male	Female
Kutcha	9	3	1.78	0.59
Pucca	155	13	30.69	2.57
Mixed	269	56	53.27	11.09

Source- Field Survey

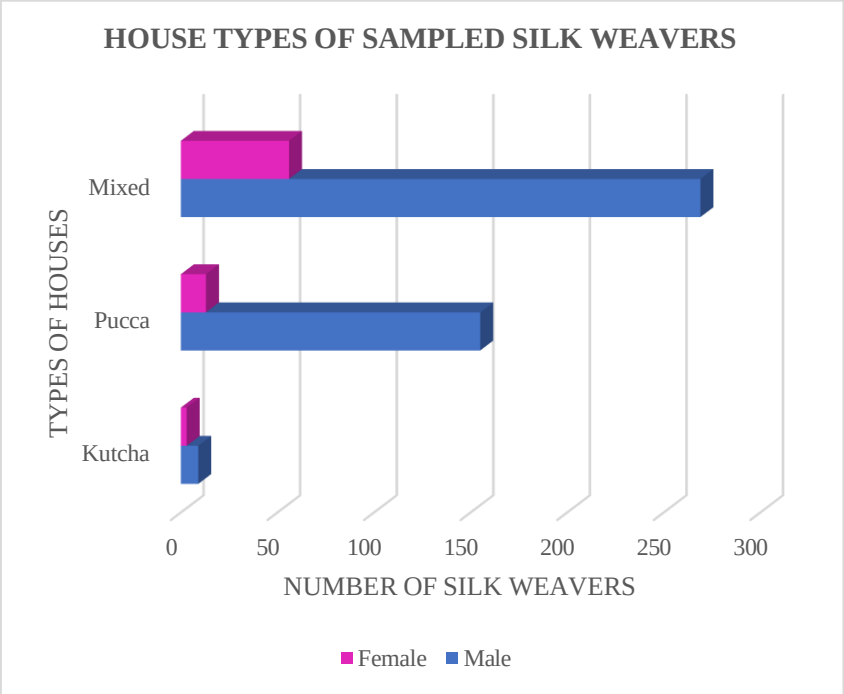

FIG. 3.28.

SOURCE- Field Survey

3.10.7. SOURCES OF DOMESTIC WATER

The most valuable natural resource is water. The saying goes, "Water is life." The greatest gift from nature for ensuring the survival of life on Earth is water. From the study it shows that 15.64% of male weavers and 3.56% of female weavers to the total weavers got water for households from municipality, 57.23% of male weavers and 6.34% of female weavers to the total weavers got water for households from deep tube well and 12.87% of male weavers and 4.36% of female weavers to the total weavers got water from both the sources (Table-3.29).

TABLE 3.29.- SOURCES OF DOMESTIC WATER OF SAMPLED SILK WEAVERS

Sources of Domestic Water	Silk Weavers (in number)		Silk Weavers (in %)	
	Male	Female	Male	Female
Municipality	79	18	15.64	3.56
Deep Tube Well	289	32	57.23	6.34
Both	65	22	12.87	4.36

Source- Field Survey

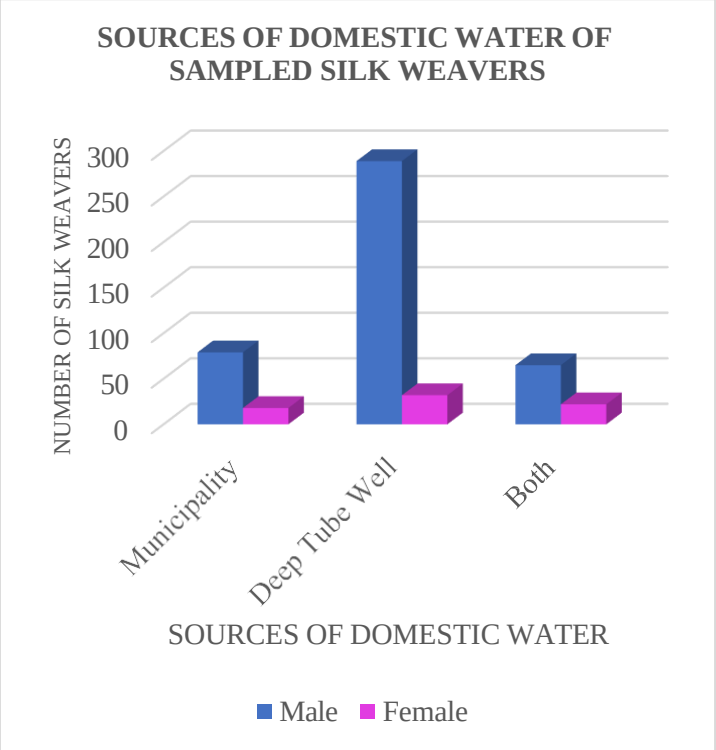

FIG. 3.29.

SOURCES- FIELD SURVEY

3.10.8. AVAILABILITY OF TOILET FACILITIES

The socioeconomic standing of the populace is significantly influenced by the sanitation facilities. It is evident from the study (Table-3.30.) that 84.95% of male weavers and 13.66% of female weavers to the total weavers have toilet facility and 0.79% male weavers and 0.59% of female weavers to the total weavers don't have toilet facility in their houses.

TABLE- 3.27. AVAILABILITY OF TOILET FACILITIES OF SAMPLED SILK WEAVERS

Toilet Facility	Silk Weavers (in Number)		Silk Weavers (in %)	
	Male	Female	Male	Female
Yes	429	69	84.95	13.66
No	4	3	0.79	0.59

Source- Field Survey

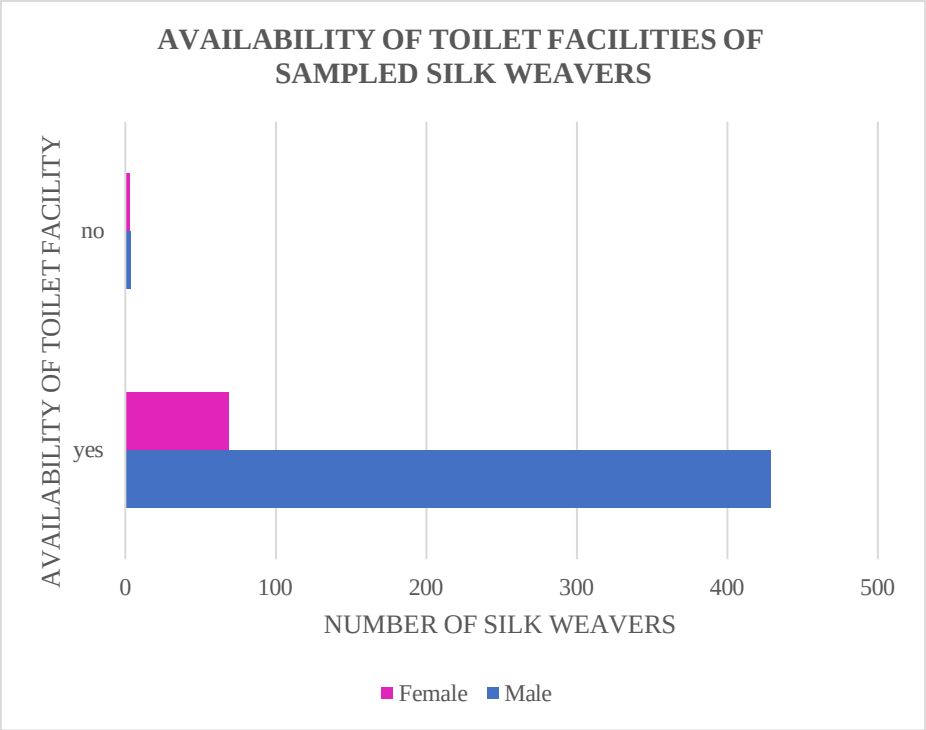

FIG. 3.30

Source- Field Survey

3.10.9. FUEL SOURCES OF WEAVERS' HOUSEHOLDS

The use of fuels for cooking in the homes is another indicator of the socioeconomic standing of the populace. One of a person's essential necessities is food. It is evident from the study that (Table- 3.31.) 19.01% of male weavers and 4.16% of female weavers to the total weavers are using CNG, 0.79% of male weavers and 4.81% of female weavers to the total weavers are using coal, 13.47% of male weavers and 2.38% of female weavers to the total weavers are using wood, 52.48% of male weavers and 7.52% of female weavers to the total weavers are using wood in the housing for cooking.

TABLE-3.31. FUEL SOURCES OF SILK WEAVERS' HOUSEHOLDS

Sources of Fuel	Silk Weavers (In Number)		Silk Weavers (IN %)	
	Male	Female	Male	Female
CNG	96	21	19.01	4.16
Coal	4	1	0.79	0.2
Wood	68	12	13.47	2.38
CNG and Wood	265	38	52.48	7.52

Source-Field Survey

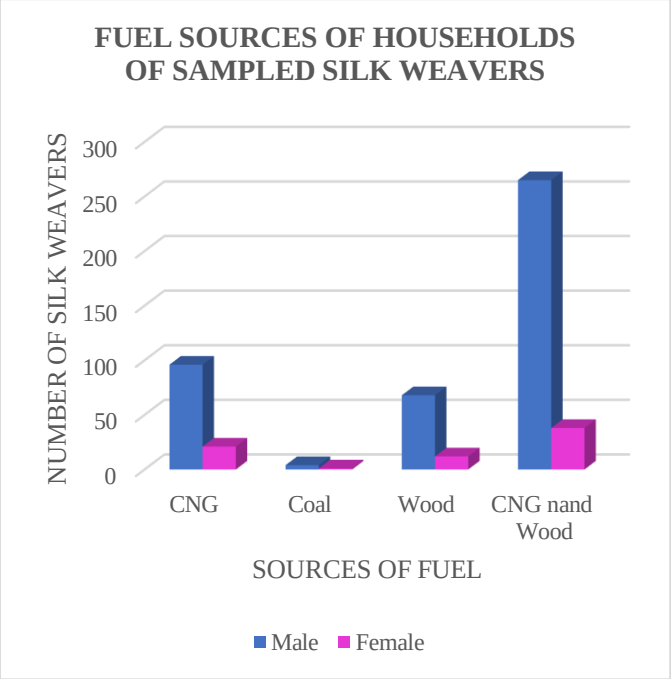

FIGURE- 3.31.

SOURCE- FIELD SURVEY

3.10.10. WORKING EXPERIENCE

Working experience is the time a young person, typically a student, spends working for a business or organization to gain experience in a specific field of work. It shows from the present study (Table- 3.32.) that 1.78% of male weavers to the total weavers have less than 10 years of working experience, 17.23% of male weavers and 8.12% of female weavers to the total weavers have 10 to 20 years of working experience, 39.21% of

male weavers and 3.56% of female weavers to the total weavers have 21 to 30 years of working experience, 21.19% of male weavers and 2.57% of female weavers have 31 to 40 years of working experience and 6.34%of male weavers to the total weavers have more than 40 years of working experience.

TABLE- 3.32. WORKING EXPERIENCE OF SAMPLED SILK WEAVERS

WORKING EXPERIENCE	SILK WEAVERS (IN NUMBER)		SILK WEAVERS (IN %)	
	Male	Female	Male	Female
<10	9	0	1.78	0
10 To 20	87	41	17.23	8.12
21 To 30	198	18	39.21	3.56
31 To 40	107	13	21.19	2.57
>40	32	0	6.34	0

Source- Field Survey

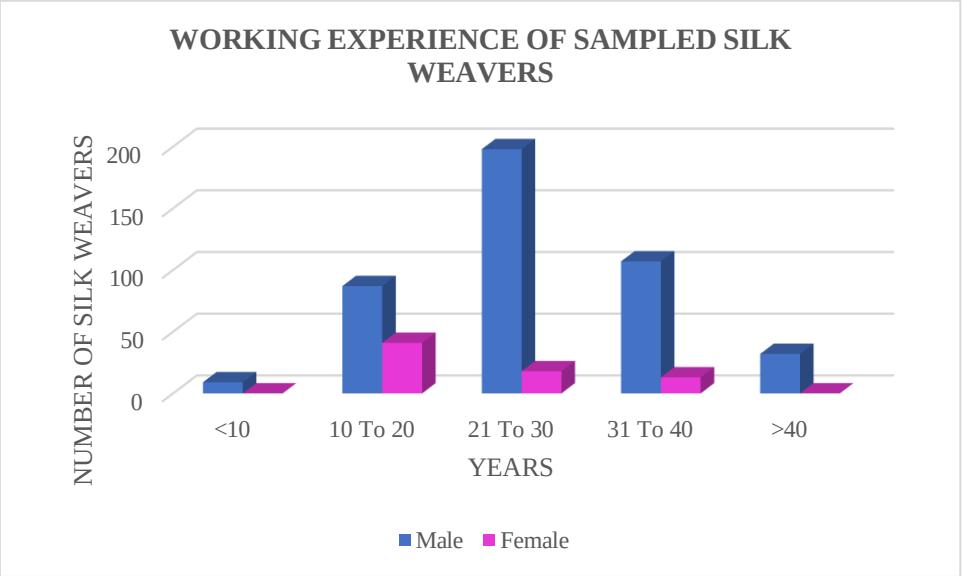

FIG. 3.32.

SOURCE-FIELD SURVEY

3.10.11. WORKING ORGANISATION

It is evident from the study (Table- 3.33.) 22.77% of the male weavers to the total weavers are working under Mahajan, Cluster as well as Khadi; 23.37% of the male weavers and 9.50% of the female weavers to the total weavers are working under Mahajan and not registered under any government organisations; 50.3% of the male weavers and 4.75% of the female weavers to the total weavers are working under Mahajan and cluster; 3.56% of the male weavers are working under Mahajan and though not working for co-operatives but registered under co-operatives.

TABLE-3.33. WORKING ORGANISATION OF SAMPLED SILK WEAVERS

Working Organisation	**Silk Weavers (In Number)**		**Silk Weavers (In %)**	
	Male	Female	Male	Female
Mahajan, Cluster and Khadi society	115	0	22.77	0
Mahajan	118	48	23.37	9.50
Mahajan, Cluster	254	24	50.3	4.75
Mahajan, Co-operatives	18	0	3.56	0

Source-Field Survey

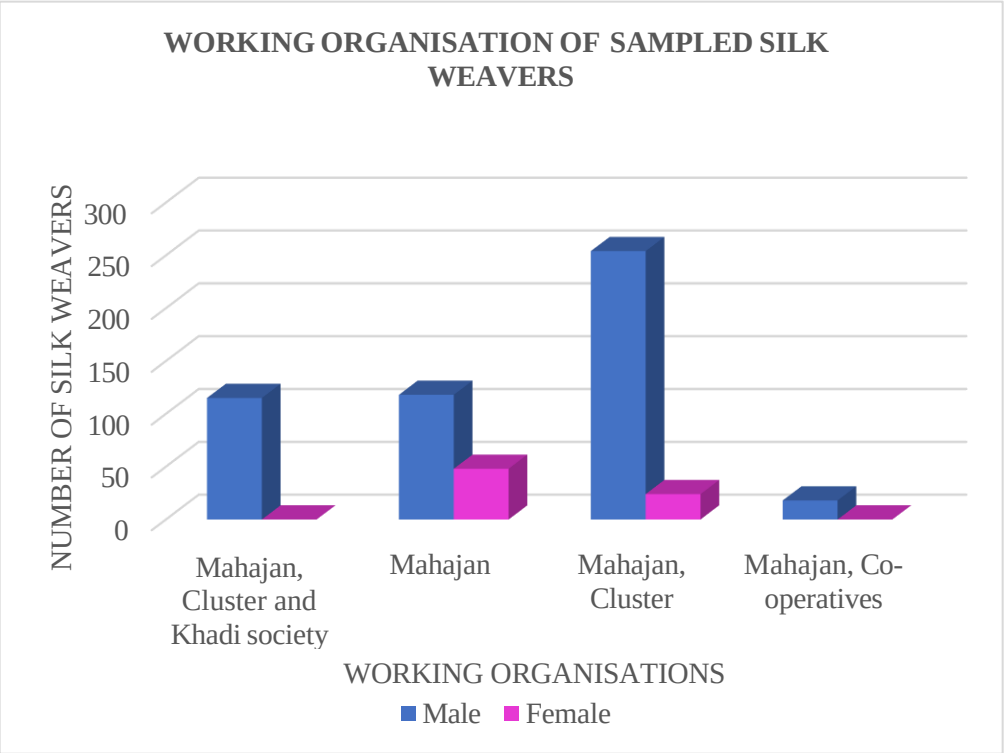

FIG. 3.33.

