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Establishment of Common Facility Centre of Eri Muga For The Benefit of Entrepreneurs in the Kamrup District

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Abstract:

Assam is the only state in India which produces all the 4 types of Silks (Eri, Muga, Tassar & Mulberry). It is the leading producer of Eri and Muga silk in the World. As per the statistics available with the Sericulture Department of Assam (2014-15) & RKVP (Rastriya Krishi Vikash Yojna), Assam produces 94% of Muga silk and 62% of Eri silk in the country. In term of quantity Assam produces 119 MT of Muga and 2012.70 MT of Eri silk in the Country.

However, in the past few years, Bihar, West Bengal, Jharkhand, Orissa, Madhya Pradesh, Maharashtra, Tamil Nadu (Highest producer of Tapioca in the country) have also started Eri farming in a big way. Eri Silk worm is very versatile when it comes to its food. They feed on Castor (The main food source), Kesseru, Borkesseru, Barpat, Tapioca, Gulancha, Gamari & Payam.

Kamrup & Kamrup (M) has 465 sericulture villages, (500 hectares of food plant, 62375 food plant) for Eri and (363 hectares of food plant, 120,000 food plant) for Muga as per the 2014-15 statistics.

Muga which is semi wild and so far several unsuccessful attempts have been made to domesticate it, but after the 3rd cycle the silkworm didn't survive in lab conditions. Therefore the worms are reared in the Som tree itself.

On the other hand, Eri silk has been successfully domesticated in trays and can be fed a variety of leaves as mentioned above. Other states has been successfully rearing Eri Silk 5-6 times a year, whereas Assam is still largely dependent on 2 crops a year and further the farmer associated with Eri rearing hasn't been utilizing the plants for additional income generation, for example Castor oil or tapioca flour etc. In this paper I am trying to analyse the importance to establish the Common Facility Centre of Eri Muga in Kamrup District.

Key words: common facility centre, Eri, Muga, RKVS, Handicraft, Handloom, silk, Sericulture etc.

Introduction: Assam is the only state in India which produces all the 4 types of Silks (Eri, Muga, Tassar & Mulberry). It is the leading producer of Eri and Muga silk in the World. As per the statistics available with the Sericulture Department of Assam (2014-15) & RKVP (Rastriya Krishi Vikash Yojna), Assam produces 94% of Muga silk and 62% of Eri silk in the country. In term of quantity Assam produces 119 MT of Muga and 2012.70 MT of Eri silk in the Country.

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Kamrup being the gateway to the Northeast has a huge potential to be the central hub for Eri & Muga silk (cocoon, yarn, products). It is well connected by Air and rail routes to the rest of the country and Port of Kolkata or Kolkata Port (KoPT), officially known as Syama Prasad Mookerjee Port Trust, is 525 km from Guwahati and takes 24 hours for goods for exports to reach there.

Sualkuchi, The silk village of Assam needs no introduction falls under Kamrup District too, a hub of Silk since 11th Century AD when King Dharma Pala of Pala dynasty brought 26 weaver families from Barpeta. It is also known as "Manchester of Assam". Further, the value chain of Eri & Muga from rearer to finished products (designers/entrepreneurs) is concentrated in these two districts which will give impetus to the whole sector if a CFC is built here.

As Silk industry of Assam is largely an unorganized sector, the CFC envisages to not only increase the income level of complete value chain but train and bring modern technological interventions which increases the quality and production capacity keeping the

essence of Handloom as its core dictum & making it a sustainable as well as 100% green (carbon positive/neutral) centre. The model of which can be replicated in all the other districts of Assam.

About the common facility centre: A common facility centre on Eri and Muga value chain has been proposed to be set up in collaboration with the industry associations of Kamrup as well as Kamrup (M) viz, Kamrup Agro Industry Association (KAIA) and Kamrup Metro Agro Industry Association (KAMAIA) in the state of Assam, India. The collaboration of the two Industry Associations is anticipated to bring in better expertise within the SPV members who would run the common facility centre for the Eri and Muga value chain.

