

DEVELOPMENT OF MACHINERY

1980-81

The designs of the various drives for synchronizing the beat-up, let-off, take up and shedding of the improved coir handloom with coordinated loom motions for weaving coir matting was finalized

The settings on the spindle assembly of the treadle-spinning machine were revised with introduction of new type of mouth pieces and providing a feed tray of two sections to spin 5 kg Anjengo rope yarn having a runnage of 330 m/kg in 8 hrs by hand feeding of fibre by two persons.

Completed fabrication of loom components like heald frames, pulleys, spiked take up rollers, back rest, clutches, weavers pedal, brake system and sprocket drives for the improved coir handloom.

Assistance was extended to Hindustan coir in developing indigenous fabrication of spindle tubes for cops winding machine and developed warp lubricating system for 2 metre power loom using wax moulded in wooden plank floating on the warpsheet

1.Improved weaving techniques for creel mats.

2. Fabrication of a few components of improved coir handloom were completed.

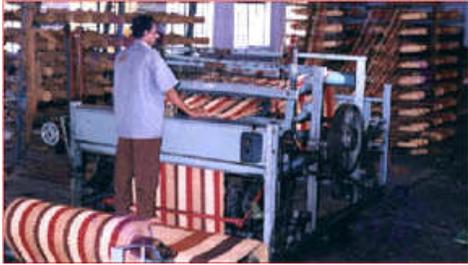
YEAR	ACTIVITIES	ACHIEVEMENTS
1981-82	<p>Designed a change gear combination of 21 teeth to 31 teeth for spinning carnatic yarn and 24 teeth to 31 teeth for Quilandy type yarn on treadle-operated coir spinning machine.</p> <p>Assembled the semi-automatic loom and weaving trials taken. The mechanism controlling the clutch for instantaneous stopping of the loom was redesigned and fabricated to avoid wear.</p> <p>Rectification effected to eliminate the jamming of flywheel driving the crankshaft. New tappets and heald brackets for efficient shedding motion of the loom were designed and fabricated.</p> <p>Studies on spinning coir yarn of different grades from brown coir fibre on the treadle ratts yielded an output of 1 to 1.3 kg.per hour.</p>	<p>1.Assembled semi automatic loom.</p>
1982-83	<p>The combination of gears necessary to produce coir yarns of different types such as Anjengo, Mangadan, Vycome , Quilandy and Beypore were evolved and field studies were carried out with selected co-operative societies in regions producing Anjengo,Vycome, Beach and Quilandy yarn for examining the performance of the treadle ratt.</p> <p>Power loom with jacquard attachment was commissioned.</p> <p>Attempts were made to spin coir yarn out of decorticated fibre on the treadle ratt yielded an output of 8 kg. with a runnage of 90 to 100 m/kg and 8/10 score</p> <p>Designed a modified version of the rubberised coir testing equipments and prototype was fabricated which was put to use.</p>	<p>1.Power loom with Jacquard attachment was commissioned.</p> <p>2. Designed and fabricated a modified version of rubberised coir testing instruments</p>



Jacquard loom

YEAR	ACTIVITIES	ACHIEVEMENTS
<p>1983-84</p>	<p>The change in alignment of the shaft holding the spur gears of 26 and 30 teeth, Quiladndy/Beyepore type of yarn having a runnage of 130 m/kg was spun on the treadle ratt.</p> <p>Possibilities of effecting improvements to the treadle ratt for enhancing the output and reducing the operational strain was commenced in collaboration with the Mechanical Engineering Research and Development Organisation, Cochin.</p> <p>Designed and fabricated prototype of two spindle and four spindle ratts for demonstration at the field level.</p> <p>Tuned two metre matting loom with improved lever system for treadling and improved lifting system of treadle frames for field trials.</p> <p>Designed for fabrication of a central bracket to avoid buckling of the main bracket of the levers while treadling.</p> <p>A method for evaluation of flammability characteristics of rubberised coir was designed and a prototype test chamber fabricated.</p> <div> </div> <p style="text-align: center;">2 Spindle Ratt</p> <div> </div>	<p>1. Designed and fabricated standardised two and four spindle ratts.</p>
<p>1984-85</p>	<p>Two spindle and four spindle ratts totalling to 55 sets were tuned and model ratts released to coir co-operative societies engaged in the production of Vycome, Aratory and Anjengo yarn for examining the field performance. Vycome and Anjengo type showed satisfactory performance with ease of operation and better output at the field level. The Aratory type ratt was modified for defects to attain better performance</p>	<p>1. Modified Aratory type ratt for better performance.</p>

