Drawbacks, Necessary Development and Future Prospect of Silk in Bangladesh

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Abstract
Bangladesh is an underdeveloped and agro-based country. Silk industry has a long and glorious past history but the growth and market share is not satisfactory in this industry to the national and global context. It is an urgent need to mark the existing problem and future expectations of silk industry in Bangladesh. So, it is essential to make effective plan and proper execution of that plan to get back the glorious position of our silk industry as well as to help the economical development of our country.

Index terms—Silk, sericulture in bangladesh, silk industry, silkworm breed.

1 Introduction
Silk production is a very complicated process. Silk is made by silkworm, the caterpillar of the flightless silk moth, whose only food is fresh mulberry leaf. Silkworms are hatched from eggs and end their existence by encasing themselves in cocoons from which they emerge as silk moths. Several steps are required for silk filament manufacturing.

The production of cocoons for their filament is called sericulture. Experiments have proved that the cocoon of the Bombyx mori, a species of moth, produces the finest quality of raw silk.

The silkworms cannot fly because their bodies are too heavy in relation to their wings. Male’s silkworms die soon after mating while one single female silkworm lies from 300 to 500 tiny eggs before she dies. Silk moths lay eggs on specially prepared paper by using paper card method. After hatching, larva (caterpillar) comes out. The caterpillars are very delicate and require the utmost care. When first born, they are dark green in color and have a voracious appetite. At 2nd stage, the larva is fed mulberry leaves which are taken from the middle part of the trees and are more matured than tender leaves. This stage lasts for 2.5-3 days. At 3rd stage, the larva is fed mulberry leaves which are taken from the lower middle part of the mulberry trees. This stage lasts for 2.5-3 days. At 4th stage, the larva is fed more matured mulberry leaves which are taken from the lower part of the trees. This stage lasts for 3-3.5 days. After 3.5-4 days, the silkworms stop having leaves and their skin turns into yellowish color from white color and secrete saliva which is a Protein based substance.

The liquid silk is contained in two glands inside the silkworm. From these glands it flows in two channels to a common exit tube, called the spinneret, in the silkworm’s head. As it emerges, the liquid silk hardens into very fine filaments and these are coated and stuck together by a gummy substance called sericin which comes from two other glands nearby.

The silkworms are transferred to Chandraki as they start spinning cocoon around themselves and they are kept 6-7 days. The formation of cocoon needs 6-7 days and the Worm inside it is called Pupa.

The purpose of sericulture is to harvest the cocoons and collect the raw silk from these cocoons. Therefore, before it becomes a moth and tears out the cocoon to come out, the chrysalis is killed by exposing it to a temperature of 70-80 °C for 7-8 hours.

The silk fiber, as it is spun by the silkworm, consists of two triangular filaments of fibroin, stuck together with a gum called sericin.

The silk farmers heat the cocoons to kill them, leaving some to metamorphose into moths to breed the next generation of caterpillars. Harvested cocoons are then soaked in boiling water to soften the sericin holding the
silk fibers together in a cocoon shape. The fibers are then unwound to produce a continuous thread. Since a
single thread is too fine and fragile for commercial use, anywhere from three to ten strands are spun together to
form a single thread of silk.

Most of the silk gum is not removed to give protection of the delicate filament. Cocoons are boiled into hot
water until yarn comes out of cocoons and II.

2 Materials and Methods

In our study we find out some problems of silk industry in Bangladesh like old technology, poor advertising,
limited showroom, shortage of raw materials, inadequate capital, insufficient governmental facilities etc. We also
find out some prospects of this industry like growth of sales and market share, low cost of labor, increasing
demand, good geographical location, employment opportunity etc.

3 a) Present Status of Mulberry Trees in Bangladesh

In our study we find out some problems of silk industry in Bangladesh like old technology, poor advertising,
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Cultivation of mulberry plants is referred to as moriculture. Mulberry is a perennial plant and, once established
in the field, continues to produce in full form for at least 15 years.