The common facility centre would bring together the micro, small and medium enterprises of both the districts together. The centre will help to bridge the gaps in the Eri and Muga value chain currently hindering the business progress of the entrepreneurs involved in the same. Further for a Micro /Small entrepreneur, it is financially unviable to have a complete vertical set-up which fulfil all its need, therefore they are dependent on outside sources for various aspects of running their business successfully. This result is not only cost acceleration but valuable time loss and often the desired results are also not achieved.

Therefore, the CFC envisages having the following sections/departments under one roof thereby helping 1000+ entrepreneurs at various levels (directly and indirectly).

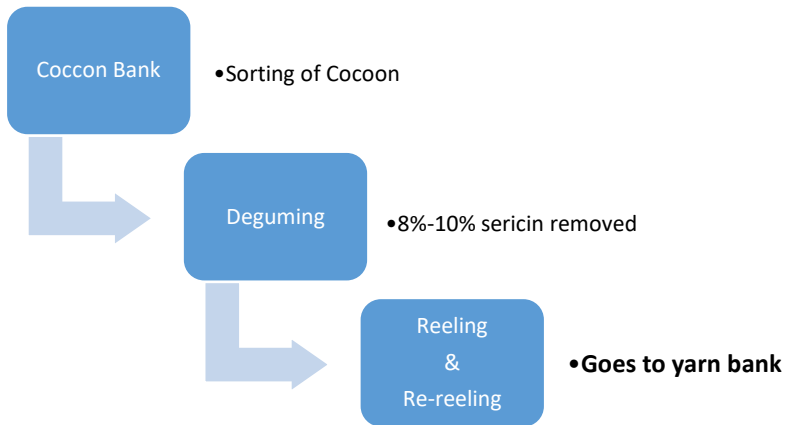
1. Cocoon bank (with duly sorted cocoon based on shade & quality)
2. Yarn Bank (For both greige and natural dyed yarns of diff counts/grades)
3. Degumming facility (for cocoon, yarn & textiles)
4. Reeling & Re-reeling facility along with sericin extraction facility
5. Looms (Fly Shuttle, Pedal and other latest equipment)
6. Sample Room for prototypes (Home furnishing)
7. Design Dept (for various textile surface textures & motifs as well as for made-ups)
8. R&D (Fully equipped research lab for Sericin extraction, increasing production of Eri & Muga etc)
9. Branding and media support (In-House Home furnishing brand focusing on exports & Marketing, Photography studio for documenting as well as e-commerce, traditional & social media updating services.)
10. Finishing & Packing dept. (washing/calendaring/peaching facilities.
11. Quality control
12. Credentials & Archives & IT (QR Coding etc)
13. Sales Point (Depending on the location finalized whether a full fledged showroom/sales point)
14. Conference cum display room (for swatches) & Buyer meetings.

From Cocoon to Customers :

The three major stages in the processing cycles are:



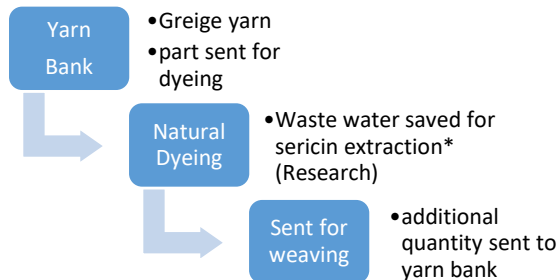
From Cocoon to the Yarn bank: There are major activities envisaged for this process are given below



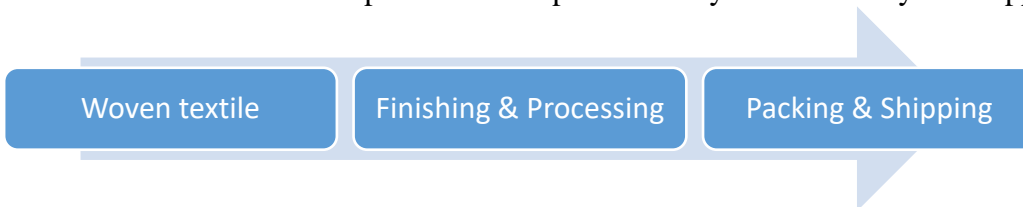
One important activity in this process is the storage of the waste water from degumming process for extraction of Sericin from the same.

