TERMS OF REFERENCE FOR THE R&D PROJECT

[Jute and Jute Products Sectional Committee TXD 03 under Textiles Department of BIS]

1. **Title of the Project:** Study of fibre characteristics requirement for grading of uncut Indian Mesta and uncut Indian Bimli by hand and eye method; and instrumental method.

2. **Background**

2.1 Mesta/Bimli is being procured by Jute Corporation of India under minimum support price. Mesta/Bimli are considered as jute allied fibres and can be used in making coarse products like jute ropes, twines, and heavier sacking products.

2.2 Mesta is traditionally developed in the states of West Bengal, Bihar, Assam, Orissa and Uttar Pradesh. The grading of Mesta fibers may involve considerations such as fiber strength, fineness, color, maximum root content, defects and heaviness or lightness. These parameters help in categorizing the fibers into different grades, allowing for a more standardized and consistent quality of Mesta for various industrial applications.

2.3 Bimli is primarily developed in Andhra Pradesh and West Bengal . The grading of Bimli fibres considers several factors like fiber strength, fineness, color, maximum root content, defects and heaviness or lightness. BIS has published the following standards on grading of Mesta and Bimli :-

IS 9846 : 1981 'Grading of Uncut Indian Mesta'
IS 11596 : 1986 Grading of Uncut Indian Bimli.

2.4 The grading system of Bimli/Mesta is decades old and should be rationalized based on the current quality profile of the crop and the products in demand. As both Mesta & Bimli are an agricultural product, over the time due to enormous change in climatic condition, many of the parameters have been changed. The qualities of extracted fibre have undergone changes due to advancement in genetic improvements and retting technologies. So, it is necessary to review the score card for hand and eye method and come out with suitable modifications in the standard, to make the parameters measurable and user friendly through inclusion of instrumental methods like what was done for IS 271 : 2020.

The Indian standards mentioned above can be viewed at https://standardsbis.bsbedge.com

2.5 This R & D project will serve as basis for revision of the standard and aligning the requirements given in this standard with the present scenario of industry and trade.

3. Objective

To collect the technical data and scientific evidence for fibre characteristics and scoring system for grading of Mesta and Bimli fibre from both hand and eye method; and instrumental method from primary and secondary sources.

4) Scope: -

a) Undertake study and analyse the existing literature which include but not restricted to the following :-

   i) Standards, journals and research papers,
   ii) Standard operating procedures (SOPs)/guidelines of Ministry/regulator/users,
   iii) Studies/research conducted by any organization
   iv) Any other relevant published information.

b) Collection of the database for traders, growers, nodal agencies, testing infrastructure and users in the country.

c) Collect the feedback from growers/traders/nodal agencies by circulating suitable questionnaire regarding the areas/region of production, types of varieties of fibres, cultivation process, retting technology used, important factors affecting quality of fibre, total production or any other relevant information either through email or any other digital means.

d) Collect/purchase 2 samples of 15 kg each for each variety of mesta and bimli fibre separately covering all major regions and varieties either from nodal agency like Jute Corporation of India or through field visits.

e) Perform grading from hand and eye method for each variety of mesta and bimli fibre separately covering all major regions with minimum 3 different person/institute having relevant experience and competency in grading of raw mesta and bimli fibre.

f) Carry out testing on samples from 2 NABL accredited lab (1 Govt Lab and 1 Pvt. Lab) for parameters which include but not restricted to the following:

   i) Strength
   ii) Defects
   iii) Maximum root content
   iv) Color
   v) Fineness
   vi) Heaviness/lightness
   vii) Any other important requirements

Note: Any other user declared parameter(s) may be identified and tested.

g) Undertake 2 visits to NABL accredited testing labs (one Govt and one private) having necessary test facility and to collect information including but not restricted to the following: -

i) Witness the testing and understand the testing procedure
ii) Testing methods and regulation being followed
iii) Testing infrastructure
iv) Technical data and information on scope, term and definitions, grading (hand and eye method), grading (instrument method), packing or any other relevant information
v) Focused group discussion on testing related issues, challenges being faced and suggestion
vi) Any other relevant information

The feedback from other labs (Govt and private NABL accredited) where visit is not carried out shall be obtained through suitable questionnaire covering above information.

h) Undertake 2 visits to users (one Govt and one private) to collect information including but not restricted to the following: -

User

i) Standards and regulations being followed
ii) Parameters/requirement being tested for conformity of raw material
iii) Compliance mechanism being followed (test certificate from supplier, third party testing)
iv) Focused group discussion on quality issues, challenges being faced and suggestions if any.

The feedback from other users (Govt and private) where visit is not carried out shall be obtained through suitable questionnaire covering above information.

i) Provide technical data and information for grading of mesta and bimli fibre. The technical data shall include but not restricted to the following information: -

i) Scope
ii) Term and definitions
iii) Grading (hand and eye method)
iv) Grading (instrument method)
v) Packing
vi) Any other relevant information

Note - The technical/scientific data collected shall not violate copy right/patent right (if any) on the proposed subject.

j) Preparation of a comprehensive project report covering all the above information.

5) Research Methodology: -

a) Collect and analyse the data/information as specified in the scope [4 (a), (b) and (c)].
b) Collect/purchase, grade and test the samples as specified in the scope 4 [(d), (e), and (f)].
c) Visit users and labs; and collect data/information as specified in the scope [4 (g) and (h)].
d) Collect technical data and information as specified in the scope 4 [(i)].
e) Analysis the data/information and prepare a comprehensive project report.

6) Expected Deliverables: -

a) Comprehensive report of study in soft/hard form covering all the aspects detailed in the scope of the R & D project.
b) Questionnaire feedback, testing reports, focussed group discussion report, other relevant documents and information shall be appended to the project report.

7) Requirement for the CVs:-

Minimum graduate in textile technology or textile engineering or textiles chemistry or fibre science and technology or manmade fibre technology or jute technology or jute & fibre technology

8) Timeline and Method of Progress Review :-

The maximum duration of the project is **180 days** from the date of the award of the project. The stagewise indicative timelines are as follows: -

Indicative Time line	**Method of progress**
0 to 45 days	Literature review, desktop study, collection of data and information Note : - The plan for visit and collection/purchase of samples shall be discussed and finalized with nodal officer after literature survey and desktop research.
46 to 100 days	Midterm Review Visit to grower (if required), user, testing lab Collection of data and information

	and collection of samples
101 to 165 days	Testing of samples (except long duration test with testing time more than 30 days) preparation and submission of draft report to BIS
166 to 180 days	Submission of the final project report.

9) Support BIS will provide: -

a) All the relevant Indian Standards/ISO Standards or any other standards required during the project will be provided by BIS.
b) Facilitate/introduction of the project leader/organization to relevant Industry and industry association, testing lab, institute, acedamia, user, regulator/ministries.

10) Nodal Officer

In case of queries/clarification, Shri Dharmbeer, Scientist D and Member Secretary of TXD 03 may be contacted on txd@bis.gov.in, 011-23231282, 9910825544.