SOURCE-Field Survey

3.10.12. MONTHLY INCOME RANGE

Income is the consumption and savings and opportunity gained by an individual within a specified time frame, which is generally expressed in monetary value. It shows from the present study that (Table-3.34.), 7.33% of male weavers and 6.14% of female weavers to the total weavers are earning INR 3500 To 4500; 14.06% of male weavers and 4.55% of female weavers to the total weavers are earning INR 4501 to 6000; 16.44% of the male weavers and 3.56% of female weavers are earning INR 6001 to 7500; 26.34% of the male weavers are earning INR 7501 to 9000; 10.69% of the male weavers to the total weavers are earning INR 9001 to 10500; 6.14% of the male weavers to the total weavers are earning INR 10501 to 12000; and 4.75% of the male weavers to the total weavers are earning INR 12001 to 13500 monthly.

TABLE-3.34. MONTHLY INCOME RANGE OF SAMPLED SILK WEAVERS

Income Ranges	Silk Weavers (in number)		Silk Weavers (in %)	
	Male	Female	Male	Female
3500 To 4500	37	31	7.33	6.14
4501 To 6000	71	23	14.06	4.55
6001 To 7500	83	18	16.44	3.56
7501 To 9000	133	0	26.34	0
9001 To 10500	54	0	10.69	0
10501 To 12000	31	0	6.14	0
12001 To 13500	24	0	4.75	0

Source- Field Survey

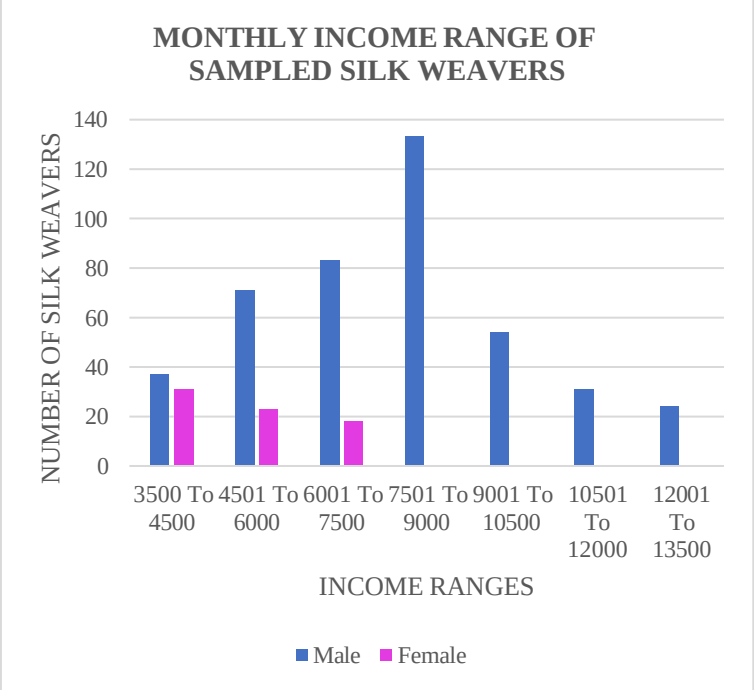

FIG. 3.34.

SOURCE- FIELD SURVEY

3.10.13. DEBT

The weavers mainly work under organizations from where they get the silk yarn for weaving, and they only do the weaving on the basis of wages, so they don't need (97.82%) debt at all. Only a few weavers (2.18%) mark debt as a necessity, as they borrowed money from the Mahajan's because of their personal use, such as their daughter's marriage or for repairing their own houses (Table-3.35.)

TABLE- 3.35 NECESSITY OF DEBT AMONG THE SAMPLED SILK WEAVERS

NECESSITY OF DEBT	Silk Weavers (In Numbers)		Silk Weavers (In %)	
	Male	Female	Male	Female
YES	2	9	0.4	1.78
NO	431	63	85.35	12.48

Source- Field Survey

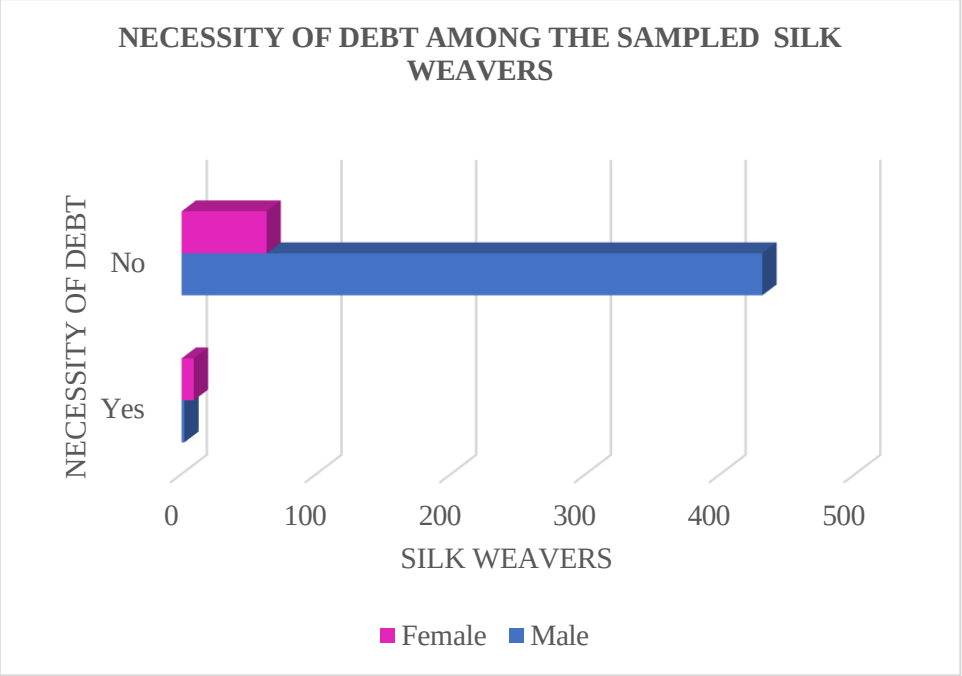

FIG. 3.35.

Source- Field Survey

3.10.14. SAVINGS OF MONEY

Most of the Silk weavers save money (82.57%) for their future whereas 17.43% of the silk weavers cannot save money because of the low wages (Table-3.36.).

TABLE- 3.36. TENDENCY OF SAVINGS OF MONEY AMONG SILK WEAVERS

Saving Tendency	Silk Weavers (In Numbers)		Silk Weavers (In %)	
	Male	Female	Male	Female
Yes	401	16	79.41	3.17
No	32	56	6.34	11.09

Source- Field Survey

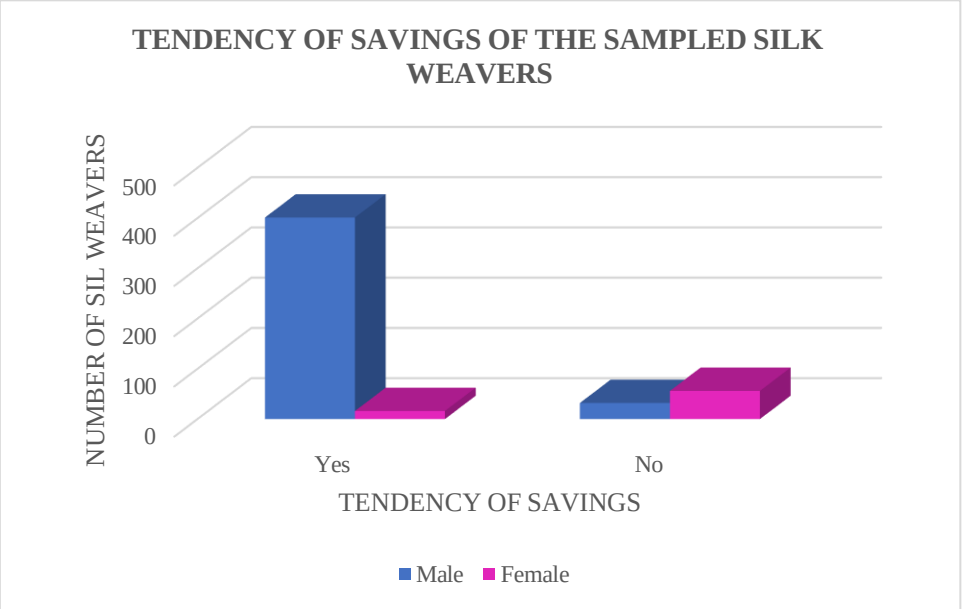

FIG. 3.36

Source- Field Survey

3.10.15. CONSUMER DURABLLES

Table (Table-3.37.) shows the details about the consumer durables made by the sample silk weavers of the study area. Consumers of fans are the highest, where all the sample respondents said yes to it. Consumers of bicycles occupied the second position, and 367 respondents said yes to it. Consumers of television occupied third position, and 42

sample silk weavers said yes to it; the consumers of motor cycles are 22, followed by the consumers of refrigerators are 18, and the number of consumers of coolers and mopeds is the same, which is 11**.**

TABLE- 3.37. OWNERSHIP OF DURABLE GOODS OF SAMPLED SILK WEAVERS

Consumer Durables	**Yes**	**No**	**Total**
Fan	505	0	505
Cooler	11	494	505
Television	42	463	505
Fridge	18	487	505
Generator	0	505	505
Water Purifier	0	505	505
Bi Cycle	367	138	505
Motor Cycle	22	483	505
Moped	11	494	505

Source- Field Survey

3.11. DISTRIBUTION OF INCOME AND MEASUREMENT OF INCOME INEQUALTY OF THE WEAVERS

Monthly income of the weavers is the total wages they got, and the wages is on the basis of per than or saree. The looms of the weavers are mainly made by their forefathers and so as a matter of fact they did not have to bear the establishment cost of their looms. Maintenance of looms are not required frequently and the cost of maintenance per year is around 500 rupees though, in maximum cases it seems that the Mahajans (middle man) and businessmen, under whom weavers are working, bearing the cost so, the cost is mostly negligible. The preparatory work before weaving is mostly done by the other female family members and so the weavers don't have to pay the charge to anyone. Only those weavers who don't have any helping hand for doing the ancillary works have to pay the extra charges though the number is very less and mostly, they are female weavers or the kind of weaver family where the other member is aged.

Lorenz Curve has been done to show the distribution of income of weavers (Table-3.38,) and further to measure the income inequality statistically Gini Coefficient has been used (Table-3.39.).

TABLE- 3.38. CALCULATION OF LORENZ CURVE SHOWING THE DISTRIBUTION OF MONTHLY INCOME OF THE SILK WEAVERS

Monthly Income Range	No. of Silk Weavers	Average Income	Percentage of Number of Silk Weavers to total number of Silk Weavers	Percentage of Average Income to total Average Income	Cumulative % of Number of Silk Weavers to total number of Silk Weavers	Cumulative % of Average Income to total Average Income
0	0	0	0	0	0	0
3000 To 4500	68	3750	13.4653	6.4932	13.47	6.4932
4501 To 6000	94	5250.5	18.6139	9.0913	32.08	15.58
6001 To 7500	101	6750.5	20	11.6886	52.08	27.27
7501 To 9000	133	8250.5	26.3366	14.2858	78.42	41.56
9001 To 10500	54	9750.5	10.6931	16.8831	89.11	58.44
10501To 12000	31	11250.5	6.1386	19.4804	95.25	77.92
12001 To 13500	24	12750.5	4.7525	22.0776	100	100

Source- Field Survey

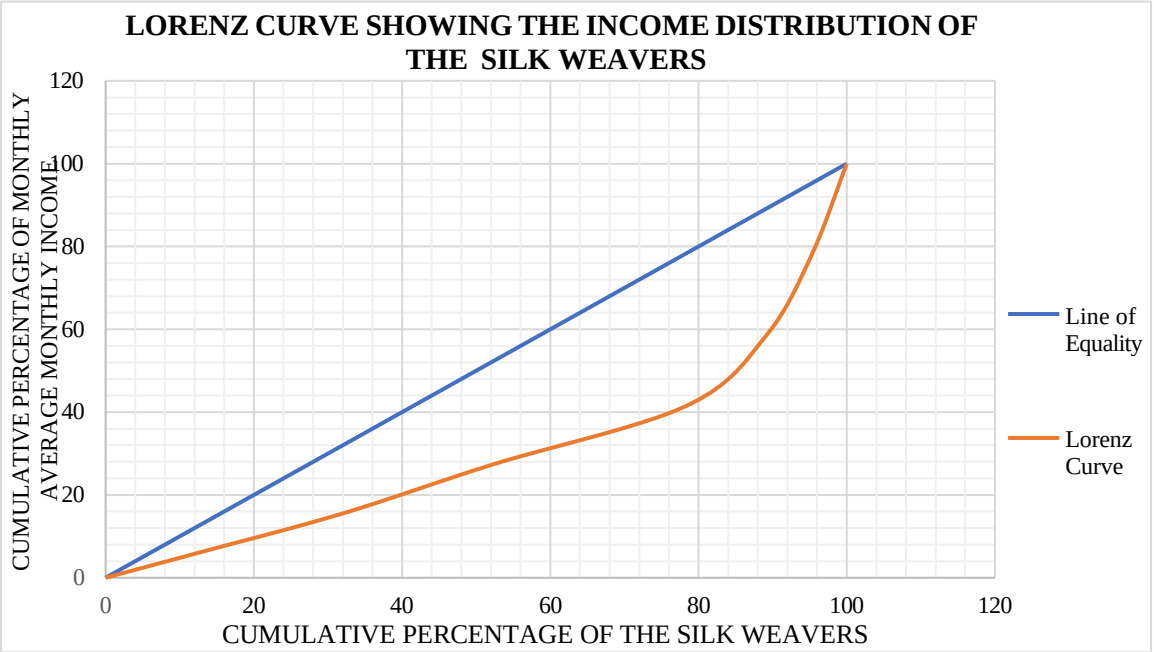

FIG. 3.37.

Source- Field Survey

TABLE-3.39. CALCULATION OF GINI COEFFICIENT

Proportion of Average Income to Total Average Income	**Proportion of Weavers to Total Number of Weavers**	**Cumulative Proportion of Average Income to Total Average Income (Y)**	**Cumulative Proportion of Weavers to Total Number of Weavers (X)**	**(X_K-X_{K-1})**	**(Y_K+Y_{K-1})**	**$(X_K-X_{K-1})(Y_K+Y_{K-1})$**
0.0649	0.1347	0.0649	0.1347	0.1347	0.0649	0.01
0.0909	0.1861	0.1558	0.3208	0.1861	0.2207	0.04
0.1169	0.2	0.2769	0.5208	0.2	0.4327	0.09
0.1429	0.2634	0.4229	0.7842	0.2634	0.6998	0.18
0.1688	0.1069	0.5888	0.8911	0.1069	1.0117	0.11
0.1948	0.0614	0.7848	0.9525	0.0614	1.3736	0.08
0.2208	0.0475	1	1	0.0475	1.7856	0.08
						$\sum=$ 0.59

Source- Field Survey

The value of Gini Coefficient is calculated to be 1-0.59=0.41. Gini coefficient value between 0–0.3 indicates relative equality, 0.3–0.4 indicates adequate equality and greater than 0.4 indicates that there is a big income gap and the value 0.41 fall under this category.

3.12. ANALYSIS OF FACTORS BEHIND THE INCOME INEQUALITY OF THE SILK WEAVERS

Gender and age are the main physiological factors affect the income of the weavers. The weavers above the age group of 60 cannot able to earn more as weaving is a labour-intensive work and also needs a good eye sight, though they have much more experience. A young weaver (30-40 years) and a middle-aged group weaver (40-50 years) can weave a saree within 2-3 days or a raw than within 3-4 days after working for 10-12 hours daily and automatically their monthly income is ranges in between 10000 to 13000 INR whereas, the weavers above 55 age group cannot work at a stretch and takes 4-5 days to finish a saree and sometimes a week to finish a silk than, and so their earnings are ranges in between 4000 to 6000 INR per month. The premium quality products are mainly produced by the young weavers working under Mahajans, as these products need to be of best quality and accuracy, and for that good eye sight is needed. The mahajan's clients are textile store owners in various metropolitan and semi-urban locations and so they get a huge order of premium quality product. The wages for these products are ranges in between 900 to 1000 INR per than whereas for other quality than, it ranges in between 600 to 800 INR.

There is a calculation explained by the officials of Directorate of Textiles, Handlooms, Spinning Mills, Silk Weaving and Handloom based Handicrafts Division, Office of the Handloom Development Officer, Berhampore that approximately 1.5 people are required per loom to do the ancillary preparatory works related to weaving other than the weaver and this ancillary works have been done by the women dominantly. In maximum cases the male weavers have got this privilege of having one or sometimes more than one helping hands as their female family members help them by doing all the ancillary works whereas female weavers are unable to work for more hours as they have to manage all their household works and in maximum cases, they are not getting any helping hands as the male members of their families are engaged with other professions.