The silk stored in the Yarn bank can either be sold as it is or further processed into textiles.

The steps involved are given below.

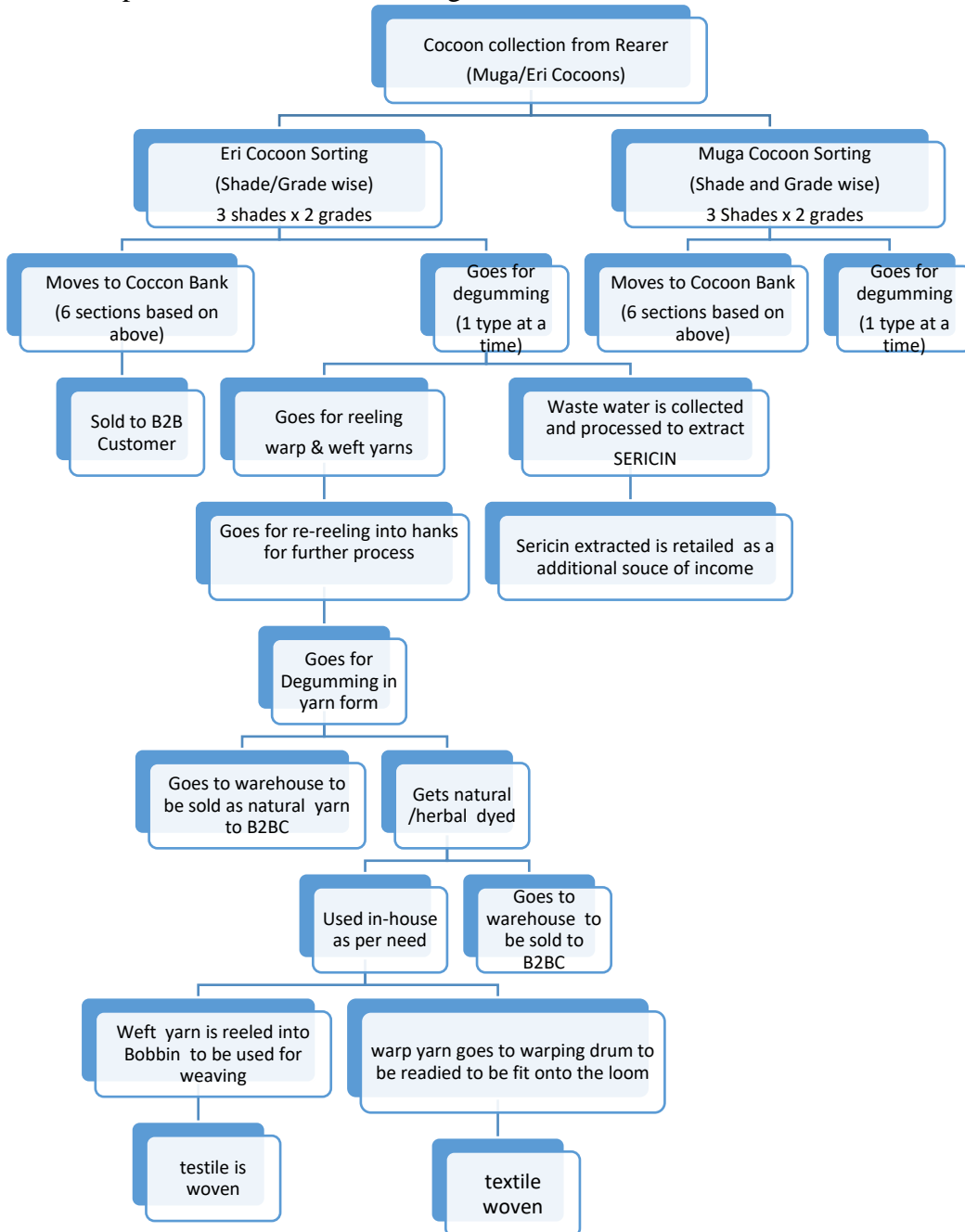


The woven textiles are then processed and packed. They are now ready for shipping.



