of the silk industries in Bangladesh. Rois Uddin Mahmud^{1*}, Prof. Dr. Engr. Ayub Nabi Khan², Md. Ashfakur Rahman Rome³, Raijul Islam⁴, Rejoyan Khan⁵

Bangladesh is known to the world due to its position in the Ready-made garment industry. For the geographical abundance and suitable environment, Bangladesh produces traditional fabrics such as muslin and Jamdani since

Abstract

ancient times. During the Pakistan period, Bangladesh has started silk production in 1947. Silk manufacturers have been closing down since 2002 owing to a variety of issues, and their survival is now in jeopardy. But the demand for silk is much higher globally, from which different countries are earning billions of dollars, where Bangladesh is lagging behind day by day despite having a suitable environment for silk. This paper aims to emphasize the current state of this valuable silk, as well as the issues with silk manufacturing, as well as possible answers and improvements. The purpose of the study is to determine the factors that influence the production and growth of the silk industry in our nation. Excessive time required for silk manufacturing, a lack of sufficient knowledge, Mulberry toxicity, and other issues are some of the issues in silk production. To solve these problems of silk authorities should educate the farmers properly about the benefits of silk production, come forward to the big factories, make new value-added items, etc. A survey of people's desire for silk-made items found that 93.4 percent of respondents would want to see more silk-based RMG products on the market. Keywords: Sericulture, silk, Mulberry, Muga, Tassar, Value-added product, Market.

knowledge of sericulture eventually moved eastward to Japan, Korea, Persia, Europe, and America. The

Silk is a kind of animal fiber known as the "Queen of Fibers." The cocoons produced by the Mulberry silkworm larvae are the major source of this material. Silk was invented in China at least 5000 years ago, according to historical data. Silk production was a closely held secret for many countries, but covert

production of silk was started in Rajshahi during the British period. After 1947 the most of the production

1. Introduction

of silk was exported to India. After the Liberation War, in 1978 the silk production was handed over to the Bangladesh Sericulture Development Board. Because of a great loss, On 30 November 2002, the Development Board was closed down (Banglapedia, 2015). However, it is not regarded as a wellestablished industry for a variety of socioeconomic reasons, and its long-term viability is in doubt. Certainly, this business is now fighting to stay afloat. Access to financing, infrastructure, inconsistencies in government policy and bureaucracy, environmental issues, various taxes and levies, access to current technology, unfair competition, marketing challenges, and non-availability of raw materials locally, to name a few, are all aspects to consider (Rashid, Faroque, & Chowdhury, 2014). Sericulture, like the RMG industry, is seen as a promising income area in Bangladesh. This industry has the potential to provide significant employment while also reducing poverty for the majority of the country's population, particularly in rural regions. With effective help and adequate support from the government and NGOs, Bangladesh has a critical opportunity to expand this industry to a higher level. Besides, it is not regarded as a well-established industry for a variety of socioeconomic reasons, and its long-term viability is in doubt. Sericulture in Bangladesh is governed by Bangladesh Silk Board (BSB), Bangladesh Silk Foundation 1. * Lecturer, Department of Textile Engineering, BGMEA University of Fashion and Technology, Nishatnagar, Turag, Dhaka, Bangladesh, Corresponding Author E-Mail: roisuddin@buft.edu.bd. Bangladesh. 4. Lecturer, Department of Textile Engineering, BGMEA University of Fashion and Technology, Nishatnagar, Turag, Dhaka, Bangladesh.