The locational factor of the weavers' village is always be considered as an economical privilege for them. The village Tantipara is situated near the main road and well connected by direct bus and trekker with the head quarter of the district Berhampore. The Jiaganj railway station is only 8 to 10 mins by rickshaw (a three wheeled passenger cart) from the village Tantipara and well connected with Behrampore as well as the capital of the state of West Bengal, Kolkata and as a matter of fact, the village is easily accessible for the direct buyer and the businessmen of Kolkata. The weavers of the villages near the location of the tourist spot get direct work. The Hazarduari Palace located in Mushidabad Jiaganj block, is a famous tourist attraction of the state West Bengal is only 7 to 8 Kms away from Tantipara village. The other famous tourist places Kathgola Bagan Bari, Jafarganj cemetery, located in Murshidabad Jiaganj block, is only few kms from the Tantipara village. As Murshidabad is famous for its silk sarees and garad sarees in all over the world, in search of these sarees. most of the tourists are willing to visit the weavers' village and as Tantipara is the nearest village which is famous for silk weaving especially for garad sarees, automatically get marketing opportunity. The Bari Kothi, which was built in late 1700s was the house of the Rajasthani businessmen called 'Sherawalis' has now restored and turned into the first grand heritage hotel in East India, promotes sustainable tourism. This hotel also organises a textile tour which includes visit and interact with the weavers of Tantipara village which give them a scope to display their talents and help them to sell their products. The Dangapara village is around 11 Kms away from Daulatabad, which is the nearest bus stoppage while coming from the headquarter Berhampore and is situated on Berhampore - Islampur high road, the road condition between Daulatabad and Dangapara is very pathetic. So, because of the location and the road condition this weaving rich community of the village Dangapara is still out of reach and dominated by mahajani activities and no such direct buyer or retail businessman can reach this village frequently. Harharia chwak are only 23 Kms away from the headquater of Murshidabad, Berhampur and are directly connected by bus and they are frequent. Nagar and Margram are the another two well connected villages of Murshidabad district and are only few metres away State Highway 7 and also connected with an important block of Murshidabad, Nabagarm.

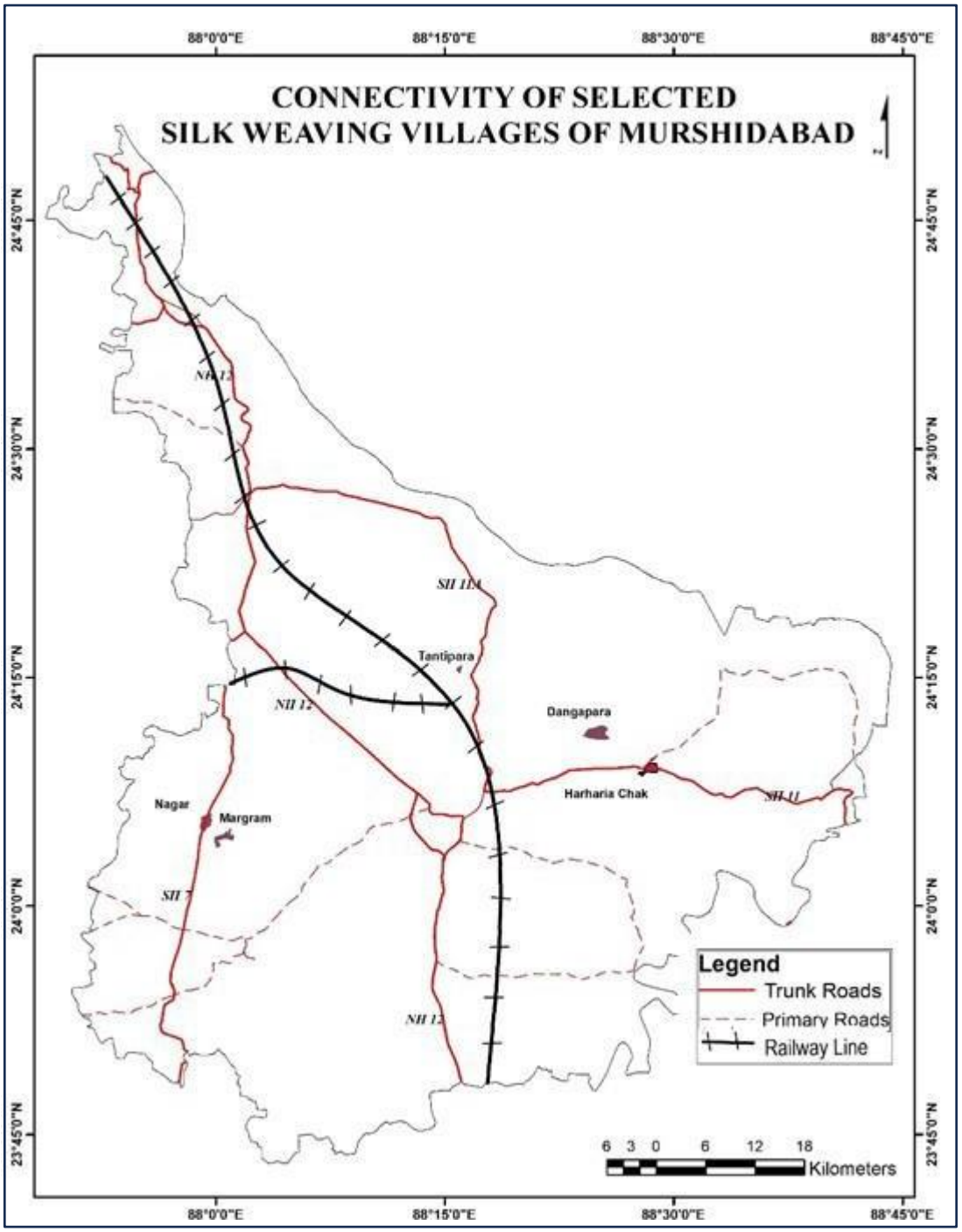

FIG. 3.38.

Source- NASA Socio Economic Data and Application Centre's website; District Survey Report of Murshidabad District, November 2021; and Open Street Map.

Garad saree is one of the most renowned and demanding sarees in the world and only produced in Murshidabad. The Tantipara of Murshidabad Jiaganj block is among one of the villages, dominated by garad saree weaving. The wages of per Garad saree is ranges in between 975 to 1100 INR. Weavers usually take 2 days to 4 days for weaving and it seems that the weavers weaving these sarees are with medium age group, (less than 50 years) and can weave 8 to 10 garad sarees per month so automatically their monthly earning goes around 8000 to 11000 INR and this garad saree weavers are only working under mahajans, whereas, the Dangapara village as well as the Nagar and Margram villages are dominated by raw than weaving and their wages per silk than ranges in between 600 to 1000 INR (depending on the than quality), and it takes average 3 to 4 days for weaving and weavers having higher age group sometimes take 5 to 7 days for weaving and their average income is in maximum cases, in between 6000 to 9000 INR (depending on the age group) per month which is less than the weavers of Tantipara village. Spun silk is a famous form of silk mainly weaved in Raninagar 1 block and concentrated in Harharia Chawk village. Maximum of the weavers here are working for both the Mahajan and also sometimes work for cluster, so they can avail the government facilities and also for the khadi society. The wages of per matka than given by the mahajan is ranges between 1000 to 1100 whereas in cluster it ranges between 700 to 800 and weavers with older age group usually take 4 to 5 days to weave a matka than and a weaver with medium age group take 3 days and so their income varies between 5000 to 10000 rupees.

To prove the relationship in between the above factors with the income of the weavers by proving the below mentioned hypothesis Chi Square test has been used (Manjhi,2015) (Table-3.41., 3.42., 3.43.).

Null Hypothesis: There is no relation between the variables.

Alternative Hypothesis: There is significant relation between the variables.

TABLE- 3.41. GENDER OF THE WEAVERS

Gender	Monthly Income Range							
	3000 To 4500	4501 To 6000	6001 To 7500	7501To 9000	9001 To 10500	10501 To 1200	12001 To 13500	Total
MEN	37	71	83	133	54	31	24	433
WOMEN	31	23	18	0	0	0	0	72
X^2= 103.86		Sig. level= 0.05						
df=5		Table value=11.070						

Source- Field Survey

TABLE- 3.42. AGE GROUPS OF THE WEAAVERS

AGE GROUPS	Monthly Income Range							
	3000 To 4500	4501 To 6000	6001 To 7500	7501 To 9000	9001 To 10500	10501 To 12000	12001 To 13500	TOTAL
<25	0	0	0	0	0	14	21	35
25-35	0	0	0	0	29	17	3	49
36-45	0	0	11	89	25	0	0	125
46-55	0	56	88	44	0	0	0	188
56-65	42	27	2	0	0	0	0	71
>65	26	11	0	0	0	0	0	37
X^2=1132.3		Sig. level= 0.05						
df=30		Table value=43.773						

Source- Field Survey

TABLE- 3.43. RESIDENTIAL VILLAGES

Villages	Monthly Income Range							
	3000 To 4500	4501 To 6000	6001 To 7500	7501 To 9000	9001 To 10500	10501 To 12000	12001 To 13500	TOTAL
Nagar	40	40	40	53	26	4	6	209
Margram	10	25	18	21	8	2	2	86
Dangapara	4	6	8	10	2	4	2	36
Tantipara	0	0	10	20	9	13	11	63
Harharia Chak	14	23	25	29	9	8	3	111
X^2= 92.62		Sig. level= 0.05						
df=24		Table value=36.415						

Source- Field Survey

For all the above three cases (Table-3.40., 3.41., 3.42.), after comparing the calculated value and the tabulated value it shows that calculated value is greater than the tabulated value ($X^2_{calculated} > X^2_{tablular}$) and so the null hypothesis has been rejected and the alternative hypothesis has been accepted and it proves that there is a relation in between age, gender and the location of the weaver's village with the income of the weavers.

CHAPTER- 4

ROLE OF WOMEN IN SERICULTURE AND SILK WEAVING INDUSTRY

4.1. INTRODUCTION

In actuality, it is discovered that women generally shoulder two burdens during the growth process: one on the economic front and one on the household front. It has been observed that women work while the rest of the family is relaxing. In order to keep their families financially stable, women have also been forced to engage in income-generating activities both within and outside the home.

In India, women are typically categorized as "homemakers," yet they simultaneously work to support their families and also women make up over half of the agricultural workforce. Despite the fact that the majority of Indian rural women work 16–18 hours a day both within and outside the home, their significance and contribution to the family's growth have not been adequately acknowledged (Sarkar et al., 2017). The family's nutritional, financial, and educational advancement greatly depends on the income of the women in the household and in general, it shows that, rural areas the family uses the money earned by women more profitably for their social and economic advancement (Goswami, & Bhattacharya, 2013).

The majority of workers in the unorganized sector are women (Dutta, et al., 2021). The majority of them work in household-based and agro-based occupations such dairying, fishing, small-scale animal husbandry, hand looming, handicrafts, and sericulture, where they frequently perform unpaid family labor.

Nursing children is a natural ability of women. This motherly care instinct can be used by women to raise silkworm larvae (Kasi, 2013). Mulberry silk comes from the completely domesticated Bombyx mori L silkworm, which is produced inside. Women are able to work in the house by raising this silkworm. Due to deeply rooted social taboos, traditions, and customs, most rural women are discouraged from working outside away from home or on someone else's property (Goswami, & Bhattacharya, 2013); secondly, sericulture activities can be adjusted with the other household work as it has flexible working hours and so, Sericulture is therefore advantageous for women in this setting. In addition, raising silkworms indoors necessitates regular feeding intervals, ongoing attention, and vigilant watchfulness. Cutting leaves, feeding, cleaning the bed, spacing the worms, mounting, and disinfecting are all part of the silkworm rearing process specially done by women (Miranda et al. 2018). Silk is an extremely fine, delicate thread and so silk reeling that should only be handled by women because of their delicate hands. As a result, women are more qualified for these positions and are found to run the entire sector.

Women have played a significant role in handloom weaving throughout history, as weaving needs skill and patience but, because their work is typically domestic in nature, their contributions are frequently overlooked. Since weaving involves the entire family, women will still be employed in the related industry even if they are not weaving. In addition to weaving, women have traditionally. The primary weaver for a handloom needs 2 allied workers, if not then atleast one, to perform the majority of the ancillary preparatory tasks associated with weaving, all of whom are women and come from the same family. While female weavers are unable to work longer hours due to managing all household chores and, in the majority of cases, not receiving any assistance because the male members of their families are working in other professions, male weavers typically enjoy the privilege of having one or occasionally multiple helping hands as their female family members assist them with all ancillary tasks, where their female members' labor contribution remains unpaid.

The unpaid labor that is primarily done by women is not included in the so-called labor force survey, employment and unemployment survey, or census (Chakraborty, 2019). So, it is important to analyse the role of an women as an unpaid labor or as a paid weaver in the silk sector and their economical contributions to their family as their efforts went unappreciated despite their determination and persistence (Bukhari et al., 2019).

Since women make up over 60% of the labor and consume 80% of silk, it is an occupation by and for women (Bukhari et al., 2019) and it conclude that, they have a vital role in this industry both as a producer as well as a consumer. So, it is necessary to analyse the role of women in the sericulture and silk weaving industry and also their Socio-economic characteristics.

4.2. SOCIO ECONOMIC CHARACTERICTS OF WOMEN ENGAGED IN SERICULTURE

The ultimate aim of social development is to gradually enhance the well-being of people, families, communities, and society at large. The employment and income generation of rural women could serve as a gauge of the nation's social development and advancement (Sarkar et al., 2017).

4.2.1. AGE GROUP

The time that has passed between a person's date of birth and a particular moment in time, typically expressed in years, is the operational definition of age. Table (Table-4.1.) shows that 16.61% of the women engaged with sericulture belong to the less than

25 age group, 19.43% of the women engaged with sericulture belong to the 25 to 35 age group, 25.7% of the women engaged with sericulture belong to the 36 to 45 age group, 21.63% of the women engaged with sericulture belong to the 46 to 55 age group, 12.23% of the women engaged with sericulture belong to the 56 to 65 age group, and 4.39% of the women engaged with sericulture belong to the greater than 65 age group.

TABLE- 4.1. AGE GROUP OF WOMEN ENGAGED WITH SERICULTURE ACTIVITIES

Age Group	NO. OF WOMEN	WOMEN (IN %)
<25	53	16.61
25-35	62	19.43
36-45	82	25.7
46-55	69	21.63
56-65	39	12.23
>65	14	4.39

Source- Field Survey

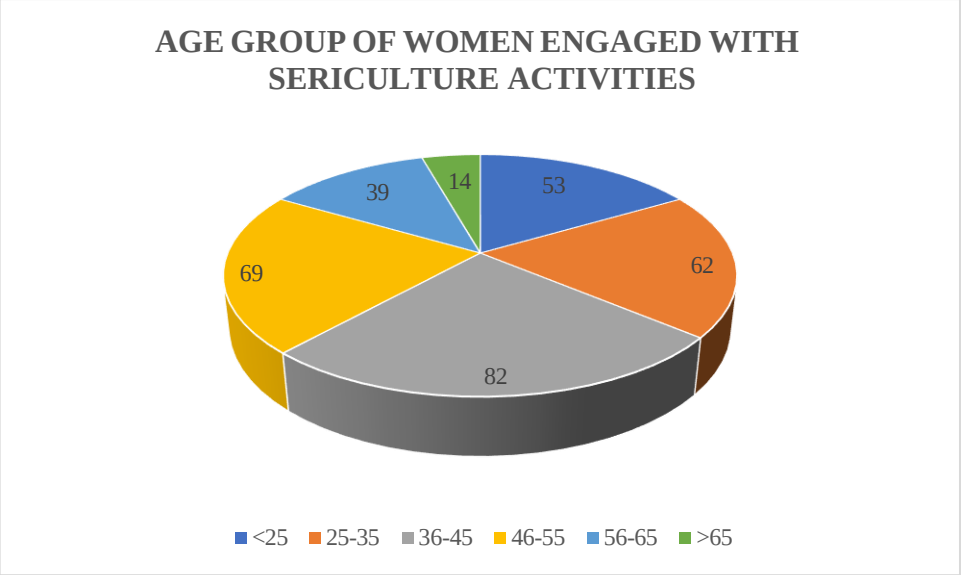

FIGURE- 4.1.

Source- Field Survey

4.2.2. LEVELS OF EDUCATION

The many phases of formal education that people go through, such as, the length of time they spend in school are referred to as their educational level. Table 4.2. shows that 18.49% of women engaged with sericulture are illiterate, 19.12% of them have primary school education, 25.39% of them have middle school education, 19.74% of them have secondary education, 15.36% have higher secondary education and 1.88% are graduate.