At a glance:

The entire process flow of the CFC is given below:



Once textile is made;

- it will go for washing, calendaring/peaching (Finishing processes) and is ready
 - for made-up textiles
 - or goes to the final finishing & packaging department
 - or sold in textile form to retail as well as for other business entities.

Besides this CFC's additional services will be the

- IT interface
- Brand building/Marketing
- R&D
- Retail counter
- Sample showroom cum buyer meeting room
- Conference room
- Virtual office space for the CFC beneficiaries (on hire/hourly basis)
- And training centre.

A QC (Quality controller/Supervisor/Manager) for each section will be appointed from the SPV members specialized in different aspect based on the above work flow.

Scope and impact of each department:

1. Reeling & Re-Reeling

- i) The cocoons from the cocoon bank will be degummed & will be reeled & re-reeled at the CFC and made into hanks based on the grading and shade sorting of the cocoons. (silk are sold in hank, each hank of silk is 840 yards in length)
- ii) When shade wise sorting is done the natural as well as the natural dyed, yarn will have a consistent and even color and quality thereby increasing its acceptability in the international market.
- iii) Once the hanks are made part of it will go to the yarn bank to be sold/ made into greige textile and remaining will go for natural dyeing.
- iv) To reel & re-reel (110,000 kgs of cocoon = 27,500 kgs of yarn approx.) would utilize the services of roughly 460 reelers. CFC on its part will be only reeling 20% of this quantity in-house, for 80% of the quantity, service from workers in the neighboring villages will be used. Thus besides the 90 workers in the CFC another 370 families will directly gain from the additional income from reeling.

2. Natural Dyeing :

- i) Non-chemical dyeing is sustainable for the environment as the material used for dyeing is 100% biodegradable.
- ii) Further CFC will tie-up with the various temples to collect the stale flowers (offerings) to be used as natural dyes. This will help in reducing the temple waste but at the same time generate income from the waste.

- iii) Other sources like vegetable mandis and wholesaler of onions etc would be utilized to get the onion peel, over ripe vegetables etc as a source of dye base, further reducing the waste generation of the district.
- iv) Natural mordants will be used for colour fastness of the dyed yarns so that there is 0 (ZERO) chemical footprint for the environment.
- v) Staff requirement for the dyeing process is 4 semi-skilled workers (direct beneficiary/ difficult to calculate indirect beneficiaries as the entire population of the district will benefit from lower waste generation and landfill have less pressure.)

3. Degumming :

- i) Degumming will be done in three stages, once at cocoon stage so that reeling is possible, second at the yarn stage when dyeing will take place under high temperature and finally at the textile stage to give the shine for which Silk is famous.
- ii) The wastewater from the degumming process would not be wasted or sent to the drains; rather all wastewater will be collected and utilized for additional revenue (refer sericin extraction.)
- iii) Total workers (semi-skilled) needed will be 12, 4 for each stage as all the stages will be going on simultaneously in the CFC.

The above three departments along with the Cocoon and the Yarn bank can be run by one qualified manager who has good knowledge in natural dyeing. Therefore for the above five departments the details of the staff required are as given below:

- 109 semi-skilled and unskilled workers will be engaged along with 1 Manager making the total of 110 employees.
- 480 families will directly be engaged with the above departments for various activities

So direct beneficiaries just from the above five departments will be 590 families & indirect beneficiaries due to the less garbage and non-use of any harmful chemicals in the process will be the entire district/state/country/world.

4. Looms: (Flyshuttle loom, pedal loom, and other latest machinery)

- i) The loom area will be equipped with latest looms to increase productivity.
- ii) Pedal loom will be introduced to increase productivity as well as the quality of the finished textiles.
- iii) Further semi-automatic/ solar powered (green energy) loom will be also introduced for 60" width fabrics which is difficult to weave by traditional method (as some home furnishing textiles need bigger width fabrics)
- iv) As sorting of the cocoon and yarn have already been done in-house, so the finished fabric will be free of shade variations, thereby making it superior in quality fetching a higher price.