Mulberry leaf is the food on which the silkworm lives on. So production of raw silk directly depends on the
production of this leaf. Bombyx mori which produces the silk cocoons therefore research on conservation of
遗传 stock of mulberry, development of high yielding mulberry varieties, appropriate technology of mulberry
cultivation and control of diseases and pests of mulberry are being conducted.

Improvement of crop productivity primarily depends on the level of conservation of genetic material. BSRTI
is maintaining 60 mulberry varieties in its germplasm bank out of which 36 are indigenous and 24 are exotic
in origin. Among the 24 exotic varieties, 17 Indian, 4 Chinese and 3 Japanese. Recently 4 exotic varieties
have been collected. BSRTI has developed 9 high yielding mulberry varieties (BM-1 to BM-9). The leaf yield
of the developed varieties is 30-40 metric ton/hectare/year as against 12-18 metric ton/hectare/year. Among
the developed BM-1, BM-3, BM-4, BM-5, BM-6 and BM-8 has been transferred to the field for commercial leaf
production. The rest are in the pipeline for exploitation to the field level. CPH-91 and CPH-167 these two varieties
are in the multiplication stage. The varieties were selected on the basis of biometrical, biochemical and bioassay
studies, diseases etc. The varieties BM-4 and BM-3 are found to be resistant to drought and water logging
conditions respectively. The variety BM-4 is recommended for practice in water stress conditions and BM-3
water logging conditions. BM-8 and CPH-167 are found to be tolerant to drought and disease specially Tukra and
Leaf curl.

b) Present status of sericulture in Bangladesh BSRTI has fabricated low cost mountage made of straw and
bamboo, which has the facilities for both side mounting. This type of mountages helps to produce quality
cocoons at cheaper rate. The collection and maintenance of silkworm breeds of tropical and temperate regions
are important for development of high yielding breeds and hybrids of silkworm. 85 multivoltine and bivoltine
silkworm strains are being maintained in the institute. This include indigenous multivoltine, Indian multivoltine,
Chinese multivoltine, Chinese bivoltine, Korean bivoltine etc.

The institute has formulated package of practices required for Chawki silk worm (young age) as well as late age
silkworm rearing in tropical and subtropical condition. This include handling of silkworm eggs maintenance of
proper temperature (23-28°C) and relative humidity (70-90 %) providing adequate spacing for silk worm (400-600
sqft for 50,000 larvae in 5th stage), maintenance of leaf freshness to preserve moisture and nutrient content,
careful handling of worms in molts and spinning.

Silkworm genes could be altered to increase their tolerance of hot climates, allowing more widespread global
cultivation.

Bangladesh is growing mainly BSRTI mulberry varieties for bush and tree plantations; silkworm races are
both bivoltine hybrids (BSRTI series) and hybrids of poly-voltine breeds evolved through crossbreed of Nistari,
a traditional Bangla strain and the hardy other races.

4 Global

5 Results and Discussion

6 a) Present Status of Mulberry Trees in Bangladesh

In 1993 our Finance Minister M. Saifur Rahman accepted the World Bank 1990 open market policy which is the
main reason for the destruction of our silk industry. In open market policy people did not have to pay tax on the
import of silk yarn so people of our country started to import of silk yarn from china which was economically
& in quality better than ours. Bangladesh became the transit point for the import of silk yarn which not only
affected Bangladesh but also India and Vietnam. Many people in Indian boarder started seasonal business of silk
product which came to our country cheaply & hampered our farmers & industrialist. As a result the Mulberry
tree farmers and silk worm producers can’t make profit by selling their products. So People are reluctant to
cultivate Mulberry trees now days because there is no guarantee that if anyone has a Mulberry tree, he can sell
its leaves to the market.

