A STUDY ON SILK AS A SUSTAINABLE GREEN BUSINESS: EYEING FROM THE LENS OF GI APPLICATION AND ITS FEASIBILITY

Abstract

Assam Silk secures a special significance in the global ethnic textile market. The industry has survived through many ups and downs since the early reigns of different kingdoms of Assam. Recently the Geographical identification (GI) of Assam Silk has already been allotted by Intellectual Property of India. As the industry has now been victimized for machine woven adulterated products, the GI mark takes a pioneering step in achieving the market. GI marks the authenticity of any product which has its origin historically associated to any place or community. But the success of GI will count on the mass adoption of the stakeholders of the silk industry. This paper will be objectivized on understanding of different hindrances spearheading in the adoption of GI for silk as a sustainable green business and feasibility of GI registration by the producers of Assam Silk. The study will be conducted on Charaideo District with judgmental sampling with a sample size of 90 house hold. The primary data will be collected through structured interview. The data will be empirically analyzed. The researcher will conclude the paper with necessary find outs as well as the suggestions for furthering the agriculture allied sustainable Silk industry with GI application.

Keywords: Geographical Identification, Assam Silk, Green Business, Sustainability

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I. INTRODUCTION

1. **Geographical indication:** Geographical Indication (GI) is one of the most accurate method of making any product or service with historical legacy as exclusive to a particular place. GI has been provided to different products around India for a sustainable development. It secures the GI implemented product from adulteration and market driven price support for long term sustainability. Recently GI mark to Assam Silk has been introduced. The number of registered user of GI mark in Assam Silk industry is seems to be very poor in number. Due to various grassroots reasons many of the well-established producers of Assam silk remains excluded from the periphery of GI tagging. Consolidating GI to a particular region will demoralize the other producers which is will be an unanswerable question to the sustainability of the industry. So for implementing a healthy competition in the silk sector of Assam these grassroots level issues must be addressed.

2. **Opportunities from GI:** Geographical Indication (GI), as it suggest will economically benefit its users. The impact after GI adoption can be seen through the export boost as it provides the origin of the product or service. It gives the identity to any product or service with its geographical origin. The misuse of GI registered products can be checked. Geographical Indication, in general provides the legal authority over a particular product or service with a geographical identity. Application for GI can be done by an individual or group entity. The GI any product or service are registered in number of classes of activity. These classes authorize the applicant for selective business opportunities with the particular product. The major point of concern in present time is that though GI provides number of benefits, the number of registered user is very low. There may present various reasons of this low adoption.

3. **Assam silk industry:** In this challenging market scenario the Muga silk of Assam has a global reputation for its exclusiveness in durability and natural golden texture. According to the report published by Intellectual Property Right Cell, Tezpur University & Intellectual Property Right Cell, Dibrugarh University in collaboration with North Lakhimpur College (2015), published on 15th April, 2015, Assam Silk achieved its Geographical Identification (GI) in the year 2007 & 2012 with a registered logo. But from 2007 to 2014 there were only 2 registered user of the GI in Assam. To encourage the production of silk in Assam, 9 nos of projects amounting Rs. 244.38 cr from government of India in 13 districts has been launched from financial year 2014-15 to 2018-19 as per minister of State for Textiles, Ajay Tamta, in a written reply in the Lok Sabha. In context to Assam the unorganized sector is mostly comprised with the independent weaver. According to Phukan. R. in his research paper titled Handloom Weaving in Assam: Problem & Prospects [1], in the year 2012 has highlighted about then poor infrastructure and dearth of skilled labor. He also stressed on the need of proper training for these producers for rearing the quality of silk. Saikia *et al.* (2016) have recorded the unorganized seed sector compromising the quality of Muga silk in comparison to other commercial silk. De and Das (2007) have emphasized on the Eri culture in Barpeta District of Assam for employment generation. In Determinants of financial risk attitude among the handloom micro-entrepreneurs in North East India(2017). Hazarika et al. (2016) have highlighted about the problems of wild silk sector of North East India such as obsolete technology, low market linkage, unorganized production system, low

productivity. By using Ordinal Probit Model, they suggested for education, accessibility to credit & training and capital infusion for improving the production of micro entrepreneurs. The study consists of 332 respondents of North East India.

However, a thorough probe on the matter suggests that the ground realty among the producers and weavers of muga silk of Assam is not as per the expectation. These weavers and producers are though equipped with rich traditions of Muga culture, are presently fighting for the existence of its age old art. In this paper an attempt therefore has been made to study the factors hindering the adoption of GI Mark by the villages of Assam in general and Kotoky Papong in particular.

