

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: To study the packaging practices of jute and jute products for internal and exports trades.

2. Background

2.1 Uniformity in the make-up of package and proper packaging with suitable packing material will ensure adequate protection to the contents of the bales against any possible damage due to handling during transit.

2.2 BIS published 'IS 2873:1991 Textiles – Packaging of jute products in bales – Specification' which prescribes the requirements of packaging of conventional types of jute fabrics and jute bags in the form of bales. As per the existing standard, steel strips (hoops) and pet straps are admissible material for baling. However, there is a requirement for a cost effective and sustainable alternative for baling; in the form of jute ropes and additional packing cloth, for which trial and testing with different specification of jute ropes and jute fabric/cloth are required.

The Indian standard mentioned above can be viewed at <https://standardsbis.bsbedge.com>

2.3 The proposed research and development will provide additional options as packing material, in terms of pack-sheet and binding material (steel tapes, PET straps or other options) along with their respective benefits and comparisons. The revision of IS 2873 will be beneficial for the jute industry where they will have more options to use other cloth for packing & alternate to baling hoops.

2.4 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 current packaging practices of jute and jute products for internal and export trades from primary and secondary sources.

4) Scope: -

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

- i) Indian Standard, International standard and regulation,
- ii) Journals and research papers,

- iii) Standard operating procedures (SOPs)/guidelines of Ministry/regulator/users,
 - iv) Studies/research conducted by any organization
 - v) Any other relevant published information.
- b) Collection of the database for manufacturers (small, medium and large-scale), testing infrastructure and users in the country.
- c) Collection of import and export data, type of standards and regulation being followed by domestic/foreign manufacturers, comparative analysis of these standards and regulation.
- d) Undertake 2 visits to each of small, medium and large-scale manufacturer and collect the information which include but not restricted to the following :-
- i) Types of raw material and varieties being used
 - ii) Manufacturing process
 - iii) In-process controls being exercised during manufacturing
 - iv) Newer/innovative materials used in packaging of jute and jute products
 - v) In house data for constructional, general and performance parameter for packing material such as bale covering, pack sheet, jute twine, bailing strips, fabrics/cloth used in packaging of jute and jute products
 - vi) Parameters/requirement being tested for conformity of packaging material.
 - vii) Requirements of package and make-up of package
 - viii) Standards and testing method being followed
 - ix) Testing infrastructure available
 - x) Sampling plan being followed, criteria of conformity
 - xi) Marking and labelling of the product
 - xii) Packaging and storage conditions
 - xiii) Sustainability practices [sustainable raw material, energy efficient processes and methodologies, renewable energy sources, 3Rs (Reduce, Reuse and Recycle), waste management and disposal mechanisms]
 - xiv) Focused group discussions with teams involved in production, testing, and R&D to address quality issues, discuss challenges faced, and gather suggestions for improvement

The feedback from other manufacturers (where visit is not carried out) shall be collected by circulating suitable questionnaire covering above information through email or any other digital means.

- e) Undertake 2 visits to users (one Govt and one private) and 2 visits to NABL accredited testing labs (one Govt/ and one private) to collect information including but not restricted to the following: -

User

- i) Standards and regulations being followed
- ii) Newer/innovative materials used in packaging of jute and jute products
- iii) Parameters/requirement being tested for conformity of packaging material (such as bale covering, pack sheet, jute twine, bailing strips, fabrics/cloth used in

- packaging of jute and jute products)
- iv) Requirements of package and make-up of package
- v) Compliance mechanism being followed (test certificate from supplier, third party testing)
- vi) Focused group discussion on quality issues, challenges being faced and suggestions if any.

Lab

- i) Standards and regulation being followed
- ii) Testing methods being followed
- iii) Testing infrastructure, testing charges, testing time
- iv) Focused group discussion on testing related issues, challenges being faced and suggestion

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

- f) Collection/purchase of 2 samples from each from large, medium and small-scale industries for each variety of packing material used for jute fabrics and jute bags and carry out testing from 2 NABL accredited lab (1 Govt Lab and 1 Pvt. Lab) for parameters which include but not restricted to the following:
 - i) GSM
 - ii) Ends/dm,
 - iii) Picks/dm, gsm,
 - iv) Dimension of jute bags,
 - v) Breaking strength and
 - vi) Any other important performance requirements

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

Note : -

- g) 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) Visit manufacturers, users and labs and collect data/information as specified in the scope [4 (d) and (e)].
- c) Collect/purchase and test the samples as specified in the scope 4 (f).
- d) 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 duration of the project is **150 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 90 days	Midterm Review Visit to manufacturer, user, testing lab Collection of data and information and collection of samples
91 to 135 days	Testing of samples (except long duration test with testing time more than 30 days) preparation and submission of draft report to BIS
136 to 150 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, academia, 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.