

# **Proceedings of the Brainstorming session on Ramie: the current scenario and the way forward**

**Venue:** Seminar Hall, 1<sup>st</sup> floor, Tripura University Guest House

**Date:** 14<sup>th</sup> August 2024

**Time:** 10AM to 1.50PM

Name of the participants:

1. Prof Ganga Prasad Prasain
2. Smt. Vishwasree B
3. Sri. R. Arun Kumar
4. Sri. Ajit Sukla Das
5. Sri. Sandip Sinha
6. Sri. Arnab Chowdhury
7. Prof. Sunil Kumar Sett
8. Sri. Tapan Sharma
9. Sri. Pravash Agarwal
10. Ms. Mandakini Gogoi
11. Dr. Prabir Kumar Choudhuri
12. Dr. Arun Kumar Dutta
13. Dr. Nidhi Sisodia
14. Smt. Aditi Mody
15. Sri. Dushyant Agarwal
16. Dr. Nirmalya Debnath
17. Prof Shaon Ray Chaudhuri

In the very beginning of the Brainstorming session, Prof. Shaon Ray Chaudhuri, Head Microbiology Department and convenor extended hearty welcome to the members present with introducing the different dignitaries attending the session. She described the journey of Ramie work at Tripura University and how the collaboration was established with each member presenting in the session and the funding from Department of Biotechnology (GoI) and Ministry of Micro, Small and Medium Enterprises. She detailed the current scenario of research related to Ramie established at Tripura University by the Microbial Technology Group (including patents for bio-fertilizer formulation as well as finishing of Ramie fiber during degumming), the limitations that they are facing (i.e. not having the dedicated machinery for Ramie yarn production in North East India) and their future plans for taking the work ahead in coming days with their collaborators through stronger collaborations, Ramie cultivation at Tripura outside Tripura University and setting up dedicated machine line for yarn production. They have established a zero pollution Ramie cultivation with valorisation of its waste. In addition the microbial fiber finishing leads to spinnable fibre with strong yarn which could be woven into different products that were showcased at the hall.

**Sri Tapan Sharma, Deputy Director, Weaver's Service Centre, Meerut** discussed about the advantages of Ramie as a smooth shiny yarn. He discussed about the various products that could be made in the handloom sector. He emphasized on the exclusivity of the product, and need to make it simpler and affordable. Also, to sell a product there needs to be huge awareness generation about the product. He also suggested that an appropriate term could be introduced

to refer to the Ramie fiber bunches that are used directly in handloom to weave the jacket material without the need to produce the yarn. Presently, they are trying to develop natural dyed shade card for Ramie. He suggested introducing the concept of 'International Ramie Day' for popularization of the fibre and its products. The date of grant of Indian patent on Ramie degumming by the Microbial Technology could be designated as the day and a fashion parade could be organized on the occasion. He concluded his talk by suggesting diversified products for Ramie and introducing Ramie inserted denim and shirting.

**Sri Pravash Agarwal** of Maasis Interfashion Private Limited, Kolkata, a 30-year-old organization introduced the work that they presently carry out in the organic and handloom sector. He emphasized the benefits of Ramie including its natural resistance to stains and as a promising alternative to linen. He also spoke about the need to take ramie to the commercial stage. The possibility of using the fabric for hosiery, innerwear, socks etc. due to its extremely absorbent nature was also discussed. Presently in hospitals use of plastic is prevalent and people don't want to be wrapped in it. Thus, Ramie can be used in hospital sheets also by blending it with cotton. The major issue for MAASIS to work with Ramie is that they need steady supply of readymade blended Ramie yarn to be used for commercialization. He suggested that the steady supply of Ramie Yarn could be achieved only if the Government is involved in this initiative. The private sector can join the initiative at a subsequent stage. He suggested the use of unutilised land in tea gardens for Ramie cultivation as a mixed crop in such areas. He ensures that his organization could be instrumental in testing the same in their tea gardens at Assam, if permitted by Government and required. He also suggested that a test pilot project of around 5 Tonnes a month should be proposed to begin with. Ramie can be launched as a premium Indian product. He proposed to buy the total Ramie yarn produced at Tripura over a period of two years to support the initiative.