TABLE- 4.2. LEVELS OF EDUCATION OF WOMEN ENGAGED WITH SERICULTURE

LEVELS OF EDUCATION	NUMBER OF WOMEN	WOMEN (IN %)
Illiterate	59	18.49
Primary School	61	19.12
Middle School	81	25.39
Secondary School	63	19.74
Higher Secondary School	49	15.36
Graduation	6	1.88

Source- Field Survey

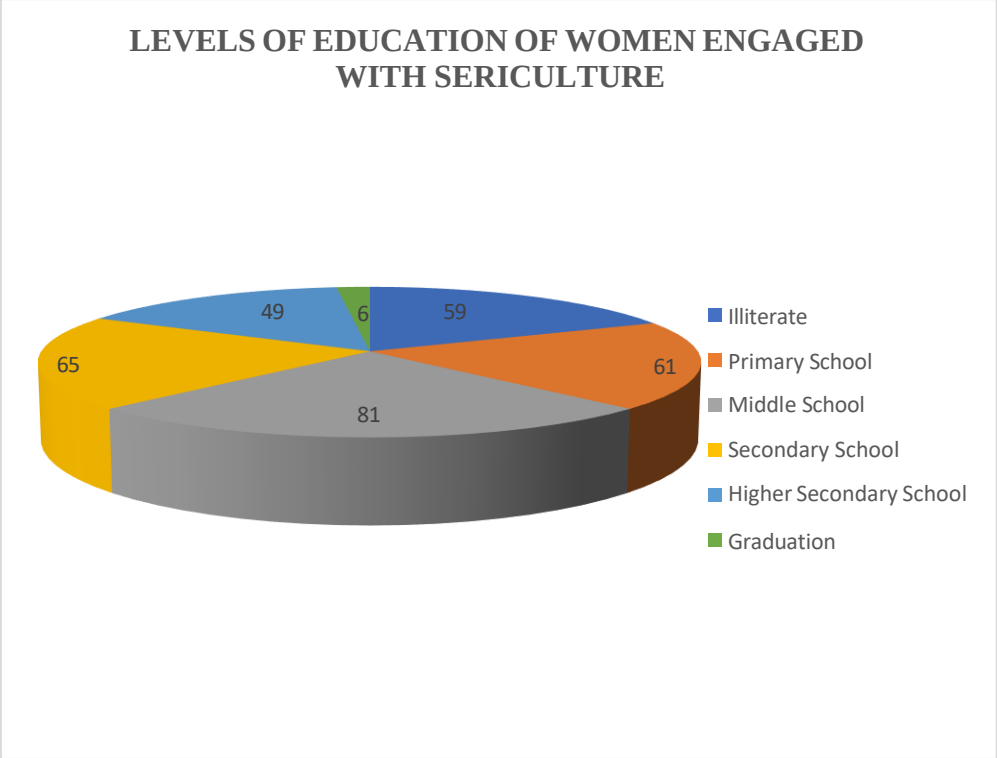

FIG. 4.2.

SOURCE-FIELD SURVEY

4.2.3. MARITAL STATUS

A person's legal or personal standing in respect to marriage laws and customs is known as their marital status. Table 4.3. shows that 38.24% of the women engaged with sericulture are married; 11.91% of them are unmarried; 49.84% of them are widow.

TABLE-4.3. MARITAL STATUS OF WOMEN ENGAGED WITH SERICULTURE

MARITAL STATUS	NUMBER OF WOMEN	WOMEN (IN %)
Married	122	38.24
Unmarried	38	11.91
Widow	159	49.84

Source- Field Survey

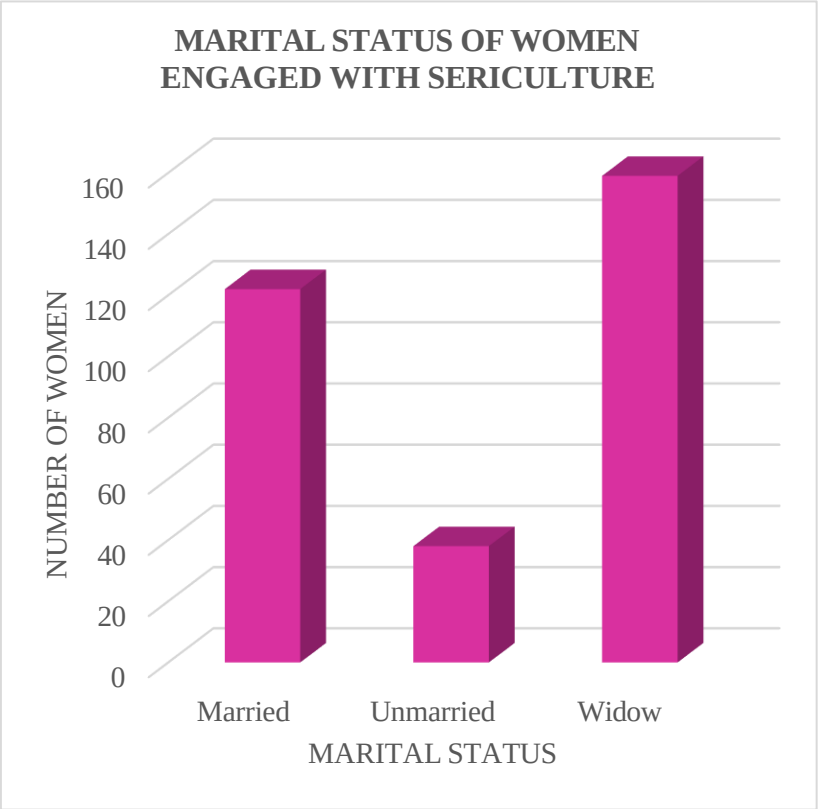

FIG. 4.3.

Source- Field Survey

4.2.4. ROLE OF WOMEN IN SERICULTURE

- **TYPES OF SERICULTURE ACTIVITIES ENGAGED BY THE WOMEN**

There are several features of sericulture that make it perfect for women to engage in. First of all, it is an indoor activity that is suitable for the traditional rural Indian lifestyle and may be conducted near homes with less manual labor. Second, due of its flexible work hours, it may be adapted to fit in with other household chores.

It is evident from the study (Table-4.4.) that only 14.8% of sericulturist's family's women are engaged in the outdoor activities related to sericulture such as plucking of leaf for feeding the silkworm. Whereas 85.2% are engaged in the indoor activities such as Cutting leaves, feeding, cleaning the bed, spacing the worms, mounting, cleaning, disinfection of rearing houses for the preparation of next rearing etc.

TABLE-4.4. TYPES OF SERICULTURE ACTIVITIES ENGAGED BY THE WOMEN

Sericulture Activities	Number of Families	Families (IN %)
Outdoor	29	14.8
Indoor	167	85.2

SOURCE- FIELD SURVEY

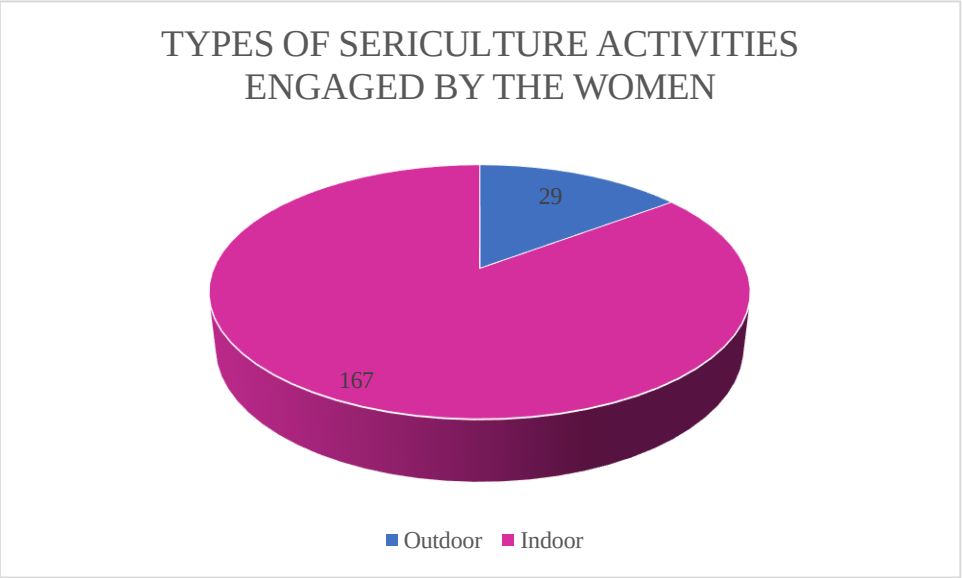

FIG.4.4.

Source- Field Survey

- **SAVINGS OF LABOUR COST BY THE FEMALE ENGAGED IN SERICULTURE**

TABLE-4.5. NUMBER OF FEMALE ENGAGED IN SERICULTURE AND SAVINGS OF LABOUR COST BY THEM

NUMBER OF FEMALE ENGAGED IN SERICULTURE	SAVINGS OF LABOUR COST BY THE FEMALE ENGAGED IN SILKWORM REARING ACTIVITIES	NUMBER OF SERICULTURIST FAMILY
1	7500	73
2	3750	123

Source- Field Survey

By reducing the hired labourers and involving the family members in a household-based industry labour cost can be saved. In a same manner Involving female family members in sericulture the labour cost is saved. Generally, on per day basis labour cost for sericulture related activities whether it is plucking mulberry leaves from the plant, any indoor rearing activities or reeling is 300 rupees. As per the field survey, it shows that all the additional family labourers are female, as they are not engaged in other professions, and thus the labour cost of the sericulturists has been saved. The maximum labour force is needed in two phases during the silkworm rearing. 1st is during the 1st insta silkworm has to feed chopped mulberry leaves and as per the survey after hatching the first 10 days most labor is needed, and 2nd is after the 5th insta of the silkworm the rearing bed needs to be cleaned regularly. It is mandatory to keep the cocoons in sun at least for 2 to 3 days before spinning them; as per the sericulturists, the male sericulturists are busy in the other outdoor works, and because of their busy schedule, sometimes they forget to dry the cocoons in the sun, and so the fully developed moth makes their way out by cutting their cocoon and spoiling it, and so, in most cases, it's the duty of the female members of the sericulturist's family to do so. Table shows that 73 families have one female member engaged with sericulture activities, and 123 families have two female members engaged with sericulture activities from a

sericulturist's family other than the sericulturist. So, as per the sericulturist, if 2 female members are engaged with this activity other than them, the entire labour cost will be considered to be saved by them. If one of them is a male, then 50% of the labor cost savings is considered by the female. Table shows that 123 families are those from where 2 female members are engaged in sericulture activities and save the whole labour cost related to these activities, which is approximately 7500 rupees, by working for 25 days (a whole lifecycle of a silkworm, from egg to formation of a cocoon, takes approximately 25 days and sometimes more than that), and it also shows that 73 families are those where only one female member is engaged in silkworm rearing, other than the sericulturist himself, and save 3750 rupees per crop (Table-4.5.).

4.3. SOCIO ECONOMIC CHARACTERICTS OF WOMEN ENGAGED IN SILK WEAVING

Enhancing the well-being of individuals, families, communities, and society as a whole over time is the ultimate goal of social development. Rural women's employment and income production may be used as an indicator for the country's socioeconomic progress.

4.3.1. AGE GROUP

The operational definition of age is the amount of time, usually stated in years, that has elapsed between an individual's date of birth and a specific point in time. In the case of female weavers, there are 14.44% of women engaged in silk weaving activities belong to the less than 25 age group, 4.17% of the female weavers to the total female weavers and 33.27% of women engaged in silk weaving activities belong to the 25 to 35 age group, 31.94% of the female weavers to the total female weavers and 27.78% of women engaged in silk weaving activities belong to 36 to 45 age group, 58.33% of the female weavers to the total female weavers and 13.71% of women engaged in silk weaving activities belong to 46 to 55 age group, 5.55% of the female weavers to the total female weavers and 7.49% of women engaged in silk weaving activities belong to 56 to 65 age group; and there are 3.29% women engaged in silk weaving activities belong to the >65 age group.

TABLE- 4.6. AGE GROUP OF WOMEN ENGAGED IN SILK WEAVING SECTORS

AGE GROUP	NO. OF FEMALE WEAVERS	FEMALE WEAVERS (IN %)	NO. OF FEMALE ANCILLIARY WORKERS	FEMALE ANCILLIARY WORKERS (IN %)	TOTAL NUMBER OF WOMEN ENGAGED WITH SILK WEAVING SECTOR
<25	0	0	79	14.44	79
25-35	3	4.17	182	33.27	185
36-45	23	31.94	152	27.78	175
46-55	42	58.33	75	13.71	117
56-65	4	5.55	41	7.49	45
>65	0	0	18	3.29	18

Source- Field Survey

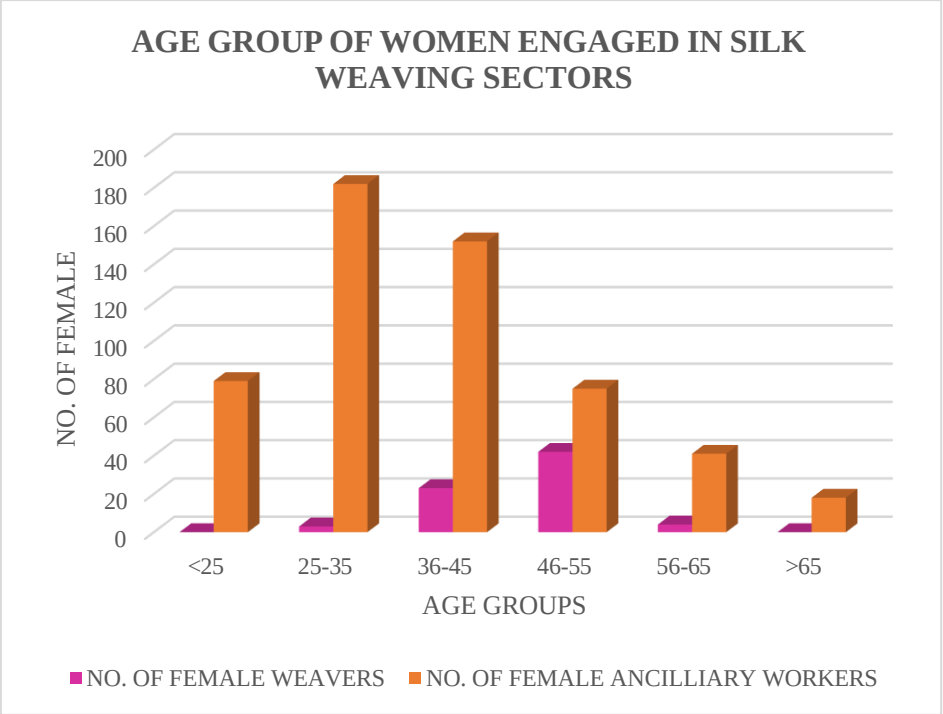

FIG. 4.5.

Source- Field Survey

4.3.2. LEVELS OF EDUCATION

People's educational level is defined by the many stages of formal education they undergo, including the amount of time they spend in school. Table show that 4.16% of female weavers to the total female weavers and 7.12% female ancillary workers engaged with the silk weaving industry are illiterate, 30.55% of female weavers to the total female weavers and 18.09% female ancillary workers engaged with the silk weaving industry have primary school education, 56.94% of female weavers to the total female weavers and 38.2% female ancillary workers engaged with the silk weaving industry middle school education, 5,55% of female weavers to the total female weavers and 25.22% female ancillary workers engaged with the silk weaving industry have secondary school education, 2.77% of female weavers to the total female weavers and 10.42% female ancillary workers engaged with the silk weaving industry have Higher secondary school education, there are no female weavers to the total female weavers are graduate and 0.91% female ancillary workers engaged with the silk weaving industry are graduate.