2. Pro-VC, BGMEA University of Fashion and Technology, Nishatnagar, Turag, Dhaka, Bangladesh. 3. Department of Textile Engineering, BGMEA University of Fashion and Technology, Nishatnagar, Turag, Dhaka, 5. Department of Textile Engineering, BGMEA University of Fashion and Technology, Nishatnagar, Turag, Dhaka, Bangladesh. 17

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advertising, and yarn imports from other nations. The demand-supply imbalance is currently widening as a result of these factors. Governmental responses are insufficient to close the demand-supply imbalance. As a result, it is critical to perform research on the sericulture sector to assess the efficiency of such facilities.

flow chart, annual production, comparison about the production of our country and other countries, and lastly the development of the production of silk and the sericulture department.(Shahriar, 2019). "Drawbacks, Necessary Development and Future Prospect of Silk in Bangladesh" published by Md. Sanaullah Murad, Md. Ebrahim Shaikh, Nazmul Islam, S.M. Tufazzal Haider talked about the present status of mulberry trees and also discussed the Future Prospect of Silk in Bangladesh(Murad, Shaikh, Islam, & Haider, 2018). "Bangladesh Sericulture Industry: Problems and Solutions of Silk Factories" Which is a recommendation conference and a discussion, attended by all owners of different organizations. They focused on the major problems like Technology, raw materials, uncertain market, improper coordination among firms, etc(Rashid, Faroque, & Chowdhury, 2014). "Silk industry flourishes in the hills" published by Saikat Dewan and Andrew Eagle talked about that there are several types of people of the Chittagong Hill tracts who are trying to raise silkworms to produce silk thread(Dewan & Eagle, 2018). "Problems and prospect of Silk Industry in Bangladesh" published by Md. Nazrul Islam, Shamem Ara Mili, S.M. Nazmul Hasan draws some of the possible areas of prospering the silk industry in Bangladesh as well

"The plight of the Bangladeshi silk industry: An empirical investigation" published by Asif Ishtiaque, Fouzia Haider focused on the reasons which create underdevelopment of the silk industry in Bangla. The report also shows us the barrier of the production of the mulberry and also shows us the prospect of the silk exertion by the performance of BSB (Ishtiaque, et al., 2013). "The Optimization of Silk Fabric Production

as the lacks and barriers of past silk production(Islam, Mili, & Hasan, 2010). "Sericulture Industry in Bangladesh: Problems and Prospects" published by Md. Abdur Rashid, Omar baroque, Anwarulkamal Chowdhury in 2014 showed the current scenario and status of sericulture as well as the silk industry of Bangladesh(Rashid, Faroque, & Chowdhury, 2014). In several papers, there are just mentioned some specific topics regarding silk production but this research has mentioned the total scenario including problems, present situation of silk, possible solutions of silk production problems, and future of silk production in Bangladesh as well. Only government is not responsible for the current scenario of the silk industry. However, this paper aims to uncover the facts behind this claim, demonstrating that the lack of silk production is due to a variety of factors other than the government. For example, public awareness, farmers' interest in silk production, lack of proper training on silk production, lack of proper research, lengthy process of silk production. These are the key facts for the silk production problem. 2. Objectives 1. To point out the whole business environment & present status of silk industries in Bangladesh. 2. To recommend some possible solutions for developing the sericulture industry in Bangladesh. 3. To find out about the major barriers of silk production. 4. To bring out the strengths and possible prospects of the silk industry in Bangladesh. 3. Methodology This paper is based on different types of statistics and the current scenario of silk in Bangladesh. Our study is more descriptive and specific. Data were collected from the Export Promotion Bureau of Bangladesh (EPB) and through a questionnaire survey of 100 individuals from different well-known institutions related

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Raw Silk Production (MT)

40.00

38.00

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2018-2019

41

2017-2018

41

Panjabi Saree Three piece

Nothing

I never used silk cloths

Shaal

Shirt

None

0.02

2018-2019

to textile education, agriculture, and sericulture sector. The survey was a combination of various questions including multiple-choice, open-end, and closed-end. Different real-life calculations and data were collected through discussion with farmers. We find a lot of positive responses on sericulture from