As far as the organization of the paper is concerned, the paper has been organized into five parts. Introduction in the first place followed by a brief summary about Assam Muga, Research Methodology, Findings and finally Conclusion.

II. ABOUT MUGA INDUSTRY OF ASSAM

Assam muga industry primarily comprises different stages of development, from raw material to end product. These stages involve many activities where manpower and equipment with proper specifications are required. This traditional industry involves both the genders in a village or community level. The distribution of this industry is very much scattered in different districts of Assam. These distributions in mainly dominated by the giant like Sualkuchi. Sometimes, unofficially, monopolization by Sualkuchi in muga silk industry can be felt.

Exhibit I: Types and Characteristics of Muga Cultivation

Sl. No	Name of the cultivation	Month	Cocoon Characteristic
1	Katia	October- November	Best quality, 612meter per cocoon
2	Jarua	November, December, January	Poor, 265 meters per cocoon
3	Chotua	March, April	Seed crop
4	Jethua	April, May	good quality cocoon
5	Aherua	June, July	Poor quality cocoon, 460 meter per cocoon
6	Bhodia	August, September	Poor quality cocoon, Difficult for reeling, 448 meters per cocoon

Source:https://shodhganga.inflibnet.ac.in/bitstream/10603/176413/5/05_chapter%201.pdf accessed on 24th January, 2020[2]

India is the home for 1.2 billion people as per the data recorded by Census 2011. According to Hussmanns (2004) the labor market of India is divided in three categories; i.e. Rural workers, consisting 60% of work force, organized sector comprising 7% of the workforce and unorganized sector, 32%. This presents that 93% of the workforce in India is

under unorganized sector and these workers are self-employed or employed as casual wage laborers, who do not have access to any effective legal protection.

Exhibit II: Different Stages of Muga Cultivation [following Thangavelu *et al.* (1988)]

Sl. No	Stages of Muga life cycle	No of days in summer (minimum)	No of days in Winter (Maximum)
1	Egg laying and hatching	**7**	**15**
2	Larva stage	24	70
3	Cocooning stage	3	7
4	Pupal Stage	14	55
5	M0oth and egg laying stage	2	3
	Total no of days	**50**	**150**

Having its own characteristics, Muga industry is mainly monopolized by the textile giant Sualkuchi. They are successful due to their established model of delivering the end goods to the customers. This makes the other areas of Assam a weaker one, as they merely becomes a producer of the silk and not the end product. Existence of different marketing agencies for muga silk is not accessible for all. The weavers of Assam are also worried about the decreasing trend of muga production which makes them to weave the other wild silk of Assam. Increasing price of Muga Silk is also very much worries the industry in the race of sustainability. This makes the silk as the choice of the rich. So for long run gains the producers of silk product making adulteration to be in the market is the dark reality of the story.

According to Narayana *et al.* (1967), sericulture in Assam is a potential sector for generating gainful employment for the villagers in the state. But it is highly informal in nature and restricted to small scale household business only. The employment avenues in Sericulture may be broadly divided into two types - direct employment, which relate to employment in host plant cultivation, silkworm rearing, and cocoon production, and the other is indirect employment, which includes reeling of cocoons, twisting, dying and weaving. The former activities are rural in nature and the latter are semi-urban and urban.

Currently, in Assam, the muga food plants span over an estimated area of 7800 hectares. The annual requirement of muga seed in the state is estimated to be about 15.6 million gram seeds, of which the government grainages produces only 10 per cent seeds and the farmers themselves for their own requirement produce remaining 90 per cent of the seeds without resorting to scientific procedure [Rahman (2013)]. Moreover, it is an environment-friendly industry as there is a cultivation of host plant in muga activity. This study, as mentioned above, is confined to the Kamrup district of Assam because muga cultivation and processing creates employment 45 in the district especially among the weaker sections of the people. Assam ranks 3rd amongst raw silk producing states in India contributing over 80% of Muga silk and over 60% of Eri silk produced in India. The state houses more than 13 lakh looms out of the total 28 lakh looms in the country. Sualkuchi in Assam is known as the Manchester of the East and is world renowned for its unique Assam Silk. 98 Weavers Extension units and 20 Handloom Production Centers produce 65.3 thousand meters of handloom fabrics in the state. (Source Advantage Assam)[3]