TABLE-4.7. LEVELS OF EDUCATION OF WOMEN ENGAGED WITH SILK WEAVING SECTOR

Levels of Education	No. of Female Primary Weavers	FEMALE WEAVERS (IN %)	No. of Ancillary Workers	Ancillary Workers (IN %)	TOTAL NUMBER OF WOMEN ENGAGED WITH SILK WEAVING SECTOR
Illiterate	3	4.16	39	7.12	42
Primary School	22	30.55	99	18.09	121
Middle School	41	56.94	209	38.2	250
Secondary School	4	5.55	138	25.22	142
Higher Secondary School	2	2.77	57	10.42	59
Graduation	0	0	5	0.91	5

Source- Field Survey

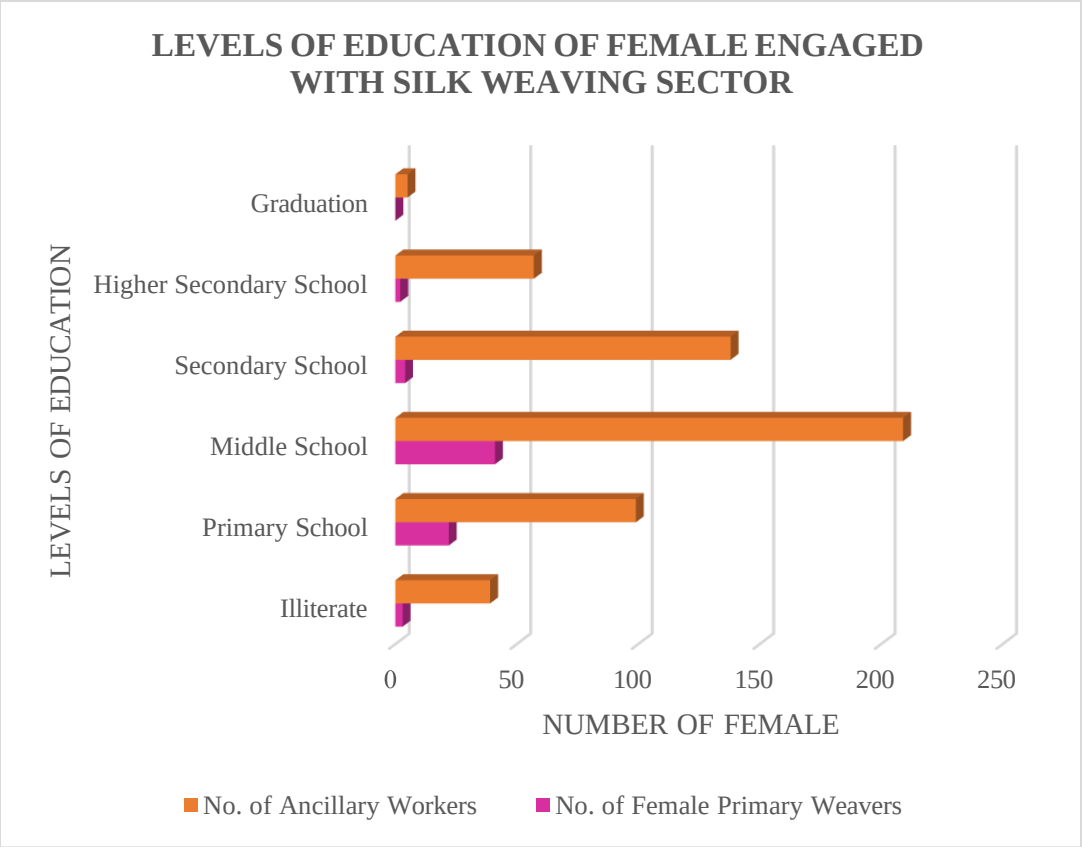

FIG. 4.6.

Source- Field Survey

4.3.3. MARITAL STATUS

A person's legal or personal standing in respect to marriage laws and customs is known as their marital status. Table shows (Table-4.8.) that 34.72% of the female weavers to the total female weavers and 38.2% female ancillary workers to the total ancillary workers are married; 10.42% of the ancillary female workers to the total ancillary workers are unmarried; 65.27% of the female weavers to the total female weavers and 51.37% of female ancillary workers to the total female ancillary workers are widow.

TABLE-4.8. MARITAL STATUS OF WOMEN ENGAGED IN SILK WEAVING INDUSTRY

Marital Status	Number of Female Silk Weavers	Female Weavers (IN %)	Number of Ancillary Workers	Ancillary Workers (IN %)	TOTAL NUMBER OF WOMEN ENGAGED WITH SILK WEAVING SECTOR
Married	25	34.72	209	38.2	234
Unmarried	0	0	57	10.42	57
Widow	47	65.27	281	51.37	328

Source- Field Survey

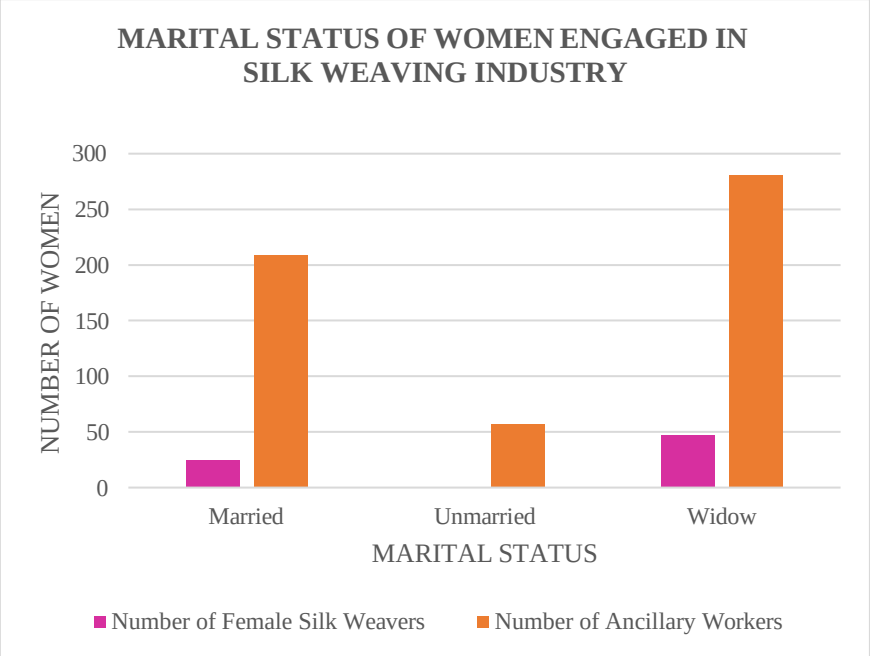

FIG. 4.7.

Source- Field Survey

4.3.4. ECONOMIC CONTRIBUTION OF THE WOMEN ENGAGED IN SILK WEAVING ACTIVITIES

The process of inserting warp (lengthwise yarns) yarn through reed is called denting and this process is to done before warping the warp yarn in the warp beam. After this process the warp yarn passes through the heald. A heald refers to a device used in weaving looms to control the movement of warp yarns during the weaving process. For denting and warping the yarn in warp beam weavers need one extra labourer other than the weaver and their charge varies between 200 to 300 and for passing the yarn through healed 250 rupees per warp beam is needed. Generally, women are engaged in the preparatory work of passing the yarn through healed as it is done in the weaver's house, whereas the process of denting and warping is done in the open field and in this activity, women are not involved. Yarn used in weft (the thread is used to weave between the warp threads horizontally) has to be reeled in a machine for making one single thread from two thread, before weaving. For one kg of making this thread labour cost is 150 rupees and the weight of winding yarn per than is 1400 gram. Generally, weavers wrap 66 m warping yarn in the warp beam at a time and if it is assumed that a weaver at least weave 66 than in a month then he needs 1400 × 6 = 8400 gram yarn for weft and labour cost needed for this is, 150 × 8.4 kg=1260 rupees. So, a weaver saves minimum 2000 rupees per month by involving the female members in ancillary works. The work load of the female members of a weaver's family mainly preparatory work of weft is depend on the weaving capacity of the respective weaver. It seems that in case of young weavers they can weave 10 than per month and so their female ancillary worker has to prepare weft yarn for 10 than respectively and so their female members can save an amount of approx. 14 kg of yarn is required for weft of 10 than and for that labour cost is 150 14 approximately 2100 rupees. Table shows the economical contribution of the female silk weavers and female ancillary workers to their families and the silk weavers from Tantipara village is not included (only 442 silk weavers' family are included) here as they are all male and loomless weavers, working under mahajan's shed and so, they don't need ancillary workers as the mahajan has done the whole preparatory work for weaving by themselves.

TABLE-4.9. ECONOMIC CONTRIBUTION OF FEMALE WEAVERS AND FEMALE ANCILLARY WORKERS TO THEIR FAMILY (per month)

Economic Contribution of female weavers and female ancillary workers to their family (per month)	No. of Weavers' Family	Percentage
<2000	112	25.33
2000 To 4000	279	63.12
4001 To 6000	33	7.46
>6000	18	4.07

Source- Field Survey

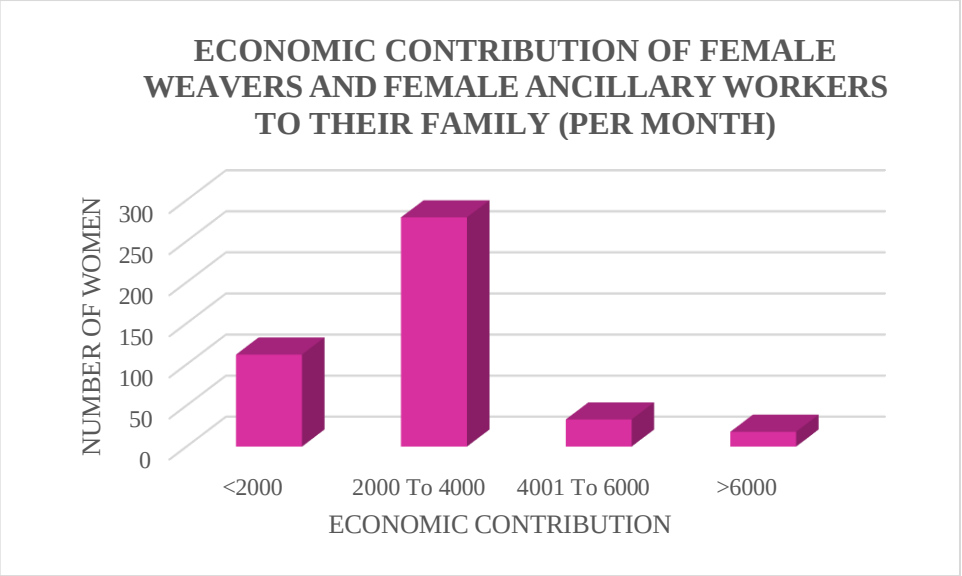

FIG.4.9.

SOURCE- FIELD SURVEY

From the study, it is evident (Table-4.9.) that in 25.33% of weavers' families, women's contribution is less than 2000 rupees; in 63.12%, weavers' family women's contribution is 2000 to 4000 rupees; in 7.46%, weavers' family women's contribution is 4001 to 6000; and in 4.07%, weavers' family women's contribution is less than 6000 rupees monthly by engaging in silk weaving activities.

CHAPTER 5

PROBLEMS AND MAJOR FINDINGS

5.1. PROBLEMS

Sericulturists and silk weavers are being considered as the root of silk industry and so it is necessary to discuss about the major problem faced by these two economic groups, as the problem faced by them are nothing but the problem of this industry. The following tables (Table-) are discussing about the major problems faced by the primary weavers. As per the severity weavers ranked the factors. With the help of Henry Garett's ranking method, it is further explained.

5.1.1. PROBLEMS FACED BY THE SAMPLED SERICULTURISTS

Due extreme heat during summer the mud house of the sericulturists get heated and because of absorbing heat, the delicate silkworms are not able to spin the coccon and so the sericulturists face a huge loss in the last stage of rearing. In many cases the silkworm eggs get wasted because of ant and rat. So, it is necessary to build a pucca concrete house for silkworm rearing.

At the fully mature stage, the silkworm starts mounting. Transferring mature silkworm larvae to a cocooning frame for spinning cocoons is known as mounting. After completing the spinning, the cocoon has collected, and the reeling process has to be started. If the reeling of the cocoon has not been started within time, the fully developed moth makes their way out by cutting their cocoon and spoiling it. The valuation of these cocoons is 700 rupees per kg. In some cases, it seems that some of the sericulturists still don't have proper reeling equipment, and so they are relying on other sericulturists equipment to be vacant, and it seems that due to the late start of the reeling process, sometimes their cocoons spoil as the developed moth inside it comes out, which affects their income too.

The sericulturists are not getting proper help from the government as they are not aware to how to get those facilities as there are fund assistance from government for construction of rearing houses and buying reeling equipment. It is evident from the Ttable 5.1. that maximum of the sericulturists has a problem of not having a separate rearing house (49.49%), followed by shortage of reeling equipment (27.55%) and not getting proper help from the government (22.96%).

TABLE- 5.1. PROBLEMS FACED BY THE SERICULTURISTS

Problems	No. of Sericulturists	Sericulturists (in Percentage)
Shortage of Reeling Equipment	54	27.55
Lack of Separate Rearing Rooms	97	49.49
Not getting proper help from the Government	45	22.96

Source- Field Survey

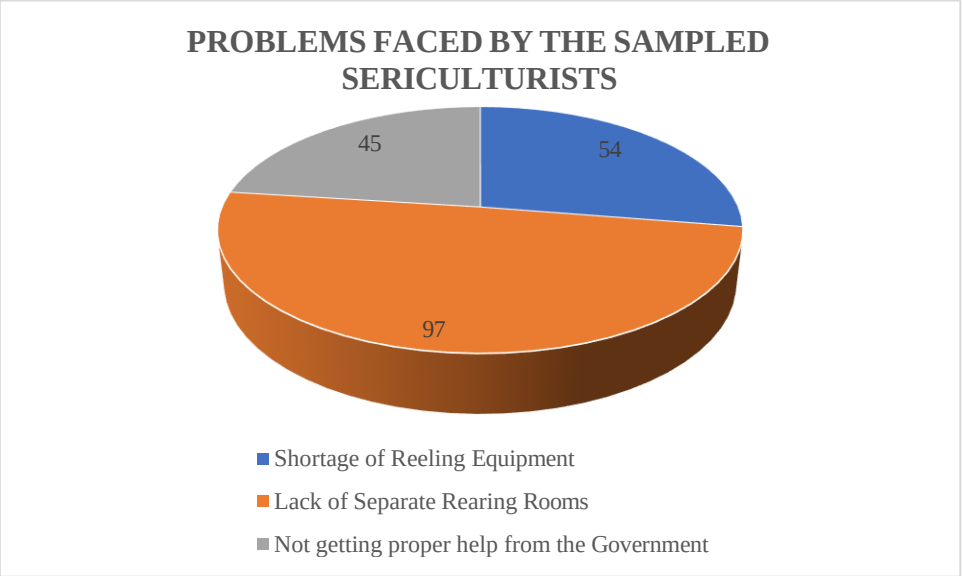

FIG. 5.1.

Source- Field Survey

5.1.2. PROBLEMS FACED BY THE SILK WEAVERS

Weavers are not getting any subsidized loan from the bank as majority of them don't have weaver's identity card and government is not taking proper initiative for this. The looms (300 pieces) which have distributed by the government with the help of Handloom Development Office, Berhampore, is not appropriate for silk weaving as the quality of silk is superior and soft. Though there is a new concept of making Block level clusters which has been introduced by the government and through this scheme weavers', those who don't have a separate room for weaving, got money for making it but, the problem is only the weavers registered under co-operatives are getting this facility. The condition of the co-operatives is not very good and so weavers are not getting regular work from these and so the weavers who are working under mahajans, just to get the government facilities maximum of the weavers from Dangapara village are still registered under co-operatives. There are some businessmen and Mahajan found in Tantipara village those who are working under khadi as well as, running their own business and the loomless weavers are working under these mahajans and business man at their houses. These weavers are not willing to work directly as a weaver of khadi, as Khadi societies can give work for an average 10 months and the per month wages have been transferred to the weavers' bank account and as it takes around 15 days for getting the payment through bank, it become a problem for the poor weavers to bear all the family expenditures and so they prefer to work under mahajans, though working under khadi societies is beneficial for them as these societies have many schemes to upgrade the future of the weavers' communities. The main problem is that there is no such structure through which the weavers can understand the benefits and the needfulness of working under government organizations. The weavers of Dangapara village don't have the courage to do direct marketing though it is more

beneficial for them but all they want is security of having work throughout the year and in many cases, it seems that in direct business, weavers are not able to get work regularly so as a matter of fact they are bound to work under the mahajans. The interior location and the pathetic road condition work as the major obstacles for the businessmen, to reach out Dangapara frequently whereas, the weavers of Tantipara village are sometimes getting the direct marketing opportunities. Low wages are always being the main problem for the weaver. Majority of the weaver are more than 45 years and they don't have any other work options to do. It seems that the wages of weavers are very low as compare to any other labourers' wages such as mason, painters etc. The young generations are not at all interested to do weaving because of low wages and other than this at least one family member is always be needed as a helping hand for doing the ancillary work and only exceptions can be observed for the cases of loomless weavers, as they are working under businessmen's shed and the other members of their family get an opportunity to be engaged in any other job. So maximum of the young generations of the weavers' family are not following their ancestors working trend.

The following tables (Table-5.2.,5.3.,5.4.,5.5. and 5.6.) are discussing about the major problems faced by the SILK weavers. As per the severity weavers ranked the factors. With the help of Henry Garett's ranking method, it is further explained (Zalkuwi et al. 2015).