Bangladeshi people. 4. Findings & Discussion

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4.1 Current status of silk

acres (Ishtiaque, et al., 2013). Many barriers to the growth of the silk business in Bangladesh are discovered by the proprietors, including limited infrastructure and government difficulties. Moreover, the enterprises provided very limited facilities for their workers and mostly depended on imported raw materials which come from different countries including China and India. Here China and India are the major importers. From a government website, "As the strength of sericulture, Govt. has established Bangladesh Sericulture Development Board, Bangladesh Sericulture Research and Training Institute, 10 nurseries with rearing

facilities, 07 mini-farms and 26 chawki research center and wide extension network in the country. Besides the government sector, private sectors and NGOs are also working in sericulture. An annual report showed that cocoon production is 418 MT and raw silk production is 41.60 MT. Employment generation through a fragment of sericulture is 0.65 million, out of which 75% are women. Annual Import is 393.73 Ton and

Cocoon Production (MT)

400.00

390.00

are being implemented by more than 400 various types of organizations at the rural level, with more than 38 sericulture producer cooperatives scattered across the silk-producing areas. A total of roughly 21 silk businesses were selected at random. According to surveys and data analysis, roughly 55 percent of silk businesses have fewer than 44 decimal acres of land, while just 19 percent have more than 100 decimal

export is 133,884 US\$."(International Sericulture Commission, 2014) **Table 1:**The cocoon & raw silk production during 2009-2014 is summarized as follows,

430.00 2011-2012 42.00 2012-2013 430.00 43.00 2013-2014 448.00 44.00 41.00 Average 418.00 (Hakim, Statistics: International Sericulture Commission, 2014) Several investigations in the past have revealed that the silk industry has high expectations in terms of employment and income. Many landless farmers rely on this sector for their livelihood, yet because they lack land, they confront significant inequity. Although a huge number of urban residents are involved in the silk reeling system. The most essential truth is that money is moving indirectly from the wealthiest members of society to the poor. Because the expense of silk manufacture is exorbitant, it is only utilized by the wealthy. That is why the silk sector is important in our nation, which has a significant level of wealth disparity.

19

2016-2017

44

Raw silk Production in Bangladesh from 2015-2019

Table 2: Raw silk production in Bangladesh during 2015-2019(Bureau, 2014-2019). Raw silk Production from 2015-2019

2015-1016

44

44

42 Metric tons 41.5 ····· Expon (Metric tons) 41 40 39.5 2014-2015 2015-2016 2016-2017 2017-2018 2018-2019 **Figure 1:** Total production of silk in Bangladesh.

34.4%

(Students, owner, Professors, & teachers, Different silk products used By the consumers in Bangladesh, 2021) Due to a variety of economic and non-economic factors, the silk industry is on the verge of losing its viability. For instance, job migration, high production costs, farm and cultivation management, overall

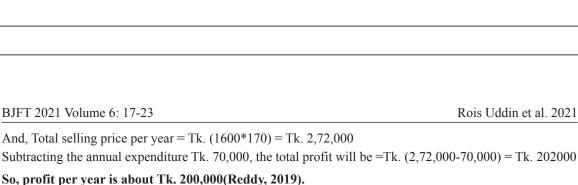
37.7%

Yes

No

Figure 3: Survey report on different silk products used by the consumers in Bangladesh

20 BJFT 2021 Volume 6: 17-23 Rois Uddin et al. 2021 infrastructure, government initiative, strong competitiveness, and ineffective policy, to name a few. Although Rajshahi is the silk capital of the world, just two silk companies, Sopura and Usha Silk are still in operation. On November 30, 2002, the Jute and Textile Ministry liquidated two government-owned silk companies during this time. At present, a few private sericulture firms are producing silk goods that are very limited in amount and struggling with the high cost of production. The hard truth is, a large percentage of silk firms is turned into the auto-rickshaw garage and the workers are migrated to another sector. According to the present silk production scenario, moreover, 65 percent of the entire cocoon is still generated in 29 villages in Rajshahi's larger area. Initial expansion in some of the new regions, such as Bogra, was satisfactory. According to the report, the entire yearly demand for raw silk is 300 metric tons, but only 45 metric tons are produced. Imports from China and other nations meet the rest of the demand. **Table 3:** The commodity wise export from Bangladesh during 2014-15 to 2018-19 Raw silk export from 2014-2019 2016-2017 2017-2018 2018-2019 2014-2015 2015-1016 Year 0 0.04 0.02 0.01 0.02 **Metric tons** (Export Promotion Bureau, 2020)