YEAR	ACTIVITIES	ACHIEVEMENTS
	<p>Modifications were effected in the driving mechanism through sprocket and chains fly wheel etc. of the treadle ratt thereby increased the output to 1800 m/8 hours from 1600 m/8 hours for hard twisted yarn.</p> <p>Suitable modifications were effected for the treadle ratt for its operation by electric power.</p> <p>The improved handloom for weaving mattings and the standard handloom for mats were put to test at the field level. The improved handloom for weaving mattings yielded an increase in productivity to the extent of 15 to 30% with reduced physical effort on the part of the workers.</p>	<p>2. Designed and standardised coir handloom</p>
1985-86	<p>The deficiencies of the standard ratt for the Aratory/Parur yarn producing centres were rectified as reported by the spinners and were ready for test at the field level.</p> <p>Use of revised set of combination gears on the treadle ratt yielded 1100 meter of Quilandy/Beypore type coir yarn with a runnage of 110 m/kg in 8-hour work by a hand spinner.</p> <p>Use of bins with control mechanism to hold rolls of willowed coir fibre for feeding the treadle ratt improved the output of Anjengo type yarn to 5 kg with a runnage of 240 m/kg by a spinner for 8 hours work.</p> <p>Fabrication of a model treadle ratt incorporating new design concepts to attain higher productivity was in progress in collaboration with MERADO.</p> <p>A model loom with coordinated loom motions and hand picking arrangement was fabricated and tested for performance and realised an output of 4.8 m² of matting of 1 metre width per hour.</p>	<p>1. Treadle ratt was further improved to increase the output.</p>
1986-87	<p>A modified treadle ratt yielded an output of 1200 m of Quilandy type yarn in 8 hours.</p> <p>The effort to spin beach type yarn on treadle ratt yielded an output of only 600 m / 8 hour work.</p> <p>Refined cam with 100 mm lift, lever and ratchet wheel mechanism and a new reduction gear system were designed, fabricated and fitted on the coir handloom.</p> <p>Development of a model machine for tufting of coir in PVC base was undertaken in collaboration with MERADO and components such as creel stand, yarn feeding unit, coir cutting mechanism, drier and carpet rolling unit were fabricated.</p>	<p>1. Fabricated a modified treadle ratt for producing 1200 mtr per 8 hrs of Quilandy yarn.</p>

YEAR	ACTIVITIES	ACHIEVEMENTS
1987-88	<p>Reconditioned and commissioned the automatic coir spinning machine.</p> <p>The semi-automatic loom was fortified with crosslinks with base channels to reduce the vibration while weaving. 'V' pulley was fitted for the main drive in place of flat pulley for maximised power transmission and an output of 5 mtr. matting per hour was attained with these refinements on the semi-automatic loom during the test run.</p> <p>A modified arrangement for beaming using 5 HP motor was evolved for field use.</p>  <p style="text-align: center;">Semi Automatic Loom</p>	<ol style="list-style-type: none"> 1. Introduced motorised beaming system. 2. Modifications increased the output of semi automatic loom.
1988-89	<p>Attained an output of 1500 mtr. of Quilandy type yarn with a runnage of 110 m/kg and 1400 mtr. of Beach type yarn with a runnage of 220/kg on the treadle ratt.</p> <p>The reconditioned motorised coir spinning machine produced an output of 3000mtr. of Anjengo type yarn with a runnage of 240-280 m/kg and 4000 mtr. of Quilandy type yarn with a runnage of 119 kg.per spinning head for 8 hour work.</p> <p>Designed a semi automatic loom for weaving coir mattings in 4-shaft weave.</p> <p>Drawings of the standardisation of the semi-automatic loom for fabrication of a model loom for weaving matting was completed in collaboration with Mechanical Engineering Research and Development Organisation(MERADO), CSIR, Madras.</p>  <p style="text-align: center;">4 Shaft semi automatic loom</p>	<ol style="list-style-type: none"> 1. Designed a 4 shaft semi automatic loom. 2. Designed and fabricated prototypes of automatic beaming device for preparation of chain beam for 1 mtr. and 2 mtr. wide matts / mattings

YEAR	ACTIVITIES	ACHIEVEMENTS
	 <p style="text-align: center;">Beaming Device</p> <p>In the Phase I of the project on development of equipment for tufting coir in PVC base in collaboration with MERADO, CSIR – Madras completed the design for a model plant.</p> <p>In phase II, fabrication of model unit as designed consisting of the sub assemblies such as creel stand, feeding unit, cutting mechanism, conveyer system and resin hopper, drier / curing chamber and carpet winding of the tufting plant was completed in collaboration with the MERADO, CSIR – Madras and fabricated individual sub-assemblies were tested for their performance. Initially cut bits of coir yarn were hand tufted in PVC base in a tray complication and difficulties faced for feeding unit, cutter assembly and drier units required refinements and perfection.</p> <p>With the revised settings of the plant, coir needled felt of 1300 g/m² and 1400 g/m² with thickness of 18 mm and 20 mm were made.</p> <p>220 kg of slivers with linear density of 51 g/m per 8 hour work was produced.</p> <p>30 kg of coir yarn with a runnage of 140 m/kg with a score of 9 and 17 turns per foot per 8 hour work.</p>	

YEAR	ACTIVITIES	ACHIEVEMENTS
1989-90	<p>The model treadle ratts were put to intensive trials and the output attained on the ratt was 1600m of Quilandy and Vycome type yarn in 8 hours spinning.</p> <p>The output on the slivering machine averaged to 12 meters per minute of slivers of density 40g to 50g/m. The maximum output of slivers attained in the machine for 8 hour work was 225 kg. The output for coir yarn was 26 kg with a score of 9/10 and runnage 131 to 143 m/kg 8 hours work.</p> <p>An output of 13.50kg Anjengo type yarn with a runnage of 256m/kg was attained for 8 hours work.</p> <p>The drawing and specifications for fabrication of indigenous coir spinning machine were drawn up.</p> <p>Components like mainframe, C.I bearing block for let off and take up rollers, let-off rollers and guide rollers, sley frame assembly, reed and warp beam, treadle lever assembly take up roller shaft were completed.</p> <p>Entrepreneurs of brown coir sector were provided with the technical details for fabrication of indigenous version of an automatic coir spinning unit consisting of a coir fibre cleaning (Willowing) machine, slivering machine and spinning heads, as part of an effort for modernisation of the coir industry.</p>	<p>1.Designed an indigenous coir spinning machine.</p>