TABLE- 5.2. PROBLEMS FACED BY THE SILK WEAVERS

Not Getting proper facilities from government	Factor 1
Not getting regular work from Co-operative, Khadi or clusters	Factor 2
No scope for direct marketing	Factor 3
Low wages	Factor 4

Source- Field Survey

TABLE- 5.3. RESPONDENTS GIVEN RANK FOR THE FACTORS

Factors	**1st**	**2nd**	**3rd**	**4th**
1	35	85	111	274
2	72	259	126	48
3	16	53	253	183
4	382	108	15	0

Source- Field Survey

TABLE- 5.4. PERCENT POSITION AND THEIR CORRESPONDING GARETT TABLE VALUES

Rank	**$100(R_{ij}-0.5)/N_j$**	**Percent Position**	**Garett Value**
1^{ST}	100(1-0.5)/4	12.5	72
2^{ND}	100(2-0.5)/4	37.5	56
3^{RD}	100(3-0.5)/4	62.5	44
4^{TH}	100(4-0.5)/4	87.5	27

Source- Field Survey

TABLE-5.5. THE TOTAL SCORE OF THE FACTORS

Factors	1^{ST} * 72	2^{ND} * 56	3^{RD} * 44	4^{TH} * 27	Total
F1	2520	4760	4884	7398	19562
F2	5184	14504	5544	1296	26528
F3	1152	2968	11132	4941	20193
F4	27504	6048	660	0	34212

Source- Field Survey

Table-5.6. AVERAGE SCORE AND RANK

Factors	Average Score	Rank
F1	38.74	2^{ND}
F2	52.53	3^{RD}
F3	39.99	4^{TH}
F4	67.75	1^{ST}

Source- Field Survey

The factor 4 which is the problem of low wages (Table-5.2.) is the main basic problem for all the weaver based on the above calculation (Table-5.6.) and because of this, weavers are losing interest in weaving and as a result, their next generations are not willing to take weaving as their profession which results in the declining number of weavers and it slowly became a threatening to Murshidabad silk industry.

5.2. MAJOR FINDINGS

The major findings of the present study are-

- According to the study, there are significant regional differences in the concentration of mulberry plant gardens, reeling cocoon production, and raw Silk output.
- Khargram (6.47), Nabagram (8.93), Murshidabad Jiaganj (1.52), Hariharpara (1.59), Raninagar II (2.32), Domkal (1.73), Beldanga I (3.86), and Raghunathganj II (1.74) blocks have the highest concentration of sericulture

adopted villages (>1.5), according to the location quotient values. In contrast, Raninagar I (1.33), Bhagabangola I (1.29), and Bhagabangola II (1.19), have a moderate concentration (1.01-1.5). In the Berhampore (0.61) and Sagardighi (0.76) blocks, the relative concentration of sericulture adopted villages is modest (0.5–1), whereas in the other blocks, it is extremely low (<0.5).

- There are some blocks in Murshidabad with zero sericulture activity. The names of such blocks are Bharatpur I, Bharatpur II, Samserganj, Farakka, Suti I, and Suti II.
- Out of the total surveyed sericulturists, 18.88% are Hindu and 81.12% are Muslim, and so it concludes that the Muslim population is more interested in this line of work.
- Since sericulture is mostly performed in rural regions and the majority of those engaged in this activity in the study area are not educated properly, educational qualification of the sericulturists is maximum up to the higher secondary school level, and it is evident that 78.07% of sericulturists education level is up to middle school (14.29% are illiterate, 23.47% are primary school and middle school, 40.31%), and it also appears that young people with college degrees are not interested in this line of work, therefore, the people who rear silkworms are ignorant of both the scientific and commercial aspects of the procedure related to sericulture activities.
- Maximum of the sericulturists has more than 4 family members (76.02%). It is also evident from the study that most of them have more than 2 children.
- Most of the houses of sericulturists are kutcha (60.71%), the floor and wall are made up of mud, and their ceilings are made of straw. 27.04% of the houses are mixed in nature, which is half of the house in pucca and half is kutcha in nature, and only 12.24% of the houses are totally pucca.
- Most of the sericulturists' houses have toilet facilities (95.92%), whereas only a few do not have (4.08%) proper toilet facilities of their own.
- Most of the sericulturists are marginal farmers, as their land holdings are less than one acre (17.86%), 78.08% (57.16% sericulturists have 1 to 1.5 acres of land, and 20.92 sericulturists have 1.51 to 2 acres of land. They are considered small farmers by having mulberry cultivation land between 1 and 2 hectares.

- The sericulturists buy the disease-free layings from the office of the Directorate of Textile, Sericulture Office, Berhampore, with a price of 320 rupees per 100 dfls, and after reeling, they sell the silk yarn either via Panchgram Coocon Market with a fixed rate (1 kg of cocoon in Murshidabad costs 175 rupees and 1 kg of raw silk costs an average of 2000 rupees) or, in some cases, Mahajans or middlemen directly buy the silkworm from them.
- Additionally, it is also evident from the study that Muslim women only participate in the indoor activities related to sericulture because of their conservative families, whereas Hindu women are participating in the outdoor activities such as plucking of leaves for silkworm.
- Primary Survey shows that most of the weavers from Raninagar I and Murshidabad Jiaganj blocks are Hindu, and Muslim weavers are mainly concentrated in Khargram block.
- It seems the whole lifecycle of a silkworm, from egg to formation of a cocoon, takes approximately 25 days, maximum 30 days, and for reeling it takes another 3 to 4 days, and per crop (silkworm), maximum 35 days. Sericulturists are busy in silkworm rearing. In Murshidabad sericulturists are rearing five commercial crops (silkworm) cultivated in Murshidabad. These are Baisakhi, Jaithya, Ashwina, Aghrayani, and Falguni, and so the rest of the time they are engaging mainly in rice cultivation and vegetable plantations for their own food and also doing other essential works, whereas most of the weavers don't have agricultural land except the weavers from Nagar and Margram. So, most of the weavers have to buy all their food items from outside, and throughout the year they are busy weaving and not getting proper rest.have to buy all their food items from outside, and throughout the year they are busy weaving and not getting proper rest.
- The primary survey shows that only 1.78% of male weavers have less than 10 years of weaving experience, and there are no female weavers in this category, and so it concluded that the numbers of new members in this profession are very low, and the maximum number of weavers are those who have been in this profession for a long time and don't have any alternate professions to choose from.

- All the sampled weavers are working under Mahajan's in common, and some of them are also registered under Khadi society, block-level cluster, or cooperative society.
- For denting and warping the yarn in the warp beam, weavers need one extra labourer other than the weaver, and their charge varies between INR 200 and 300, and it seems that in many cases weavers are additionally working in this process for other weavers as they are experts in this process and in the need of earning extra money.
- This hobby is most enthusiastically pursued by women. In sericulture, they perform the majority of labor-intensive tasks. Despite the fact that women make up the majority of participants in this activity, their involvement and contributions are not sufficiently valued or acknowledged.
- One of the preparatory processes of weaving, denting, and warping is mainly done in the open field, and so the women are not engaged in this process.
- It is evident that there are no female weavers weaving Garad sarees. From the study, it is evident that all the Garad saree weavers are working under Mahajan's shed as they are loomless, and since rural women generally prefer to work in their own house as they are found to carry all the household's work and they can adjust their working time easily.
- The Garad saree weavers are not working at their own house, and so, as a matter of fact, their family's other female members get an opportunity to be engaged in any other job, and in this case, the ancillary work for the Garad saree weaving is totally the responsibility of mahajans.
- It shows from the study that all the sericulturists are male, but in most of the cases, labour force of silkworm rearing is given by the female members of their family, whereas in the case of weavers, 16.26% of weavers are female, and all the ancillary workers related to weaving are female.
- The primary survey shows that 65.27% of female weavers to the total female weavers are widows, and it seems their children are engaged with other professions, only their daughters if present, or sometimes even after their marriage they help their mother. 34.72% of female weavers are married, and it seems that the male members of their family are engaged in other professions, so it is difficult for them to get a helping hand for doing the ancillary work for them. So, most of the female weavers hired labourers for these works, and

because of this, the income of the female weavers is much lower than that of the male weavers. Other than this, the female weavers are unable to work for more hours as they have to manage all their household work, which is also a factor in lowering the income range of female weavers. There are no unmarried weavers found in the selected area, establishing that the young unmarried women are not willing to do this profession.

- There are some businessmen and Mahajan in Tantipara village who are working for Khadi society by supplying them products as well as running their own businesses, and the loomless weavers are working under these mahajans and businessmen at their houses.
- From the field survey, it is evident that after selling their weaved raw material in the open market to the local mahajan, a weaver can earn 1500 rupees in profit per year, which is much more than the wages they got from the mahajan. But due to a lack of sufficient monetary capacity, they are not able to do so, as in this case weavers' have to buy the silk yarn for weaving by themselves. Other than this, the weavers' communities are not educated at all, and they also don't have the courage to do direct marketing of their own weaved product. In many cases, it seems that in direct business, weavers are not able to get work regularly as there is no such handloom market or haat situated in their villages for selling products. So, as a matter of fact, weavers are bound to work under the Mahajans and exploited by them.
- There is a myth that the silk industry helps to develop the socio-economic condition of society by continuing the flow of income that comes from the urban market, and through this it maintains a bridge between rural and urban economies. Though it is ironical as the farmers who produce the basic materials of silk and weavers who weave the product cannot afford to buy the luxurious finished product.
- The main problem is that there is no such structure in the district through which the weavers can understand the benefits and necessity of working under government organizations.
- The problem of low wages is the main basic problem for all the workers based on the Henry Garett calculation. The majority of the weavers are more than 45 years old, and they don't have any other work options to do. It seems that the wages of weavers are very low as compared to any other laborers' wages, such

as masons, painters, etc., and because of this, weavers are losing interest in weaving, and as a result, their next generations are not willing to take weaving as their profession, which results in the declining number of weavers, and it slowly became a threat to the Murshidabad silk industry.

- The monthly income of the female weavers is ranging between 3000 and 7500 INR, whereas the monthly income of the male weavers goes up to INR 12001 to 13500.
- The value of the Gini coefficient is 0.41. The Gini coefficient value between 0–0.3 indicates relative equality, 3–0.4 indicates adequate equality, and greater than 0.4 indicates that there is a big income gap, and the value of 0.41 falls under this category. The value of income inequality among the weavers already indicates a major issue faced by the silk weavers, and so the government should take measures immediately to upgrade the facilities for all the silk weavers to minimize the income gap.
- The highest income range of the sericulturist is 20000 rupees per month based on >240000 rupees per year, whereas the highest income range of the silk weaver is 12001 to 13500 rupees, and most of the weaver's income ranges below 10,000 rupees.
- It seems that there are many Khadi societies situated in Murshidabad. Among them, Chandrakanta Lalit Mohan Khadi Samity is the most renowned one, and many weavers from Harharia Chawk (the only weaving village in Raninagar I) are engaged in this khadi society. There are two block-level clusters found in the study area where the weavers are engaged. One is Chwak Islampur Handloom Cluster Development Society, and another one is Khargram Nabagram Block Level Cluster. The only cooperative society found in the study area where the silk weavers are engaged is in the village of Dangapara (Murshidabad Jiaganj Block), though the society is not working at all. The name of the society is Dangapara Anchal Resham Silpy Samabay Samity.
- It is also evident from the study that all the female weavers are working under Mahajan, and only during the base-level survey while forming the block-level cluster were some of them registered under the under.
- It is evident from the study that the weavers are only registered under the government organizations just to avail the government facilities. As none of the government organizations are able to give regular work to them throughout

the year. The cluster only gives an order of two silks per month with a wage of 500 rupees per month; the co-operatives are not working at all, and though the weavers get an average order from Khadi societies, the weavers are not willing to work directly as a weaver of Khadi, as they can give work for an average of 10 months, and the per-month wages have been transferred to the weavers' bank accounts. As it takes around 15 days to get the payment through the bank, it becomes a problem for the poor weavers to bear all the family expenditures, and so they prefer to work only under mahajans on a monthly wage's basis.

- It shows from the study that 9% of the sericulturists belong to the less than 25 age group, whereas only 6.93% of the male weavers and 0% of the female weavers to the total weavers belong to the less than 25 age group.
- The total number of silk weavers has decreased in the past 10 years (from 2009-10 to 2019-20). The total number of silk weavers in the year 2009-10 was 13187, which decreased to 6492 in 2019-20, and this decreasing number of weavers has become an alarming threat for this industry.
- Loans are not necessary for the silk weavers or sericulturists to carry out their jobs. Few of them took out loans from the Mahajan or local money lender, mostly for personal expenses like house repairs or their daughters' weddings.
- Sericulturists and silk weavers both have a propensity to save money, however it appears that some weavers are unable to do so due to their extremely low pay.
- Neither silk weavers nor sericulturists save money regularly or in an organized way, so they don't do it in a bank or other government institution. Since they don't save it frequently, the majority of them keep their money in their own lockers.

5.3. GOVERNMENT SCHEMES AND POLICIES

Initiatives for the development of Sericulture

The following initiatives has been taken by the state and central government to improve the production of silk in West Bengal as well as Murshidabad.

- **Assistance for construction of Silkworm Rearing House**

Financial aid of Rs. 1,20,000/- (25 sq. mt.) will be given for the construction of 270 square feet of Silkworm Rearing House.

- **Supply of Rearing Appliances**

For supply of rearing appliances such as rearing trays, Paraffin paper, Mountages, foam rubber strips, fan, net; financial assistance of rupees 15000 are given.

- **Supply of Pump Set**

For the irrigation of mulberry plantations, financial assistance of rupees 25000 for setting pumps, is given to the silkworm rearers.

- **Supply of Reeling Equipment**

Financial assistance of rupees 25000 is given for buying mechanical wheels for reeling.

- **Profilactic Measures.**

For bed disinfectant and for room disinfectant such as -labex, bleaching powder, bijeta, sanitech; financial assistance of 5000 rupees is given to the rearer.

- **Introduction of new variety of silkworm**

There is total 5 commercial crops (silkworm) cultivated in Murshidabad. These are Baisakhi, Jaithya, Ashwina, Aghrayani and Falguni. In Murshidabad cross Breed disease free layings is the main cultivated type of crop for silkworm rearing.

Central Sericultural Research and Training Institute (CSRTI), one of the oldest training institutes of Directorate of Sericulture introduced new types of silkworms. Another Multi * Bie (M.Con.1 * B.Con.4) silkworm introduced and produced 50 to 57 Kg of cocoon from 100 dfls. The practice of rearing Bivoltine silkworm has already been started in Murshidabad district with the guidance of Department of Sericulture (West Bengal) as this type of silk is more superior in quality than the cross-breed variety and the weight of the cocoon is also higher than the cross-breed variety and so the silk production rate is also high.

Initiatives for the development of Silk Weavers

- **Weaver MUDRA Scheme**

The Weavers' Mudra Scheme offers handloom weavers credit at a discounted interest rate of 6%. Additionally offered are a three-year credit guarantee and margin money support up to Rs. 10,000 per weaver. The MUDRA platform was created in collaboration with Punjab National Bank to reduce the amount of time it takes to release cash for interest subvention and margin money.

- **Raw Material Supply Scheme (RMSS)**

The Scheme (RMSS) is also being implemented by National Handloom Development Corporation. RMSS scheme is the partial modification and rename of YSS.

- The main objectives of this scheme are-
- To provide handloom weavers with affordable, high-quality yarn and mixes.
- To ensure consistent supply and quality parameters in the market by setting the benchmark price and quality of yarn in the open market, ensuring that the price stays within appropriate bounds.
- To improve the industry's inadequate dyeing facilities, assist weavers in diversifying their product lines, and increase the marketability of their production.
- To increase handloom weavers' participation in the industry and aid in their competition with the mill sector, given that handloom productivity is lower than power loom productivity.

Weavers are getting a 15% price subsidy under this program on cotton hank yarn, domestic silk, wool, linen, and blended yarn made from natural fibres, subject to quantity limitations. The transportation cost of yarn is also reimbursable under this scheme.

- **NHDP Scholarship Component**

Through this program, weavers' children can receive financial aid to help pay for their studies at textile schools. The program provides a monthly stipend of ₹5,000 in addition to up to ₹2,00,000 annually for tuition, admission, and test expenses.

- **Educational Facilities for the children of Handloom Weavers**

In order to provide educational opportunities for the weavers and their families, the Ministry of Textiles has inked Memorandums of Understanding with the National Institute of Open Schooling (NIOS) and Indira Gandhi National Open University (IGNOU). For handloom weavers, NIOS provides secondary and senior secondary education via distance learning with specialized subjects on design, marketing, business development, etc., while IGNOU provides continuing education programs through easily accessible and adaptable learning opportunities pertinent to the career advancement goals of handloom weavers and their offspring. For SC, ST, BPL, and female students from handloom weavers' families, the Ministry of Textiles reimburses 75% of the cost of admission to NIOS/IGNOU courses.