Bangladesh is an agricultural and a developing country however there is a lack of proper education and training as well, which affects some of our sectors including the silk or sericulture industry. For that reason, despite having proper resources and environmental support, in most cases, we are lagging. Those who are directly connected with this sericulture sector are farmers, who are now confined only to producing crops and vegetables. They are losing their interest in silk cultivation because of a lack of proper knowledge about silk cultivation. They don't know properly about silk cultivation for lack of information and training. In near future, there will be a possible opportunity in the silk industry around the world. In the silk sector, farmers can profit up to 3 times more than producing crops and vegetables. Cultivating silk, they can develop their lifestyle and can enrich the silk industry as well, which will help and play a vital role in gaining foreign currency. If it happens most of the farmers will realize the importance and benefit of silk production. Since farmers are mostly uneducated, they need to be given adequate training on silk so that

4. The Government should come forward with the necessary support, soft loans, and ensuring marketing

the silk industry. 5. Conclusions A massive economic battle is raging throughout the world, and as a result, all of the world's economies

- BJFT 2021 Volume 6: 17-23 to Bangladesh's economy. Several nations, including China, India, and Sri Lanka, as well as Vietnam, have made their mark on the global market by conducting silk research and developing different stylish silk textiles in the RMG industry and value-added textile products. Despite Bangladesh's ability to match its
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economy with many other factors, people are not seeing the desired outcomes from silk owing to dishonest persons and a variety of barriers. However, people have a favorable atmosphere for the production of this silk, low-cost labor services, and essential food resources; in addition, Bangladesh reaps significant profits from silk exportation in comparison to other countries. Setting up specialist clothing businesses can help Bangladesh flourish as well. The people of Bangladesh will expand through diverse garment sectors, as will silk production and development. Silk production and development are closing here, where other countries are setting up new silk factories. If this continues, Bangladesh will one day reach zero in silk production, in

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(BSF), and some NGOs. Bangladesh Sericulture Research and Training Institute (BSRTI) is now the only research and training institute in Bangladesh which is located in the Rajshahi. It gives necessary technical support and supportive aid to the organizations and technological advice to the silk industries. Though Bangladesh can guide the sericulture projects it has not been able to work as effectively as it was needed. As a result, the mulberry plantation has fallen to about half during the last decades. The major cause for this might be due to governmental authorities' incompetence, appropriate implementation of plans, a lack of

Process" published by Asif Shahriar discussed the production process of silk fabric, production process

The silk industry has been on the verge of extinction for some years. Though silk has an important part in the creation of jobs, it is mostly for rural people. Silk has a smaller allocation than other industrial sectors such as RMG and accessories. About 18 commercial firms and 21 government entities begin the silk industry. Currently, the number of governmental bodies participating at the national level is around ten, but the number of private organizations, both national and worldwide, is around seventeen. Sericulture schemes

Fiscal year 2009-2010 2010-2011

BJFT 2021 Volume 6: 17-23 2014-2015 Year **Metric tons**

44.5

44 43.5

42.5

44

44

It is vital to make a proper plan and management to execute that plan to get back the glorious past of our sericulture industry as well as to enrich the financial development of our country. For this reason, we have proposed some possible solutions to regain the silk sector. We strongly believe that if the silk industry and government follow our recommendation, this will be possible to gain more profit and solve all of thebarriers. In a public poll, 94 percent of respondents said people want the silk business to be as successful as the RMG sector. Figure 2: Survey report on the number of people who want silk to develop like RMG sector (Students, owner, Professors, & teachers, Number of people want silk as develop as RMG sector, 2021)

93.4%

0.045

0.04 0.035 0.03

0.025

0.02 0.015

0.01 0.005

Metric tons

0.04

2014-2015

0.02

2015-2016

Figure 3: This graph shows the actual scenario of the silk industry and export to other countries.