5. R & D facility :

- i) CFC will have a fully equipped lab for sericin extraction.
- ii) Will also be researching on increasing Eri & Muga productivity as tests/research have shown that upto 6 crops of cocoon a year can be cultivated which will increase 3 folds the production of cocoon for the rearer. Thailand already cultivates 6 crops a year of Eri and has been doing so for past 2 decades.
- iii) Testing of cocoon, yarn and textile at each stage to find out the percentage of sericin remaining in the fibroid (yarn), if we remove all the sericin at the cocoon stage the yarn will be too slippery to weave.

18%-26% total mass of the cocoon is sericin and remaining is fibroid (yarn we call silk) Out of which 13%-22% of it can be extracted which for our CFC is about 14,300 kgs to 24,200 kgs. Even if we discount 25% as process loss in extraction we still will be able to extract about 14,000 kgs with proper research. And at an average price of Rs 1500 makes additional revenue of above 2 crores. And when we provide this service of turning the waste water into gold for our state's silk reelers, it will directly effect the lives of 1000's of silk reelers in the state.

Sericin: The wonder molecule of the future:

Currently sericin (the sticky layer on the outside of the cocoon) which is removed through degumming and again while dyeing it further gets removed as it is soluble in hot water. Normally water is boiled to remove sericin, but as this process takes longer, so chemical enzymes, detergents etc are used to remove it faster. However this way the sericin gets degraded and becomes harder to extract. Therefore CFC will be using plain water & water with guava leaves/papaya peels/pineapple peels (these are natural enzymes) This way we will not only avoid polluting the environment but also the sericin extracted will be of better grade.

Our in-house R&D team plan to collaborate with IIT Guwahati on finding out the cheapest and best way to extract sericin from Eri and Muga. Currently there are 4 methods of extracting sericin, that is dehydrating, high temperature high pressure (HTHP) etc. Right now the sericin is valued between Rs.700 to Rs.3500 INR in the international market, while we are throwing it as waste water.

Why is sericin so valuable?

Research has found that sericin has unique properties like – biocompatibility, biodegradability, antibiotic-antibacterial property, UV resistant, oxidative resistance, and moisture absorption ability. Based on its molecular weight the application area varies. From cosmetic industry (anti-wrinkle properties) skincare, hair care products, healthcare to medication.

Recently it has been found that it helps in promoting corneal wound healing, and has pharmacological functions like anticoagulation, anti-cancer etc, the list is endless. It has

even been found that instead of chemical preservative in food packaging sericin can also be used.

Therefore the biggest USP of our CFC will be extracting the sericin which is currently been thrown as a waste water by the individual reelers of silk yarn. This will be the bonus revenue earner for the CFC as well as the first sericin extracting facility in the entire region.

6. Design Department :

- i) It will consist of computer with CAD software, printer, journals and forecasting magazines (to keep abreast with latest international trends in home-furnishings)
- ii) The department will be working on innovations in different weaves, motifs, patterns and made-ups keeping in mind the clientele.
- iii) Will also be responsible for the sampling of the proto samples, swatches for the B2B showroom cum meeting room.
- iv) They will also work in close co-ordination with the branding, packaging & Photography department to source innovative upcycled packaging & making soft copy of the designs (to be sent to the B2B clients).
- v) Their services will be also given on hire basis to other entrepreneurs to draw additional revenue for the CFC.

7. Sample Room : (For made-ups)

- i) This will consist of sewing machines, overlocker, cutting table etc to make home-furnishing proto samples as per the inputs from the design department.
- ii) Further the SVP members as well as outside entrepreneurs can use this facility on hire basis (rates will be different for SVP members and outside entrepreneurs).
- iii) For bulk made-up orders, CFC will engage outside vendors like the facilities at Bora Gaon/ outside entrepreneurs, if and when needed on piece rate basis.

8. Photography Studio :

- i) Keeping in mind that e-commerce is big business and today a major chunk of business are done through sites like www.amazon.com etc The studio will be photographing CFC products as per the format of these sites.
- ii) They will be also doing fashion photography as per inputs from the design departments for the new range of products being developed.
- iii) For this a full time photographer will be engaged (as costing works out cheaper to have a full-time photographer cum videographer rather than engaging them in ad-hoc basis)
- iv) Some upcycled props will be purchased from the junk yards for photography along with other paraphilias like camera, printer, studio stand lights, screens etc.
- v) Models will be hired as and when needed.