- **Block Level Cluster**

The Block Level Cluster, a component of the National Handloom Development Program (NHDP), was implemented in 2015–16. The goal of this initiative is to help handloom weavers become competitive, self-governing socioeconomic entities. Clusters are established at the block level in handloom-concentrated areas as part of the initiative. For a variety of interventions, including skill development, Hathkargha Samvardhan Sahayata, product development, workshed building, project management expenses, design development, establishment of a common facility center (CFC), etc., financial support up to Rs. 2.00 crore per BLC is offered. Additionally, funding of up to Rs. 50.00 lakh is available for the establishment of a single dye factory at the district level.

- **Hathkargha Samvardhan Sahayata (HSS)**

On December 1st, 2016, the HSS was established with the goal of giving weavers looms and accessories to increase their incomes through increased handloom product quality and production. The Government of India bears 90% of the loom/accessory costs under the initiative, with the beneficiary bearing the remaining 10%. Through an authorized agency, the Government of India releases its portion straight into the beneficiary's bank account.

- **Construction of individual Work shed**

Financial aid of Rs. 1,20,000/-per unit (25 sq. mt.) will be given for the construction of individual work sheds, and the money will be deposited into the beneficiaries' bank

accounts in two equal instalments. The first instalment will be made available in advance. After 70% of the first instalment has been used and the local committee has physically verified the workspace, the second instalment will be distributed.

The GOI has provided 100% of the financial aid for BPL, SC, ST, women, transgender, and differently abled beneficiaries, whereas, for the other beneficiaries 75% has been provided by the GOI and the remaining 25% provided by the beneficiary themselves.

- **Solar Lighting System for Common Work shed**

The State Directorate would receive up to Rs. 10.00 lakh in funding to establish a solar lighting system for the common workspace. A project proposal that details the cost breakdown, the system's lighting capacity, the installation location, the size of the work shed with the number of looms, etc., must be presented in order for financial aid to be released.

- **Engagement of Textile Designer**

One of the key components and a key factor in the marketing of handloom goods is design. It is necessary to hire the designers on a contract basis in the Cluster since the development of handloom items requires creative designs. The textile designer, who graduated from NIFT/NID or any other reputable institution, will add to the requirements for designs.

- **Janashree Aarogya Bima Yojana**

The schemes are mainly for the weavers, working under Chandrakanata Lalit Mohan Resham Khadi Samity. "Janashree Aarogya Bima Yojana" has been taken for the welfare of the artisans working under Chandrakanta Lalit Mohan Resham Khadi Samity. Under this scheme a premium of rupees 200 are being paid by the artisans, where 100 rupees are being paid by the GOI, 50 rupees by KVIC, 25 Rupees by the samity and the 25 rupees are being paid the respective artisans.

The following are the advantages of this Yojan for the artisans:

1. For the Natural Death, each artisan would receive Rs. 30,000.
2. The deceased will earn Rs. 75,000 for their accidental death.
3. Accident-related disabilities will earn Rs. 75,000.
4. The accident-related partial handicap will earn Rs. 37,500.

In addition, Siksha Sahayog Yojona will provide scholarships to Artisans, children from the ninth to the twelfth grades.

During 2008–09 and 2009–10, KVIC took the initiative to start the artisans' work shed plan. Thirty-three sheds need to be finished in the 2010–2011 season, and 64 craftsmen have benefited from receiving Rs. 25,000 each for the financial assistance to build the work shed.

- **Promotion of Silk Weaving**

This new program has been planned to be implemented from 2007 to 2008 with the goal of increasing the state's production of high-quality silk fabrics for both domestic and international markets. A total of Rs. 0.975 lakh was approved in 2010–11 to identify the recipient and distribute duty-free imported China Raw Silk Yarn. Although a significant amount of silk yarn is produced in this state, the weaving of silk fabrics is still primarily limited to the manufacturing of silk sarees in a few traditional pockets. Of course, some areas of the Burdwan district that borders Murshidabad district as well as some areas of Murshidabad district itself also generate waste silk fabrics in small quantities. We are not producing enough silk home furnishings, which may find a market overseas.

In order to achieve this, efforts have been made to produce silk home furnishings and garment textiles following skill-upgradation training, design involvement, and enhancement of dyeing and finishing quality.

- Old Age Pension to Handloom Weavers

The scheme is sponsored by the state. A weaver who does not have any source of income and a member of a handloom cooperative society for more than ten years and is above sixty years of age is eligible to earn a pension under the system, Rs.1000 per month. Previously the pension amount was 750 Rs., with effect from February 1, 2015, the maximum amount eligible for pensions has increased to Rs. 1000.

- **Geographical Indication of Goods (Registration & Protection) Act**

In order to safeguard West Bengal's traditional handloom products from being misused and to establish its commercial brand designation, steps have been taken to register

them under the Geographical Indication of Goods Registration & Projection Act, of 1999.

The well-known Garad and Korial sarees from the Murshidabad district have also received the GI tag. These sarees, which were woven by talented weavers in Jiaganj, Islampur, and Mirjapur, carry a legacy of heritage and craftsmanship.

- **RSBY Scheme for Handloom Weaver Family**

Prior to 2015–16, there was a program called the Health Insurance Scheme for Handloom Weaver Families. RSBY, which covers hospitalization up to Rs.30,000 for the maximum illnesses that require hospitalization, began covering Handloom Weaver Families in 2016–17. For certain interventions, the government has even set the package prices for hospitals. Pre-existing diseases are covered from day one, and there is no maximum age restriction. Five family members are covered, including the spouse, up to three dependents, and the head of the household. Beneficiaries are only required to pay Rs.30 to register, while the State and Central Governments pay premiums to insurers selected by the State Government via competitive bidding. 128219 handloom weaver families from 16 districts were served between 2016 and 2017. As of 2017–18, RSBY has renewed 128219 weaver families.

- **Mahatma Gandhi Bunkar Bima Yojana (MGBBY)**

For handloom weavers and related employees, this is a collective insurance program for, those who make at least 50% of their income from weaving and are between the ages of 18 and 59. Benefits from insurance include Rs.60000 for natural death, Rs.150000 for accidental death, Rs.75,000 for partial disability, and Rs.150000 for permanent disability. Benefits of the "Siksha Sahajog Yojana" include a Rs.300 scholarship every quarter for each kid (up to two children) enrolled in classes IX through XII. The weaver pays Rs. 80 of the Rs. 470 annual premiums. Weavers in category (I) who are between the ages of 18 and 50 will be covered under PMJJBY & PMSBY, while those over 50 will fall under MGBBY (up to 59years) & PMSBY (up to 70years). The yearly premium for Category (I) weavers will be Rs.80, which will cover Rs.2 lakh for PMSBY's accident insurance & Rs.2 lakh for PMJJBY's death insurance. The premium for MGBBY, which covers Rs.1.5 lakh for entire disability, Rs.0.75 lakh for partial disability, & Rs.1.5 lakh for death, is Rs. 80 for category (II)

weavers. 62967 weavers were covered by MGGBY in 2016 to 17. From 2017 to 18, MGGBY covered 47933 weavers.

- **Taanti Sathi**

With support for skill development from the West Bengal Handloom Circuit scheme 2014, the State Design Center for design development, and marketing partnerships with Tantuja and Biswa Bangla, the program aims to provide new pit looms and accessories to handloom and Khadi weavers who lack looms or have outdated or dilapidated looms. At a total cost of Rs. 73.44 crore (Cumulative Rs. 106.53 crore) for this Directorate, 41876 (Cumulative 60260) looms and accessories were provided to 41876 (Cumulative 60260) handloom weavers across the various districts of the State during the 2016–17 fiscal year.

CHAPTER-6

SUMMARY, SUGGESTIONS AND CONCLUSION

6.1. SUMMARY

A summary of all the chapters, including the summary of findings, has been presented in this subchapter.

The first chapter discussed the introductory part, area of the study, the main objectives of the study, the methodology applied to do the research work, and the organization of the chapters.

The second chapter is associated with the geographical profile of the study area, which includes administrative setting, physical setting such as physiography, drainage, climate, soil, and also cultural setting such as demography, land use, land cover, agriculture, industry, and transport of the district.

The first part of the third chapter elaborates on the global scenario of the silk industry, the status of the Indian silk industry, and also discusses the silk profile of West Bengal. China is a leading country in the world's raw silk production, contributing more than 80 percent to the world's production in recent years. India contributes more than 40 percent to the world production in the last few years and will produce 36582 MT of raw silk in 2022, which is 40.66% of the total global silk production. In the year 2022, China and India together will produce 94.91% of the total silk production of the world. India is blessed as all the varieties of silk called Mulberry, Tasar, Muga, and Eri are produced here. Commercially, Mulberry silk is considered true silk, and the others are considered wild or Vanya silk. Mulberry silk is the highest quality silk available for purchase. The bulk of commercial silk produced in the world comes from this variety, and often silk generally refers to mulberry silk. Mulberry silk is produced mainly in the states of Karnataka, Andhra Pradesh, Tamil Nadu, Jammu and Kashmir, and West Bengal, while the non-mulberry silks are produced in the Jharkhand, Orissa, Chhattisgarh, and North Eastern states. In 2021–2022, the nation produced 34,903 MT of raw silk. The average annual growth rate of raw silk production in India explained in this chapter was 5.13 percent in 2017-18, which has increased to 11.16 percent in 2018-19, then decreased to 1 percent in 2019-20, then decreased to a negative growth rate of 0.57 percent in 2020-21, then increased to 3.36 percent in 2021-22, then decreased to 4.81 percent in 2022-23. It is clearly noticed from the chapter that the production of mulberry silk has dominated much of the district, West Bengal, over any other type. Mulberry silk is the most renowned and popular form of silk. The mulberry silk production of West Bengal

was 2524 MT in 2016-17. Murshidabad district of West Bengal is well equipped in both the production and weaving of mulberry silk and has occupied second position in the production of mulberry silk, 546.96 MT in 2016-17, after Maldah. The silk-producing districts of West Bengal are mainly confined around the district of Murshidabad, as this district is well equipped in both weaving and production of silk, and so sometimes the silk-weaving industry of West Bengal goes by the name of 'Murshidabad Silk'. The next part of this chapter discusses the profile of sericulture and the silk industry. Location quotient has been used to indicate the relative concentration or dispersion of block-wise sericulture adopted villages in Murshidabad district. The values of Location Quotient show a higher concentration of sericulture adopted villages (> 1.5) in Khargram (6.47), Nabagram (8.93), Murshidabad Jiaganj (1.52), Hariharpara (1.59), Raninagar II (2.32), Domkal (1.73), Beldanga I (3.86) and Raghunathganj II (1.74). There are some blocks in Murshidabad with zero sericulture activity. The names of such blocks are Bharatpur I, Bharatpur II, Samserganj, Farakka, Suti I, and Suti II. The area of mulberry plantation or sericulture in Murshidabad (acre) is very high (340.01–3495.09) in Khargram (3495.09) and Nabagram (2297.22). very high concentration of silk production in Murshidabad found in Khargram (264.89 MT) and Nabagaram (174.11 MT) block, high in Jalangi (25.76 MT), moderately high in Beldanaga I (13.5 MT) and Hariharpara (7.6 MT) and Raninagar I (7.18 MT), whereas low in Domkal (4.17 MT), Beldanga II (3.9 MT), Berhampore (3.75 MT), Lalgola (3.7 MT), Raninagar II (2.80 MT), Msd-Jiaganj (2.51 MT), Raghunathganj I (2.27 MT) and Bhagabangola I (1.97 MT) and very low (0-1.67 MT) in rest of the blocks. The last phase of the chapter is the details of the socioeconomic profile of the sampled sericulturists and silk weavers. Out of the total surveyed sericulturists, 18.88% are Hindu and 81.12% are Muslim. Most of the sericulturists are marginal farmers, as their land holdings are less than one acre (17.86%), 78.08% (57.16% sericulturists have 1 to 1.5 acres of land, and 20.92 sericulturists have 1.51 to 2 acres of land. They are considered small farmers by having mulberry cultivation land between 1 and 2 hectares. It shows from the study that 19.9% of the sericulturists belong to the less than 25 age group, whereas only 6.93% of the male weavers and 0% of the female weavers to the total weavers belong to the less than 25 age group. It shows from the study that all the sericulturists are male, but in most of the cases, the labor force of silkworm rearing is given by the female members of their family, whereas in the case of weavers, 16.26% of weavers are female, and all the ancillary workers related to weaving are female. The highest income range of the

sericulturist is 20000 rupees per month based on >240000 rupees per year, whereas the highest income range of the silk weaver is 12001 to 13500 rupees, and most of the weaver's income ranges below 10,000 rupees, which concludes that sericulture is more beneficial than weaving. Loans are not necessary for the silk weavers or sericulturists to carry out their jobs. Few of them took out loans from the Mahajan or local money lender, mostly for personal expenses like house repairs or their daughters' weddings. Sericulturists and silk weavers both have a propensity to save money, however it appears that some weavers are unable to do so due to their extremely low pay. Neither silk weavers nor sericulturists save money regularly or in an organized way, so they don't do it in a bank or other government institution. Since they don't save it frequently, the majority of them keep their money in their own lockers. To prove the relationship in between the between age, gender and the location of the weaver's village with the income of the weavers Chi Square test has been used and after the calculation is has been established that there is relationship between these factors.

The fourth chapter discusses the role of women in sericulture and the silk weaving industry. As most of the women are unpaid laborers in both the sector, the type of work done by the women and the savings amount of the sericulturists and the silk weavers', because of the female members of the family. By reducing the hired laborers and involving the family members in a household-based industry, labor costs can be saved. In the same manner, by involving female family members in sericulture, the labor cost is saved. Out of the total 196 surveyed sericulturists, 73 sericulturists' families have one female member engaged with sericulture activities, and 123 families have two female members engaged with sericulture activities from a sericulturist's family other than the sericulturist. So, as per the sericulturist, if 2 female members are engaged with this activity other than them, the entire labor cost will be considered to be saved by them. If one of them is a male, then 50% of the labor cost savings is considered by the female. So 123 families are those from where 2 female members are engaged in sericulture activities and save the whole labor cost related to these activities, which is approximately 7500 rupees, by working for 25 days and per day labor cost is 300 rupees (a whole lifecycle of a silkworm, from egg to formation of a cocoon, takes approximately 25 days and sometimes more than that); and it also shows that 73 families are those where only one female member is engaged in silkworm rearing, other than the sericulturist himself, and save 3750 rupees per crop. Generally, women are

engaged in the preparatory work of passing the yarn through healed as it is done in the weaver's house, whereas the process of denting and warping is done in the open field, and in this activity, women are not involved. Yarn used in weft (the thread is used to weave between the warp threads horizontally) has to be reeled in a machine for making one single thread from two threads before weaving. For one kg of making this thread, the labor cost is 150 rupees, and the weight of winding yarn per gram is 1400 gram. In general, weavers weave 66 m of warping yarn in the warp beam at a time, and if it is assumed that a weaver at least weaves 66 in a month, then he needs 1400 into 6 = 8400 gram yarn for weft, and the labor cost needed for this is 150 into 8.4 kg = 1260 rupees. So, a weaver saves a minimum 2000 rupees per month by involving the female members in ancillary work. The work load of the female members of a weaver's family, mainly preparatory work of weft, depends on the weaving capacity of the respective weaver. From the study, it is evident that in 25.33% of weavers' families, women's contribution is less than 2000 rupees; in 63.12%, weavers' family women's contribution is 2000 to 4000 rupees; in 7.46%, weavers' family women's contribution is 4001 to 6000; and in 4.07%, weavers' family women's contribution is less than 6000 rupees by engaging in silk weaving activities.

The fifth chapter discussed the major problems faced by the sericulturists and the silk weavers, as these two industries are the roots of the silk industry. After doing the analysis, it is found that the main problem faced by the sericulturist is not having a separate silkworm rearing room, and the main problem of the silk weavers is the problem of wages, and for that, the young generation is not interested in joining the sector.

The sixth chapter is the concluding chapter, which concludes that silk is the only remunerative cash crop that provides frequent attractive returns with a minimum investment and low gestation. To use this industry as a poverty alleviation tool, the government should take suitable measures to encourage more people in this sector by implementing different schemes for their future, as it generates employment not for an individual but for a family, and also include that women have a crucial role in the sericulture activity and silk weaving industry, and these two sectors create opportunities by making them strong economically. In many cases, it shows that women are carrying both the family burden as well as the economic burden, which affects their health

adversely, and to keep this problem in mind, the sericulture and silk weaving industry is a perfect choice for them to be employed as it is an indoor activity.