0.01

2016-2017

Years

The majority of Bangladeshi entrepreneurs invest in a variety of industries, but silk is not one of them. Because silk farming is a lengthy process, and because the entrepreneurs are unaware that they may quadruple their profits, they allocate funds for profit in a short period. We need to pique our farmers' enthusiasm in silk production. Because it is a way to generate more money, farmers in silk cultivation, for example, will make roughly three times more profit each year than farmers in other crops. According to a research paper, the annual income from silk cultivation on 1,200 square feet of land is around Tk.2 lakhs.

2017-2018

However, if more cultivation of other crops is carried out; a profit of Tk.80, 000 per year can be achieved. Therefore, farmers should be encouraged in silk cultivation. 4.2 Cost and profit analysis as estimated from the local farmers The cost of the cocoon is around Tk. 150 To Tk. 170 per kg. Each disease-free laying (DFL) of silkworm gives around 0.8 kg cocoon. About 2000 DFL per year will be obtained Cocoons per kg = (0.8*2000) kgs. = 1600 kgs.

that case, people have to buy this invaluable silk from other countries with expenses of millions of dollars.

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they can move on to silk production. In Bangladesh, there isn't adequate study on the silk industry. Despite giving cash for study, it is not contacting the scientists. As a result, the silk industry is stagnating. Silk is used to make a wide range of goods in many developing countries. For example, the Chinese have painted an image of their renowned Great Wall of China on a silk carpet, but Bangladesh is only allowed to make a restricted quantity of silk textiles and sarees. As a result, silk manufacturing is being threatened. The establishment of silk production is closing down day by day. For which Bangladesh has now been transformed into a silk importing country. As Silk is such a breakthrough commodity, the Sericulture Group should work hard, be inventive, and make appropriate use of government funds. It's a lengthy procedure. It is also influenced by the temperature. There will be significant losses if there is a malfunction with the silk production process. According to common wisdom, we trail far behind in the development of other silk-based goods. Other nations, such as India and China, have made significant progress in developing silk-based value-added products. We need to modify our habits of thinking and technology to improve silk. During sericulture, farmers are using harmful chemicals and toxic liquids to protect themselves from insects and pests, which are very dangerous to health. This increases their risk of developing serious illnesses such as cancer and lung disease. To reduce this problem, we should use organic products which are environmentally friendly and reduce toxicity also. (Siddiq, Mannaf, Ahmed, & Alamgir, 2015) 4.3 Developments 1. For the sake of silk development, the main textile business companies must go ahead. 2. People must build an agro-based economy by resurrecting sericulture's lost grandeur, a scheme dubbed "One house, one farm (The Financial Express, 2018). 3. In addition to Mulberry, we can cultivate Muga silk, Tassar silk in our country which will help us meeting our demand for silk.

facilities to develop the silk Industry.

Nearly 84% of the country's export earnings come from the garment industry, which is the economic driver of this country. (Hossain, 2019)And if there is no diversification in this garment industry, the garment industry i.e. Bangladesh will be threatened.

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5. People must set up a proper marketing strategy for creating more demand in the fashion market. 6. Free Mulberry tree distribution among the farmers can also be a possible way for the development in have prospered and become self-sufficient. And the rulers of today's society are all wealthy. Only through improving their economies will all developing nations, including Bangladesh, be able to compete with the industrialized world. Furthermore, silk production and development will be able to contribute significantly

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