**Ms Mandakini Gogoi of 7 Weaves, Gauhati** explained the work that her organization is doing to conserve the biodiversity of the Loharghat forest range and the community residing there. She explained about their work on Ramie, both with degummed and opened fibers provided to them. While spinning the yarn they faced difficulty requiring frequent sprinkling of water contrary to weaving which was much easily achieved. She also pointed out that ramie fibre was very homogenise in accepting natural dyes. She then delved into a very serious issue of fashion industry contributing to 10% of carbon emission through carbon dioxide, Nitrous Oxide, methane and others. Thus, the need to move towards a net zero concept. For this reason, the textile industry has currently made a list of fibres that have less or no contribution to carbon emission. In the same way if Ramie can confirm its environmental benefits it can be the fabric of future. She also discussed the target markets for using this fabric like, home furnishing products due to its coarse nature, apparels requiring the need of fine quality fibre, handmade paper and how to add value to the paper. She added that Ramie could also be cross cultivated along with Assam Indigo plants in the Loharghat Forest range in Assam and her organization will be happy to be associated with this endeavour.

**Prof. Sunil Kumar Sett, Former Professor of Department of Jute and Fibre Technology, Calcutta University** started his talk by discussing about bast fibres in general. He pointed out that spinning is toughest with bast fibres hence, proper optimization studies need to carry out in research labs to produce quality fibres. Industries also depend on the data provided by the research endeavours. He proceeded his talk by comparing the different attributes of Ramie fibre with universal cotton and pointed out how the fineness as determined through length: breath

ratio describes the spinnability of the fibre. He went on to describe the four spinning systems commercially available for ramie yarn production with their suitability in different count range of which the Worsted spinning system is most appropriate for Ramie for spinning better quality fine yarn. Blending with other fibres may help in improving the spinnability of Ramie. A proper setup for producing the finished yarn was also explained. He suggested that a lab scale spinning setup is required at Tripura University for continuous process optimization while a semi-commercial machine setup should be installed to encourage the people to go for commercial Ramie Yarn Preparation. He also emphasized of use of these installations for other natural fibres like Pine apple, Hemp, Nettle etc.

**Dr. Prabir Kumar Choudhuri, HOD Silpa-Sadana, Visva Bharati University** along with showcasing his samples described the process of handmade paper creation from the decorticated Ramie waste provided by the Microbial Technology Group at Tripura University. He suggested the various modifications that could be adopted for optimizing the handmade paper strength through added reinforcement, increased thickness through added layering, leading to higher tearing strength of the paper, making it suitable for different applications. From the waste provided they were able to develop different types of paper with 200-241.6 gm weight per square meter (GSM) of the handmade papers. Flexibility with varying amount of adhesive can be explored suggesting the uses of this paper in packaging material, canvas, visiting card, book binding purpose.

Prof. S. Ray Chaudhuri added that making handmade paper is a skill that students could learn and it can lead to entrepreneurship.

**Dr. Arun Kumar Dutta, Department of Botany, Gauhati University** explained how ramie decorticated waste, a rich source of dietary fibres can be utilized for mushroom cultivation leading to waste valorization. This could be adopted as a livelihood for the indigenous population residing in and around Tripura. The benefit of mushroom cultivation is that using the right substrate can lead to a higher production of mushroom i.e. 1 kg of substrate can lead to 1-1.5 kg of mushroom. He also pointed out that utilising ramie waste as a substrate can lead to creation of circular economy with zero waste.

**Dr. Nidhi Sisodia, Northern India Textile Research Association (NITRA), Gaziabad** talked about NITRA and the work that they conduct in the institute. She proceeded on by talking about the Flax Processing set-up present in the institute. She went on to describe the importance of natural fibre including Ramie. The fibre being hollow can be used in automobile industry. Other benefits of Ramie discussed was its ability to retain moisture and having a high cellulosic content. The possibility of re-generated cellulosic fibre from Ramie was also discussed. She mentioned that the retting process for Ramie was easy and needs to be explored. She also pointed out that moving from lab scale to commercial scale requires the easy availability of raw materials. Hence, it would be better to first test with 50-100 kg of raw fibre for degumming and yarn preparation, based on which the cost can be calculated and then move on to scale up further. She mentioned that the same worsted line for yarn production could be used for all types of natural fibers including Ramie, Banana, pineapple, hemp. The same setup if installed at Tripura could be used for all types of fibers that are generated in the state, ensuring round the year utilization of the machinery.