- vi) The studio services will be also given on hire basis to the entrepreneur on a daily/ per photo rent basis as most of the entrepreneurs in the district often hire their services (but on individual basis the costing works out to be very high) This will benefit more than 1000+ micro entrepreneurs who otherwise due to cost constrains are unable to promote their products through photographs in social media sites, e-com sites etc.

9. Branding & Marketing :

- i) As the main focus of the CFC is exporting home-furnishing products so a common CFC brand will be launched and promoted.
- ii) They will be participating in the international fairs through Handloom Council etc to popularize the products in international arena and procure orders.
- iii) They will also be active in social media sites to provide visibility to the in-house brand.
- iv) They will be proactively involved with the design department to promote our green solutions at the B2B arena.
- v) Further the department will also be responsible to get the compliance certificates for the CFC as per the international norms of various buyers in close coordination with the HR department (who will ensure that the compliance is maintained on day-to-day basis)
- vi) As part of marketing campaign they will conduct essay competition on Muga & Eri on a regular basis and put up these articles on various social media platforms and print media in coordination with our CFC media member. This is so that social media gets bombarded by articles on Eri & Muga from North-east India as presently there is negligible visibility in social media about North-eastern textiles.
- vii) Further they will ensure through promotions that the Munga (a variation of tassar silk) which is being marketed presently, often being confused by Muga by customers outside the North-East.
- viii) Procurement of bulk orders (national and international) will be the responsibility of this department.

10. Media (social & traditional) :

- i) This department will work in tandem with the branding department to ensure visibility in various media platforms.
- ii) Further it has been found that often the micro entrepreneurs don't have the time to update the social media platforms on a regular basis (either not net savvy or don't have the requisite manpower) so their services will be made available on hire basis (on month rates) to update media platforms on a regular basis for the clients. This will help a lot of micro entrepreneurs and in Kamrup district alone there are more than 5000 entrepreneurs who will benefit from this service.

- iii) Our media specialist SVP member will ensure that on regular basis interviews and short videos of CFC activities gets media exposure and are well placed in Youtube channels.
- iv) Further the media specialist SVP member will also look for tie-ups with other media outlets to promote the CFC locally as well as internationally.
- v) Having a specialist media person in SVP will ensure that free and bargain rates for promotions benefits the CFC.

11. Finishing & Packaging department :

- i) All the textiles as well as made-ups will need various finishing and washing to achieve the desired results as per the client's needs therefore a washing unit, calandring machine, peaching machine will be part of this department.
- ii) Loose thread cutting, stain removal while making the products etc will be conducted so that the finished products conform to international standards.
- iii) Packing dept will be in-charge of packaging the products as per the client's requirements as well as marking cartons etc as per the technical specification given by the clients.

12. Quality Assurance department:

- i) They will inspect and ensure the cocoons are sorted and graded as per specification.
- ii) They will ensure that the yarn reeled and re-reeled is free of any contamination.
- iii) The textile woven and made-ups meets the AQL (accepted quality level) standards of the buyer.
- iv) Further they will coordinate with the testing/R&D department to send for testing random samples to ensure that all testing parameters like, yarn count, content, color fastness to washing, color fastness to light, dry/wet rub etc are met as per the standard required.
- v) CFC will have a zero defect policy (to ensure strict adherence to quality is maintained).

13. Credentials, Archives & IT :

- i) A historical/heritage record library/museum area will be set up which will have videography, photography and actual historical samples (where available) to educate and enable the buyer to get enticed by the concept of being a part of such rich heritage & culture.
- ii) It will also archive the designs made at the CFC for future reference and build a comprehensive collection which will be promoted as a part of textile tourism tour envisaged by the CFC.
- iii) IT dept will ensure that, all the above are available in digital medium for people to have a virtual tour.
- iv) Further the IT department will be responsible for QR coding each step from cocoon to the finished textile so that any buyer when they scan the QR code

will know about all the persons involved in various processes of making of the product, thereby making the buyer value the product he/she holds in high esteem.