III. ABOUT THE STUDY AREA

Kotoky Papong village, also known as the "Mini Sualkuchi" is located at Charaideo district. The village is inhabited by total number of 82 families. All the families living in the village are involved in sericulture activities. The village basically deals with the production of silk yarns. The tradition was followed by generation to generation possessing rich traditional knowledge on the silk production and weaving. Historically the peripheral area comprising the respective village is known as 'Paathaku' which comes from the traditional production of ethnic silk textiles. Located at one of the remotest area of Charaideo district, Kotoky Papong village is deprived of the present day infrastructure and communication barriers. This small village is having a huge potential in sericulture activities due to majority involvement. The production of the silk yarn is undertaken in individualistic and unorganized way in Kotoky Papong Village. The traditional type silk textiles are sold directly to the visiting customers in the village. The absence of the machine looms for yarning makes the production non-commercial in the village. The villagers do not have any reach to local market due to lack of weaving skills and design variations. The inhabitants of the village also suffer from the unavailability of forest land cover for silk cultivation. Total silk production in individual level records a good amount in Kotoky Papong village. The villagers are also engaged in different agriculture and allied activities and converting their historically associated sericulture activity to seasonal one. The village altogether processes an average number of 50000 cocoons in a year.

With these much needed potentialities; Kotoky Papong village can be developed as a role model for developing a sustainable sericulture industry. The lacunas of reaching the zenith can be addressed with finding out the grass root level issues or obstacles faced by the habitants of Kotoky Papong village.

IV. LITERATURE REVIEW

Mehmet & Celalettin (2015) have conducted at Denizili objectivized the perception of the textile farms towards the strategic management and from what level these decisions are practiced, if any. The researchers have collected data through questionaries' from 320 firms out of 700 of Denizili. The data has been processed through SPSS software. The research has been concluded with that firms' unawareness about strategic management and suggested for the inclusion of functional units in preparation of strategy and seek experts' assistance, if required. It also suggests for downsizing strategy to strike out negative prejudices against it and inclusion of the women in top management level.

Waqar and Chaudhry (2018) have studied the analyses of the firm level determinant in product innovation and its impact of firm's performance. The firm has collected primary data employing a multi-stage structural model linking the decision of the firm to innovate, innovation investment, product innovation and the firm's performance. The study has been concluded with a positive relation between product innovation and labor productivity in Pakistani export market of textile. A 10 percentage increase in innovative sells per worker is leading higher amount of increment in labor productivity and the labor productivity growth. The innovation investment is higher in the large textile sectors compared to the SMEs. It also finds that the vertical knowledge flow from foreign client and suppliers are determinant of the firm's decision of innovation. The market competition is also directly determining the

innovation investment of the firms supplying to Europe and America. The data has been collected with stratified random sampling technique from 614 firms of Punjab & Sindh province classified under section 13 and 14 of Pakistan Standard Industrial Classification. The sample has been created including the firms with minimum 10 no of employees. Due to lack of information the strata has been categorized on the geographical basis. The data has been process through a modified version of Construction, Design and Management(CDM) model which comprise four equation system basically attempting two major problems associated with the economic estimations of the relationship between innovation and the firm's performance particularly the selection bias and endogeneity bias.

The Handloom Weavers of the Central provinces of India discuss the textile industry in four different parts [Harnetty (1991)]. The first part deals with the deindustrialization that occurred due to emergence of the British power. The second part deals with the technical innovation of early twentieth century to retain the per capita income of the handloom sector. The third part explains the last quarter of British rule when the handloom industry faced both boom and bust. The last part of the study is trying to assess the fate of the handloom industry in central provinces of India. During British period the handloom industry was primarily occupied by the casts like Koshti at Nagpur. These different weaving casts around India have their unique identity in fabrication of the silk. The leaders of the Koshti community were employers of the labors who had several looms or their own looms. They also receive advances from the cloth merchant for production. But with the rapid innovation by the other groups like Koris and Momins, whose works were the cotton imitation of the handloom garments, gave a setback to the Koshtis. As a remedy W.F. Watson, the then secretary of state's has decided to verify the quality silk in India and export it to England for production of finished goods.