6.2. SUGGESTIONS

- The government must collaborate with media partners and event managers to highlight the products and employ the newest marketing and promotional methods to boost sales.
- Women's contributions to the development of sericulture must be acknowledged.
- Higher pay rates, fast payment and bonuses will help the weavers to improve their living conditions. Proper wages, Proper wages, also encourage the young generations to join this industry. Hence it is suggested that the central and state government should frame suitable wages policies to boost their income.
- Additionally, since the mahajani activities is becoming increasingly dominant, efforts might be taken to close the wage gap between it and the government sector.
- It is suggested that there is definitely a need to create a proper structure through which weavers can get to know about the various schemes offered by government.
- Every weaver should get their Weavers' Identity Card so that, they can get all the facilities given by government.
- As the weavers stated that getting loan from any financial institutions such as bank is very tough and follows a very lengthy procedure, government should take proper initiative to make new rules for these institutions so that they must follow easy procedures for giving loans to the weavers so they can make products by their own and sale them, and this helps to promote and protect the industry in further.
- Infrastructural stagnation is the main hurdle which hindrance the growth the silk weaving sector. Government should give the perfect infrastructural facilities to the villages dominated by silk weaving activities so that all the villages can come into the limelight and can be reachable by anyone.
- The weavers are not getting proper training to upgrade their technical knowhow by the various agencies and as a matter of fact the young generations are not showing interest in this profession.

- The main problem faced by the weavers is insufficient wages has to be solved as the decreasing number of weavers become a threat for this industry and also to secure the future of this reputed silk industry which is famous throughout the world, proper developmental plans should be taken by the government.
- There are no such markets in the surveyed areas where the weavers can sale their weaved product directly and so they are only dependent on the Mahajan's for getting regular work. For the business to advance further, the government should organise national and international exhibitions and form local markets to sale the weaved products of the weavers directly.
- The West Bengal government's Higher Education Department should take the necessary actions to add a sericulture course as an elective at the upper secondary and college levels, along with the appropriate facilities. The entire sericultural activity in the study area will flourish as a result of this process, which will encourage educated youth to accept novel inputs.
- The government should provide additional funding to support the silk sector. And other than this the government should appropriately oversee how those funds are being used at the same time.
- The government should take proper measures to improve the mulberry silkworm production and also to improve the renditta (The quantity of silk cocoons needed to make one kilogram of yarn is known as renditta in sericulture).
- The government should support greater work in this field of research and development.
- The sericulturists are not getting proper help from the government as they are not aware to how to get those facilities as there are fund assistance from government for construction of rearing houses and buying reeling equipment. The proper information about the government facilities should be reachable to the sericulturists so that they can avail them properly and for that a proper government structure is being needed.

6.3. LIMITATIONS OF THE STUDY

Personal interviews with the sample sericulturists and weavers in several villages are the major basis for the current research project as its' primary goal is to determine the living and working circumstances of them. The respondents had a tendency to slightly

modify about the information they provided, regarding their earnings, households, as well as details of their working status, as they perceived the researcher to be a representative of a lending institution, a government official, a tax official, etc. However, every effort has been made to acquire fairly accurate and useful facts from the collected data.

The present study only includes the sericulture and silk weaving industry and the problems faced by these two industries. Further study can be made on the dying and printing unit of the weaved product and also about the marketing of the final product.

For the aim of the study, the necessary data was obtained from the government offices with great difficulty. The fact that many government reports had outdated information and that the information was not uniformly available was another study drawback. Because the handloom industry is unorganized, they don't keep accurate accounting records. As a result, data has been gathered verbally and material from a time period that was some years back than the research period, has occasionally been used since there is no other option.

Sericulture and silk industry both are considered as household industry and the labour contributed by all the family members mostly by the women. As a matter of fact, the income earned through these two sectors are considered as family income. For this reason, it is difficult to measure the income of the women, only other than the female weavers as they are directly been paid. So, the approximate economical contribution of the women engaged with these two sectors, to their family income has been calculated on the basis of statement given by the respondent (both my sericulturist and weaver).

6.4. CONCLUSION

Unemployment is always be a concern for the developing countries like India (Dewangan, 2017). To eradicate this problem silk industry can be a permanent solution, as it is mainly depending on human labour (Anitha, 2011). Silk is the only remunerative cash crop which provides frequent attractive returns with a minimum investment and low gestation. To use this industry as a poverty alleviation tool, government should take suitable measurements to encourage more people in this sector by implementing different schemes for their future as it generates employment not for an individual but for a family. It shows that sericulture and silk weaving industry bring employment to the people without judging their caste, religion, gender and thus important for a

diversified country like India and creates a chain of income from unskilled farm labourers to skill artisans. India has the largest domestic silk market since silk is an integral element of Indian culture and history. The study analyses the socio-economic profile of the sericulturists and silk weavers and implies that the sericulturists' monthly income is high than the silk weavers. The study examined that income distribution of weavers is dependable on various factors such as age and gender of the weavers, location of the villages of the weavers and the products that the weavers are weaving.

Women have a crucial role in the sericulture activity and silk weaving industry and these two sectors create opportunities, by making them strong economically. In many cases it shows that women are carrying both the family burden as well as the economic burden, affects their health adversely and to keep this problem in mind sericulture and silk weaving industry is a perfect choice for them to be employed as it is an indoor activity. This study reveals that the labour force needs to raising silkworms to produce silk is totally given by the female members of the sericulturist's family. In the silk weaving industry, there are female weavers who are directly engaged in weaving, and other than them, most of the female members of the weaver's family are engage in weaving by doing all the ancillary work related to this.

Silk is a luxurious fabric and mostly used by the rich people of the society and there is a myth that the wealth directly transferred chain wise to the poor weavers and the sericulturists. To maintain this chain the government should take necessity steps. Though the number of silk weavers are decreasing the sericulture profile of the sericulturist shows a proper economic prosperity. The Government of West Bengal should promote silk industry of the Murshidabad district, as this industry is highly recommended by the planner as one of the most suitable tools for the reconstruction of the rural economy, and also co-operation of researchers in this field will help the successful growth this industry.

PHOTO GALLERY

Plate 1.1. An old aged female engaged in Sericulture activities

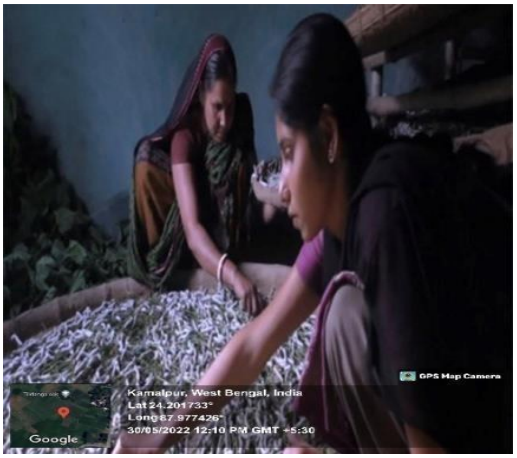

Plate 1.2. Female members of the Sericulturist's family doing Late Age rearing

Plate 1.3. Reeling of cocoon is being done by a sericulturist

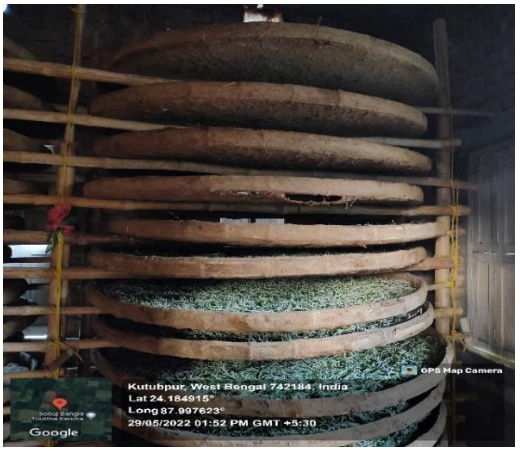

Plate 1.4. Dalas for Silkworm Rearing

Plate 1.5. Mulberry Tree Plantation

Plate 1.6. Deep Tube Well in Nabagram Village

Plate 1.7. Kutcha House of a Sericulturist

Plate 1.8. Toilet Facilities are available in the house of a Sericulturist

Plate 1.9. Pucca House of a Sericulturist

Plate 1.10. Cooking Place of a Sericulturist

Plate 1.11. Mixed type house of a Silk Weaver

Plate 1.12. Pucca house of a Silk Weaver

Plate 1.13. Making of Garad Saree in Tanti Para village

Plate 1.14. An old aged Silk weaver is weaving a Raw Silk Than

Plate- 1.15. Preparatory Work (Warping) is being done in the Open field

Plate 1.16. Toilet Facilities are available in a house of a Silk

Plate 1.17. A middle-aged female weaver is weaving a Raw Silk Than

Plate 1.18. An old widow woman is making pirn for weaving

Plate 1.19. A married middle-aged woman is making pirn for weaving

Plate 1.20. An ancillary female worker is passing the warp yarn through the heald

Plate 1.21. An old female weaver is making Spun Silk

Plate 1.22 Making of. Beautiful Garad Saree

Plate 1.23. Ofice of Directorate of Sericulture, Berhampore

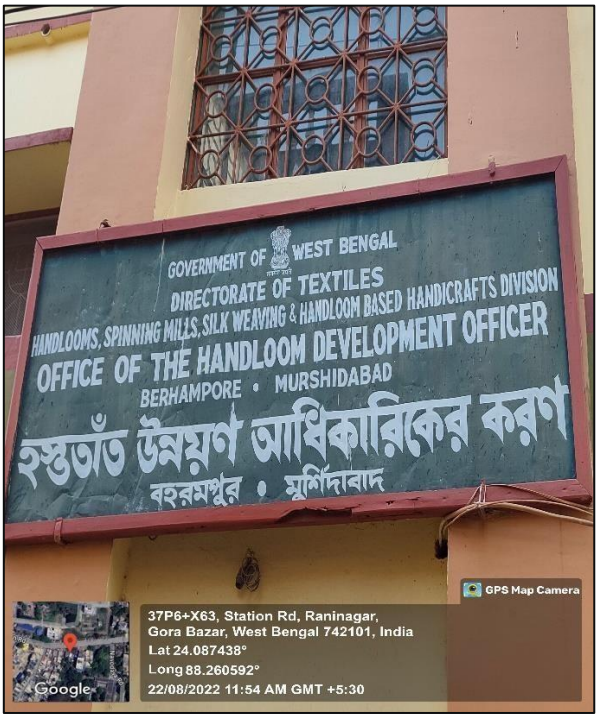

Plate 1.24. Office of Directorate of Textile, Berhampore

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APPENDIX-I

QUESTIONNAIRE SCHEDULE (**for Sericulturists**)

DEPARTMENT OF GEOGRAPHY

NAGALAND UNIVERSITY

TOPIC TITLE- **STUDY ON PARTICIPATION OF WOMEN IN SILK INDUSTRY OF MURSHIDABAD DISTRICT, WEST BENGAL: A GEOGRAPHICAL ANALYSIS**

NAME OF THE RESEARCHER- ABHIRUPA CHATTERJEE

NAME OF THE SUPERVISOR- PROF. SANGYU YADEN

REG NO. - Ph. D/GEO/00167

1. Name:
2. Village Name:
3. Age: _____Years
4. Gender: 1. Male 2. Female
5. Religion: 1. Hindu 2. Muslim 3. Others
6. Marital Status: 1. Married 2. Un- Married
7. Educational Qualification: 1. Illiterate 2. Primary School
   3. Middle School 4. Secondary School
   5. Higher Secondary School
8. Demographic Particulars:

Sl No.	Name and Relationship to HH	Male/ Female	Age	Educational Level	Marital Status

9. House Types: 1. Kutcha 2. Pucca 3. Mixed
10. Sources of Domestic Water: 1. Municipality 2. Deep Tube Well
    3. Both
11. Availability of Toilet Facility: 1. Yes 2. No
12. Sources of Fuel: 1.CNG 2. Coal 3. Wood 4. CNG and Wood
13. Size of Land Holdings under Mulberry (in Acres): 1. <1
    2. 1 To 1.5
    3. 1.51 To 2
    4. >2
14. Family Possessions:

Family Possessions	Yes	No
Bicycle		
Moped		
Motor Cycle		

15. Ownership of Appliances:

Ownership of Appliances	Yes	No
Fan		
Cooler		
Television		
Fridge		
Generator		
Water Purifier		

16. Working Experience: 1. <10 Years

2. 10 To 20 Years

3. 21 To 30 Years

4. 31 To 40 Years

5. >40 Years

17. Do you save? 1. Yes 2. No

a. If you are not able to save, reasons

18. Problems Faced by the Sericulturists

a. Shortage of Rearing Equipment
b. Lack of Separate Rearing room
c. Not Getting Proper help from the government

19. Are you aware of Welfare Schemes undertaken by government. State / Central.

1. YES
2. NO

If yes, what are They?

a. Supply of Rearing Equipment

b. Supply of Reeling Equipment

c. Financial Assistance for making rearing house

20. Profile of the Women Engaged with Sericulture Activities

Sl No.	Name and Relationship with the Respondent	Age	Marital Status	Educational Level	Savings amount by doing the Sericulture Activities

APPENDIX-II

QUESTIONNAIRE SCHEDULE (For the **Silk Weavers**)

DEPARTMENT OF GEOGRAPHY

NAGALAND UNIVERSITY

TOPIC TITLE- **STUDY ON PARTICIPATION OF WOMEN IN SILK INDUSTRY OF MURSHIDABAD DISTRICT, WEST BENGAL: A GEOGRAPHICAL ANALYSIS**

NAME OF THE RESEARCHER- ABHIRUPA CHATTERJEE

NAME OF THE SUPERVISOR- PROF. SANGYU YADEN

REG NO. - Ph. D/GEO/00167

1. Name:
2. Village Name:
3. Age: _____Years
4. Gender: 1. Male 2. Female
5. Religion: 1. Hindu 2. Muslim 3. Others
6. Marital Status: 1. Married 2. Un- Married
7. Educational Qualification: 1. Illiterate 2. Primary School 3. Middle School 4. Secondary School 5 Higher Secondary School
8. Demographic Particulars

Sl No.	Name and Relationship to HH	Male/ Female	Age	Educational Level	Marital Status

Note: (i) Educational Level: (1) Illiterate (2) Primary School (3) Middle School (4) Secondary School (5) Higher secondary School (6) Graduation (7) Others

(ii) Marital Status: (1) Married (2) Un Married (3) Widow (4) Widower

a. Number of Male children: ----------

b. Number of Female children: ----------

c. Number of Male Adults: ----------

d. Number of Female Adults: ----------

e. Number of Total family members: _____

9. House Types: 1. Kutcha 2. Pucca 3. Mixed

10. Sources of Domestic Water: 1. Municipality 2. Deep Tube Well 3. Both

11. Availability of Toilet Facility: 1. Yes 2. No

12. Sources of Fuel: 1.CNG 2. Coal 3. Wood 4. CNG and Wood

13. Family Possessions:

Family Possessions	Yes	No
Bicycle		
Moped		
Motor Cycle		

14. Ownership of Appliances:

Fan	Yes	No
Cooler		
Television		
Washing Machine		
Fridge		

Generator		
Geyser		
Water Purifier		

15. Working Experience: 1. <10 Years

2. 10 To 20 Years

3. 21 To 30 Years

4. 31 To 40 Years

5. >40 Years

16. Types of Weavers: 1. With loom

2. Loom less

17. Membership-

Are you a member of any society?

If yes, specify the type of organisation?

Name of the organisation?

18. Employment Status: 1. Mahajan, Cluster, Khadi Society

2. Mahajan

3. Mahajan, Cluster

4. Mahajan, Co-operatives

19. Earnings from Silk Weaving (per month): 1. 3000 To 6000

2. 6000 To 9000

3. 9000 To 12000

4. >12000

20. Engaged in any other profession: Yes No

21. Do you save? 1. Yes 2. No

22. If you are not able to save, reasons

23. Profile of Ancillary Workers in weaving

Sl No.	Name and Relationship with the Respondent	Age	Marital Status	Educational Level	Savings amount by doing the ancillary work

24. Problems Faced by the Silk Weavers

PROBLEMS	Rank
Not Getting Proper Facilities from Government	
Not Getting regular work from Co-operative, Khadi or Cluster	
No Scope for Direct Marketing	
Low Wages	

25. Are you aware of Welfare Schemes undertaken by government. State / Central.

1. YES
2. NO

26. If yes, what are They?

a. Free Housing
b. Free Loom Distribution
c. Loans without Interest
d. Others