Another reason is there are hybrid crops from which they can earn much more than selling leaves of Mulberry
trees. Now days, people can get crops all over the year from the hybrid crops & the crops amount is much more
than previous period. For this reason there is acute shortage of Mulberry trees and silkworm. As a result many
of our silk industries have been shut down so the number of Mulberry trees is decreasing day by day. The weather
of country is changing day by day so the suitable environment for the cultivation of silk worm is reducing day
by day. Many people have diverted their occupation to other sector from this sector and our rural areas people
forgot about the cultivation of silk worm which is another reason for the destruction of this sector.

Our silk worm lays egg from which we can get only 400-500 yarn which is much lesser in comparison with
china where from a silk worm egg they can get 1400-1600 m yarn. As long as our silk yarn is not so good as
compared with China, we can’t compete with them in international market. Our local market is now reluctant
about silk product. People are now buying Indian synthetic product which are cheaper & don’t have any crease
or wrinkle after washing. So, people are refusing silk products eg. saree, salwar kameez etc.

In 2001 China created embargo to the export of silk yarn because they found producing fabric & garment
more profitable than selling silk yarn. Recently china is reluctant to export silk yarn to other countries. Our
sericulture research board & institute are corrupted & there is acute shortage of skilled & trained manpower.
People working here very few of them have knowledge about sericulture. Lack of govt. subsidy & attention is
another reason for the destruction of our silk industries.

7 b) Future prospect of silk weaving in Bangladesh

The present situation of silk weaving sector in Bangladesh is not very much congenial. If the current situation
continues, our silk industries will be demolished in the near future. If our silk research board & institute work
together & give appointment to the skilled people here then we may hope a bright prospect in this sector. We need
better silk worm & tooth tree in respective to our weather. If we can do so, we may certainly hope a better
prospect in our silk sector. [11] Silk is a very fine, regular, translucent filament. It may be up to 600m long, but
averages about 300m in length. Depending upon the health, diet and state under which the silk larvae extruded
the silk filaments, their diameter may vary from 12 µm to 30 µm.

Government patronize to this sector & give incentive to the people of this sector then we can hope a bright
prospect of this sector. People of our country should be get acknowledged of this sector & new investment
will certainly help to boost this sector. The farmers of our country should be trained how to cultivate silk worm
& tooth trees & if this happened we can certainly hope a better prospect of this sector.

8 c) Way to restore our previous glory of silk product

First reopening of the mills is needed. People can’t overcome loss without subsidies from the govt. Govt. should
create awareness to the farmers about Mulberry tree cultivation & the leaves should be bought by the govt. of
its own care so that the farmers don’t have any fear about loss. Embargo should be given on the import of silk
yarn. Local market of silk product should be regenerated by creating awareness among people.

Our silk worm egg is not necessarily so big that can give 1400-1600 m yarn to compete with China. So, it is
the research institute’s duty to invent highly developed silk worm which can give 1400-1600 m yarn from its egg.
Necessary developments of Mulberry tree should be done so that it can grow everywhere such as low lying land
& in the front of free land of home.

9 Conclusion

Bangladesh is a developing and small country. Silk industry plays a vital role in our national economy. It has a
remarkable goodwill but the growth and market share is not satisfactory of this industry to the national and global
context. Many people get employment opportunity from this industry and Govt. is getting huge income tax from
the silk mills. In the present study we find out some problems of silk industry in Bangladesh like old technology,
poor advertising, limited showroom, shortage of raw materials, inadequate capital, insufficient governmental
facilities etc. Besides this we also mark some prospects like growth of sales and market share, low cost of labor,
increasing demand, good geographical location, employment opportunity etc. So, it is essential to make effective
plan and proper execution of that plan to get back the glorious position of our silk industry as well as to help
the economical development of our country. For this purpose some recommendations have been proposed for silk
industry of Bangladesh in the study. We believe that if the industry follows that recommendation, it will be
benefited and able to gain more profit and overcome all of its obstacles.
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Figure 1: J

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[Drawbacks] *Necessary Development and Future Prospect of Silk in Bangladesh*, Drawbacks.