Exhibit III: Data Released by Handloom Policy 2017-18 Assam

Sl. No	Details	Census 2009-10	Census 1995-96	Census 1987-88
1	No of weavers and allied workers	43.32 lakh	65.51 lakh	
2	No of weaver in household NER	15.1 lakh	14.5 lakh	
3	No of weavers in Assam	14.01 lakh	11.96 lakh	17.16 lakh
4	No. of Looms	23.77 lakh	34.87 lakh	
5	No of Looms in NER	15.50 lakh	18.23 lakh	
6	No of Looms in Assam	11.12 lakh	13.22 lakh	14.09 lakh
7	Women Weaver %	77.90	60.60	
8	Women weaver % in Assam	99.07	89.71	91.89
9	Mandays work per weaver/ annum	234 days	197 days	
10	Total mandays worked by weavers household during census year	5313 lakh	4977 lakh	
11	Share of full time weaver to share weaver	49.60%	8.69%	22.37%
12	Share of weavers household reporting greater than 60% income from handloom and related activities	35%	31%	
13	Share of idle loom	4%	10%	

[Source: Handloom Policy 2017-18 Assam]

As per the Handloom Policy 2017-18 of Assam, the following sets of data may be looked into. Assam Produces 80% and 67% of the muga and eri silk, the consumption of these raw materials is only 6.27% for muga and 12.20% for eri silk.

Kumar (2017) has found that 100 numbers of the respondent families only employ 3 weavers on an average in handloom sector. Of these people 42% of weaver receives 100 to 150 man-day's work in a year. 96% of these weavers face loss due to climate and other factors. Out of 100 respondents from study area, the main occupation before adoption of sericulture was Agriculture for 56, whereas 44 respondents do as agriculture labor. Only 02 respondents are busy with sericulture Kharasia block. In Review of Silk Handloom Weaving In Assam, Bajpeyi et al. (2010) have found that the weavers of Assam are largely unorganized. The hand loom weaving in Assam can be divided into three types of sectors, namely; independent, cooperative and wage weavers as per the Indian c1assification. The independent weavers in Assam are majorly part time weavers who are engaged in weaving at home producing fabric mainly for household consumption. Approximately one third of the state's 13 lakh weavers are organized into about 3,744 societies registered at the district and sub-divisional level as hand loom cooperative societies. Most of these are single loom household units and commercial weaving is restricted to few places of prominence. These commercial weaving centers are the main weaving clusters of the state where a master-weaver who is well versed with the fabric/weaving knowledge invests for the raw material, decides upon the fabric design, engages weavers for producing fabrics and markets the produced goods.

V. RESEARCH METHODOLOGY

In order to address the objective of the study, a semi-structured interview was conducted to explore the obstacles facing by the textile industry in general and silk industry in particular. All key participants, selected purposively to explore the obstacles facing by the village in producing and processing of silk. A total of twenty key participants were interviewed based on their involvement and experience in producing and processing of silk. All the participants that were interviewed were found to be directly involved in the business having an experience gained from their traditions. The present study is a qualitative one, intended only to explore the factors obstructing the sustainable growth of the silk industry of Assam via Geographical Identification mark. All responses from the key participants are given with equal weightage so that no information is left out.

VI. FACTORS HINDERING THE ADOPTION OF GI MARK BY KOTOKY PAPONG VILLAGE

The factors hindering the adoption of GI Mark by Kotoky Papong Village are primarily due to the common problems inherent to the villages of rural Assam. Some of these factors are related to the productivity, weaving etc. These factors are sometimes being tried to resolve, but no permanent solution has been provided.

1. **General issues:** The general issues of the village are the unwillingness to take the risk of muga cultivation due to its disease and other vulnerability. As they feel that muga cultivation is now a day is not able to provide required livelihood to them. For earning their livelihood, the villagers shift their production from muga to other natural fibers

found in Assam. The nature of risk aversion slowly generated a mindset among the people to shift their livelihood from muga industry to others. This shifting is also resulted from the similar season of manual labor in other sectors. As the best quality of muga is reared during the month of October to April, labor also finds alternative opportunities.

The producers in the village are also unorganized. They usually pursue muga cultivation in a individual manner. This impacts their ability to produce the end product. The unorganized producers are consolidated in their own sphere and they receives few number of training related to the production. The level of education is also very low as the active generation in muga production records below matriculation only.

Due to the low level of education and outreach from the modernity, the village lacks the vision of establishing this industry in a global level. Most of them are unaware about GI. A few has heard about GI but do not poses any idea about it. The producers of the village are of no opinion about expanding their own industry as they have no idea about earning more profit. The philosophy of business is lacking among them.

Low level of education in the village is also seen in its understanding of muga silk scientifically. They are unaware of the scientific characteristics of muga silk. They do not have any idea about the research and development on the muga silk. The production of different items from muga silk is not known.

2. **Production related issues:** The very basic issues related to production of the raw silk in the village. The village primarily focuses on the production of the raw silk. The weaving is done only for self-consumption. Cocoons are also sold as per the requirement of the purchaser.