This was followed by the **Panel Discussion** on Ramie product commercialization: the way forward

**Smt Vishwasree B (IAS), Director, Department of Industries and Commerce, Government of India** addressed the session by stating the importance of scale up in reference to Industry. Thus, it is very important to know about the minimum production/area required to focus on a pilot scale plant. Being in its nascent stages it is important to determine the minimum raw material required for the machines to function following determination of the kind of training that is needed. The identification of land for Ramie cultivation is also important along with the people who would do it. She suggested that the cultivation could be carried out in the forest, agriculture and tea garden land. She requested the Tripura Rural Livelihood Mission to identify available lands that could be available for pilot scale trial leading to commercial exploitation. She assured the help needed on plantation aspect by collaborating with other government bodies through different schemes of State Government and Central Government. She also suggested that since Banana and Pineapple are produced in surplus in Tripura hence growing them along with Ramie and developing a common machine line for treating these natural fibres would be beneficial. This would help to promote Tripura as an area for Natural fibres and the possible area could be in proposed in target clusters in Kumarghat as pineapple plantation is also present there. She appreciated the proposal of Sri Pravash Agarwal of Maasis Interfashion Private Limited, Kolkata of buying the entire quantity of Ramie yarn produced at Tripura for the 1<sup>st</sup> two years.

**Sri R. Arun Kumar (IFS), Director, Directorate of Handloom, Handicrafts and Sericulture, Agartala, Tripura** emphasized on the novelty of the Ramie fibre. He pointed out that knowing the life cycle of the plant is required. Since alternative crops/trees like Muga silkworm culture, agroforestry using mulberry and bamboos are being attempted/implemented to discourage the monoculture trees which may have a strong effect on the environment and to diversify the sustainable Land Use options, Ramie could be introduced and indigenous communities could be encouraged to grow it. He also suggested that as a pilot scale of 1-2-hectare, Ramie cultivation can be started in their provided land around Tripura and Assam. He stressed on the importance of a pilot scale. He also talked about the importance of acceptance of this fibre by the locals and that if accepted, could provide an alternative livelihood option to the native community. He pointed out that the fibre had a promising future as it is organic along with its wide variety of value-added products.

**Sri. Ajit Sukladas, TCS SSG, Additional Chief Executive Officer, Tripura Rural Livelihood Mission** introduced his organization and the work they are doing to empower Urban and Rural women belonging to the lower strata of the society. He proposed that at district level, the local population needs to be made aware of Ramie. Hence, if awareness programs related to Ramie can be organized for which the Tripura Rural Livelihood Mission can provide logistics support to carry out the awareness programs. He enquired regarding any adverse effect that might result from continuous cultivation of Ramie. Prof. Shaon Ray Chaudhuri explained the eco-friendly cultivation with no adverse effect of Ramie cultivation on environment and stated that the sustained cultivation was optimized by her research group in terms of sustained production with maintained soil fertility. They assured the collaboration and support of TRLM in this endeavour.

**Sri. Sandip Singha, State Mission Manager Non-farm, TRLM** referred to the session as a learning experience. He emphasized on diversifying the portfolio of Self Help Groups (SHG) by convincing them with the statistics of the Ramie fibre and product commercialization so that they start adopting it. Figuring out the demand and the market requirement is of utmost

importance. The support that the Tripura Rural Livelihood Mission could provide is to mobilize their farmers who work with them. An important thing that he pointed out was the development of forward and backward linkages to convince the SHG members.

**Sri. Arnab Chowdhury, Deputy Director (Design), Weavers' Service Centre, Agartala** emphasized on the importance of awareness of Ramie through introducing it in places like railway stations, banks, post offices through posters. There was a need to talk with agriculture department to make the farmers aware about the benefits of growing Ramie, motivating them to grow it. He also pointed out that after the availability of this yarn it needs to be introduced as a fashion product in the handloom industry. He also mentioned that yarns of different fibres are available in National Handloom Development Corporation Ltd, hence, the same supply chain could be used in case of Ramie yarn along with efforts on advertisement and awareness in association with different government departments is important.

