TERMS OF REFERENCE FOR THE R&D PROJECT

1. TITLE

Study of the technological advancements in the manufacture of, and market trends in the utilization of prestressed concrete poles for overhead power, traction and telecommunication lines.

2. BACKGROUND

The Indian Standard IS 1678 ‘Prestressed concrete poles for overhead power, traction and telecommunication lines — Specification (Second Revision)’ was last revised in 1998.

Advancing R&D in prestressed concrete poles for overhead power, traction, and telecommunication lines targets heightened load-bearing capacity, reduced material usage, and streamlined installation methods. Innovations center on composite materials, efficient design configurations, and eco-friendly manufacturing, aiming to create resilient, versatile, and sustainable infrastructure for evolving utility and communication networks.

3. OBJECTIVE

To study the latest advancement in the field of prestressed concrete poles for overhead power, traction and telecommunication lines, in view of the trade, technology and performance; for effecting changes in the standard as per the latest practices.

4. SCOPE

The Scope of this R&D is as follows:

a) Study and analyze the national/international literature through standards, research papers, and other peer-reviewed documents to identify the performance permeants, grades, and manufacturing practices for further study.
b) Collect and analyze the production and consumption data from manufacturers, construction companies, builders, and industry reports.
c) To study the Central/State government’s relevant rules associated with prestressed concrete poles for overhead power, traction and telecommunication lines, their raw materials, production process; and the characteristics of the product (prestressed concrete poles for overhead power, traction and telecommunication lines).
d) Carry out surveys and interviews with prestressed concrete poles for overhead power, traction and telecommunication lines manufacturers, including assessment of production

capacities, technological capabilities, and testing the performance of their respective product and also with user agencies like State Electricity Boards (SEBs), DISCOMs, Municipal Corporations, Town area committees, Gram Panchayats etc.

e) Generation of data after testing the product for performance parameters for different types of Prestressed concrete poles for overhead power, traction and telecommunication lines
f) Mapping and evaluation of laboratories engaged in research related to prestressed concrete poles for overhead power, traction and telecommunication lines, including their infrastructure, equipment, and areas of specialization.
g) Critical analysis of test results, obtained by the testing of collected sample as per finalized plan.
h) Preparation and submission of a comprehensive report covering the entire scope of the Project.

5. METHODOLOGY

In respect of the areas covered in the Scope, the following should be adhered to:

a) Literature survey and critical analysis covering the entire scope of the project.
b) Data collection through surveys, interviews, and data mining from authoritative sources; and from those listed in **4** above through structured questionnaires.
c) Visits to the manufacturing units to observe manufacturing processes including manufacturing machinery, interaction with manufacturing personnel and understand in-process controls.
d) Collection of samples – samples to be collected during the visits to industries as per finalized plan
e) Testing of samples – test the samples and submit the analyzed results (Samples shall be tested in BIS recognized laboratories/ laboratories of national repute).
f) Statistical analysis, data interpretation, and market trend.
g) Comparative analysis with global market data to identify competitive advantages and potential areas for growth.
h) Comprehensive Reporting on all aspects including inferences and conclusions

6. SAMPLING PLAN

a) Units of two manufacturers each from large and MSMEs (unless the manufacturing database indicates otherwise) shall be visited.
b) Two samples for each type shall be tested, preferably from different manufacturers/brands, for all the performance/properties.
c) At least two users of the product need to be visited for their feedback.
d) At least two laboratories must be visited, preferably one in the government sector and one in the private sector (Accredited as per IS/ISO/IEC 17025).

7. DELIVERABLES

The list of expected outputs or deliverables is as follows:

a) Comprehensive report presenting import/export analysis, manufacturing capacity assessment, laboratory availability, and production and consumption data analysis and also with special focus.
b) Summary of presentations highlighting key findings, market trends, and strategic recommendations for stakeholders.
c) Detailed database or repository of gathered information for future reference or expansion of research.

8. TIME FRAME

The duration of the project shall be **Six months**.

An initial report indicating the review of the literature, desktop research and sampling & visit plan shall be submitted **within One month** from date of award of the project.

The midterm progress report shall be submitted by the end of **Three months** from date of award of the project. This report may not wait for receipt of final test reports of samples.

Final Project Report (FPR) shall be submitted within **Six months**.

9. SUPPORT FROM BIS

BIS will provide access to the latest available editions of Indian standards and/ or international standards relevant to the project, based on request.

10. NODAL CONTACT POINT

Shri Nishikant Singh, Sc-'D', & Member Secretary, CED 53 may be contacted for more clarification on the R&D project (email- nishikant.singh@bis.gov.in).

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