- v) Further the IT department will also ensure that other departments linked with IT like social media, photography, videography, wi-fi, computers, printers etc runs in the CFC in a smooth manner.

14. Retail Sales point :

- i) CFC will also have a retail sales point which will deal in retailing cocoons, yarns, textiles and made-ups to the SVP members as well as outside entrepreneurs at a competitive price, in which value of scale is passed onto the entrepreneurs.
- ii) The retail sales point will deal with the B2B local clientele and wouldn't be dealing with individual customer there by ensuring that the market of existing local entrepreneurs is not encroached upon.

15. Conference cum showroom –

- i) 100% of micro, small and medium entrepreneurs in the state don't have a space where they can bring in international buyers or conduct meetings; often they have to resort to renting out spaces in the hotel for it, which is unaffordable for most entrepreneurs. Therefore this space will be given on hire to SVP members at nominal rates (prior booking) as well as to outside entrepreneur on profit basis.
- ii) CFC will also be using this space to conduct meetings with international buyers.
- iii) The showroom inside the conference room have sample products & swatches of textiles developed by the design department (not for sale) and used for reference in placing bulk orders by the buyers.
- iv) It will be well equipped, with WI-FI, flat screen tv for presentations, microphones etc.
- v) This room will also be used by the SVP to conduct it's monthly meetings and updating the MA on its activities and performance.
- vi) This will directly benefit more than 500 micro entrepreneurs of the district.

16. Executive cabins :

- i) There will be 6 executive cabins for the use of SVP members as well as on hire basis for other entrepreneurs (on prior booking basis on rent) this will result in additional revenue for the CFC.
- ii) The cabins will be well equipped with wi-fi, printers etc, and any services like tea, coffee etc will be on actual basis and provided from the in-house canteen.

17. Meeting room :

- i) There will be 2-3 meeting rooms with a seating capacity of 5-6 persons to conduct smaller meetings.
- ii) It will again will be fully equipped for presentations etc.
- iii) It would also be given on rent basis (prior booking) to generate additional revenue.

18. Accounts/Documentation/Shipping/Exports :

- i) This department will maintain all the day to day accounts of the CFC
- ii) Further for export orders various documentations needs to be processed including claims for duty drawbacks etc which will also be handled by this department.
- iii) For shipping/exports, coordinating with the freight forwarders or in-land transporters, courier services will also be performed by them.
- iv) Filing of GST, taxes etc would be handled by this department as well.
- v) Further one of the main hurdles for the entrepreneurs of the state is that they have little knowledge of these aspects, so this service can be availed by outside entrepreneurs on to pay basis.

19. Human Resource (HR) :

- i) Maintaining the files of all the employees, salaries etc would be handled by them
- ii) Security of the premises would also be under the HR's duties.
- iii) Maintenance of compliance on a day to day basis and ensuring that CFC passes any spot compliance audit would be HR's responsibility.
- iv) They will be also responsible for staff welfare and maintenance of hygienic atmosphere for the CFC workers.
- v) Besides any other HR activities needed by the CFC.

20. Compliance facilities :

- i) Beside the above listed departments of CFC, there will be few structures to meet the various compliances, like washroom, canteen facility, drinking water, fire hydrant/hose, fire extinguisher, signages, floor paints, fire exit plans/drills which needs to be adhered to by the CFC.

Thus we see that the CFC planned is a complete 360 degree solution for any and all entrepreneurs in the value chain of Eri & Muga, as well as other small/micro enterprises. There are more than 10,000 entrepreneurs registered with the DIC in Kamrup who would be able to utilize the facilities to enhance not only their business but to also bring down their overheads as the CFC will be a one stop solution for all micro and small entrepreneurs and a boon for the handloom textile industry of the state in general.

The CFC envisages not only to generate revenue from the finished textiles it produces, but from sericin extraction (which will become one of the major source of revenue). Further each department would also be able to generate additional income for the CFC by renting out its various services. The CFC envisages to be a central hub for all the handloom

entrepreneurs (not just Muga & Eri) as a place to network, utilize the various services on offer and boost entrepreneurs to break the glass ceiling and improve their income generating power.

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