The village does not have any permanent forest cover for muga rearing. They usually depend upon the nearby villages for the muga worm rearing. They usually receive the silkworm from other villages and sometimes from their own. The increasing prices of the silk worm and their unavailability are also pointed by the respondents. Also, the premature death of muga is witnessed by producers. They believe on the environmental degradation for this decrease in muga cultivation. As they do not have any forest cover, they usually travel to other villages, sometimes to other districts for silk rearing. On an average every household usually rear 70kgs of raw silk previously compared to the 10 kgs in 2019.

3. **Yarning related issues:** Both Katia and Jethua seasonal muga silk is reared in the village. But presently the village faces a low production in katia muga. This is due to the use of pesticides used in the tea garden in the same season of Katia muga rearing. This, impacts the best rearing period of muga. A decrease in Jethua muga production is also witnessed by the village.

The village does not possess a single machine loom for yarning. Few of the key participants have received the yarning machine for Eri silk. This machine cannot be used for muga yarning.

No necessary quality check is done for the yarning. It has been done individually by the villagers. The yarns are sold to the purchaser visiting the village or to the weavers. The key participants have no concrete idea about the price of the raw silk. They record a hazy picture of the minimum price. Valuation of the whole production process in terms of labor cost is not known to the villagers.

4. **Weaving related issues:** The kotoky Papong village faces the scarcity of weaver among them. Producers of raw silk usually weave the plain mekhela chadar. They usually supply the raw silk to the purchasers and weave the raw silk according to their own requirement. Most of them are not able to weave with different design. The only weaver of the village deals with three types of traditional designs. There is no presence of machine loom in the village.

   The cost of hiring weavers from Sualkuchi like market leader is very much costly. They key respondents have admitted that there is no sharing of weaving techniques from Sualkuchi. The village had tried to bring the weaver from other localities, but it was not successful.

   The weaver of the village usually produces one type of garments from muga silk, i.e. mekhela chadar. The village does not have any direct market access. All weavings are done according to the order placed by buyer. For traditional design, the delivery period is less then weaving a new demanded design. The weaver family of the village lacks the idea about the color combination of different threads to design an attractive mekhela chadar.

   The weavers lack the idea of producing silk products for different usages. They usually weave mekhela chadars with no design for creating a stock of supply. These plain chadars are purchased by different sources. These chadars are embroidered and sold out in higher price compared to the loom woven designs. The village lacks the skill of embroidery.

   Due to limited number of orders from the buyers, the raw silk is usually produced by the respective weaver family of the village. As such there is no demand of produced silk by the other villagers of Kotoky Papong village. The villagers' sale the produced raw silk to the other sources visiting them.

5. **Marketing related issues:** The key respondents of the village have no access to any marketing agency. As a result production of silk and its end product is done only in a local basis for self-consumption. The village is unaware of any export link for supplying the raw silk internationally.

   All the marketing of the village is done through word of mouth only. But that is to a limited extent. The weaver receives order from the buyers in different occasions and delivery is accordingly. The village has never tried to showcase their traditional designs through any easily available online platform. Though the communication technology has expanded significantly, this village is not able to benefit themselves through it. The common philosophy among the villagers as well as the other people is that muga is

related to mekhela chadar only. This is the reason lack of innovation in muga industry of Assam.

The participants have responded that they receive invitation from respective department for exhibition of their products, but, to a few in numbers. The participation of the exhibition is limited to the weaver only.

VII. CONCLUSION

Geographical indication, the initiative, is a great leap forward securing the heritage product or services of a locality. But this is not only weapon to defeat the issue of sustainability. The inherent issues in silk industry must be tackled with sustainable measures. In absence of such measure this community dominated industry is always skeptic in case of their sustenance. The issues expressed by the respondents are more or less likely to be the issues faced by the majority of villages in Assam. Sector specific issues must be addressed via root cause analysis with utmost care. Otherwise the aversion of labor from this glorious muga silk industry will extinct itself in short span of time. Sustainable silk industry can be attained through infusion of more fresh ideas and manpower for a glorious future.

The general issues that are witnessed in the Kotoky Papong Village might be addressed through improving the education level, risk taking mentality as well as ability, organization with competitive advantages, sector specific training of the individuals. Creating the business mindset with a vision of expansion is very much required. The training module must focus on the need of the trainee and it must be provided in a continuous manner. Scientific understanding on muga must be delivered. An effective leadership is very much important to overcome these issues.

Production related issues can be addressed with creation of Muga sanctuary, quality check on silk worm prior harvest, addressing environmental impact, innovation of artificial climate for muga silk worm.

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