**Dr. Nirmala Debnath, Assistant Coordinator, MSME funded BI, TU,** referred to Ramie as a revenue-generating material for Tripura. He congratulated Prof. Shaon Ray Chaudhuri on her journey of exploring Ramie. He extended his support in case of any branding related work. He was ready to provide assistance in terms of market needs. He also assured that the Department of Management, Tripura University would help in case of any development of business plan, conducting in market survey and promoting strategy for branding.

**Hon'ble Vice Chancellor, Tripura University** thanked the collaborators for their support and presence. He hoped that a successful outcome could be achieved through this session benefitting everyone involved.

The session was concluded in a positive note with a promising future for Ramie as a unique natural fibre replacing linen and was ended with a thanks to the chair.

### **Highlights of the Brainstorming Session**

To highlights of the meeting and the steps to be undertaken to carry the endeavour further were as follows:

1. There is a need for spreading awareness among the different stakeholders through awareness program, poster at populated locations, organizing fashion shows, having a dedicated International ramie Day (29<sup>th</sup> November) for popularization of the Ramie fiber and its diversified products introducing Ramie inserted denim and shirting as well as others products that are developed. This can be done in association with different departments/organization like TRLM, Agriculture Departments, to name a few.
2. A life cycle analysis of Ramie plantation needs to be carried out along with an assessment of the amount of land to be put under cultivation at Tripura to get the Raw material for pilot scale yarn production on a continuous basis.
3. An assessment of the market demand and potential for commercialization of Ramie fiber and product needs to be conducted.
4. The assessment of the training and the technological input to be provided to the stakeholders directly involved in plantation and yarn preparation needs to be made.
5. The area for cultivation in forest land, agricultural land and tea plantation to be identified by Department of Industry and Commerce GoT, Department of Handloom, Handicraft and Sericulture, GoT as well as Tripura Rural Livelihood Mission.

6. A lab scale machinery needs to be put up at Tripura University for further optimization and innovation of the yarn production which will be essential to get the optimized parameters for the semi-commercial/commercial operation.
7. A semi-commercial/commercial scale setup needs to be put up at Tripura with State and Central funding (as required) under the supervision of Department of Industry and Commerce GoT and Tripura Rural Livelihood Mission. The technical knowhow about the machinery will be provided by experts like Prof S K Sett and organizations like NITRA.
8. The same setup would be used for Ramie, Banana and Pineapple yarn production for round the year use and product development.
9. The Ramie yarn for the first two years of production will be purchased by Maasis Interfashion Private Limited, Kolkata as part of their initiative for supporting the endeavour of the state of Tripura with the objective of developing a Premium Indian Brand.
10. The yarns developed from the setup could be made available for commercialization through National Handloom Development Corporation Ltd.
11. In addition the valorization of Ramie decortication waste from could be introduced as a skill course for training the youth of the state providing opportunities of entrepreneurship development in the state.




















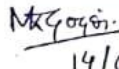



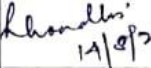
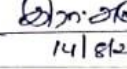
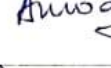


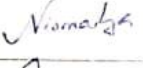
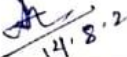


**Internal Quality Assurance Cell, Tripura University**  
**Brainstorming session on Ramie: the current**  
**scenario and the way forward**

Date: August 14, 2024

Time : 10:00 am- 1:00 pm

Venue: Seminar Hall, 1 st floor, Tripura University Guest House.

Sl. No.	Name (BLOCK LETTERS)	Branch/Section/Dept./Cell	Signature with date
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3	Tapan Shanna	Mobile: 9451696761	 14/8/24
4	Axien Kumar Sutta	Mobile: 9674185756	 14/08/2024
5	Dr. Nidhi Sisodia	Mobile: 7503184809	 14/8/24
6	Dr. PRABIR KUMAR CHOUDHURY	Mobile: 9934195667	 14/8/24
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11	NIRMALYA DEBNATH	Mobile: 7629821601	 14/08/24
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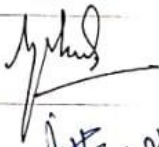




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Sl. No.	Name (BLOCK LETTERS)	Branch/Section/Dept./Cell	Signature with date
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